

PROVIDING FOR THE COMMON DEFENSE

The Assessment and Recommendations of
the National Defense Strategy Commission



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Letter from the Co-Chairs

As co-chairs of the Commission on the National Defense Strategy for the United States, we are pleased to submit our Commission's work and publish our report. In the National Defense Authorization Act of 2017, Congress charged this Commission with providing an independent, non-partisan review of the 2018 National Defense Strategy and issues of U.S. defense strategy and policy more broadly. We consulted widely and reviewed numerous classified and unclassified sources in developing our conclusions and recommendations. Although not every member of this Commission agrees with every word, the unclassified analysis, findings, and recommendations expressed herein capture the broad consensus of this diverse group of Republicans, Democrats, and independents.

We thank all whose cooperation made our work possible: Chairmen John McCain and "Mac" Thornberry and ranking members Jack Reed and Adam Smith of the Senate and House Armed Services Committees, Secretary of Defense James Mattis and Deputy Secretary Patrick Shanahan, Department of Defense officials who provided briefings and information, representatives of other U.S. government departments and agencies, and allied officials and independent experts with whom we consulted. We especially note the contributions of Senator McCain, who passed away shortly before this report was completed. Chairman McCain, along with Chairman Thornberry, played a crucial role in establishing this Commission. We consider it appropriate and fitting that Jon Kyl, a member of the Commission who participated fully in its deliberations, is now in Senator McCain's former seat in the Senate. Finally, we are deeply grateful to our fellow commissioners and support staff for their time, energy, and insight. All who contributed to this report embody extraordinary non-partisan cooperation in the service of a strong, secure, and prosperous America.

We urge Congress and the Administration to consider fully our observations and recommendations and implement them expeditiously. We affirm strongly the view that the global role the United States has played for many generations has benefitted our nation enormously, and that this role rests upon a foundation of unmatched military power. Today, however, our margin of superiority is profoundly diminished in key areas. There are urgent challenges that must be addressed if the United States is to avoid lasting damage to its national security. Some observers have

noted—and we agree—that the United States will soon face a national security emergency. This report offers our recommendations for ensuring the United States maintains the strong defense the American people deserve and expect and that current and prospective circumstances require.

A handwritten signature in blue ink, appearing to read "Eric Edelman".

Eric Edelman
Co-Chair

A handwritten signature in blue ink, appearing to read "Gary Roughead".

Gary Roughead
Co-Chair

Executive Summary

The security and wellbeing of the United States are at greater risk than at any time in decades. America's military superiority—the hard-power backbone of its global influence and national security—has eroded to a dangerous degree. Rivals and adversaries are challenging the United States on many fronts and in many domains. America's ability to defend its allies, its partners, and its own vital interests is increasingly in doubt. If the nation does not act promptly to remedy these circumstances, the consequences will be grave and lasting.

Since World War II, the United States has led in building a world of unusual prosperity, freedom, and security—an achievement that has benefitted America enormously. That achievement has been enabled by unmatched U.S. military power. Investments made in our military and the competence and sacrifice of those who serve have provided for the defense and security of America, its citizens overseas, and its allies and partners. America has deterred or defeated aggression and preserved stability in key regions around the globe. It has ensured the freedom of the global commons on which American and international prosperity depends, and given America unrivaled access and influence. Not least, America's military strengths have prevented America from being coerced or intimidated, and helped avert a recurrence of the devastating global wars of the early 20th century, which required repeated interventions at a cost of hundreds of thousands of U.S. lives. Put simply, U.S. military power has been indispensable to global peace and stability—and to America's own security, prosperity, and global leadership.

Today, changes at home and abroad are diminishing U.S. military advantages and threatening vital U.S. interests. Authoritarian competitors—especially China and Russia—are seeking regional hegemony and the means to project power globally. They are pursuing determined military buildups aimed at neutralizing U.S. strengths. Threats posed by Iran and North Korea have worsened as those countries have developed more advanced weapons and creatively employed asymmetric tactics. In multiple regions, gray-zone aggression—intimidation and coercion in the space between war and peace—has become the tool of choice for many. The dangers posed by transnational threat organizations, particularly radical jihadist groups, have also evolved and intensified. Around the world, the proliferation of advanced technology is allowing more actors to contest U.S. military power in more threatening ways. The United States thus is in *competition and conflict* with an array of challengers and

adversaries. Finally, due to political dysfunction and decisions made by both major political parties—and particularly due to the effects of the Budget Control Act (BCA) of 2011 and years of failing to enact timely appropriations—America has significantly weakened its own defense. Defense spending was cut substantially under the BCA, with pronounced detrimental effects on the size, modernization, and readiness of the military.

The convergence of these trends has created a crisis of national security for the United States—what some leading voices in the U.S. national security community have termed an emergency. Across Eurasia, gray-zone aggression is steadily undermining the security of U.S. allies and partners and eroding American influence. Regional military balances in Eastern Europe, the Middle East, and the Western Pacific have shifted in decidedly adverse ways. These trends are undermining deterrence of U.S. adversaries and the confidence of American allies, thus increasing the likelihood of military conflict. The U.S. military could suffer unacceptably high casualties and loss of major capital assets in its next conflict. It might struggle to win, or perhaps lose, a war against China or Russia. The United States is particularly at risk of being overwhelmed should its military be forced to fight on two or more fronts simultaneously. Additionally, it would be unwise and irresponsible not to expect adversaries to attempt debilitating kinetic, cyber, or other types of attacks against Americans at home while they seek to defeat our military abroad. U.S. military superiority is no longer assured and the implications for American interests and American security are severe.

Evaluating the National Defense Strategy

The 2018 National Defense Strategy (NDS), the document this Commission was created to evaluate, represents a constructive first step in responding to this crisis. We support its candid assessment of the strategic environment, the priority it places on preparing for major-power competition and conflict, its emphasis on the enduring value of U.S. alliances and partnerships, and its attention to issues of readiness and lethality. That said, we are concerned that the NDS too often rests on questionable assumptions and weak analysis, and it leaves unanswered critical questions regarding *how* the United States will meet the challenges of a more dangerous world. We believe that the NDS points the Department of Defense (DOD) and the country in the right direction, but it does not adequately explain how we should get there.

The NDS rightly stresses competition with China and Russia as the central dynamic in sizing, shaping, and employing U.S. forces, but it does

not articulate clear approaches to succeeding in peacetime competition or wartime conflict against those rivals. Resource shortfalls, unanticipated force demands, unfilled capability gaps, and other risk factors threaten DOD's ability to fulfill the central goals of the NDS, such as defeating one major-power rival while maintaining deterrence in other regions. As America confronts five major security challengers across at least three important geographic regions, and as unforeseen challenges are also likely to arise, this is a serious weakness. To meet those intensifying military challenges, DOD will require rapid, substantial improvements to its capabilities built on a foundation of compelling, relevant operational concepts.

Proposed fixes to existing vulnerabilities—concepts such as “expanding the competitive space,” “accepting risk” in lower-priority theaters, increasing the salience of nuclear weapons, or relying on “Dynamic Force Employment”—are imprecise and unpersuasive. Furthermore, America's rivals are mounting comprehensive challenges using military means and consequential economic, diplomatic, political, and informational tools. Absent a more integrated, whole-of-government strategy than has been evident to date, the United States is unlikely to reverse its rivals' momentum across an evolving, complex spectrum of competition.

Operational Challenges and Concepts

As regional military balances have deteriorated, America's advantage across a range of operational challenges has diminished. Because of our recent focus on counter-terrorism and counterinsurgency, and because our enemies have developed new ways of defeating U.S. forces, America is losing its advantage in key warfighting areas such as power projection, air and missile defense, cyber and space operations, anti-surface and anti-submarine warfare, long-range ground-based fires, and electronic warfare. Many of the skills necessary to plan for and conduct military operations against capable adversaries—especially China and Russia—have atrophied.

DOD and the Congressional committees that oversee national security must focus current and future investments on operational challenges such as protecting critical bases of operations; rapidly reinforcing and sustaining forces engaged forward; assuring information systems and conducting effective information operations; defeating anti-access/area-denial threats; deterring, and if necessary defeating, the use of nuclear or other strategic weapons in ways that fall short of justifying a large-scale nuclear response; enhancing the capability and survivability of space systems and supporting infrastructure; and developing an interoperable joint

command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture that supports the warfare of the future.

The United States needs more than just new capabilities; it urgently requires new operational concepts that expand U.S. options and constrain those of China, Russia, and other actors. Operational concepts constitute an essential link between strategic objectives and the capability and budgetary priorities needed to advance them. During the Cold War, the United States developed detailed operational concepts to overcome daunting challenges in Europe and elsewhere. Innovative concepts are once again needed because Russia and China are challenging the United States, its allies, and its partners on a far greater scale than has any adversary since the Cold War's end. The unconventional approaches on which others rely, such as hybrid warfare (warfare combining conventional and unconventional elements), gray-zone aggression (coercion in the space between peace and war), and rapid nuclear escalation demand equally creative responses. In other words, maintaining or reestablishing America's competitive edge is not simply a matter of generating more resources and capabilities; it is a matter of using those resources and capabilities creatively and focusing them on the right things. Unfortunately, the innovative operational concepts we need do not currently appear to exist. The United States must begin responding more effectively to the operational challenges posed by our competitors and force those competitors to respond to challenges of *our* making.

National Security Innovation Base

Aggressively pursuing technological innovation and introducing those advances into the force promptly will be critical to overcoming operational challenges and positioning the U.S. military for success. We applaud the NDS for emphasizing this issue. We remain concerned, however, that America's edge is diminishing or has disappeared in many key technologies that underpin U.S. military superiority, and that current efforts to offset that decline are insufficient. For example, as part of a whole-of-society approach to innovation, China is currently making great strides in the race to dominate in key areas such as Fifth-Generation Long-Term Evolution (5G LTE) broadband wireless networks. That effort may yield great economic, geopolitical, and military benefits for Beijing—and equally great dangers for the United States.

DOD and the U.S. government more broadly must take additional steps to protect and strengthen the U.S. National Security Innovation Base,

perhaps by increasing investment in key industries and pursuing selective economic disintegration with rivals to avoid dangerous dependencies. The Department must also continue broadening its efforts to find and incorporate new capabilities commercially developed by the private sector. Not least, Congress and DOD must find new ways of enabling more rapid maturation, acquisition, and fielding of leap-ahead technologies. For two decades, the emphasis for defense programs has been on process and efficiency—navigating smoothly through the acquisition system—rather than on optimizing them for innovation and warfighting effectiveness. This has led to a situation in which innovation occurs outside of government, and those innovations are increasingly difficult for our defense processes to access quickly, if at all. One way of addressing this problem would be to explore a new, narrowly tailored category of acquisition pilot programs that would accept greater cost and risk in pursuit of speed and the game-changing technological breakthroughs necessary to sustain U.S. military advantages.

Near- and Mid-Term Force Priorities

Innovations in operational concepts and leap-ahead technologies are vital to sustaining U.S. military advantages, particularly over the long term. In the near- to mid-term, the Commission identified a variety of critical improvements to U.S. military posture and capabilities that are imperative for prevailing against our most pressing security challenges.

In the Western Pacific, deterring Chinese aggression requires a forward-deployed, defense-in-depth posture, buttressed by investments in capabilities ranging from undersea warfare to strategic airlift. In Europe, dealing with a revanchist Russia will entail rebuilding conventional NATO force capacity and capability on the alliance's eastern flank and the Baltics, while also preparing to deter and if necessary defeat the use of non-strategic nuclear weapons. Meanwhile, U.S. security commitments and operations in the Middle East cannot be wished away. As long as terrorism is exportable, as long as the Middle East remains a major producer of oil, and as long as the United States has key U.S. allies and partners in the region, U.S. interests in the Middle East will be profound. Accordingly, U.S. military posture there should not shrink dramatically, even as the precise mix of capabilities is re-examined.

Across all theaters—especially Europe and the Indo-Pacific—our forward posture will be essential to deterring competitors and adversaries and thereby reducing the chances of conflict. In addition, the Army, Navy, and Air Force will all require selective warfighting capacity enhancements, and America will need to improve its capabilities in key

cross-cutting areas such as munitions, missile defense, electronic warfare, space, cyber, and air and sealift. In particular, it is painfully clear that America is not competing or deterring its adversaries as effectively as it should in cyberspace. We must operate more nimbly, aggressively, and effectively in this crucial domain. Space is also an increasingly important and contested domain and the United States must place special emphasis on ensuring dominance there by devising a coherent space strategy that emphasizes technology, policy, organization, broader awareness through effective communication, and cooperation.

Another critical imperative is modernizing our nuclear deterrent. The NDS rightly identifies the “re-emergence of long-term, strategic competition between nations” as a primary factor driving U.S. nuclear force posture and planning. Given the need for a robust deterrent, the aggressive nuclear modernization programs some rivals have been carrying out, and the increasing reliance of those rivals—particularly Russia—on escalatory doctrines that feature limited use of nuclear weapons, DOD must remain committed to the bipartisan nuclear modernization program outlined in the 2018 Nuclear Posture Review. This pertains especially to modernizing the triad of bombers, intercontinental ballistic missiles, and ballistic missile submarines. In addition, it is urgently necessary to modernize the supporting infrastructure, including the national laboratories and the nuclear command, control, and communications (NC3) network. At its peak, planned spending on nuclear modernization, operations, and sustainment should consume just 6.4 percent of the defense budget, although the impact on procurement will be greater and will require careful prioritization and sequencing by DOD, with Congressional support. Given that investments made today will pay strategic dividends well into the 2070s and 2080s, America can surely afford to pay this price to preserve such a critical element of its national defense.

Making informed decisions about strategic, operational, and force development issues requires a foundation of state-of-the-art analytical capabilities. In the course of our work, we found that DOD struggled to link objectives to operational concepts to capabilities to programs and resources. This deficit in analytical capability, expertise, and processes is intolerable in an organization responsible for such complex, expensive, and important tasks, and it must be remedied. Specifically, DOD needs a rigorous force development plan that connects its investment strategy with its key priorities of winning in conflict and competing effectively with China and Russia. Repairing DOD’s analytical capability is essential to meeting the challenges the NDS identifies and giving Congress confidence that DOD’s budget requests reflect its stated priorities.

Readiness

The readiness of U.S. forces to conduct operations as effectively and safely as possible is another crucial component of America's national security. Yet the readiness of our forces has suffered in recent years, due to extended operations in the greater Middle East as well as severe budgetary uncertainty and austerity. The Commission therefore firmly supports DOD's efforts to improve readiness. We note, however, that U.S. forces will need additional resources to train to high levels of proficiency across a broader and more technologically challenging range of potential missions than in the recent past, particularly those missions focusing on advanced military threats from China and Russia. DOD must also develop and use analytic tools that can measure readiness across this broad range of missions, from low-intensity, gray-zone conflicts to protracted, high-intensity fights. Moreover, while resources alone can never cure a readiness shortcoming, timely and sufficient funding will be vital to overcoming readiness gaps created in part by a broken budgetary process.

The foremost resource required to produce a highly capable military is highly capable people—but the number of Americans with both the fitness and propensity to serve is in secular decline, putting the NDS at long-term risk. DOD and Congress must take creative steps to address the shortage of qualified and willing individuals, rather than relying solely on ever-higher compensation for a shrinking pool of qualified volunteers.

Civil-Military Relations

Constructive approaches to any of the foregoing issues must be rooted in healthy civil-military relations. Yet civilian voices have been relatively muted on issues at the center of U.S. defense and national security policy, undermining the concept of civilian control. The implementation of the NDS must feature empowered civilians fulfilling their statutory responsibilities, particularly regarding issues of force management. Put bluntly, allocating priority—and allocating forces—across theaters of warfare is not solely a military matter. It is an inherently political-military task, decision authority for which is the proper competency and responsibility of America's civilian leaders. Unless global force management is nested under higher-order guidance from civilians, an effort to centralize defense direction under the Chairman of the Joint Chiefs of Staff may succeed operationally but produce profound strategic problems. It is critical that DOD—and Congress—reverse the unhealthy trend in which decision-making is drifting away from civilian leaders on issues of national importance.

Resources

The question of resources cuts across many of the issues we examine in this report, and the Commission assesses unequivocally that the NDS is not adequately resourced. It is beyond the scope of our work to identify the exact dollar amount required to fully fund the military's needs. Yet available resources are clearly insufficient to fulfill the strategy's ambitious goals, including that of ensuring that DOD can defeat a major-power adversary while deterring other enemies simultaneously. The available resources are also insufficient to undertake essential nuclear and conventional modernization simultaneously and rectify accumulated readiness shortfalls. America is very near the point of strategic insolvency, where its "means" are badly out of alignment with its "ends."

Notably, this disparity is true despite the two-year funding increase provided by the Bipartisan Budget Act (BBA) of 2018. Although that increase provides a healthy initial investment in this strategy, the lack of planned real budgetary growth beyond this two-year period, the lingering damage caused by the BCA and the pattern of government shutdowns and continuing resolutions, and the threat of unpredictable and delayed funding in the future all place the strategy in jeopardy. DOD apparently plans to fill key resource gaps through savings yielded by organizational reform. We strongly agree that the Pentagon's culture and way of doing business must be brought into the 21st century, yet it is unrealistic to expect that such reforms will yield significant resources for growth, especially within a time frame appropriate to meet the challenges posed by China and Russia. Without additional resources, and without greater stability and predictability in how those resources are provided, the Department will be unable to fulfill the ambition of the NDS or create and preserve U.S. military advantages in the years to come. There must be greater urgency and seriousness in funding national defense.

In accordance with the testimony of Secretary Mattis and Chairman Dunford in 2017, this Commission recommends that Congress increase the base defense budget at an average rate of three to five percent above inflation through the Future Years Defense Program and perhaps beyond. Although this number is more illustrative than definitive, and although these estimates were provided prior to the conclusion of the process that produced the current defense strategy, it is nonetheless indicative of the level of investment needed to meet the ends the NDS establishes. Making this investment will require lifting the remaining BCA caps for Fiscal Years 2020 and 2021. Congress should also transfer overseas contingency operations funds back to the base budget, and permit more flexibility by giving DOD authority to spend Operations and Maintenance

funds for any fiscal year across that fiscal year and the next. More ambitiously, Congress should seek to produce multi-year budget agreements for defense. Above all, Congress must fix a broken funding process that wreaks havoc on readiness and the defense program, and avoid the temptation of viewing defense cuts as the solution to the nation's fiscal problems. Those problems must be addressed through a holistic approach that scrutinizes the entire federal budget—especially mandatory spending—as well as taxes to set the nation on a firmer financial footing. Although the resulting tradeoffs will certainly be difficult, anything short of these steps will represent an implicit decision *not* to provide America with the defense it deserves.

Congress, of course, has a critical role to play in all this. In one sense, it is the responsibility of Congress to appropriate the resources necessary for the nation's defense. More broadly, we urge the Congress to use its oversight tools to encourage the Department to take many of the steps we outline in this report. We also urge Congress and DOD to work as partners in addressing the many issues that can only be resolved through collaboration between the executive and legislative branches. The current crisis is bigger than any single branch of government, and the solutions must be, as well.

In conclusion, we wish to be crystal clear about one thing. The costs of failing to meet America's crisis of national defense and national security will not be measured in abstract concepts like "international stability" and "global order." They will be measured in American lives, American treasure, and American security and prosperity lost. It will be a tragedy—of unforeseeable but perhaps tremendous magnitude—if the United States allows its national interests and national security to be compromised through an unwillingness or inability to make hard choices and necessary investments. That tragedy will be all the more regrettable because it is within our power to avoid it.

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Introduction

The United States confronts a grave crisis of national security and national defense. No duty of the federal government is more essential than defending the American people, American territory, and American interests abroad. For generations, international peace and prosperity and the wellbeing and security of the United States have depended on America's unequalled military strengths.

Today, the strategic landscape is growing steadily more threatening. An array of adversaries and rivals—violent jihadist groups, aggressive regional challengers armed with advanced weapons, powerful authoritarian regimes possessing significant influence and even greater ambitions—are challenging U.S. interests and global security. Across these issues, the United States is not simply facing renewed geopolitical *competition*. States and non-state actors are waging *conflict* against America and the world it has done so much to build.

Meanwhile, because of foreign and domestic factors, America's longstanding military advantages have diminished. The country's strategic margin for error has become distressingly small. Doubts about America's ability to deter and, if necessary, defeat opponents and honor its global commitments have proliferated. Previous congressionally mandated reports, such as the 2010 Quadrennial Defense Review Independent Panel and the 2014 National Defense Panel, warned that this crisis was coming. The crisis has now arrived, with potentially dire effects not just for U.S. global influence, but also for the security and welfare of America itself.

This document, the consensus report of the Commission on the National Defense Strategy for the United States, expresses our view of the dangers the nation faces and the steps that should be taken to meet them. The Commission was created pursuant to the National Defense Authorization Act of 2017, to examine and make recommendations with respect to the national defense strategy of the United States. More specifically, the Commission was charged with formally reviewing the National Defense Strategy (NDS) released by the Department of Defense (DOD) in January 2018, as well as assessing and offering its views on the broad range of issues that informed that strategy. The Commission was tasked with reporting its findings to the President, Secretary of Defense, Committee on Armed Services of the House of Representatives, and Committee on Armed Services of the Senate.

In carrying out these responsibilities, we have deliberated regularly for the past year. We have reviewed relevant material, both classified and unclassified, and consulted widely with civilian and military leaders in the Department of Defense, representatives of other U.S. government departments and agencies, diplomats and military officials from some of America's closest allies, and independent experts. We have studied issues related not just to defense strategy itself, but also to the larger geopolitical environment in which that strategy must be devised and implemented, and in which it must succeed.

Our report proceeds as follows. In Chapter 1, we review the role U.S. military power has traditionally played in protecting U.S. national interests, and we describe how a combination of global challenges and America's disinvestment in defense has created the troubling situation the nation confronts today. In Chapter 2, we evaluate the NDS, focusing particularly on the question of whether the goals it sets can be accomplished with the resources available and using the approaches DOD has outlined. In Chapters 3 and 4, we offer our views on the force America needs, focusing specifically on operational challenges and concepts, the national security innovation base, near- and mid-term force priorities, readiness, and civil-military relations. In Chapter 5, we examine resourcing issues.

Our specific findings are outlined in the text. But at the outset, we wish to underscore the central theme of this report: There is a need for extraordinary urgency in addressing the crisis of national defense. We believe that the NDS is a broadly constructive document that identifies most of the right objectives and challenges. Yet we are deeply concerned that the Department of Defense and the nation as a whole have not yet addressed crucial issues such as force sizing, developing innovative operational concepts, readiness, and resources with the degree of urgency, persistence, and analytic depth that an increasingly dangerous world demands.

Put bluntly, the American people and their elected representatives must understand that U.S. military superiority is not guaranteed, that many global trends are adverse and threatening, and that the nation has reached a pivotal moment regarding its ability to defend its vital interests and preserve a world in which the United States and other like-minded nations can thrive. The choices we make today and in the immediate future will have profound and potentially lasting consequences for American

security and influence. If we do not square up to the challenge now, we will surely regret it.¹

¹ Although this Commission reviewed some classified material during the course of its deliberations, our major strategic assessments and our key recommended capacity and capability enhancements have been previously discussed in unclassified settings and reports. Space limitations preclude a full listing of unclassified sources consulted in the preparation of this report. But see, as representative examples, David Shlapak and Michael Johnson, *Reinforcing Deterrence of NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica: RAND Corporation, 2016); David Ochmanek et al., *U.S. Military Capabilities for a Dangerous World: Rethinking the U.S. Approach to Force Planning* (Santa Monica: RAND Corporation, 2017); Eric Heginbotham et al., *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017* (Santa Monica: RAND Corporation, 2015); Michael Mazarr et al., *The Korean Peninsula: Three Dangerous Scenarios* (Santa Monica: RAND Corporation, 2018); Scott Boston et al., *Assessing the Conventional Force Imbalance in Europe: Implications for Countering Russian Local Superiority* (Santa Monica: RAND Corporation, 2018); Testimony by William Shelton before the House Armed Services Subcommittee on Strategic Forces and House Homeland Security Subcommittee on Emergency Preparedness, Response and Communications, "Threats to Space Assets and Implications for Homeland Security," March 29, 2017, <https://docs.house.gov/meetings/AS/AS29/20170329/105785/HHRG-115-AS29-Wstate-SheltonW-20170329.pdf>; Robert Ackerman, "Intelligence Confronts Space Vulnerabilities," *Signal*, September 1, 2018; Sydney Freedberg, "\$86,000 + 5,600 MPH = Hyper Velocity Missile Defense," *Breaking Defense*, January 26, 2018; Jen Judson, "Space-Based Laser Weapons Could Ultimately Take Out Missile Threats in Boost Phase," *Defense News*, August 14, 2018; Department of Defense, *2018 Nuclear Posture Review*, <https://DOD.defense.gov/News/SpecialReports/2018NuclearPostureReview.aspx>; as well as the consultations with numerous non-governmental experts listed in the appendix.

Chapter 1

The Purpose of American Military Power and the Crisis of National Defense

Any defense strategy must protect the fundamental interests of the United States. Since the inception of the Republic, America's most vital interests have remained constant. They include the physical security of the United States and its citizens; the promotion of a strong, innovative, and growing U.S. economy; and the protection of the nation's democratic freedoms and domestic institutions. These interests were enshrined in the Declaration of Independence as "life, liberty, and the pursuit of happiness," and collectively, they represent the pole star toward which any American strategy must be oriented.

Since the mid-20th century, there has been a bipartisan consensus that America should take an international leadership role to secure these interests. The events of the 1930s and 1940s showed that the United States could not remain prosperous in a world ravaged by global depression, nor could it remain safe in a world convulsed by instability and war. Moreover, these events illustrated to Americans the danger that their own free institutions might not survive in a world ruled by hostile autocracies. As a result, Americans and their elected leaders concluded that the United States must use its unmatched power to foster a larger global environment in which America could thrive. This endeavor has often been referred to as building the "liberal international order," but it simply reflects the common-sense idea that America will be most secure, prosperous, and free in a world that is itself secure, prosperous, and free.

This straightforward judgment has underpinned the sustained global leadership the United States has exercised since the 1940s. America has anchored an open global economy in which trade and investment flow freely and Americans can see their creative energies rewarded. It has built international institutions that facilitate problem-solving and cooperation on important global issues. It has defended democratic values and human rights abroad in order to enhance U.S. influence and safeguard democratic values and human rights at home. It has sought to uphold favorable balances of power in key regions and concluded military alliances and security partnerships with dozens of like-minded countries—not as a matter of charity, but as a way of deterring aggression and preventing conflicts that could pose a serious threat to U.S. national security and prosperity. These have not been Republican policies or Democratic

policies; they have been American policies, meant to create a world conducive to American interests and values.

The role of alliances and partnerships deserves special emphasis here. U.S. alliances and partnerships are sometimes mischaracterized as arrangements that squander American resources on behalf of free-riding foreign countries. In reality, U.S. alliances and partnerships have been deeply rooted in American self-interest. They have served as force-multipliers for U.S. influence, by promoting institutionalized cooperation between America and like-minded nations. They have allowed America to call on the aid of its friends in every major conflict it has waged since World War II. They have buttressed the concept of international order that the United States seeks to preserve, by enlisting other nations in the promotion of a world favorable to American interests. They have provided intelligence support, regional expertise, and other critical assistance. In short, alliances and partnerships rooted in shared interests and mutual respect have *reduced* the price America pays for global leadership and *enhanced* the advantages America enjoys over any geopolitical rival. And although these alliances and partnerships—like all of America’s postwar policies—have required the persistent use of diplomacy, economic power, and other tools of statecraft, they have ultimately rested on a foundation of military strength.

Since World War II, America has had a military second to none. After the Cold War, it possessed military power far greater than that of any rival or group of rivals. This position of unmatched strength has provided for the defense and security of the United States, American citizens overseas, and American allies and partners. It has been crucial to deterring and, if necessary, defeating aggression by hostile powers, whether the Soviet Union and its allies during the Cold War or al-Qaeda and Islamic State in Iraq and al-Sham (ISIS) more recently. It has preserved stability in key regions from Europe to East Asia and beyond, and ensured the freedom of the global commons on which U.S. and international prosperity depends. It has prevented America from being coerced or intimidated, or once again finding itself the situation of the early 1940s, when democracy itself was endangered because aggressive authoritarian powers were on the verge of dominating the globe. It has given the United States unrivaled influence on a wide range of global issues.

America’s leadership role has never been inexpensive or easy to play, and today many Americans are questioning whether it is worth the cost. But by any reasonable standard, U.S. global engagement has been a great investment. U.S. leadership has prevented a recurrence of the devastating

world wars that marked the first half of the 20th century and required repeated U.S. interventions at a cost of hundreds of thousands of American lives. That leadership has also fostered an unprecedented growth in human freedom, with the number of democracies rising from roughly a dozen during World War II to 120 in the early 21st century. And as democracies displaced dictatorships, America itself became more secure and influential.

The growth of prosperity has been even more astounding. According to World Bank data, inflation-adjusted U.S. gross domestic product has increased nearly six-fold since 1960. Both U.S. and global per capita income have also increased roughly three-fold (also in inflation-adjusted terms) over the same period. To be clear, the evolution of the economy in recent decades has left too many of our citizens behind, and it is essential that all benefit from our national prosperity. On the whole, however, both the United States and the world are far richer than they would have been absent the open international economy America has fostered. Here, too, American policy has been successful in what it has avoided as well as what it has achieved: the world has not suffered another global depression that would cause rampant poverty, political radicalism, and international aggression, and that would surely lead to catastrophic effects for the United States. Decades of experience have taught that American leadership is not a fool's errand or a matter of altruism, but a pragmatic approach to advancing American security and wellbeing.

There is little reason to think the situation has changed today. The fundamental lesson of the 1930s and 1940s—that no country is an island—remains as relevant as ever. If anything, as the world becomes increasingly interdependent, the security and prosperity of the United States are becoming ever more closely linked to the health of the larger international environment. And although the United States has many powerful allies, none of them can fill the singular role America has played in providing the international peace, stability, and prosperity in which the United States itself has flourished. U.S. leadership of a stable and open international environment remains as profoundly in the country's own national interests as it was more than seven decades ago. Unfortunately, in recent years changes at home and abroad have eroded American military advantages and threatening U.S. interests.

The Changing Strategic Environment

After the Cold War, the United States faced a relatively benign security environment. There remained dangerous challenges to U.S. interests and—as shown by the terrorist attacks of September 11, 2001—the

American homeland. Yet tensions between the world's major powers were historically low, and the actors that threatened the United States, from so-called rogue states to jihadist terror organizations, were comparatively weak. Today, however, the international landscape is more ominous. The United States confronts the most challenging security environment in decades. Six trends are particularly worthy of note.

First, and most important, is *the rise of major-power competition and conflict*. The world America shaped has brought great security and prosperity to many countries. Yet today, powerful authoritarian rivals—China and Russia—see U.S. leadership as a barrier to their ambitions. These countries seek to overturn existing regional balances of power and re-create spheres of influence in which they can dominate their neighbors' economic, diplomatic, and security choices. They are also seeking to project power and exert influence beyond their peripheries. They are pursuing their agendas, moreover, through the use of coercion, intimidation, and in some cases outright aggression, all backed by major military buildups that specifically target U.S. military advantages and alliance commitments and relationships.

The challenge China presents is particularly daunting. It is natural for China to exert greater influence as its power grows, and the rise of China would present challenges for America and the world even if Beijing pursued its interests through entirely legitimate means. Unfortunately, China is increasingly exerting influence in illegitimate and destabilizing ways. China is using military, paramilitary, and diplomatic measures to coerce U.S. allies and partners from Japan to India; contest international law and freedom of navigation in crucial waterways such as the South China Sea; undermine the U.S. position in East and Southeast Asia; and otherwise seek a position of geopolitical dominance. It is using predatory economic statecraft to weaken its rivals, including the United States, and give it decisive strategic leverage over its neighbors. Meanwhile, China is reaping the fruits of a multi-decade military buildup. Beijing has invested in systems designed to counter American power-projection and thereby prevent the United States from protecting its allies, partners, and economic interests. China is also modernizing its nuclear forces, developing sophisticated power-projection capabilities, and undertaking the most thoroughgoing military reforms since the founding of the People's Republic. China already presents a severe test of U.S. interests in the Indo-Pacific and beyond and is on a path to become, by mid-century, a military challenger the likes of which America has not encountered since the Cold War-era Soviet Union.

Russia, too, is pursuing regional hegemony and global influence in destabilizing ways. Moscow has invaded and dismembered neighboring states, used cyberwarfare and other tactics to attack democratic nations' political systems, and employed measures from military intimidation to information warfare to undermine and weaken NATO and the European Union. Russia has intervened militarily in Syria to bolster Bashar al-Assad's brutal regime and restore lost influence in the Middle East, while supporting many other authoritarian governments. Across these initiatives, the Putin regime has demonstrated a propensity for risk-taking backed up by enhanced military power. Moscow has developed advanced conventional capabilities meant to prevent America from projecting power and aiding its allies along Russia's periphery and to project its own power farther afield. Russia is also conducting a comprehensive nuclear modernization, including sustainment and modernization of a large number of non-strategic nuclear weapons and the development of a ground-launched cruise missile that violates the Intermediate-Range Nuclear Forces Treaty. These developments are accompanied by Russian doctrinal writings that emphasize the prospect of using limited nuclear escalation to control the trajectory of a potential conflict against the United States and NATO. Russia is seeking to create situations of military strength vis-à-vis America and its allies, and despite its limited resource base, it is having considerable success.

Second, *aggressive regional challengers—notably North Korea and Iran—are expanding their military capabilities consistent with their geopolitical ambitions.* The United States and its allies have faced threats from a brutal, erratic, and aggressive North Korea for decades, but never before has Pyongyang possessed such destructive power. North Korea may already have the capability to detonate a nuclear weapon over a major American city; the regime also continues to develop biological, chemical, and conventional capabilities as a way of guaranteeing its survival and coercing adversaries. Today, Kim Jong Un's military can threaten America more directly than his father or grandfather. He can also exert great pressure on U.S. alliances with South Korea and Japan, sowing doubt about whether America would defend those allies in a crisis. This Commission hopes that ongoing negotiations will lead to the complete, verifiable, and irreversible denuclearization of North Korea, but the history of U.S.-North Korean negotiations give little cause for optimism. Even successful negotiations would leave America facing significant security challenges on the Korean Peninsula and in East Asia, most significantly the robust ballistic missile threat posed to our allies, Japan and the Republic of Korea.

The threat from Iran, another longtime U.S. adversary and the world's foremost state sponsor of terrorism, has also worsened. Iran has skillfully utilized asymmetric tactics including terrorism, the weaponization of sectarianism, support for insurgent groups, and a reliance on proxy and special operations forces to weaken U.S. influence and pursue hegemony in the Middle East. Iranian military capabilities are growing in areas such as unmanned aerial vehicles and explosive boats, advanced naval mines and submarines, more sophisticated cyber forces, and anti-ship and land-attack cruise missiles. Iran is also expanding what is already the largest ballistic missile force in the region. In a conflict with the United States, Iran could use these capabilities to obstruct freedom of navigation in regional waterways, target U.S. military facilities and critical infrastructure in the Persian Gulf, and otherwise inflict substantial costs on America and its partners.

The challenges of major power conflict and aggressive regional challengers are linked by a third, which is the *growing prevalence of aggression and conflict in the gray zone*—the space between war and peace. The means of gray-zone conflict include everything from strong-arm diplomacy and economic coercion, to media manipulation and cyber-attacks, to use of paramilitaries and proxy forces. Singly or in combination, such tactics confound or gradually weaken an adversary's positions or resolve without provoking a military response. Gray-zone conflict is often shrouded in deception or misinformation, making attribution difficult and discouraging a strong response.

Although coercive challenges of this sort are not new, they have become the tool of choice for those who do not wish to confront U.S. military power directly. China's island-building and maritime coercion in the South China Sea, Iran's sponsorship of Hezbollah and other militias as tools of influence and subversion in the Middle East, Russia's use of unacknowledged military and proxy forces in Ukraine, and Moscow's information warfare campaigns meant to inflame social tensions and influence political processes in the United States and Europe all represent examples of gray-zone aggression today. Because gray-zone challenges combine military and paramilitary measures with economic statecraft, political warfare, information operations, and other tools, they often occur in the "seams" between DOD and other U.S. departments and agencies, making them all the more difficult to address.

Fourth, *the threat from radical jihadist groups has evolved and intensified*. Groups such as ISIS, al-Qaeda, and their affiliates pose ongoing threats to the United States and its allies and partners, from Western

Africa to the Philippines. That threat is not new, but it is expanding. There are more jihadists in more countries today than at any time since the birth of the modern jihadist movement in 1979, and there are more groups capable of mounting major attacks. The most sophisticated groups have developed state-like military capabilities, conquered (however briefly) large swaths of territory, shown continued interest in acquiring weapons of mass destruction, and commanded or inspired deadly attacks around the globe. Assisted by poor governance, sectarian conflict, and regional instability, these groups—or their successors—will threaten U.S. and international security for generations to come.

Fifth, and compounding these challenges, *the proliferation of advanced technology* is eroding U.S. advantages and creating new vulnerabilities. The spread of weapons of mass destruction, ballistic and cruise missiles, precision-strike assets, advanced air defenses, antisatellite and cyberwarfare capabilities, and unmanned systems has given weaker actors the ability to threaten America and its allies in more dangerous ways. In some cases, we are behind, or falling behind, in critical technologies. U.S. competitors are making enormous investments in hypersonic delivery vehicles, artificial intelligence (AI), and other advanced technologies. With respect to hypersonics in particular, the United States finds itself trailing China and perhaps Russia as well. All this raises the possibility that America may find itself at a technological disadvantage in future conflicts. Because the American way of war has long relied on technological supremacy, this could have profoundly negative implications for U.S. military effectiveness.

The United States thus confronts more numerous—and more severe—threats than at any time in decades. America must address the threats posed by major-power rivals, dangerous regional challengers, and terrorists simultaneously; it must deal with geopolitical conflict, gray-zone aggression, and instability from one end of Eurasia to the other. It must also prepare for the prospect that the U.S. military might be called into action in a country, region, or contingency that is not currently envisioned.

The dangers posed by these and other troubling trends have been compounded by a final problem, of America's own making: *budgetary instability and disinvestment in defense*. Because of decisions made by both major parties—especially the enactment of the Budget Control Act (BCA) of 2011—constant-dollar defense spending (in estimated 2018 dollars) fell from \$794 billion in Fiscal Year (FY) 2010 to \$586 billion in FY2015, according to U.S. government statistics. In percentage terms,

this constituted the fastest drawdown since the years following the Korean War. Excluding overseas contingency operations accounts—funding for wars in Iraq and Afghanistan—the inflation-adjusted decline was from \$612 billion to \$541 billion. This defense austerity was exacerbated by political gridlock, which forced the Pentagon to operate on short-term continuing resolutions, and which triggered the crippling, across-the-board cuts associated with the sequester mechanism in 2013.

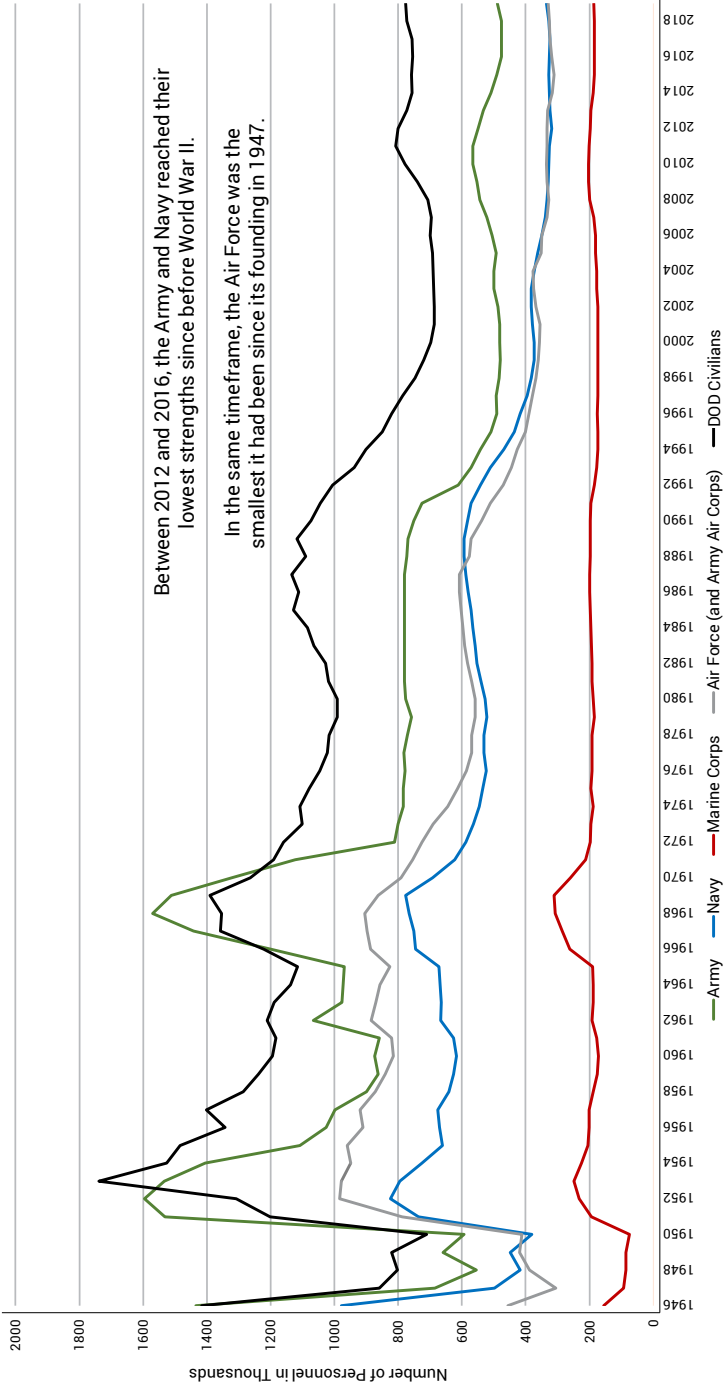
The effects of these resource challenges have been devastating. By 2017, all of the military services were at or near post-World War II lows in terms of end-strength, and all were confronting severe readiness crises and enormous deferred modernization costs (see Figure 1). A series of temporary budget increases provided for by the Bipartisan Budget Acts of 2013, 2015, and 2018 provided welcome but insufficient relief. As the world has become more threatening, America has weakened its own defense.

The Crisis of American Military Power and Its Consequences

Collectively, these trends add up to a perilous situation. In 2010, the Quadrennial Defense Review Independent Panel warned of a coming “train wreck” if America did not retain adequate military capabilities in an increasingly competitive world. In 2014, the National Defense Panel warned that the U.S. military had become “inadequate given the future strategic and operational environment.” In 2018, this Commission believes that America has reached the point of a full-blown national security crisis. The U.S. military remains the strongest in the world, but the number and geographic diversity of security challenges, the technical sophistication of U.S. rivals and adversaries, and other factors mean that America’s military capabilities are insufficient to address the growing dangers the country faces. America is courting unacceptable risk to its own national security, and to the stability and prosperity of the global environment from which it has benefitted so much.

Across multiple regions, adverse military trends and gray-zone aggression are undermining U.S. influence and damaging U.S. interests. In the Western Pacific, the regional military balance has shifted dramatically because of China’s ongoing buildup and coercive activities. In Eastern Europe, Russian military modernization has left U.S. and NATO forces with severe vulnerabilities on the alliance’s eastern frontier. In the Middle East, Tehran’s arsenal of asymmetric and anti-access/area denial capabilities, along with its network of proxy forces, can create significant

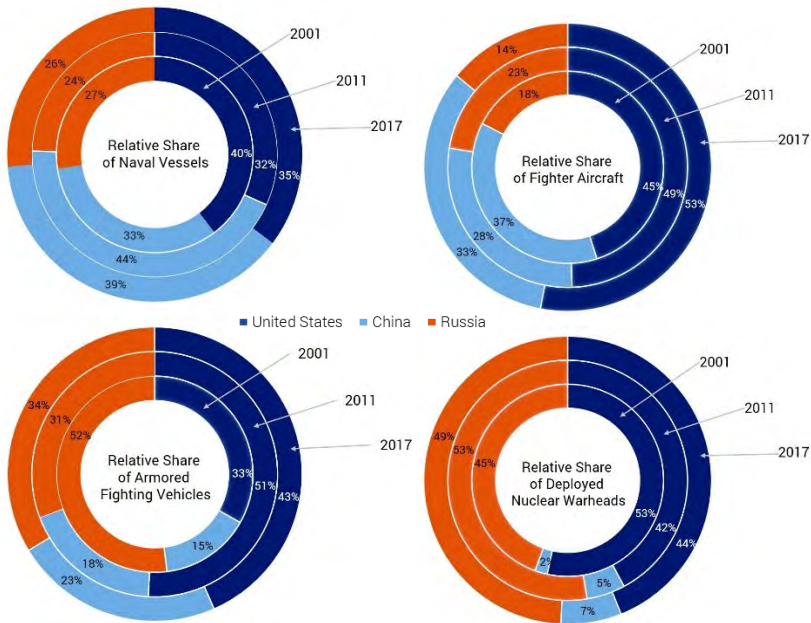
Figure 1. Department of Defense Active-Duty End Strength, 1946–2019



Source: Department of Defense Green Book 2019, Table 7-5.

challenges for U.S. forces and influence, as Russia’s renewed regional military presence further inhibits American freedom of action. Looking beyond these regions, U.S. competitors and adversaries—particularly Russia and China—are increasingly contesting American control of the maritime, space, and cyber commons and improving their ability to strike the U.S. homeland (see Figure 2).

Figure 2. U.S.-Russia-China Force Comparison



Sources: International Institute for Strategic Studies (IISS) Military Balance, 2002, 2012, 2018. Bulletin of Atomic Scientists, Nuclear Notebook.

Notes: Naval vessels include submarines and combat logistics force ships, but exclude small patrol and landing craft. Fighter aircraft exclude “attack aircraft,” but include “fighter, ground attack” aircraft, as classified by IISS.

The consequences of these shifts are profound. Because the military balance casts its shadow over international diplomacy, the erosion of U.S. military advantage is weakening the norms and principles for which America has traditionally stood. It is no coincidence that threats to freedom of navigation in the South China Sea—through which one-third of global shipping transits—have increased as the military balance has deteriorated. Similarly, the credibility of American alliances—the bedrock of geopolitical stability in key areas—will be weakened as allies question whether the United States can defend them; American rivals and adversaries will be emboldened to push harder. From the Taiwan Strait to the

Baltic region, peace and deterrence have long rested on the perception that the United States can decisively defeat military challenges. As that perception fades, deterrence weakens and war becomes more likely.

Should war occur, American forces will face harder fights and greater losses than at any time in decades. It is worth recalling that during the Falklands War, a decidedly inferior opponent—Argentina—crippled and sank a major British warship by striking it with a single guided missile. The amount of destruction a major state adversary could inflict on U.S. forces today might be orders of magnitude higher. A war on the Korean Peninsula, for instance, would expose U.S. and allied citizens and forces in the region to intense conventional warfare and likely chemical and biological warfare. There would be a real possibility of North Korean nuclear strikes against allied countries in Northeast Asia and perhaps even against U.S. territory.

If the United States had to fight Russia in a Baltic contingency or China in a war over Taiwan (see Vignette 1), Americans could face a decisive military defeat. These two nations possess precision-strike capabilities, integrated air defenses, cruise and ballistic missiles, advanced cyberwarfare and anti-satellite capabilities, significant air and naval forces, and nuclear weapons—a suite of advanced capabilities heretofore possessed only by the United States. The U.S. military would face daunting challenges in establishing air superiority or sea control and retaking territory lost early in a conflict. Against an enemy equipped with advanced anti-access/area denial capabilities, attrition of U.S. capital assets—ships, planes, tanks—could be enormous. The prolonged, deliberate buildup of overwhelming force in theater that has traditionally been the hallmark of American expeditionary warfare would be vastly more difficult and costly, if it were possible at all. Put bluntly, the U.S. military could lose the next state-versus-state war it fights.

1. Losing Taiwan

In 2024, China undertakes a surprise attack to prevent Taiwan from declaring independence. As Chinese forces launch air and missile attacks, cripple the Taiwanese Navy, and conduct amphibious landings, it becomes clear that decisive U.S. intervention will be required. Unfortunately, America can no longer mount such an intervention at acceptable cost. China's missile, air, surface, and undersea capabilities have continued to grow as U.S. defense spending has stagnated. Large parts of the Western Pacific have become "no-go" zones for U.S. forces. The Pentagon informs the President that America could probably defeat China in a long war, if the full might of the nation was mobilized. Yet it would lose huge numbers of ships and aircraft, as well as thousands of lives, in the effort, in addition to suffering severe economic disruptions—all with no guarantee of having decisive impact before Taiwan was overrun. Allowing Taiwan to be absorbed by the mainland would represent a crushing blow to America's credibility and regional position. But avoiding that outcome would now require absorbing horrendous losses.

2. Nuclear Escalation with North Korea

In 2019, U.S.-North Korean tensions remain high over Pyongyang's nuclear and missile programs. As a precaution, the President directs an orderly withdrawal of U.S. civilians from South Korea. Yet Kim Jong Un misinterprets this as prelude to war and strikes first. North Korean artillery hammers Seoul. Conventionally armed ballistic missiles strike ports, airfields, and U.S. military facilities in South Korea. As casualties mount, U.S. and South Korean leaders order operations to neutralize North Korea's artillery, missile, and nuclear forces. As the conflict escalates, however, Kim concludes that his only chance of survival is to shock America into backing down. North Korea launches nuclear-armed ballistic missiles at the South Korean port of Busan and U.S. bases on Okinawa and Guam. As the U.S. President considers how to respond, Kim announces that if America does not accept an immediate cease-fire, North Korea will launch nuclear-tipped intercontinental ballistic missiles (ICBMs) at the continental United States—a threat against which U.S. missile defenses offer only uncertain protection. The President faces a terrible dilemma: risk devastating nuclear attacks on U.S. cities or let North Korea prevail.

Such conflicts are also unlikely to stay neatly confined to overseas theaters. Rather, they are likely to reach the American people at home. As noted, a war against North Korea would expose the United States to the risk of nuclear strikes on American territories or even major American cities (see Vignette 2). War with Russia or China would also involve significant risk of nuclear escalation—a risk heightened, in Russia's case, by Moscow's emphasis on the limited use of nuclear weapons to intimidate the United States and NATO into ending a conflict on Russian terms. Even absent nuclear escalation, a conflict with Russia or China could involve attacks on U.S. space systems, which would profoundly disrupt the functioning of a society that is heavily dependent on satellite

communications; attempts to cut undersea fiber optic cables that are crucial to communications and commerce; and devastating cyberattacks on U.S. critical infrastructure (see Vignette 3). Finally, regardless of whether a war with Russia or China led to direct attacks on U.S. territory, winning such a conflict—particularly if it lasted months or years instead of days or weeks—would likely require a level of U.S. national industrial and public mobilization not experienced since the middle of the last century. It would also inflict devastating economic impacts on the United States and beyond.

3. Domestic Chaos amid War with Russia

In 2019, NATO-Russia tensions ignite. Responding to false reports of atrocities against Russian populations in Latvia, Lithuania, and Estonia, Russia invades those countries under guise of a “peacekeeping” mission. As U.S. and NATO forces prepare to respond, Russia declares that strikes against Russian forces in those states will be treated as attacks on Russia itself—implying a potential nuclear response. Meanwhile, to keep America off balance, Russia escalates in disruptive ways. Russian submarines attack trans-Atlantic fiber optic cables. Russian hackers shut down power grids and compromise the security of U.S. banks. The Russian military uses advanced anti-satellite capabilities to damage or destroy U.S. military and commercial satellites. The domestic consequences are severe. Major cities are paralyzed; use of the internet and smart phones is disrupted. Financial markets plummet as commerce seizes up and online financial transactions slow to a crawl. The banking system is thrown into chaos. Even as the U.S. military confronts the immense operational challenge of liberating the Baltic states, American society is suffering the devastating impact of modern conflict.

Even short of such scenarios, the military and geopolitical changes described here are fraught with pernicious implications. America is *already* experiencing advanced cyberattacks conducted by rivals and adversaries—witness Russian intervention in U.S. electoral politics and the “wannacry” ransomware attacks perpetrated by North Korea in 2017. As regional military balances grow less favorable, American competitors will be better able to contest the freedom of the commons and establish intimidation and aggression as the coin of the geopolitical realm (see Vignettes 4 and 5). And as Russia and China gain greater influence within their regions, they may use those positions as spring-boards to contest U.S. leadership across the full range of its economic and security interests in ways not seen since the Cold War.

4. Losing Access to the South China Sea

The year is 2022. China has been deploying advanced military capabilities on land formations in the South China Sea for nearly a decade. Although America and its allies have decried China's actions and increased the tempo of their own naval deployments, Beijing has gradually created a ring of military facilities that extends the reach of its naval, air, and amphibious forces. Amid tense U.S.-Chinese trade talks, China begins harassing commercial shipping in international waters that China claims as part of its exclusive economic zone. When the United States and its allies hesitate to challenge this behavior, an emboldened China then imposes heavy tolls on maritime traffic through the South China Sea and begins restricting transit by commercial vessels from America and other "unfriendly" nations. With 14 percent of America's maritime trade passing through the South China Sea, the economic effects are immediately felt in U.S. financial markets, consumer prices, and manufacturing and agricultural communities. America has fought to preserve freedom of the seas before. But now, the potential military costs of reversing China's control over the South China Sea seem so high, and Washington confronts so many other global challenges, that America can only acquiesce.

5. Cyber Attacks in Conflict Short of War

Competition with Russia need not erupt into war for the impact to be profound. In 2020, mass protests against the authoritarian Lukashenko regime in Belarus prompt Russian intervention to "stabilize" that government. Because this marks the third time in 12 years Russia has invaded a neighboring country, America and its European allies impose harsh economic sanctions. Rather than backing down, Russia responds by exploiting U.S. vulnerabilities in cyberspace. Russian hackers launch massive cyberattacks on the U.S. electoral infrastructure in November, tampering with registration rolls and vote counts and thereby throwing the elections into chaos. Russia also launches targeted attacks against the U.S. electrical grid, leaving Cleveland and Syracuse without power for days. As the President weighs his options, his advisers warn that Russia can still escalate further in cyberspace—by attacking other power grids or the U.S. financial system. Moscow could also provoke a military crisis in the Baltic region, where it enjoys conventional dominance over outnumbered U.S. and NATO forces. America has seen the very fabric of its society and polity attacked, but struggles to find an effective response.

The United States is on the precipice of this future, but it can still act to secure its long-term advantages. Doing so will require the effective use of all elements of national power, with particular demands on the Department of Defense.

Chapter 2

Evaluating the National Defense Strategy

Although the NDS represents a constructive first step in responding to the crisis of national defense and generally sets appropriate goals, the execution of the strategy will likely be hindered by critical resource shortfalls and analytical gaps. After discussing the limitations of the NDS in this chapter, in subsequent chapters we outline how to build and sustain the force America needs.

Strengths and Weaknesses of the NDS

The Commission applauds the priority the NDS places on competition with China and Russia as the central dynamic in shaping and sizing U.S. military forces and in U.S. defense strategy more broadly. The military competitions with these two nations, each presenting its own challenges, are evident today and could further unfold in particularly worrisome ways. We also agree with one of the key assertions of the NDS—that U.S. forces must not only dominate key competitions with these two states, but must also succeed in the face of wide-ranging challenges from state and non-state actors alike, from combating gray-zone measures short of war to winning in high-intensity conflict. The goals of restoring readiness and “prioritiz[ing] preparedness for war” are sound and the Department of Defense must hold fast to them. We affirm the stress the NDS lays on strengthening existing U.S. alliances and partnerships, building or enhancing newer ones, and promoting “mutual respect, responsibility, priorities, and accountability” in all of these relationships. U.S. alliances and partnerships will continue to be critical to advancing American interests for the foreseeable future, and the Department is right to make this issue a top priority.

The Commission is nonetheless skeptical that DOD has the attendant plans, concepts, and resources needed to meet the defense objectives established in the NDS, and we are concerned that there is not a coherent approach for implementing the NDS across the entire DOD enterprise. In assessing this issue, the commissioners reviewed numerous classified documents, received briefings, and interviewed many DOD leaders. We came away troubled by the lack of unity among senior civilian and military leaders in their descriptions of how the objectives described in the NDS are supported by the Department’s readiness, force structure, and modernization priorities, as described in the Future Years Defense

Program (FYDP) and other documents. The absence of well-crafted analytic products supporting the Department's force sizing and shaping plans was equally notable.

The Commission also questions whether the desired outcomes of the NDS can be realized within anticipated resource constraints. Although the NDS lays out ambitious strategic and operational goals, which this Commission largely supports, to date this administration has proposed only modest increases in the defense budget and few major long-term capability initiatives. The Department has not clearly explained how it will implement the NDS with the resources available; in fact, many of the additional resources made available so far have been distributed uniformly across the defense bureaucracy so that "everybody wins," rather than being strategically prioritized to build key future capabilities. Above all, none of the dramatic changes needed to effectively execute the strategy will be possible without substantial cultural change paired with in-depth civilian oversight.

Based on available information, the Commission judges that DOD is assuming too much risk in its approach to achieving its stated objectives and far greater risk than is publicly understood. The NDS states, "In wartime, the fully mobilized Joint Force will be capable of: defeating aggression by a major power; deterring opportunistic aggression elsewhere; and disrupting imminent terrorist and WMD threats." Unacknowledged risk is built into the Department's force construct and the resourcing of that force construct in six major ways.

Competition against Russia and China

As we subsequently note in greater detail, DOD and the White House have not yet articulated clear operational concepts for achieving U.S. security objectives in the face of ongoing competition and potential military confrontation with China and Russia. While the NDS properly focuses on winning high-intensity conflicts and closing near-term capability gaps vis-à-vis China and Russia, DOD leaders had difficulty articulating how the U.S. military would defeat major-power adversaries should deterrence fail. The Department does not appear to have a plan for succeeding in gray-zone competitions against these actors, nor does the administration as a whole appear to have such an integrated plan. The United States is currently losing those competitions as Russia and China use measures short of war and employ multiple tools of statecraft to expand their influence and weaken U.S. alliances and partnerships. The NDS asserts that DOD will "expand the competitive space" but offers little evidence of how it will do so.

The NDS also states that DOD will plan to employ the force “unpredictably” or “creatively” at the operational level. Horizontal escalation is one example of such an approach. Based on analysis reviewed by the Commission, the deterrent or coercive value of this approach appears limited. If China attacked Taiwan or Russia attacked the Baltic states, for instance, it seems unlikely that the United States could force its adversary to back down by applying pressure—military or otherwise—in secondary areas. Moreover, while the creativity implicit in seeking to “expand the competitive space” is laudable, force employment must be firmly grounded in foreign policy goals set by the civilian leadership, and it must deliberately integrate political-military considerations in order to avoid unintended or counterproductive strategic effects. Civilian oversight should not be window-dressing in this process; it must entail the meaningful political-military guidance required by Congress and entrusted to the Office of the Secretary of Defense (OSD).

Under-Resourced Theaters

Because the United States remains a global power with global obligations, it must possess credible combat power to deter and defeat threats in multiple theaters in a timely manner. Indeed, given the presence of five serious adversaries, three with nuclear weapons, the United States must prepare—and resource—for multiple, near-simultaneous contingencies. Today, however, DOD is neither prepared nor resourced for such a scenario. 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 Russia or China, 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 Department’s suggested means for addressing multiple contingencies—minimizing involvement in the Middle East, deepening collaboration with allies and partners, and increasing the salience of nuclear weapons—are unlikely to solve the problem.

For instance, although multiple defense leaders referenced “accepting risk” in lower priority areas such as the Middle East, there was little consensus about what this means in practice. Questions remaining unanswered include which forces would be removed from the theater and what implications this would have for deterring and if necessary defeating Iran (now potentially operating outside the limitations on uranium

enrichment contained in the Joint Comprehensive Plan of Action) or dangerous terrorist organizations, competing with Russia, or sustaining ongoing operations in Afghanistan, Iraq, and Syria.

Unanticipated Force Demands

The NDS emphasizes husbanding resources to build readiness for high-intensity conflicts with China or Russia. Yet given the differing needs for forces across theaters, the challenges of projecting power over great distances, and the fact that the United States has rarely been able to predict precisely where or how adversaries will challenge its interests, the U.S. military will surely experience unanticipated force demands in coming years. This pressure will be particularly acute should there be a military crisis on the Korean Peninsula, should Iran intensify its proxy warfare (or worse) in the Middle East, or should there be a large-scale terrorist attack on the homeland. Following the U.S. departure from the Joint Comprehensive Plan of Action, for example, the potential for conflict in the Middle East—which was already rising—is probably greater than before. A contingency in the Middle East, on the Korean Peninsula, or elsewhere could consume resources and significantly hamper the U.S. military’s ability to prevail in a military confrontation or more intense gray-zone competition with China or Russia.

Unclear Concepts

“How” is as important as “how much” in setting U.S. defense strategy. Yet key concepts in the NDS—including deterrence and posture shifts like “dynamic force employment”—lack underlying analytics and maturity. For instance, the strategy does not explain the Department’s thinking on how the United States will deter threats in a second theater of operations. Due to the increased complexity of evolving domains such as cyber and space, the challenges of dealing with multiple rivals, and the reliance of countries such as Russia on highly escalatory approaches, which may include use or threatened use of nuclear weapons, the requirements for deterrence are significantly different today than during the Cold War or the early post-Cold War era. Deterring our rivals will be highly challenging. Although the NDS states that deterring adversaries is a key objective, there was little consensus among DOD leaders with whom we interacted on what deterrence means in practice, how escalation dynamics might play out, and what it will cost to deter effectively.

Similarly, the Department’s resolve to rely on a “Dynamic Force Employment” (DFE) model may be ill considered. DFE appears to refer to creating efficiencies within the force and decreasing the need to expand

force structure by having a single asset perform multiple missions in different theaters on a near-simultaneous basis. Yet the United States must confront threats in both the Western Pacific and Europe, two very different theaters that require a significantly different type and mix of forces to best deter aggression and defeat the enemy if deterrence fails. (The likely force requirements for these theaters are discussed subsequently.) Moreover, successfully competing in Europe and the Indo-Pacific region, while also managing escalation dynamics, requires positioning substantial capability forward (in what the NDS calls the “blunt” layer) to deter and prevent a *fait accompli* by an agile, opportunistic adversary. Given the vast distances involved in reaching both theaters and beyond, DFE may simply place additional strain on already stretched logistics and transportation networks.

Unanticipated Resource Shortfalls

In 2017, both Secretary of Defense James Mattis and Chairman of the Joint Chiefs of Staff General Joseph Dunford testified that the Pentagon required sustained three to five percent annual budgetary growth just to execute the defense strategy inherited from the previous administration. Although these estimates were provided prior to the finalization of the NDS, we believe they are generally reflective of the level of resources required to execute the ambitious strategy the NDS lays out. Yet based on DOD’s own projections, real budgetary growth will be essentially flat beyond FY2019. This creates high risk that the strategy will suffer from even greater resource shortfalls than those already identified. Should Congress fail to provide funding on a timely basis, resorting instead to the habitual use of short-term continuing resolutions, or should it fail to craft an additional bipartisan budget deal lifting the much lower caps imposed by the BCA for FY2020 and FY2021, resource shortfalls will be even more pronounced, making it impossible to achieve the goals outlined in the NDS.

Challenges Requiring More than DOD Capabilities

Many of the challenges the United States faces today are not purely military in nature and are not strictly the purview of the Department of Defense. Rather, American adversaries and rivals are using the full range of tools, from economic coercion to paramilitary action and information warfare, to accomplish their aims. As noted previously, many of these activities occur below the threshold of conventional war. Although the NDS (like this Commission’s report) is properly focused on defense-related issues, the strategy it outlines is insufficient to protect U.S. interests from gray-zone competition and other threats that fall short of

outright war or reside in the seams between bureaucratic jurisdictions. The United States could well lose the competitions and conflicts in which it is engaged today absent more cohesive, fully-resourced responses that reach across the various U.S. government departments and agencies, and across the many elements of American power: diplomacy, intelligence, economic statecraft, information warfare, and others.

Taken together, these risk factors and logic gaps leave us concerned that DOD will face serious challenges achieving the goals the NDS identifies. *We therefore assess that the United States requires rapid and substantial improvements to its military capabilities, built on a foundation of compelling warfighting concepts at the operational level of war.* This foundation must be built in the context of major-power competition, in which deterrence and assurance strategies will grow in importance and must be tailored to meet the specific requirements of particular rivalries and relationships. Due to the rapidly changing security environment and the impossibility of accurately foreseeing all future requirements, the commission recommends an emphasis on adaptability in force planning and a serious study of escalation dynamics. We now turn to a more detailed assessment of what will be necessary to sustain a strong and adequate defense, today and in the future.

Chapter 3

The Force We Need: Meeting Core Operational Challenges and Strengthening the National Security Innovation Base

Building a force that can protect American interests, security, and prosperity in a more complex and competitive world will require determined, ongoing efforts across a range of issues and challenges. It will entail a mix of near, medium, and long-term initiatives. Developing innovative operational approaches that can overcome difficult operational challenges and strengthening the National Security Innovation Base are imperative in addressing current and future threats.

Meeting Core Operational Challenges

The NDS lists a series of key operational challenges to focus U.S. defense investments. Unfortunately, DOD elected to classify those challenges. The Commission believes this limits needed public awareness and understanding, obscures the urgency of these challenges and makes it difficult for Congress and the broader defense community to discuss them, develop approaches to meeting them, and gauge progress in doing so. Our competitors are well aware of the challenges they are imposing as a result of their sustained and deliberate investment campaigns. *We recommend strongly that DOD declassify the operational challenges alluded to in the 2018 NDS so that they can be used as a benchmark for measuring implementation of the strategy.* For purposes of unclassified discussion, the Commission believes the following generally captures the challenges that exist:

- Protecting critical bases of operations, including the U.S. homeland, forces abroad, and allies and partners;
- Rapidly reinforcing and sustaining forces engaged forward;
- Assuring information systems in the face of attack and conducting effective information operations;
- Projecting and sustaining U.S. forces in distant anti-access or area-denial environments and defeating anti-access and area-denial threats;
- Deterring and if necessary defeating the use of nuclear or other strategic weapons in ways that would fall short of justifying a large-scale nuclear response;
- Enhancing the capability and survivability of space systems and supporting infrastructure; and

- Leveraging information technology and innovative concepts to develop an interoperable, joint command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture and capability that supports warfare of the future.

Many of these challenges are similar to the ones DOD identified before September 11, 2001, when they were largely prospective. Today, they are *real*. Nearly two decades on we find it notable that many of these challenges have informed U.S. defense strategy across multiple administrations, yet the position of the United States has eroded in most, if not all, of these areas.

As noted, the military balance in key regions has been shifting away from the United States and toward major-power competitors. Over the past two decades, while the United States was focused on counter-terrorism and defeating insurgents in Iraq and Afghanistan, Russia and China were focused on acquiring capabilities to overcome America's technological edge and operational reach. As a result, America has been losing its military advantage in a number of key warfighting areas, such as air and missile defense, anti-surface warfare, long-range ground-based fires, and electronic warfare. Many of the skills necessary to plan for and conduct military operations against a capable adversary, such as command and control of large forces and logistical support of large, high-intensity operations, have also deteriorated. The United States now faces far graver challenges in projecting power and operating effectively in the Western Pacific and Eastern Europe. Moreover, the United States and its allies must increasingly account for Chinese and Russian activities and power-projection capabilities beyond their home regions. Major-power competition is a global challenge, not simply a regional one.

We recommend that U.S. defense investments emphasize achieving and maintaining a favorable military balance for the United States and its allies against China in the Indo-Pacific region and against Russia in Europe—and that those investments be focused on the 2018 Operational Challenges, represented by the challenges described previously. More specifically, we recommend that defense investments should seek to yield an expanded set of U.S. operational options while constraining those available to China and Russia. They should restore our momentum in competition with Beijing and Moscow, forcing them to bear considerable cost in response.

Operational Concepts

The NDS rightly notes the importance of developing innovative operational concepts to maximize the effectiveness of existing and emerging capabilities. Operational concepts provide the conceptual basis for planning at the theater or campaign level of war. They inform how joint and combined forces will operate to achieve strategic goals such as preserving a favorable military balance in the Western Pacific and Europe in the face of growing threats. Operational concepts offer solutions to major challenges to U.S. and international security and enable the formulation of military doctrine. In this way, operational concepts constitute an essential link between strategic objectives, defense policy, and budgetary priorities.

During the Cold War, the U.S. military developed detailed concepts for overcoming formidable operational challenges. One set of concepts focused on defending NATO's European frontiers from a Soviet attack. The problem at that time centered on defeating a numerically superior foe while avoiding nuclear escalation. To address this problem, the Army cooperated with the Air Force to develop the AirLand Battle and Follow-On Forces Attack concepts, which focused on defeating successive echelons of Soviet forces. Mechanized formations would block the Soviet frontline forces' advance; deep-strike forces, including combat aircraft, missiles, rocket artillery, and attack helicopters would break up the second and third waves. To ensure sufficient U.S. forces would be available, and to enable rapid reinforcement of NATO's flanks, large quantities of equipment were pre-positioned in Western Europe and Norway. The Navy developed its Maritime Strategy and Outer Air Battle concepts to keep the Soviet fleet and aircraft bottled up and enable reinforcements to move safely by sea. The Marines planned to employ maneuver warfare concepts to secure NATO's northern flank. These plans and concepts allowed DOD and Congress to establish clear defense program priorities.

Today, Russia and China are capable of challenging the United States, its allies, and its partners on a far greater scale than any adversary since the Cold War. These countries are also leveraging existing and emerging technologies to present U.S. forces with new military problems, such as China's anti-access/area-denial capabilities and the Russian hybrid warfare approach employed in seizing eastern Ukraine. Detailed, rigorous operational concepts for solving these problems and defending U.S. interests are badly needed, but do not appear to exist.

We recommend that DOD more clearly answer the question of how it intends to accomplish a core theme of the NDS—defeating major-power

rivals in competition and war. Without a credible approach to winning a war against China or Russia, DOD's efforts will be for naught. Similarly, the United States needs plausible strategies and operational concepts—that include but are not limited to efforts by the Department of Defense—for winning competitions below the threshold of conventional war. DOD should identify what the United States seeks to achieve, explain how the United States will prevail, and suggest measures of effectiveness to mark progress along the way. It should also clarify ill-defined concepts like “expand the competitive space.” Of note, this effort should provide detail about how DOD plans to decrease its focus on the Middle East to support strategies and operational concepts focused on major-power competition and the risks it foresees such an approach entailing.

In addition, *the United States must develop new operational concepts to achieve strategic advantage, including by addressing the ability of aggressive regimes to achieve a fait accompli against states on their periphery, or to use nuclear or other strategic weapons in ways that would fall short of justifying a large-scale U.S. nuclear response.* Detering and, if necessary, defeating Russia's potential reliance on nuclear escalation to end a conflict on its own terms is both a particularly difficult and an extremely important operational problem. More broadly, potential adversaries are increasingly blurring lines between conventional, unconventional, and nuclear approaches; the United States needs concepts that account for an adversary's early reliance on nuclear means and the blending of nuclear, space, cyber, conventional, and unconventional means in its warfighting doctrine. The United States has been responding—inadequately—to operational challenges posed by our competitors. We must reverse that paradigm and present competitors with challenges of our own making. Any new operational concepts must be rigorously validated through experimentation, exercises, and training, and subjected to the systematic analysis necessary to generate the associated time-phased force deployment data (TPFDD).

We also recommend that DOD establish cross-functional teams to integrate strategies and operational concepts. Congress mandated in the National Defense Authorization Act of 2017 that DOD use cross-functional teams (CFTs) to take on some of its toughest challenges. The multi-dimensional challenges presented by competition from China and Russia are well suited to this approach. The Secretary should consider creating CFTs, which should be led by a civilian with a military deputy, to advise him on the global challenges posed by China and Russia and to integrate plans and solutions for advancing U.S. interests in the face of them.

National Security Innovation Base

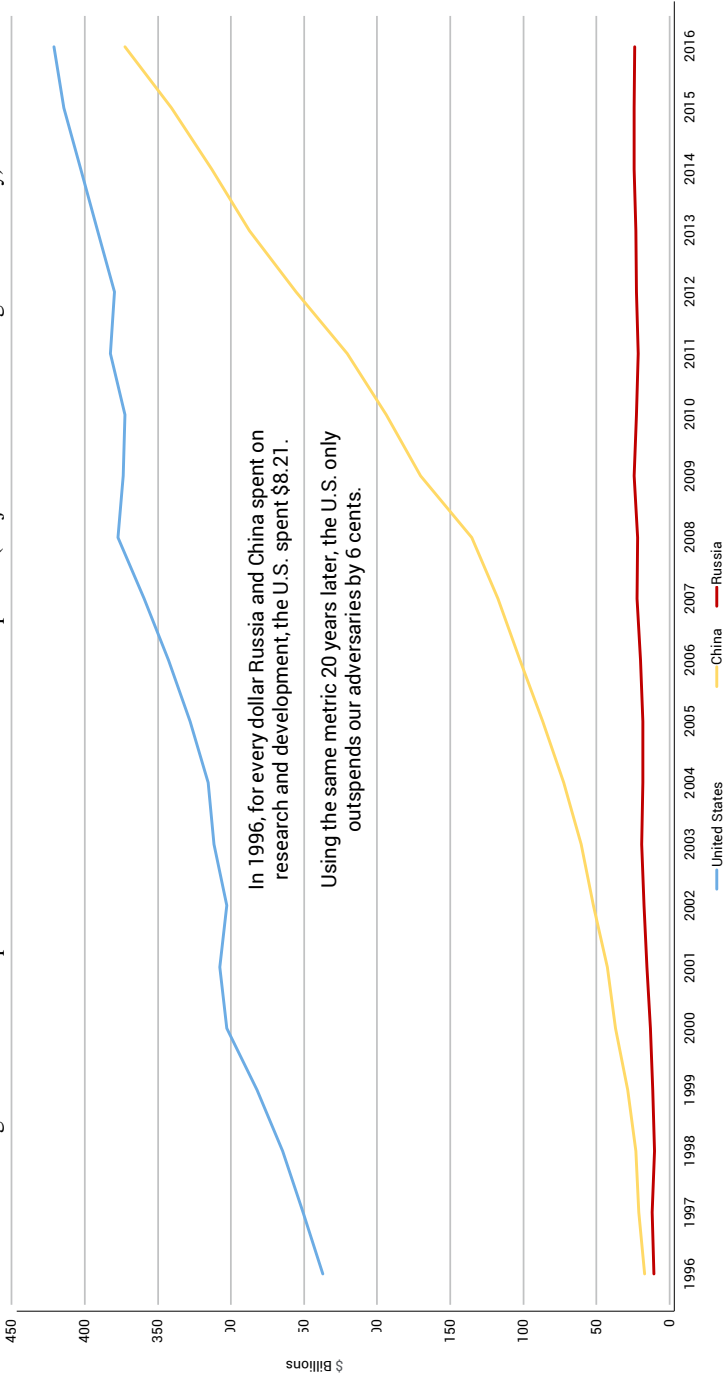
Innovation is critical to overcoming operational challenges and positioning the U.S. military for success. In the past, research and development (R&D) investments leading to new innovations were primarily the purview of the government. Today, the U.S. private sector invests significantly greater amounts than the federal government in research and only a small portion of government investment goes to developing emerging technologies. At the same time, the emphasis for defense programs has been making the acquisition system function more smoothly rather than optimizing for innovation and technological breakthroughs. This has led to more innovation taking place outside of the government—in our commercial sector, universities, and R&D labs—making it increasingly difficult for DOD to access new technology quickly, if at all.

Making innovation accessible to the government is a critical issue that is recognized in the National Security Strategy (NSS) and the NDS, as well as by DOD leaders. Wisely, the NSS expands the traditional notion of the Defense Industrial Base to the National Security Innovation Base (NSIB). To better address this issue, however, a commitment to change is needed by all who participate in the governance of national security programs and budgets.

In support of the NDS, the Undersecretary for Defense for Research and Engineering (USD(R&E)) has established ten priority technology domains: hypersonics; directed energy; command, control, and communications; space offense and defense; cybersecurity; AI/machine learning; missile defense; quantum science and computing; microelectronics; and nuclear modernization. These are very similar to the “Vectors for Current and Future Modernization” the National Defense Panel identified in 2014. The Commission is nonetheless concerned that our superiority in these areas is decreasing or has disappeared.

Our competitors, by contrast, are investing heavily in innovation (see Figure 3). China’s “Made in China 2025” initiative emphasizes areas of investment and development that very closely resemble the USD(R&E) priorities. As part of a whole-of-society approach that features strong collaboration between government and the commercial sector, China is focusing intensely on and devoting generous funding to technologies such as AI and synthetic biology. The Chinese government has announced it intends to lead the world in AI advancement by 2025. Beijing is also emerging as a global leader in critical areas such as Fifth-Generation Long-Term Evolution (5G LTE) broadband wireless networks. Should Beijing become dominant in this area, it would not

Figure 3. Annual Expenditure on Research and Development (Adjusted For Purchasing Power Parity)



In 1996, for every dollar Russia and China spent on research and development, the U.S. spent \$8.21.
 Using the same metric 20 years later, the U.S. only outspends our adversaries by 6 cents.

Source: United Nations Educational, Scientific and Cultural Organization R&D Database, IISS Military Balance and World Bank (for gross domestic product).

only enjoy great economic advantages. It would also gain strong geopolitical leverage over countries that become dependent on Chinese technology; it would reap tremendous military benefits in the form of enhanced awareness and freedom of maneuver, superior command and control, increased lethality, and improved ability to drive future military innovation. Moreover, China's Belt and Road Initiative features enormous investments meant to strengthen Chinese influence and proliferate Chinese technology throughout Eurasia and Africa.

The contrast between Chinese and American investments in technology and manufacturing is stark. Since enactment of the BCA in 2011, the United States has lost roughly 17,000 prime defense vendors because of a lack of sufficient and predictable funding for defense. More broadly, an estimated 60,000 factories have closed, as China's own national security innovation base has grown markedly. The cumulative result has been to significantly diminish the superiority in innovation and manufacturing that has long been critical to America's military edge.

Furthermore, new technologies and capabilities, such as lethal autonomous weapons, biological applications, and AI require intensive attention and investment as they are introduced. Policymakers must consider whether to pursue these technologies without limit; develop capabilities to use in some future contingency; seek to develop arms control regimes; or perhaps seek a global ban on particular technologies. All of this requires addressing innovation in a more focused and sustained way.

There are several steps that should be taken to close the innovation gap. First, *the United States must better protect and strengthen its own National Security Innovation Base*. China has deliberately sought to erode our NSIB through predatory economic tactics that America should not emulate. Moreover, efforts to strengthen the NSIB often reside outside the strict purview of the Department of Defense. But if the United States does not protect sources of technological innovation and key areas of manufacturing capability and capacity, its ability to develop and sustain the means through which it pursues the NDS will be at risk. The U.S. government must give serious consideration to questions such as whether it should increase investment to preserve and strengthen industries that produce vital technology and components, and whether some selective economic disintegration with U.S. rivals—namely China—may be necessary to ensure that America is not dependent on those rivals for critical components of key systems and platforms. It will be necessary to intensify U.S. engagement with allies and partners regarding how to avoid excessive technological or economic dependence on rivals.

Additionally, *DOD should broaden its efforts to find and incorporate new technologies developed commercially by the private sector.* Established organizations like the Defense Advanced Research Projects Agency (DARPA), as well as the newer Defense Innovation Unit (DIU) and Defense Innovation Board, are focused on this task. The government R&D labs, University Affiliated Research Centers (UARCs), and Federally Funded Research and Development Centers (FFRDCs) can play a greater role as well. All of these organizations are focused on helping DOD access the private sector to find and exploit new technologies. Making the most of these interactions will require DOD to be mindful of commercial interests and the globalization of supply chains, while working assiduously to expand relationships with firms and industries—including some that have been ambivalent or reluctant about working with the U.S. government.

While innovation is a first step, what matters most is whether new technologies can be rapidly acquired and fielded to keep pace with changing threats. DOD has appropriately increased its focus on rapid prototyping and the military departments are striving to get prototypes out to operating forces for experimentation. Often, the forces keep the prototypes because they provide capability unavailable in existing programs. Yet if this approach provides advanced capabilities quickly, too frequently these prototypes are not accompanied by the sustainment, training, and integration into existing systems needed to provide enduring military advantage.

Congress and DOD must agree on new ways to more rapidly approve and acquire breakthrough technologies. There is a growing recognition of this need. With greater speed, however, comes the acceptance of risk and the need for more flexible budget authorities. Those have not yet been provided to DOD at the scale necessary.

Longer-term innovation challenges also require attention. DOD will need to continue its history of envisioning, finding, developing, and fielding innovative technologies. Moreover, in some cases, only DOD will acquire these technologies in large quantities for extremely large programs such as those acquiring aircraft, ships, and satellites.

The Department should explore a new, narrowly tailored category of acquisition pilot programs that would push the boundaries on new technologies. This would not amount to wholesale reform of the acquisitions process. Rather, DOD would embark on this narrow category of programs with full acceptance of the cost and risk inherent in pursuing technological breakthroughs. To enable this approach, Congress and DOD

would have to collaborate to establish particular acquisition authorities and waivers to Nunn-McCurdy rules.

This requires a change of mindset as well as a change of procedures and regulations. Currently, to be judged “successful,” a program needs to stay on-time and on-budget. Those budgets and schedules are estimated at the earliest stages of the acquisition cycle. The Department’s major acquisition programs are mostly meeting these requirements today, albeit with continuing need for aggressive oversight of major programs such as the Joint Strike Fighter and the new aircraft carrier. But what if DOD is not taking enough risk? If a realistic schedule and budget can be accurately predicted at the earliest stages of a program, how can that program be pushing new boundaries? Today’s programs are incrementally fielding new capabilities rather than leaping ahead. To sustain U.S. technological advantages, our national security community needs new approaches that support riskier, long-term acquisition programs in important new areas.

Chapter 4

The Force We Need: Force Priorities, Readiness, and Civil-Military Relations

Near- to Mid-Term Force Priorities

Innovative operational concepts and creative approaches to force development, design, structure, and acquisition are vital to sustaining critical U.S. military advantages. Some of these initiatives could produce immediate and important gains. Others, if allowed to mature, may yield benefits that will manifest over time. In the near- to mid-term, the Commission identified a variety of critical improvements to U.S. military posture and capabilities that are imperative for prevailing against our most pressing security challenges

Although the Commission lacked the means to perform the sustained analysis that we call on the Department of Defense to perform to better link strategy to operational concepts to force requirements, the improvements we recommend here are based on discussions with senior DOD leaders and a host of non-government experts. They are also based on briefings the Commission received associated with FFRDC-run war-games. Finally, these recommended improvements are based on the extensive experience and expertise that the members of the Commission collectively bring to bear.

Global Posture. Forward posture is a key component of deterring competitors and adversaries and assuring allies and partners. Military exercises, particularly joint exercises with allies and partners, reinforce commitments, create doubt in opponents' minds, and ensure that the U.S. military has the warfighting capability it needs should a conflict erupt. Speed matters, and the ability to mobilize and move forces quickly is increasingly critical given that the most likely conflicts the United States would seek to deter or win might begin with a small confrontation that escalates quickly. This places a premium on the U.S. military's ability to move in-theater forces quickly, protect emplaced and maneuvering forces, and rapidly deploy ready forces from other regions, including the United States. Moreover, once force posture is diminished or eliminated in key regions, it can be especially difficult to reestablish. In the European and Indo-Pacific theaters, where the United States confronts serious challenges from China, North Korea, and Russia, the value of forward posture is demonstrated every day. *If the United States desires to*

avoid military conflict in these regions it should ensure there is a capable day-to-day posture in both theaters to deter adversaries and engage in prompt escalation control. At the same time, the United States must recognize that forward-deployed forces are increasingly vulnerable to attack and strive to make forward-deployed forces more resilient and survivable.

- *Indo-Pacific.* Of the five competitors and adversaries named in the NDS, four—China, North Korea, Russia, and terrorist groups—are active in the Indo-Pacific region. *Deterring aggression in this region requires establishing a forward-deployed defense-in-depth posture.* Protecting U.S. interests from China and Russia will require additional investment in the submarine fleet; intelligence, surveillance, and reconnaissance (ISR) assets; air defense; long-range strike platforms; and long-range ground-based fires. Deterring and, if necessary, defeating North Korea will demand additional air defense assets, as well as a sustained ground presence with the ability to quickly flow additional armored brigade combat teams (ABCTs), fires and combat engineer assets, and other capabilities into theater. Given the distances involved in the Indo-Pacific region, the United States will also need to expand and modernize its logistics capacity, particularly its tanker, strategic airlift, and military sealift fleets. Allies can be helpful in this context by investing in maritime domain awareness, undersea capabilities, missile defense, precision guided munitions, and cyber capabilities.
- *Europe.* The military challenges in Europe are no less serious. *To deter a revanchist Russia, the United States and its NATO allies must rebuild military force capacity and capability in Europe.* In terms of land forces, DOD should have a corps-level headquarters, or at least a division-level headquarters, to enhance operational command and control and provide additional capabilities in fires, aviation, combat engineering, air defense, and ABCTs. Over the long term, DOD should restore a heavy division to Europe, in addition to the existing Stryker Brigade Combat Team (BCT) and 173rd BCT, and invest in electronic warfare, netted intelligence and command and control. These improvements should be accompanied by significant improvements from NATO allies, particularly in such areas as expanding advanced munitions stocks and mobile, short-range air defense, as well as contributing more armored forces. Russia's advanced air defense will also demand additional fifth-generation aircraft and ground-based long-range fires. To support those forces, control of the sea lines of

communication is imperative. Accordingly, additional anti-submarine warfare capability is needed.

- *Middle East.* The demise of the core ISIS “caliphate” in Iraq and Syria is clearly a positive development, but in the near and mid-term, the United States will still need to conduct counterterrorism operations against the remnants of ISIS and other jihadist groups. Given Iranian hegemonic ambitions and influence in the Middle East, U.S. forces must also be poised to actively counter Iranian subversion and deter Iran and its proxies from overt military aggression. Additionally, Russia’s enduring military engagement in Syria and greater Chinese involvement throughout the region means that the Middle East will not be immune from major-power rivalry. Finally, Afghanistan will require a sustained U.S. military presence to prevent the country from once again becoming a safe haven for terrorists. In total, the Middle East will demand significant special operations forces, light attack aircraft, ISR assets, close air support, and security-force advise-and-assist brigades for the foreseeable future. Carrier-based naval aviation and other advanced naval and air capabilities—including surface warfare capabilities and fifth-generation aircraft—may also be necessary to deter and if necessary defeat Iran, or project power into areas where other advanced militaries (such as Russia’s) operate. *Thus, U.S. military posture in the Middle East should not become dramatically smaller, even though the precise mix of U.S. capabilities should be reexamined.*

Priority Joint Force Enhancements. As the foregoing discussion of theater requirements underscores, the United States now faces five credible challengers, including two major-power competitors, and three distinctly different geographic and operational environments. This being the case, a two-war force sizing construct makes more strategic sense today than at any previous point in the post-Cold War era. Instead, the NDS adopts what is functionally a one-war force sizing construct and recommends only modest increases in force capacity, an approach that is likely to create severe strategic and operational vulnerabilities for the United States. Even if new technologies such as hypersonic weapons, AI, cyber, and autonomous systems eventually do change the face of warfare, in the near- and medium-term conventional capacity will still matter greatly in fighting and deterring conflict. Consequently, although further capability and posture enhancements are necessary, they are likely to be insufficient to meet America’s strategic challenges. As the old adage goes, “Quantity has a quality all its own.” *Simply put, the*

United States needs a larger force than it has today if it is to meet the objectives of the strategy.

- *Army.* The United States will need capacity enhancements in the Army. More armor, long-range fires, engineering, and air-defense units are required to meet the ground-heavy challenges posed by Russia in Eastern Europe and while maintaining a robust deterrent to aggression on the Korean Peninsula. In the event of conflict with China, additional air-defense and logistical forces will be necessary to support Air Force operations. Army forces also remain very much engaged in a war in Afghanistan, which—despite often being forgotten or overlooked today—will place further stress on existing structure.
- *Navy.* The Navy, likewise, will have to grow. As China and, to a lesser extent, Russia invest in their undersea capabilities, the United States must expand its submarine fleet. Yet the NDS and associated shipbuilding plan do not provide for that growth; under current plans, there will actually be a reduction in the number of submarines over the next decade. Moreover, to project and sustain combat power into the Western Pacific and other theaters, the Navy must dramatically recapitalize and expand its military sealift forces.
- *Air Force.* Regardless of where the next conflict occurs or which adversary it features, the Air Force will be at the forefront. It will need more stealthy long-range fighters and bombers to penetrate advanced enemy air defenses, as well as more tankers to refuel them and allow them to operate at longer ranges. It will need additional lift capacity, especially if the United States intends to project power across the Pacific. Above all, it will need more intelligence, surveillance, and reconnaissance platforms to give commanders the information they need to fight and win.
- *Marine Corps.* Finally, as the world remains unpredictable and the threat of terrorism endures, the United States will need a premier expeditionary, rapid-response force, so it should maintain the Marine Corps at no less than its current size.
- *Cyber.* America confronts cyberattacks from state adversaries on a daily basis, will remain vulnerable to such attacks in the coming years, and will continue to face cyberattacks from non-state actors. Protecting U.S. cyber networks and infrastructure, and deterring and responding to attacks by U.S. adversaries, are critical. Presently, America's cyber posture and activities are hampered by debates over authorities and jurisdictional boundaries. These issues have lingered through several administrations and must be addressed to make the United States more competitive. The administration and Congress

should evaluate what operational flexibility is required to ensure the United States can act in ways that are agile, but also prudent, in support of its broader national security goals. The United States should also lead efforts to establish international norms in cyberspace.

To facilitate this process, *Congress should appoint a high-level commission to review U.S. cyber policy, particularly relevant authorities and organizational relationships and responsibilities within the U.S. government.* That commission should offer recommendations on how to streamline decision-making and bureaucratic processes so as best to protect American interests, deter or respond to malign actions, and still protect civil liberties. It should feature significant input from DOD and other departments and agencies whose missions may be affected by the findings.

- *Nuclear.* Successive secretaries of defense from both Republican and Democratic administrations have identified nuclear deterrence as the Department's number one priority. Given increased competition from nuclear-armed competitors and the need for a robust deterrent, the United States remains committed to the bipartisan nuclear modernization program of record outlined in the 2018 Nuclear Posture Review (NPR), and especially to modernizing the triad of bombers, ICBMs, and ballistic missile submarines. This triad, plus dual-capable tactical aircraft, presents insurmountable targeting challenges for adversaries, imposes disproportionate costs on adversary defenses, and hedges against unforeseen geopolitical or technological changes. In addition, it is urgently necessary to rationalize and modernize the supporting nuclear infrastructure, including the national laboratories and the nuclear command, control, and communications (NC3) network, which is critical to ensuring U.S. leaders remain situationally aware and in control of the nuclear arsenal in all situations.

With all legs of the triad, as well as much of the supporting infrastructure, approaching the ends of their service lives, nuclear modernization must receive sustained and predictable funding from Congress. Sustained and predictable funding is equally important to sustaining the portion of the defense industrial base devoted to nuclear matters. As discussed in Chapter 5 triad modernization should not be sacrificed to pay for conventional force investments. At its peak, planned spending on nuclear modernization, operations, and sustainment should consume just 6.4 percent of the defense budget. And as the NPR states, "Given the criticality of effective U.S. nuclear deterrence to the assurance of allies, and, most importantly, the safety of the

American people, there is no doubt that these programs are both necessary and affordable.”

We are concerned by the disequilibrium between the aging of America’s nuclear arsenal and our rivals’ vigorous modernization programs. Further, it is clear that U.S. competitors have not followed America’s lead in decreasing the role and number of nuclear weapons in their defense strategies. Russia and China are both years into thoroughgoing nuclear modernization programs and have been thinking creatively about how to employ nuclear weapons for deterrence and coercion. U.S. policies have remained appropriately restrained in response—they have not lowered the U.S. threshold for nuclear use but sought to raise our competitors’ thresholds. Because the strategic environment can change rapidly, U.S. leaders must prioritize adaptability in U.S. nuclear forces to meet shifting deterrence requirements. Decisions made today will have strategic effects well into the 2070s and 2080s. *We believe that the 2018 NPR offers an appropriate option for meeting U.S. nuclear deterrence and assurance requirements in this era of major-power rivalry, and we urge DOD to proceed along the path the NPR lays out.*

- *Space.* During the Cold War, space was an arena of intense major-power competition. Subsequently, the lack of a peer competitor produced a casual assumption of U.S. space dominance and diminished attention to potential rivalries in space. Today, however, the United States is again competing with major-power rivals, and space is once again—and will remain—a critical and an increasingly contentious domain.

This poses real challenges for the U.S. military. In recent decades, the U.S. military has become increasingly dependent on space-based assets across the full spectrum of conflict. Access to space underpins our ability to project power globally, strike targets precisely, and discern and respond to threats before they endanger the homeland or U.S. global interests. Yet space has also become a far more crowded and competitive domain. Other nations have noted the military and economic advantages space provides to the United States. Some have attempted to replicate U.S. space capabilities; others have developed counterspace capabilities to reduce or eliminate U.S. advantages. China and Russia are pursuing both strategies. Their technical advances have made U.S. space systems and vehicles more vulnerable to kinetic and non-kinetic attacks that can degrade or destroy important U.S. capabilities. At the same time, the increasing role of the private sector is changing the economic and business dimensions of

space exploration and exploitation and further challenging U.S. dominance. The United States needs a space posture suited to an era of major-power competition.

This administration and Congress deserve credit for elevating this critical national security issue. DOD recently issued a report to Congress on the Organization and Management Structure for the National Security Components of the Department of Defense. Congress has yet to respond to the Department's recommendations. This Commission believes there must be greater urgency in devising a coherent and coordinated space strategy.

As the United States rethinks how it approaches space, it should emphasize five themes: technology, policy, organization, communication, and cooperation. First, regarding technology, DOD should strengthen research on and acquisition of key capabilities, particularly space vehicles and launch systems. Second, regarding policy, there must be a higher level of clear accountability and oversight within the Office of the Secretary of Defense, commensurate with the complexity and importance of the problem. Third, regarding organization, the United States must develop a space cadre that ensures an enduring focus on space capabilities and unmatched competence in this area. Because the organizational issues in this area are complex, any proposed changes should identify new seams between existing organizations and bureaucratic jurisdictions; consider when space would be in a supported or supporting role; explore how and whether the space-based capabilities resident in the intelligence agencies should be integrated with military space organizations; examine how to optimize the costs and overhead of creating new organizational structures; and consider how to strike the balance between operational control and man, train, and equip functions.

Fourth, although much of the space portfolio is classified, there is a pressing need for more communication and public awareness regarding the challenges we face. Those challenges must be brought into the open through appropriate public release of information. Fifth, regarding cooperation, DOD should re-examine existing protocols and agreements with allies and partners so it can aggressively pursue modifications to enhance collective space capabilities. Space, after all, is not simply the domain of the U.S. military or the U.S. government. It is a global domain, one with no borders or territory and one where steps taken by a single actor can affect all others that use the domain. By emphasizing the five themes outlined here, the United States can improve its ability to compete and deter malign activities in

space and become sufficiently resilient that the military and economic effects on Earth are minimized should deterrence fail.

- *Missile Defense.* Missile defense is foundational to U.S. deterrence and assurance strategies. As the missile threat to the U.S. homeland from North Korea and Iran grows, and as Russia and China modernize their nuclear arsenals and conventional strike forces, the United States will need effective, integrated, and credible missile defenses to deter American adversaries. It will also need those defenses to assure U.S. allies and partners that America itself will not be deterred from aiding them in the event of conflict. U.S. missile defense strategy therefore should prioritize increasing the reliability and survivability of current defenses, fielding a resilient space-based sensor layer, providing persistent surveillance of missile threats, moving to a more resilient and proliferated space architecture, developing non-kinetic-based defenses, investing in directed energy and hypervelocity projectiles, and assuring communications in a degraded environment. Whereas competitors' missile programs have imposed costs on us, by forcing the United States to spend increased resources on missile defenses, we should look to new missile defense technologies as a way of imposing costs on our competitors.

To ensure an adequate defense, the highest levels of the Department must actively ensure the Missile Defense Agency (MDA) retains its special acquisition authorities (while preserving the appropriate level of oversight), until broader DOD acquisition authorities have recovered the ability to act with sufficient nimbleness to support innovation in this critical area.

The Commission recommends that a senior official in OSD (e.g., the Under Secretary of Defense for Research and Engineering) should be designated by the Secretary of Defense with the complete authority—including budgetary authority—and responsibility for developing and implementing an integrated, long-term plan for acquisition and development of air and missile defense capability. To avoid redundancies and inefficiencies, and to ensure our defenses outpace evolving threats, DOD must operate according to a single, unified vision of air and missile defense goals and plans. In support of this vision, we recommend that the Secretary finally implement the original mission for the MDA by transferring to the military services the responsibility and resources for post-research, development, test, and evaluation (RDT&E) acquisition of current and future missile defense systems. Finally, the United States should invest in research and development

to anticipate future threats, operate effectively from space, and enhance resiliency against kinetic and non-kinetic attack.

- *Electronic Warfare.* Electronic warfare capabilities will be critical in any future conflict, especially those against major-power rivals. U.S. competitors have invested heavily in electronic warfare as a way of neutralizing U.S. advantages, undermining U.S. command, control, and communications, and weakening America's ability to project decisive military power in contested environments. Russia and China have made particularly significant strides in this area. DOD must enhance its electronic warfare capacity and capability to allow the United States to overcome adversary electronic warfare investments, and to degrade and defeat advanced anti-access/area denial capabilities and adversary command, control, and communications architectures.
- *Munitions.* Nearly any conflict between the United States and its most capable competitors would entail significant demand for long-range, high-precision munitions so that U.S. forces can remain outside the range of advanced air defense systems and other anti-access/area-denial capabilities. (Large quantities of shorter-range high-precision munitions will be needed, as well.) Illustrative capabilities include the Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER), Long-Range Anti-Ship Missile (LRASM), and a longer-range High-Speed Anti-Radiation Missile (HARM). Current and planned DOD investments promise some gains in this area, but *more must be done to ensure a substantial, sustainable, and rapidly scalable supply of preferred weapons. To this end, DOD should also explore options for strengthening the part of the National Security Innovation Base that produces high-precision munitions to ensure that the country has the surge capacity needed to prevail in high-intensity conflict.*
- *Mobility.* Because the U.S. military must project power over vast distances, strategic mobility is fundamental to the American way of war. The NDS places an extraordinary premium on mobility and then proposes managing that demand through a Dynamic Force Employment model that envisions shifting assets rapidly across theaters. The Commission, however, has serious reservations about DOD's ability to support its global operations, particularly in the event of a high-intensity contingency or multi-theater operations. Inadequate lift and tanker support, a lack of secure communications, and insufficient capabilities and infrastructure are impeding strategic mobility. The

investments U.S. competitors have made in overseas infrastructure—and, in some cases, their growing ability to target U.S. strategic mobility assets—worsen this trend. *The Department must invest in a more resilient and secure logistics and transportation infrastructure, especially if it chooses to rely on DFE.* Those investments should be rooted in a systematic study of U.S. Transportation Command’s (TRANSCOM’s) capabilities, capacity, and command structure, and the extreme logistical and transportation demands that would be imposed by key contingencies. The Department should also consider whether there is a sufficiently strong “logistics voice” within the Office of the Secretary of Defense given the recent restructuring of that office.

- *Analytical Support.* Making informed decisions about strategic, operational, and force development issues requires a foundation of state-of-the-art analytical capabilities. If DOD is to make such decisions with appropriate rigor, it will be critical to *revitalize analytical support for the Secretary of Defense.* Throughout our work, we found that DOD struggled to link objectives to operational concepts to capabilities to programs and resources. This inability is simply intolerable in an organization with responsibility for tasks as complex, expensive, and important as the Department of Defense. It hampers the Secretary’s ability to design, assess, and implement the NDS, and it makes it difficult for Congress to have faith that the administration’s budget request supports its strategy.

This deficit in analytical capability, expertise, and processes must be addressed. OSD-Cost Assessment and Program Evaluation (CAPE) and the Joint Staff—working closely with OSD-Policy—must rebuild their decision support capability to ensure that the Secretary and Deputy Secretary can make hard decisions grounded in expert analysis, particularly as they consider the warfighting return on investments. Specifically, the Department needs a rigorous force development plan that connects its investment strategy with its key priorities of winning in conflict and competing effectively with China and Russia. That plan must have a clear force sizing construct to illuminate the strategy’s ambition and risks. Such a force development architecture should provide answers to the following questions:

- What are our objectives?
- What operational concepts will animate how we plan to deter and fight?
- How might operational concepts, force posture, and attendant capabilities be tailored to specific regional and functional contexts?

- What assumptions is DOD making about multi-theater demands in timing, scale, and other key aspects? How is DOD hedging against the possibility that these assumptions may not prove out?
- If the United States finds itself in conflict in a first theater, what constitutes “deterrence” in the second theater and how does it change the force requirements projected prior to the NDS’s release (i.e., under the previous defense strategy)?
- How do component program priorities reflect these assessments?
- What role do strategic nuclear forces and allies and partners play in meeting the strategy’s objectives?

Addressing these issues will be essential to meeting the key challenges the NDS identifies. We encourage Congress to seek answers to these questions through its oversight tools.

Readiness

The readiness of U.S. forces to conduct operations promptly, effectively, and safely is a crucial component of America’s national security. When developing budgets, readiness must be balanced with the size of the force, modernization strategies, and levels of personnel compensation required to maintain a high-quality force. Readiness is highly sensitive not just to the level of resources provided by Congress, but also to the timeliness and predictability of that funding, as well as how the services measure readiness and the practices they adopt to achieve it.

The readiness of our forces has suffered in recent years, due to unfettered high demand on a smaller force, persistent budgetary uncertainty, and inadequate funding. Evidence of this can be found in the testimony of the Joint Chiefs over many years, as well as in increases in mishap rates, including aviation accidents and collisions at sea. The Commission therefore applauds the efforts of the Secretary of Defense, the services, and the entire Department of Defense to improve the readiness of U.S. forces. The Commission strongly supports those efforts and does not believe DOD requires detailed guidance on how best to do so, provided other issues raised in this chapter are addressed.

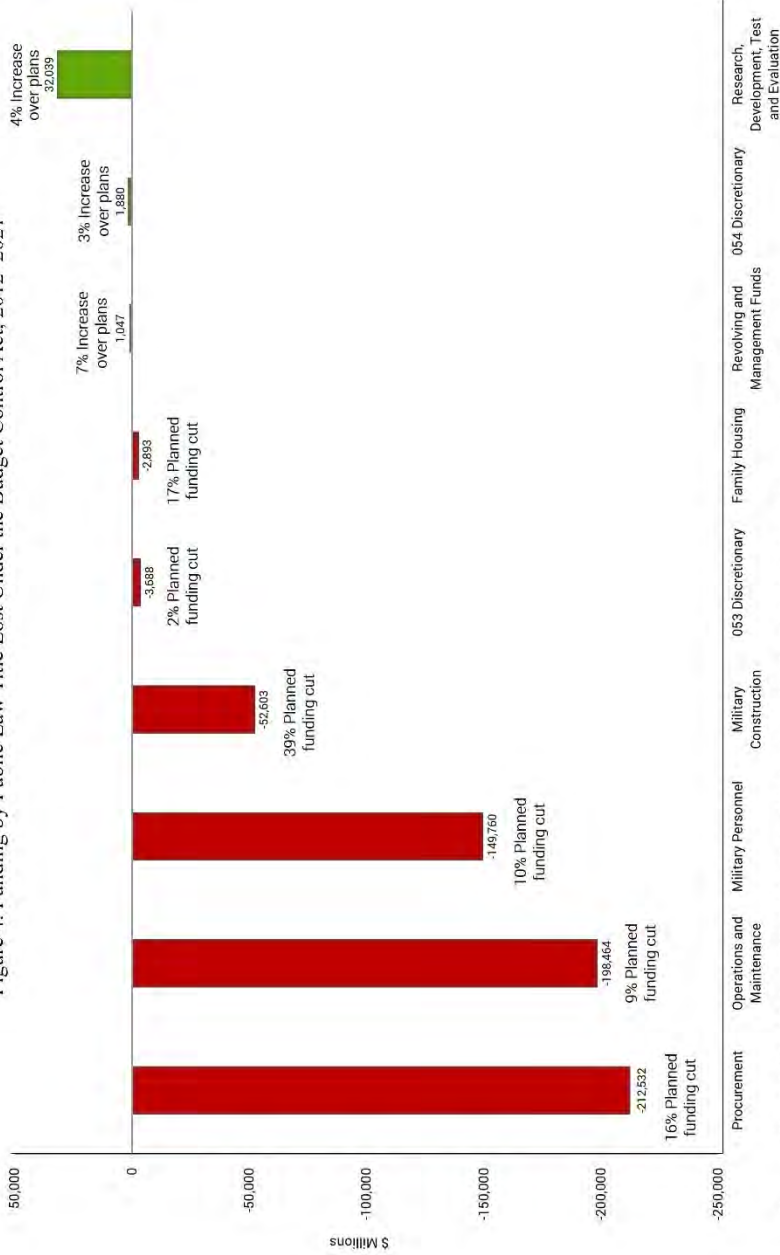
It has long been the Department’s practice not to send into harm’s way men and women who are not properly trained and ready for their mission. But the broader and more demanding those missions are—particularly in dealing with major-power adversaries—the more difficult that commitment becomes to fulfill, as it entails more extensive training for a higher percentage of the force. U.S. forces will therefore need additional resources to train to high levels of proficiency across a broader range of

more complex missions than in the recent past. Each of the five major challenges identified in the NDS—China, Russia, North Korea, Iran, and terrorist groups—requires our forces to train and be proficient in different capabilities, tactics, and techniques. Additional resources will also be needed to support the exercises and experiments needed to develop and refine innovative operational concepts and incorporate them into doctrine. Furthermore, training for gray-zone operations will require doctrine and scenarios that go beyond military operations. Interagency involvement in such training will be greater than has been the case for counterinsurgency missions in Afghanistan and Iraq. *We recommend that the Department develop analytic tools that measure readiness across this range of challenges, from low-intensity, gray-zone conflicts to protracted, high-intensity fights with major-power rivals.*

In training for these missions, the Department must overcome what the NDS labels “the impact on current readiness from the longest continuous stretch of armed conflict in our Nation’s history.” For over a decade, and with good reason, training for much of our conventional and special operations forces emphasized the specific challenges of operations in Afghanistan and Iraq. *The Commission thus supports the view that major-power competition should be at the center of the Department’s strategy as well as its budget, and that a greater share of training and readiness efforts must be devoted to the full range of potential missions our forces face.*

DOD must simultaneously overcome years of unprecedented budgetary turmoil. This turmoil has included multiple government shutdowns and near-shutdowns, nine consecutive years beginning under either shutdowns or short-term continuing resolutions that have consumed over one-third of the time available to plan and execute readiness activities, the defense caps within the BCA, the application of sequestration, and unpredictable budget top-lines (see Figure 4).

Figure 4. Funding by Public Law Title Lost Under the Budget Control Act, 2012–2021



Source: PB12 Table 32-1, PB19 Table 26-1, FY19 Green Book Table 2-1, 2018 Appropriations.

Note: this does not include general provisions from the 2018 omnibus, which reflect a further 1.78 billion in reductions.

We address the issue of resources in more detail in the next chapter. Here it is simply important to note that resources alone rarely cause, and cannot in isolation cure, a readiness problem. Readiness is a complex function of having the right people with the right tools and training, led by people who themselves have had the proper experience and leadership development. Lost time and missed opportunities to develop doctrine and experience over a wide range of operations cannot be bought back just by adding more funds. Nevertheless, the Commission emphasizes that sufficient funding—provided on a timely, consistent basis—is imperative to address current readiness challenges. *We recommend that Congress work with the Department to ensure a level of funding adequate to execute the NDS, and that it take steps to ensure such funding is not held hostage to budgetary unpredictability. One concrete step would be for Congress to authorize DOD to expend Operations and Maintenance funds from any given fiscal year during that fiscal year and the subsequent one.*

The Commission is also concerned that the rates of attrition and consumption involved in the conflicts the NDS prioritizes are not adequately appreciated. As recently as 2015, the Air Force ran dangerously low on Hellfire missiles due to the vigorous campaign against ISIS. As the Air Force sought to replenish those stocks, it found that the existing munitions manufacturing capacity could barely meet the need. As noted, the kind of campaigns envisioned by the NDS will require preferred munitions in enormous quantities, with an underlying manufacturing capacity that can sustain those campaigns. As a result, it seems likely that the United States needs to expand its defense industrial base in some sectors, while also increasing preparations to mobilize that base in the event of war.

Perhaps most importantly, the Commission believes that the most critical resource required to produce a highly capable military force is highly capable people willing to serve in the numbers required. That requirement will only loom larger in the future, because it will be necessary to increase the size of the force while also developing the ability to overcome new operational challenges and execute innovative operational concepts.

Current trends, however, indicate that the number of people who have the required fitness and propensity to serve is in decline. In April 2018, service personnel chiefs testified that only one in four 17-to-24 year-olds meets the criteria to enlist in the military. This is due to several factors, including the rise in obesity, existing criminal records, and failure to meet basic educational requirements. Manpower challenges are further

complicated by the fact that, among those eligible for service, only one in four exhibits the propensity to serve. This, too, is a result of many factors, including misinformed impressions of military service and benefits and a lack of exposure to positive advocates for military service.

These factors present a very serious challenge to the execution of the NDS. Programs to address issues such as shortcomings in physical fitness, nutrition, and general educational preparation in our national school-age population are not part of the Department's role in U.S. government or society. *Nevertheless, it is clear that DOD and Congress must take creative steps to address those aspects of the problem that are within their purview, rather than relying solely on ever-higher compensation for a shrinking pool of qualified volunteers.* Without a marked change in the way America approaches the idea of military service and the fitness and education of future generations, DOD will struggle to fill its ranks with highly qualified individuals, with profound implications for national security.

Civil-Military Relations

Constructive approaches to addressing any of the challenges the U.S. military confronts must be rooted in healthy civil-military relations. In the course of its evaluation, however, the Commission was struck by the relative imbalance of civilian and military voices on critical issues of strategy development and implementation. We came away with a troubling sense that civilian voices were relatively muted on issues at the center of U.S. defense and national security policy, undermining the concept of civilian control. Strong civilian oversight is the central hallmark of the U.S. civil-military relations, codified in the Constitution and embraced throughout the nation's legislative history. The implementation of the NDS must feature empowered civilians fulfilling their statutory responsibilities.

One area where an increased civilian voice appears particularly important is integrating responses to global challenges, particularly as that task relates to force management. The Secretary should have a robust and capable civilian staff with regular opportunities to advise him on these issues. For "Global Integration" to work well, DOD should ensure a substantial civilian oversight role to facilitate consideration of political-military issues at key junctures. Put simply, allocating priority—and forces—across theaters of warfare is not solely a military matter. It is an inherently political-military task, decision authority for which is the proper competency and responsibility of America's civilian leaders, informed by the counsel they receive from military leadership.

According to Title 10 of the U.S. Code, the Secretary of Defense is the “principal assistant to the President in all matters relating to the Department of Defense,” and has “authority, direction, and control over the Department of Defense.” These Title 10 responsibilities, as well as the specific Title 10 responsibilities of the Under Secretary of Defense for Policy to guide and review war plans, are particularly meaningful here. Unless Global Integration is nested under higher-order guidance from civilians, an effort to centralize defense direction under the Chairman of the Joint Chiefs of Staff may succeed operationally but produce profound—and potentially catastrophic—strategic problems. For DFE and Global Integration to work well, the Department must give serious thought to decision-making processes that highlight the relevant political-military dynamics of force management shifts in addition to the direct impacts on readiness and other opportunity costs (e.g., in the “losing” theater). *The Commission urges the Secretary of Defense and Under Secretary of Defense for Policy to exercise fully their Title 10 responsibility for preparing guidance for and reviewing contingency plans.* In particular, we view the Contingency Planning Guidance and the plans that result from it as vital to implementing the NDS and we urge the Secretary to give these documents close attention.

The Commission also recommends that Congress ensure thorough oversight of the Department’s civil-military relations. The issue here is not that the existing Title 10 responsibilities of the Secretary and his civilian advisers are inadequate, but that they have not been used effectively, and that responsibility on key strategic and policy issues has increasingly migrated to the military. Congress has provided the Secretary of Defense with significant discrimination to manage and direct the Department, but it has also levied specific requirements for civilian oversight. It should hold the Secretary accountable for the Department meeting the spirit and the letter of these Title 10 requirements. In doing so, Congress will help uphold the authority of civilian leaders and reverse the unhealthy trend in which decision-making is drifting increasingly toward the military on issues of national importance.

Chapter 5

Funding the Force We Need

“Strategy wears a dollar sign,” the strategist Bernard Brodie wrote: The United States will only have as much military strength and security as it is willing to pay for. Military effectiveness is about far more than having enough funding and forces, of course, but these are necessary—if not sufficient—components of an effective defense. Although the NDS generally reflects the right priorities and objectives, it is not supported by adequate investments. It is beyond the scope of this Commission’s work to identify the exact dollar amount required to fully fund the military’s needs, but the available means are clearly insufficient to fulfill the strategy’s ends.

This is true despite the two-year funding increase for FY2018 and FY2019 provided by the Bipartisan Budget Act of 2018. Although that increase provides a healthy initial down payment on the defense strategy, a number of factors—the lack of planned real budgetary growth beyond this two-year period, the continuation of the BCA caps through FY2021, and the threat of unpredictable and delayed funding due to a persistent failure to pass year-long appropriations in a timely fashion—combine to place the strategy in jeopardy. Without a long-term commitment to providing additional resources, and without greater stability and predictability in how those resources are provided, DOD will be unable to execute the existing strategy. The details of defense budgeting may seem arcane, but the basic point is simple: If the United States does not adequately fund its military now and in the future, it risks forfeiting any near-term financial savings with vast long-term costs in blood, security, and treasure.

The Lingering Impacts of the BCA

A significant part of the resourcing challenge DOD faces today can be traced back to the effects of the BCA. The BCA was passed into law in August 2011, a time when many observers expected an extended period of U.S. military retrenchment following the most intensive phases of long wars in Iraq and Afghanistan. Within three years, however, ISIS had established a caliphate following the U.S. withdrawal from Iraq, Russia had invaded Ukraine and annexed Crimea, and China had intensified its drive for dominance in the South China Sea and undertaken a more ambitious global strategy. Meanwhile, U.S. spending caps remained in force. Despite periodic agreements to raise the defense topline,

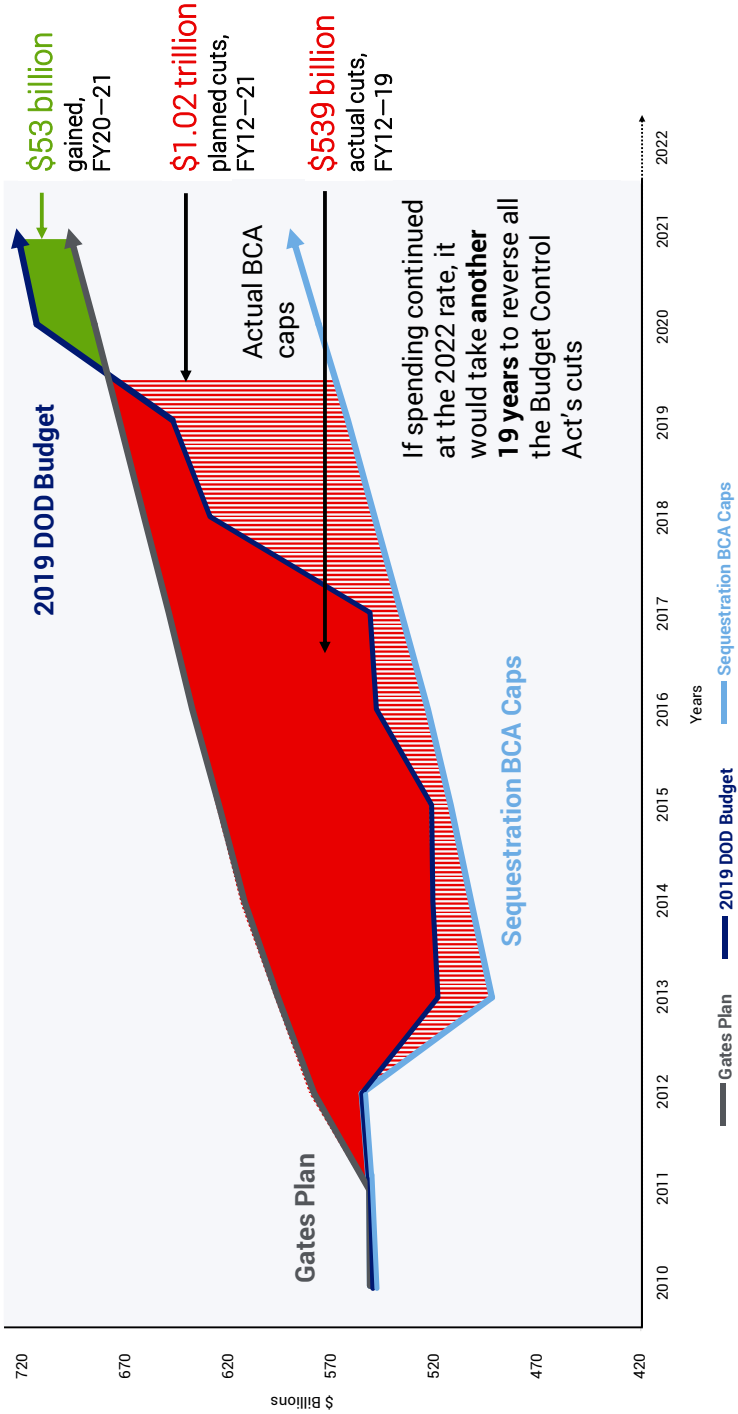
funding for America's military failed to keep pace with changing security challenges.

Resources are always constrained to some degree, of course. Yet the inflexible limits of the BCA—and the havoc wreaked by start-and-stop funding and a reliance on continuing resolutions in place of year-long or multi-year budgets—are contrary to effective and efficient long-term planning. Under the Obama administration, the military had difficulty carrying out the more modest objectives of its defense strategy even with the additional resources provided by periodic modifications to the BCA caps. The current NDS, with its emphasis on competition against major-power rivals, will require more than marginal increases to the defense budget.

If artificial spending constraints and continuing resolutions were thus harmful before the new strategy was issued, they are downright reckless today. Budget Control Act (BBA) 2018 is a step in the right direction, but it does not fully fund the NDS for the long-term. Even factoring in the \$237 billion in cumulative defense funding recovered by that agreement plus two earlier bipartisan agreements in 2013 and 2015, the BCA still resulted in a net \$539 billion in cuts to base national defense spending between 2012 and 2019, relative to Secretary of Defense Robert Gates's final spending plan before the BCA became law (see Figure 5). According to the Pentagon's most recent projections, spending in FY2020 and beyond would exceed Gates's plan, but only barely. If spending continued at a constant rate, it would take roughly two decades to fully offset the funding lost under the BCA. Furthermore, the Department's envisioned funding levels beyond FY2019 may be excessively optimistic. The BCA remains law into 2021, meaning a final two-year budget agreement will be required to avert a reversion to BCA cap levels, which are much lower than what the Department is expecting. Without such a deal, the Defense Department could face an additional \$171 billion in base budget shortfalls in FY2020 and FY2021.

There must be greater urgency in addressing the damage caused by the BCA. Recognition, on the part of the Congress and the White House's Office of Management and Budget, that any strategy should be adequately resourced is overdue. *One important signal of this recognition would be bipartisan agreement to eliminate the final two years of spending caps under the BCA.*

Figure 5. Base O50 Spending Under the Budget Control Act



The Need for Additional Funding to Execute the NDS

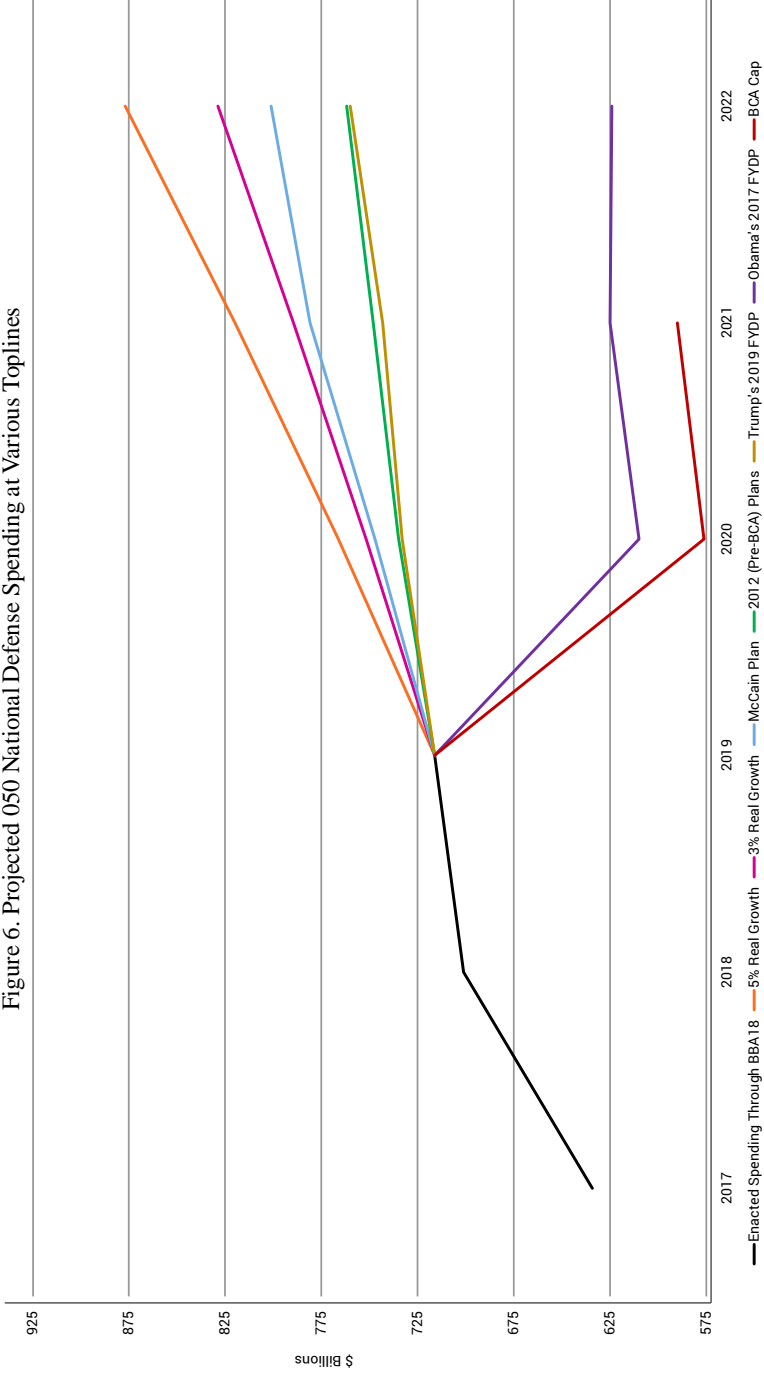
Eliminating the final two years of BCA caps would be helpful but is not enough to adequately fund U.S. defense strategy. Although the NDS emphasizes strategic and military competition with China and Russia, the administration's proposed budgets for FY2019 and beyond do not fund a level of military capacity and capability adequate to defeat either adversary should war occur while deterring other enemies simultaneously.

In 2017, Secretary Mattis and Chairman Dunford testified to Congress that DOD required three to five percent annual budgetary growth (in inflation-adjusted terms) if the U.S. military was not to lose its ability to project power and uphold alliance commitments. Although this number is more illustrative than definitive, and although these estimates were provided prior to the conclusion of the process that produced the current defense strategy, it is nonetheless indicative of the level of investment needed to meet the ends the NDS establishes. The need for sustained budgetary growth remains, and we are deeply troubled by the lack of such growth in the Department's five-year budget plans (see Figure 6).

If this shortfall is not corrected, the Department may find itself able to prosecute just one conflict successfully, without the ability to simultaneously deter other adversaries. Given that the United States could plausibly face threats from both Russia and China at once, given the persistent dangers posed by North Korea and Iran, and given that the U.S. military will also continue to face challenges that require enduring effort in the Middle East, this outcome entails an intolerable level of national risk. The United States may find itself confronted with agonizing choices: abandoning commitments in other theaters to focus on one, mobilizing American society to a degree not currently envisioned in order to meet simultaneous threats, or relying on high-risk strategies including nuclear escalation to avoid conventional defeat.

Congress should increase the size of the base defense budget significantly through the Future Years Defense Program and perhaps beyond. We believe that three to five percent annual real growth is indicative of the investment required. Failing that, it may be necessary to alter the expectations of U.S. defense strategy and our global strategic objectives.

Figure 6. Projected 050 National Defense Spending at Various Toplines



Source: President's Budget 2012, 2017, 2019; Congressional Research Service "The Budget Control Act and the Defense Budget," Restoring American Power; Bipartisan Budget Act of 2018.

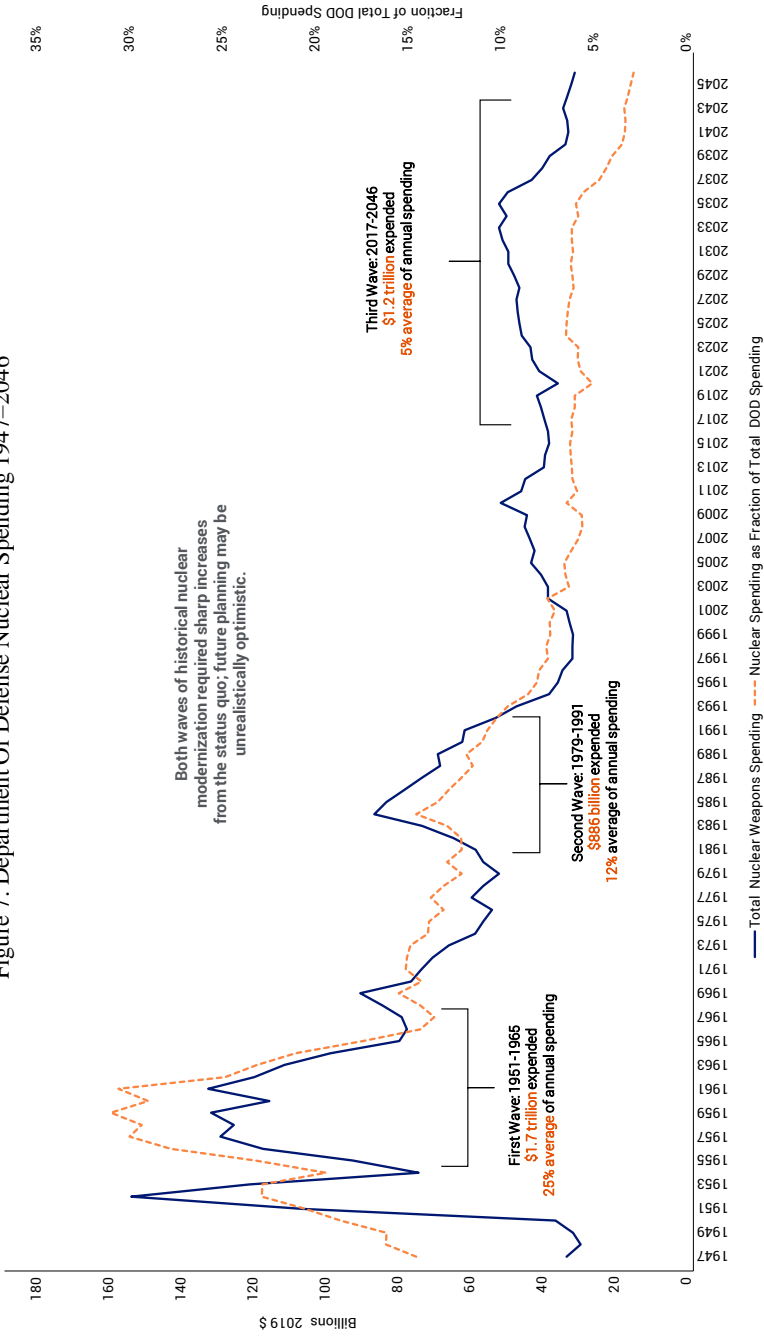
Resourcing Priorities and Challenges

The Commission endorses the priority the NDS places on modernizing the U.S. nuclear deterrent, including all three legs of the nuclear triad—ballistic missile submarines, ICBMs, and nuclear-capable aircraft—as well as related command and control systems. This recapitalization has been repeatedly deferred and cannot be further delayed because so many elements of the U.S. nuclear deterrent are rapidly nearing the ends of their service lives at a time when U.S. rivals are aggressively modernizing and in some cases expanding their arsenals. History and basic arithmetic suggest that this recapitalization cannot be accomplished within currently projected budget levels unless DOD reduces its conventional capabilities (see Figure 7).

At the same time, DOD faces an impending “bow wave” of conventional modernization costs, driven by the need to reinvest in key capabilities that sustain deterrence and preserve a warfighting advantage. Yet here, too, existing and envisioned funding levels are insufficient. Between FY2012 and FY2017, the military lost \$200 billion in modernization spending compared to pre-BCA/sequestration plans. Under the Department’s current five-year budgetary outlook, funding to support the NDS will add back only \$20 billion—just 10 percent of the overall reduction (see Figure 8). Without serious conventional force modernization, the United States may need to rely on its nuclear arsenal in ways that hamper effective competition with Russia and China. But undermining the nation’s strategic deterrent to pay for conventional deterrence also entails unacceptable risks.

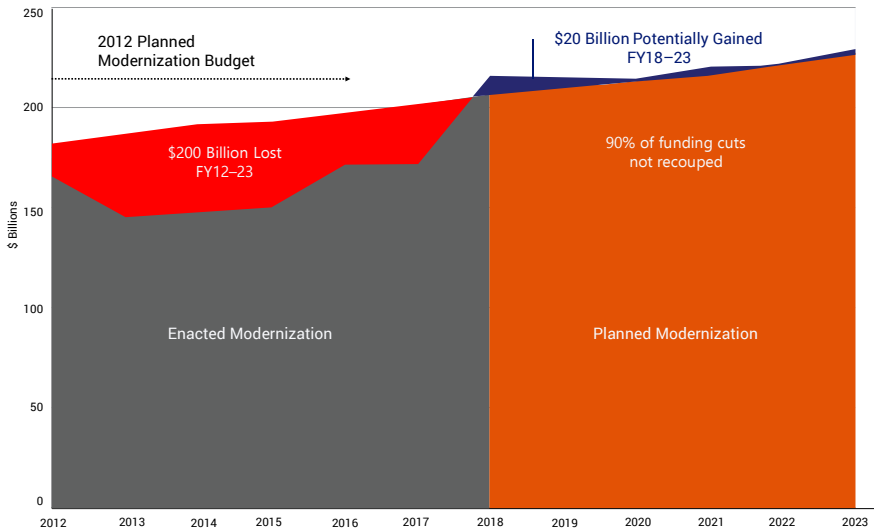
The Commission finds that nuclear and conventional forces are both indispensable to a balanced, effective defense: The nation should not hollow out one set of capabilities to pay for the other. Congress should therefore fund DOD at a level to permit critical conventional and nuclear modernization.

Figure 7. Department Of Defense Nuclear Spending 1947–2046



Source: Department of Defense Green Book Table 6-5; Atomic Audit for methodology on processing data; Congressional Budget Office (CBO), “Approaches for managing the costs of US Nuclear Forces, 2017 to 2046.”

Figure 8. Modernization Investment Lost Under BCA



Source: PB12 Table 32-1, 2019 Green Book Table 6-25, 2018 Appropriations.
 Note: Because they were not divided by public law, this graphic does NOT reflect the amended (higher) base topline announced in the round of overseas contingency operations (OCO)-to-base movements in the wake of BBA18 and after the release of PB19.

Finally, the readiness challenges across the U.S. military took years to create and will require years to redress. Long-standing readiness problems will not be fixed by a single two-year budget deal. It will take years of sustained, predictable, and increased funding to repair readiness and ensure that U.S. forces are fully prepared to fight when needed. Moreover, capable modern systems and fully funded training and readiness accounts are key to recruiting and retention. *The Commission recommends that DOD and Congress balance new funding to emphasize readiness, capacity, and capability across the force rather than focusing on a subset of capability.*

Ensuring Timely and Consistent Funding

The importance of providing adequate resources is obvious. Yet our forces also need funding that is timely, sustained, and predictable. Our political leaders have been failing that test miserably. Put simply, the funding process is broken.

For nearly a decade, DOD did not receive its funding on time. In the last nine years, the military has operated under a continuing resolution for the

equivalent of three calendar years. During such periods, operations are restricted and acquisition and contracting processes grind to a halt. The five longest continuing resolutions in the Department's history have all occurred in the past eight years. Washington's inability to appropriate funding on a timely basis or at anticipated levels conveys a lack of seriousness divorced from growing worldwide challenges. This dysfunction has had grave material impact, encouraging inefficient, "use-it-or-lose-it" spending by the services at the end of the fiscal year, resulting in delays in acquisitions and modernization, and exacerbating readiness problems throughout the force (see Figure 9). The failure to provide timely, sustained, and predictable funding is a strong negative message regarding the worth of the men and women who serve in uniform.

Just as swift budget reductions harm readiness, adding back large amounts of money in unpredictable fashion also constrains the Department's ability to make carefully considered choices and investments. *To relieve this pressure, Congress should give the Department authority to spend Operations and Maintenance funds for any given fiscal year across that fiscal year and the subsequent one. More ambitiously, Congress should produce five-year budget agreements for defense.* It is hypocritical for policymakers to advocate that American allies commit to multi-year defense budgeting while the United States refuses to do so itself, and Congress has already demonstrated its willingness to set future year spending targets for defense through the BCA.

Figure 9. Average Fiscal Year 2018 Operations and Maintenance Spending Per Day



Source: 2018 Appropriations.

Restoring OCO Funding to the Base Budget

Because of budgetary constraints imposed by the BCA, lawmakers and the Department of Defense have increasingly relied upon the overseas contingency operations (OCO) fund to pay for warfighting operations in the greater Middle East, as well as other activities and initiatives. Yet this approach to resourcing has produced problems and distortions of its own. For one thing, the amount of money devoted to OCO since the BCA was enacted no longer corresponds to warfighting operations in the greater Middle East. Furthermore, such operations are no longer a top priority as articulated in the NDS. Finally, reorienting the military toward high-end competition and conflict will require new capabilities beyond the current program of record. OCO is not the way to provide adequate and stable resources for such a long-term endeavor, given its lack of predictability and the limitations on what OCO funds can be used to buy.

As a general rule, the cost of operations and programs paid for by OCO should be reabsorbed into the base Pentagon budget. This also requires a dollar-for-dollar increase in the BCA spending caps, should they remain in force, so that this transfer of costs does not result in an overall spending cut. It is critical that as much DOD spending as possible be covered by the base budget, to provide the Department with the stability and long-term planning and investment capability needed to execute the NDS.

Pentagon Reform: Necessary but Not Sufficient

Resourcing a strategy is not only an issue of providing reliable, adequate, and timely funding. It also entails ensuring that the available dollars are spent as efficiently and effectively as possible. This is more than a matter of treating taxpayer dollars with respect, as vitally important as that is. It is equally a matter of sharpening the U.S. military's ability to compete with its rivals by wringing maximum value out of the resources at hand.

This being the case, the NDS is correct to argue that the Pentagon's culture and way of doing business must change. Sustained reforms, implemented across every aspect of the Department's activities, are sorely need to bring one of the world's largest bureaucracies into line with 21st century business practices. This will be critical to fostering innovation, improving responsiveness and agility, enhancing the speed at which capabilities are developed and fielded, and improving the efficiency, effectiveness, and accountability with which the Department expends limited funds. Every recent Secretary of Defense has recognized this

imperative, which has only become more pressing as America's competitive edge has eroded.

As important as reform is, however, it is an illusion to believe that savings from efficiencies alone will provide sufficient funds for near-term reinvestment in modernization. Every previous attempt to subsidize modernization through internal reform has come up well short of expectations. *We believe the Department should continue to pursue reform on its own merits, to enhance competitiveness and assure taxpayers that their tax dollars are well-spent. Yet DOD and Congress must understand that even the most optimistic advocates of reform cannot identify sufficient savings to make this approach a reliable source of real growth in defense capability.*

Furthermore, Congress should recognize that the best way to manage reform is not by instituting wholesale changes every year. The Pentagon needs time to implement existing guidance before undertaking further reforms. It is true that the Pentagon's broken, 20th century acquisition system is insufficient for the problems of the 21st century, and there are some areas in which further acquisition reform may be necessary, as discussed in Chapter 3. To better adapt, DOD must embrace risk, and thus the possibility of failure. To facilitate this cultural change, DOD must move away from a vulnerable few projects with timescale measured in decades, to a larger volume of smaller bets on groundbreaking technologies.

In considering further reforms, Congress should take this same approach to heart. The best way to manage Pentagon reform is not by instituting grand organizational changes every year, but to adopt a succession of smaller measures that allow the Pentagon to internalize changes before pursuing additional reform. As former Deputy Secretary of Defense Robert Work has noted, waves of innovation and change at DOD are generational affairs. They are not problems that can be fixed in one legislative calendar. In lieu of additional broad, near-term acquisition reform, Congress should emphasize thoughtful oversight and assessment of changes to date. Lawmakers should focus on prodding the Pentagon to use its newly established authorities to field equipment more quickly and cheaply. If the Department is not given time to absorb these acquisition policy shifts, new efforts at wholesale reform may overload the system or attempt to solve problems that the Pentagon might work through on its own as it absorbs new ways of doing business.

Addressing Long-Term Fiscal Challenges

This Commission is under no illusions about the magnitude of the resource investments it advocates. Moreover, we recognize that in any discussion of resources, there are larger fiscal pressures squeezing defense and other national security priorities such as diplomacy, foreign aid, and homeland security. As Secretary Mattis noted in his confirmation hearing, the growing national debt itself constitutes a significant national security threat. The Congressional Budget Office (CBO) projects that continued deficit spending will take the amount of federal debt held by the public to roughly 100 percent of gross domestic product by the end of the 2020s. Without changes to revenues or expenses, this ratio would climb to an unprecedented 152 percent by 2048. Such unconstrained growth in federal debt would imperil both the creditworthiness and economic stability of the nation and undermine its ability to adequately fund any number of national priorities.

That said, under-resourcing defense signals weakness to American foes and breeds insecurity in American allies. Equally important, when addressing the nation's long-term fiscal challenges, Congress and the public should remember an oft-forgotten fact: that defense simply is not where most of the money is. Neither is discretionary spending more broadly. Rather, mandatory spending on domestic entitlement programs and interest payments on the national debt constitute the majority of federal outlays and will be the source of most growth in federal spending in the coming decade. If these principal drivers of the national debt are left unaddressed, they will crowd out spending for discretionary spending for both domestic and defense programs (see Figure 10).

The nation has ignored this reality for too long. The BCA disproportionately targeted discretionary spending, and forced DOD to bear half of total cuts despite accounting for less than a fifth of annual federal outlays. This approach induced false comfort among lawmakers that they were meaningfully addressing the nation's fiscal woes. In reality, the deep discretionary reductions had minimal impact on the overall fiscal outlook, but real and severe consequences for the U.S. military. Moreover, untargeted spending cuts failed to produce dramatic improvements in Pentagon efficiency. Consider that the size of the Pentagon's civilian workforce is nearly equivalent to pre-BCA levels, even as active-duty end strength has fallen by more than 100,000 personnel. Lawmakers should not confuse targeted and justified Pentagon reform efforts with across-the-board spending cuts imposed by the BCA. Simply put, America's fiscal woes cannot be solved on the back of defense.

Figure 10. Federal Outlays, FY17–28



Source: CBO’s Budget and Economic Outlook, 2018 to 2028, Table 2-1.

Looking ahead, policymakers must address rising government spending and decreasing tax revenues as unsustainable trends that compel hard fiscal choices. Net interest payments to service the growing debt are rising rapidly, and the retirement of the baby boomers will exacerbate the problem caused by exploding entitlement costs. As for revenues, over the past two decades there have been several significant tax cuts (President Bush’s 2001 and 2003 tax cuts, President Obama’s payroll tax cuts, and President Trump’s 2017 tax reform bill) that have decreased resources available to fund defense and address broader fiscal challenges. No serious effort to address growing debt can be made without either increasing tax revenues or decreasing mandatory spending—or both. Without such an effort, it will be impossible to stabilize the nation’s finances, and to fund and sustain an adequate defense. *Rather than viewing defense cuts as the solution to the nation’s fiscal problems, Congress should look to the entire federal budget, especially entitlements and taxes, to set the nation on a more stable financial footing.* In the near-term, such adjustments will undoubtedly be quite painful. Yet over time—and probably much sooner than we expect—failing to make those adjustments and fully fund America’s defense strategy will undoubtedly be worse.

Embracing a Whole-of-Government Approach to Strategic Competition

This Commission was charged with making recommendations regarding U.S. defense strategy. Yet even if America were to fund the Department of Defense lavishly, and even if all the other recommendations in this report were to be implemented, that would not be sufficient to address the threats and challenges facing the country today. America’s two most powerful competitors—China and Russia—have developed national strategies for enhancing their influence and undermining key U.S. interests that extend far beyond military competition. Encompassing economic, diplomatic, covert, political, and other initiatives, those strategies draw on the full array of foreign policy tools; they include many actions that fall short of war but nonetheless alter the status quo in dangerous ways. *As noted, comprehensive solutions to these comprehensive challenges will require whole-of-government and even whole-of-nation cooperation extending far beyond DOD. Trade policy; science, technology, engineering, and math education; diplomatic statecraft; and other non-military tools will be critical—so will adequate support and funding for those elements of American power.* Without such a holistic approach, the United States will be at a competitive disadvantage and will remain ill-equipped to preserve its security and its global interests amid intensifying challenges.

Compendium of Findings and Recommendations

Evaluating the NDS

1. The NDS generally sets the right strategic goals, but unacknowledged risk factors, analytical gaps, and resource shortfalls are likely to hamper its execution.

Recommendation: The United States urgently requires rapid and substantial improvements to its military capabilities, built on a foundation of compelling and relevant warfighting concepts at the operational level of war.

Operational Challenges and Concepts

2. The best way to develop operational concepts that address the operational challenges identified by the NDS is to promote a fuller discussion within the national security community.

Recommendation: DOD should declassify the operational challenges specified by the NDS.

3. The military balance in key regions has been deteriorating and the United States faces a worsening position across a range of key operational challenges. While the United States was focused on defeating insurgents in Iraq and Afghanistan, Russia and China were focused on acquiring capabilities to defeat American forces.

Recommendation: U.S. defense investments should emphasize achieving and maintaining favorable military balances for the United States and its allies against China in Asia and against Russia in Europe. Specifically, those investments should be focused on the 2018 operational challenges; they should seek to yield expanded U.S. operational options while constraining those available to China and Russia.

4. Detailed, rigorous concepts for solving key operational problems are badly needed, but do not appear to exist.

Recommendation: DOD must more clearly answer the question of how it intends to defeat major-power rivals in competition and war. It should develop plausible strategies and operational concepts that identify what the United States seeks to achieve and how it will prevail, and suggest measures of effectiveness to mark progress along the way. It should also clarify ill-defined concepts like “expand the competitive space.”

5. Potential adversaries are blurring lines between strategic and conventional approaches; they are blending nuclear, space, cyber, conventional, and unconventional means in their warfighting doctrines and pursuing coercive aims through a mix of military and non-military means.

Recommendation: DOD must develop new operational concepts to achieve strategic advantage, including by addressing the ability of aggressive regimes to achieve a *fait accompli* against states on their periphery, or to use nuclear or strategic weapons in ways that would fall short of justifying a large-scale U.S. nuclear response. The United States must also develop more holistic strategies and operational concepts for prevailing in competitions short of war. DOD should establish cross-functional teams to integrate responses to these and other difficult challenges.

National Security Innovation Base

6. U.S. superiority in key areas of innovation is decreasing or has disappeared. U.S. competitors are investing heavily in innovation while using predatory tactics to undermine the U.S. National Security Innovation Base.

Recommendation: The United States must better protect and strengthen its National Security Innovation Base. The U.S. government needs to consider whether it should increase investment in threatened industries that produce vital technology and components, and whether some selective disintegration with rivals—namely China—is necessary to avoid dangerous dependencies.

7. Much of the needed innovation in technologies suitable for national defense purposes is happening outside of traditional defense industry.

Recommendation: The Secretary of Defense should capitalize on the Defense Innovation Board and make maximum use of organizations such as DARPA, DIU, government R&D labs, UARCs, and FFRDCs to broaden DOD's reach into the commercial world.

8. Current acquisition programs are risk-averse. Finding, developing, and fielding new capabilities in the future will require a new acceptance of risk to identify and exploit potential “leap-ahead” technologies.

Recommendation: DOD should partner with Congress to explore the potential of a new, narrowly tailored category of acquisition pilot

programs to enable more rapid maturation, acquisition, and fielding of break-through technologies.

Near- to Mid-Term Force Priorities

9. Forward posture is a key component of deterring competitors and adversaries and assuring allies and partners. Speed matters, and the ability to mobilize and move forces quickly is critical given that likely contingencies could begin with a small confrontation that escalates quickly.

Recommendation: If the United States desires to avoid military conflict and control potential escalation, it should ensure there is a capable day-to-day posture in key theaters. Deterring aggression in the Western Pacific will require using focused investments to establish a forward-deployed defense-in-depth posture. To deter a revanchist Russia, the United States and its NATO allies must rebuild military force capacity and capability in Europe.

10. Even after the demise of the core ISIS “caliphate,” the United States will still face state and non-state military challenges that require persistent military engagement in the Middle East.

Recommendation: U.S. military posture in the Middle East should not become dramatically smaller, even though the precise mix of U.S. capabilities should be reexamined.

11. The United States now faces five credible challengers, including two major-state competitors, and three distinctly different geographic and operational environments. A two-war force sizing construct makes more strategic sense today than at any previous point in the post-Cold War era, yet the NDS adopts what is functionally a one-war force sizing construct.

Recommendation: The United States needs a larger force than it has today if it is to meet the objectives of the strategy. The Air Force, Navy, and Army will all need capacity enhancements in addition to—not in place of—the capability and posture changes this Commission recommends. The Army will need more armor, long-range fires, engineering and air-defensive units, as well as additional air-defense and logistical forces. The Navy must expand its submarine fleet and dramatically recapitalize and expand its military sealift forces. The Air Force will need more stealthy long-range fighters and bombers, tankers, lift capacity, and intelligence, surveillance, and reconnaissance platforms. Finally, the United States must maintain the Marine Corps at no less than its current size.

12. The United States confronts cyberattacks from adversaries on a daily basis, yet efforts to defend against and respond to those attacks are hamstrung by debates over authorities and jurisdictional boundaries.
Recommendation: Congress should appoint a high-level commission to review U.S. cyber policy. That commission should focus on issues surrounding the relevant authorities and jurisdictional boundaries, and offer recommendations on how to streamline decision-making and bureaucratic processes, while protecting civil liberties and leading efforts to establish international cyber norms.
13. In view of the rapid aging of America's nuclear arsenal and the aggressive nuclear modernization programs undertaken by U.S. rivals, it is urgently necessary to modernize the U.S. nuclear triad and much of the supporting infrastructure.
Recommendation: The findings of the 2018 Nuclear Posture Review offer an appropriate option for meeting U.S. nuclear deterrence and assurance requirements, and we urge DOD to proceed along the path the NPR lays out.
14. Space is once again becoming an increasingly critical and contentious domain. The U.S. military is heavily dependent on space-based assets across the full spectrum of conflict; other nations are attempting to replicate U.S. space capabilities for themselves and developing counterspace capabilities to reduce or eliminate U.S. advantages.
Recommendation: America should improve its ability to compete and deter malign activity in space, and to be sufficiently resilient that the military and economic effects on Earth are minimized should deterrence fail. As the United States rethinks its approach to space, it should emphasize five themes: technology, policy, organization, communication, and cooperation.
15. Missile defense is foundational to U.S. deterrence and assurance strategies. As the missile threat to the U.S. homeland from North Korea and Iran grows, and as Russia and China modernize their nuclear arsenals, America will need more credible and effective defenses.
Recommendation: A senior DOD official should be given full authority to develop and implement an integrated, long-term plan for acquiring and developing air and missile defense capability. The Secretary should transfer the responsibility and resources for post-RDT&E acquisition of missile defense systems to the services; DOD should invest in a robust R&D program to anticipate future threats, operate effectively from space, and enhance resiliency.

16. Electronic warfare capabilities will be critical in any future conflict, especially those against major-power rivals. U.S. competitors have invested heavily in electronic warfare as a way of neutralizing U.S. advantages and weakening America's ability to project power.
Recommendation: DOD must enhance its electronic warfare capacity and capability to overcome adversary electronic warfare investments, and to degrade and defeat anti-access/area denial capabilities and adversary command, control, and communications architectures.
17. Nearly any conflict between the United States and its most capable competitors would entail significant demand for long-range, high-precision munitions. Large quantities of shorter-range high-precision munitions will be needed, as well.
Recommendation: DOD must ensure a substantial, sustainable, and rapidly scalable supply of preferred weapons such as Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER), Long-Range Anti-Ship Missile (LRASM), and a longer-range High-Speed Anti-Radiation Missile (HARM). DOD should explore options for strengthening the part of the National Security Innovation Base that produces high-precision munitions to ensure that the country has the required surge capacity.
18. The Commission has serious reservations about DOD's ability to support its global operations. Inadequate lift and tanker support, a lack of secure communications, and insufficient capabilities and infrastructure are impeding strategic mobility.
Recommendation: DOD must invest in a more resilient and secure logistics and transportation infrastructure, especially if it relies on a Dynamic Force Employment model that envisions shifting assets rapidly across theaters. Those investments should be rooted in careful study of TRANSCOM's capabilities, capacity, and command structure, and whether there is a sufficiently strong "logistics voice" within the Office of the Secretary of Defense.
19. DOD lacks the analytical ability, expertise, and processes to link objectives to operational concepts to programs and resources; many key concepts emphasized in the NDS are imprecise or unrealistic.
Recommendation: OSD-CAPE and the Joint Staff—working closely with OSD-Policy— must rebuild decision support capability to ensure that the Secretary and Deputy Secretary can make hard decisions grounded in serious analysis, particularly as they consider the warfighting return on investments. Specifically, the Department needs a rigorous force development plan that connects its investment

strategy with its key priorities of winning in conflict and competing effectively with China and Russia.

Readiness

20. For over a decade, training for U.S. conventional and special operations forces emphasized the specific challenges of operations in Afghanistan and Iraq. Today, however, each of the five major challenges identified in the NDS requires U.S. forces to train and be proficient in different capabilities, tactics, and techniques.

Recommendation: A greater share of training and readiness efforts must be devoted to the full range of potential missions U.S. forces face, with particular—but not exclusive—emphasis on major-power rivals. DOD should develop analytic tools that can measure readiness across this broad range of challenges, from low-intensity, gray zone conflicts to protracted, high-intensity fights.

21. Although readiness is not a function of money alone, sufficient funding—provided on a timely, consistent basis—is necessary to address current readiness challenges.

Recommendation: Congress should work with the Department to ensure an adequate level of funding. To provide greater flexibility and stability, it should also authorize the Department to expend Operations and Maintenance funds from any given fiscal year across that fiscal year and the subsequent one.

22. The most critical resource required to produce a highly capable military is highly capable people willing to serve in the quantity required. Yet the number of people who have the required fitness and propensity to serve is in decline.

Recommendation: DOD and Congress must take creative steps to address those aspects of the problem that are within their purview, rather than relying solely on ever-higher compensation for a shrinking pool of qualified volunteers. Without a marked change in the way America approaches the idea of military service, DOD will struggle to fill its ranks with highly qualified individuals.

Civil-Military Relations

23. There is an imbalance in civil-military relations on critical issues of strategy development and implementation. Civilian voices appear relatively muted on issues at the center of U.S. defense and national security policy. Allocating forces across theaters is an inherently

political-military task, decision authority for which should be held by America's civilian leaders.

Recommendation: An increased civilian role is crucial in integrating responses to global challenges. DOD, with Congressional oversight, must emphasize decision-making processes that highlight the political-military dynamics of force management shifts. The Secretary of Defense and Under Secretary of Defense for Policy must fully exercise their responsibilities for preparing guidance for and reviewing contingency plans.

Resources

24. Budget caps were—and still are—harmful to American defense.

Recommendation: Congress should eliminate the final two years of caps under the BCA.

25. At current funding levels, the U.S. military may not be able to fight one major-power rival while still maintaining deterrence and stability in other regions.

Recommendation: Congress should increase the size of the defense budget through sustained annual real growth in the out years, or DOD should alter the expectations of the strategy and America's global strategic objectives. An average of three to five percent real growth per annum is indicative of the investment required.

26. Recapitalization of the nuclear triad cannot be further delayed, yet this recapitalization cannot be accomplished within currently projected budget levels unless DOD reduces its conventional capabilities. Additionally, DOD faces an impending "bow wave" of conventional modernization costs.

Recommendation: Nuclear and conventional forces are both indispensable to a balanced, effective defense. The nation should not hollow out one set of capabilities to pay for another. Congress should fund DOD at a level that permits critical conventional and nuclear modernization.

27. The readiness challenges across the U.S. military took years to create. It will take years of sustained, predictable, and increased funding to repair readiness and ensure that U.S. forces are fully prepared to fight when needed.

Recommendation: Congress and DOD should balance new funding to emphasize readiness, capacity, and capability across the force rather than focusing on a subset of capability.

28. The funding process is broken. Congress has failed to provide the military with funding that is timely, adequate, sustained, and predictable. This dysfunction has had grave material impact and conveyed a lack of seriousness in the face of growing global challenges.
- Recommendation: Beyond eliminating BCA caps, Congress should return to regular order and pass annual spending bills on time. Congress should seek to produce five-year budget agreements for defense to permit greater stability and flexibility for DOD.
29. The reliance on OCO is no longer appropriate to the new strategy's emphasis on preparing for prolonged competition with major-power rivals.
- Recommendation: To better prepare for major-power competition, Congress should gradually integrate OCO spending back into the base Pentagon budget. This also requires a dollar-for-dollar increase in the BCA spending caps, should they remain in force, so that this transfer does not result in an overall spending cut.
30. Reforms to the Pentagon's way of doing business are critically necessary but insufficient to reap substantial savings in the near-term. Reforms cannot be seen as a primary source of funds for investment and growth.
- Recommendation: DOD should pursue reform for its own merits, but understand this is not a reliable source of real growth in defense capability.
31. Defense spending, and discretionary spending more broadly, are not primary drivers of the federal deficit.
- Recommendation: Congress should look to the entire federal budget, especially entitlements, as well as taxes, to set the nation on a more stable financial footing.
32. In the realm of major-power competition, China and Russia have national strategies integrating all tools of national power. The United States does not.
- Recommendation: A whole-of-government and even whole-of-nation effort is required to address these challenges, which are bigger than the Pentagon's portfolio, and Congress must fund that effort adequately.

Additional Views of Andrew Krepinevich

Meeting Core Operational Challenges

I fully concur with the Commission’s recommendation that the Department of Defense declassify the operational challenges alluded to in the 2018 NDS. This is essential if our military is to develop and refine the innovative operational concepts Secretary Mattis rightly notes are essential to addressing the emerging threats to our security.

With an eye to filling this gap, the Commission offers a list of seven “core” operational challenges. As the Commission’s report notes, these challenges are “similar” to those listed in the 2001 Quadrennial Defense Review. In fact, they are almost identical.²

Moreover, the Commission’s operational challenges suffer from several clear shortcomings. In fact, most of these operational “challenges” are not challenges at all. This may stem, in part, from a lack of precision as to what constitutes an “operational challenge.” Neither the NDS nor the Commission defines the term. As used here, “operational challenges” are *compelling real-world problems posed by adversaries at the operational (or campaign) level of war.*

For example, the Commission lists as one of its operational challenges: “Leveraging information technology and innovative concepts to develop an interoperable, joint C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) architecture and capability that supports warfare of the future.”

This is not an operational challenge; rather, the Commission is calling for the creation of a *capability*. Nor does the Commission link this capability to any particular challenge, stating only that it should support “warfare of the future.”

Continuing this line of argument, three of the Commission’s “operational challenges” call for the military to protect “critical bases of operations,” “forces abroad,” and “allies and partners.” Specifically, the Commission emphasizes “assuring information systems” and “enhancing the survivability of space systems.” The Commission does not explain why space and information systems are singled out for special consideration as

² Department of Defense, “Quadrennial Defense Review Report,” September 30, 2001, p. 30; available at <https://archive.defense.gov/pubs/qdr2001.pdf>. The 2001 QDR refers not to “challenges” but rather operational “goals.”

opposed to, for example, naval combatants or brigade combat teams. In brief, rather than providing a set of operational challenges that reflect real-world problems posed by adversaries identified in the NDS, the Commission presents a list of what might best be described as generic tasks we would like our military to perform against *any* adversary.

To be fair, the 2001 Quadrennial Defense Review was prepared when the United States lacked a major military rival. Consequently, it could focus on what was then called “capabilities-based” planning rather than “threat-based” planning. As the NDS states, this is no longer the case. The United States confronts clear challenges posed by two revisionist great powers, China and Russia, as well as Iran, North Korea, and radical non-state groups.

Consequently, it is now possible to identify the character of major threats to our security with far greater clarity than it was 17 years ago. Threat-based planning enables DOD and the Commission to be far more specific in identifying the principal operational challenges confronting our armed forces.

Given these considerations, the following principal operational challenges are submitted for consideration:³

- Defending the U.S. homeland and its treaty allies from strategic attack, to include by weapons of mass destruction, as well as by advanced conventional and cyber weapons (i.e., against technically advanced, numerically superior enemies).
- Defending fundamental U.S. security interests in the Indo-Pacific, particularly along the first island chain, from Chinese aggression and coercion (i.e., against a technically advanced, numerically superior enemy).
- Defending fundamental U.S. security interests in Europe from Russian aggression and coercion (i.e., against a technically advanced, locally numerically superior enemy).
- Defending fundamental U.S. security interests in the Persian Gulf region from aggression and coercion (i.e., against a technically inferior, numerically inferior enemy).

³ There should be no more than five or six key operational challenges. These challenges should be prioritized to inform matters pertaining to strategic choice. As doing so would require analysis that is beyond current resources, the ones listed here are suggestive, rather than definitive.

- Maintaining access to key lines of communication linking the United States to major overseas theaters of operation and vital trading partners/resources (i.e., against a technically advanced, numerically inferior enemy).

(Of course, to the degree our military can successfully address these operational challenges, its ability to deter acts of aggression and coercion will be enhanced as well.)

These challenges meet the definition stated above: they provide our military with real-world problems at the campaign level of warfare to inform and facilitate their planning. They also do so in a manner consistent with what the Commission describes in its report under “Operational Concepts.”

Near- to Mid-Term Force Priorities

In its discussion of “Near- to Mid-Term Force Priorities,” the Commission indirectly establishes program and force priorities. It does so with little if anything in the way of analytic support. To take but one example, in discussing the Indo-Pacific region, the Commission states that, among other things:

Protecting U.S. interests from China and Russia will require additional investment in the submarine fleet; intelligence, surveillance, and reconnaissance (ISR) assets; air defense; long-range strike platforms; and long-range ground-based fires. Deterring and, if necessary, defeating North Korea will demand additional air defense assets, as well as a sustained ground presence with the ability to quickly flow additional armored brigade combat teams (ABCTs), fires and combat engineer assets, and other capabilities into theater.

Other than stating the obvious—it’s better to have more military capability than less—no analytic support is presented as to why these particular forces and capabilities are more deserving of priority than others.

This is startling, given that the Commission criticizes the Department for its lack of analytic rigor. As the Commission states with respect to DOD’s ability to make informed decisions with respect to defense priorities:

If DOD is to make such decisions with appropriate rigor, it will be critical to *revitalize analytical support for the Secretary of Defense*. Throughout our work, we found that DOD struggled to link objectives to strategy to operational concepts to programs and resources.” [Emphasis as in the Commission’s report.]

Simply put, the Commission would do well to follow its own advice before advancing recommendations regarding the size, structure, mix, and posture of U.S. forces and their capabilities. As the Commission states:

Specifically, the Department needs a rigorous force development plan that connects its investment strategy with its key priorities of winning in conflict and competing effectively with China and Russia. That plan must have a clear force sizing construct to illuminate the strategy's ambition and risks. Such a force development architecture should provide answers to the following questions:

- What are our objectives?
- What operational concepts will animate how we plan to deter and fight?
- How might operational concepts, force posture, and attendant capabilities be tailored to specific regional and functional contexts?
- What assumptions is DOD making about multi-theater demands in timing, scale, and other key aspects? How is DOD hedging against the possibility that these assumptions may not prove out?
- If the United States finds itself in conflict in a first theater, what constitutes “deterrence” in the second theater and how does it change the force requirements projected prior to the NDS’s release (i.e., under the previous defense strategy)?
- How do component program priorities reflect these assessments?

The Commission does not address these issues in any depth, let alone with the kind of analytic rigor it recommends DOD pursue prior to establishing defense priorities.

In summary, it seems profoundly unhelpful for the Commission to state the analytic foundation required for DOD to make informed choices regarding defense priorities, and then proceed to ignore it in advancing priorities of its own.

Appendix A

Glossary

5G LTE	Fifth-Generation Long-Term Evolution
ABCT	armored brigade combat team
AI	artificial intelligence
BBA	Bipartisan Budget Act
BCA	Budget Control Act
BCT	brigade combat team
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAPE	Cost Assessment and Program Evaluation
CBO	Congressional Budget Office
CFT	cross-functional team
DARPA	Defense Advanced Research Projects Agency
DFE	Dynamic Force Employment
DIU	Defense Innovation Unit
DOD	Department of Defense
FFRDC	federally funded research and development center
FY	fiscal year
FYDP	Future Years Defense Program
HARM	High-Speed Anti-Radiation Missile
ICBM	intercontinental ballistic missile
IISS	International Institute for Strategic Studies
ISIS	Islamic State in Iraq and al-Sham
ISR	intelligence, surveillance, and reconnaissance
JASSM-ER	Joint Air-to-Surface Standoff Missile-Extended Range
LRASM	Long-Range Anti-Ship Missile

MDA	Missile Defense Agency
NATO	North Atlantic Treaty Organization
NC3	nuclear command, control, and communications
NDS	National Defense Strategy
NPR	Nuclear Posture Review
NSIB	National Security Innovation Base
NSS	National Security Strategy
OCO	overseas contingency operations
OSD	Office of the Secretary of Defense
R&D	research and development
RDT&E	research, development, test, and evaluation
TRANSCOM	U.S. Transportation Command
UARC	university-affiliated research center
USD(R&E)	Under Secretary for Defense for Research and Engineering
WMD	weapons of mass destruction

Appendix B

Enabling Legislation

National Defense Authorization Act for Fiscal Year 2017

Division A—Department of Defense Authorizations

Title IX—Department of Defense Organization and Management

Subtitle E—Strategies, Reports, and Related Matters

Section 942. Commission on the National Defense Strategy for the United States.

(a) **ESTABLISHMENT.**—There is hereby established a commission to be known as the “Commission on the National Defense Strategy for the United States” (in this section referred to as the “Commission”).

The purpose of the Commission is to examine and make recommendations with respect to the national defense strategy for the United States.

(b) **COMPOSITION.**—

(1) **MEMBERSHIP.**—The Commission shall be composed of 12 members appointed as follows:

(A) Three members appointed by the chair of the Committee on Armed Services of the House of Representatives.

(B) Three members appointed by the ranking minority member of the Committee on Armed Services of the House of Representatives.

(C) Three members appointed by the chair of the Committee on Armed Services of the Senate.

(D) Three members appointed by the ranking minority member of the Committee on Armed Services of the Senate.

(2) **CHAIR; VICE CHAIR.**—

(A) **CHAIR.**—The chair of the Committee on Armed Services of the House of Representative and the chair of the Committee on Armed Services of the Senate shall jointly designate one member of the Commission to serve as chair of the Commission.

(B) **VICE CHAIR.**—The ranking minority member of the Committee on Armed Services of the House of Representative and the ranking minority member of the Committee on Armed Services of the Senate shall jointly designate one member of the Commission to serve as vice chair of the Commission.

(3) PERIOD OF APPOINTMENT; VACANCIES.—Members shall be appointed for the life of the Commission. Any vacancy in the Commission shall be filled in the same manner as the original appointment.

(c) DUTIES.—

(1) REVIEW.—The Commission shall review the current national defense strategy of the United States, including the assumptions, missions, force posture and structure, and strategic and military risks associated with the strategy.

(2) ASSESSMENT AND RECOMMENDATIONS.—The Commission shall conduct a comprehensive assessment of the strategic environment, the threats to the United States, the size and shape of the force, the readiness of the force, the posture and capabilities of the force, the allocation of resources, and strategic and military risks in order to provide recommendations on the national defense strategy for the United States.

(d) COOPERATION FROM GOVERNMENT.—

(1) COOPERATION.—In carrying out its duties, the Commission shall receive the full and timely cooperation of the Secretary of Defense in providing the Commission with analysis, briefings, and other information necessary for the fulfillment of its responsibilities.

(2) LIAISON.—The Secretary shall designate at least one officer or employee of the Department of Defense to serve as a liaison officer between the Department and the Commission.

(e) REPORT.—

(1) FINAL REPORT.—Not later than December 1, 2017, the Commission shall submit to the President, the Secretary of Defense, the Committee on Armed Services of the House of Representatives, and the Committee on Armed Services of the Senate a report on the Commission’s findings, conclusions, and recommendations. The report shall address, but not be limited to, each of the following:

(A) The strategic environment, including threats to the United States and the potential for conflicts arising from such threats, security challenges, and the national security interests of the United States.

(B) The military missions for which the Department of Defense should prepare and the force planning construct.

(C) The roles and missions of the Armed Forces to carry out those missions and the roles and capabilities provided by other United States Government agencies and by allies and international partners.

(D) The force planning construct, size and shape, posture and capabilities, readiness, infrastructure, organization, personnel, and other elements of the defense program necessary to support the strategy.

(E) The resources necessary to support the strategy, including budget recommendations.

(F) The risks associated with the strategy, including the relationships and tradeoffs between missions, risks, and resources.

(2) INTERIM BRIEFING.—Not later than June 1, 2017, the Commission shall provide to the Committee on Armed Services of the House of Representatives, and the Committee on Armed Services of the Senate a briefing on the status of its review and assessment, and include a discussion of any interim recommendations.

(3) FORM.—The report submitted to Congress under paragraph (1) shall be submitted in unclassified form, but may include a classified annex.

(f) FUNDING.—Of the amounts authorized to be appropriated by to this Act for the Department of Defense, \$5,000,000 is available to fund the activities of the Commission.

(g) TERMINATION.—The Commission shall terminate 6 months after the date on which it submits the report required by subsection (e).

Appendix C

Schedule of Plenary Meetings

Date	Location
September 12, 2017	The Pentagon Arlington, VA 22202
December 7, 2017	LMI 7940 Jones Branch Drive Tysons, VA 22102
January 22, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
February 23, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
March 19, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
April 9, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
May 4, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
May 23, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102
June 19, 2018	LMI 7940 Jones Branch Drive Tysons, VA 22102

Appendix D

Individuals Appearing before the Commission

Mr. Takahiro Araki

Senior Coordinator, Japan-U.S. Defense Cooperation Division,
Embassy of Japan

Mr. James Baker

Director, Office of Net Assessment, Department of Defense

Ms. Gabrielle Burrell

Minister Counsellor Defence Policy, Australian Defence Staff,
Embassy of Australia

Mr. Dean Cheng

Senior Research Fellow, Heritage Foundation

Mr. Eric Chewning

Deputy Assistant Secretary of Defense for Manufacturing and
Industrial Base Policy, Office of the Under Secretary of Defense
for Acquisition and Sustainment, Department of Defense

Major General Phillip Churn

Assistant to the Chairman of the Joint Chiefs of Staff for Reserve
Matters

Air Vice Marshal Alan Clements, CSC

Head Australian Defence Staff Washington & Australian Defence
Attaché, Embassy of Australia

Mr. Elbridge Colby

Deputy Assistant Secretary of Defense for Strategy and Force
Development, Office of the Under Secretary of Defense for Policy,
Department of Defense

The Honorable Robert Daigle

Director, Cost Analysis and Program Evaluation, Department of
Defense

Mr. Chris Danielewski

Strategic Outreach, Defense Security Cooperation Agency,
Department of Defense

Deputy National Intelligence Officer

Iran, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Korea, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Middle East-Military Issues, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Military Issues, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Russia-Eurasia, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Transnational Issues, Director Red Cell, Office of the Director of National Intelligence

Deputy National Intelligence Officer

Transnational Issues, Office of the Director of National Intelligence

Mr. Christopher Dougherty

Senior Advisor, Office of the Deputy Assistant Secretary of Defense for Strategy & Force Development, Office of the Under Secretary of Defense for Policy, Department of Defense

Lieutenant General James Dubik, USA, Ret.

Senior Fellow, Institute for the Study of War

Mr. Matthew Dubois

Deputy Assistant Secretary of Defense for Reserve Integration, Office of the Under Secretary of Defense for Personnel and Readiness, Department of Defense

Dr. Tony Echevarria

Editor, *Parameters*, Army War College

The Honorable Mark Esper

Secretary of the Army, Department of Defense

Mr. William Fabian

Senior Strategic Analyst, Office of the Deputy Assistant Secretary of Defense for Strategy & Force Development, Office of the Under Secretary of Defense for Policy, Department of Defense

Mr. David Feith

Office of Policy Planning, Asia Policy, Department of State

Ms. Suzanne Fry

Director, Strategic Futures Group, National Intelligence Council

Mr. Markus Garlauskas

National Intelligence Council

Mr. Richard Girven

Associate Director, Intelligence Policy Center and International
Market Manager, National Security Research Division, RAND
Corporation

General David Goldfein, USAF

Chief of Staff of the Air Force, Department of Defense

Lieutenant General Samuel Greaves, USAF

Director, Missile Defense Agency, Department of Defense

The Honorable Michael Griffin

Under Secretary of Defense for Research and Engineering,
Department of Defense

Mr. Brian Hahs

National Intelligence Council

Admiral Harry Harris, USN

Commander, U.S. Pacific Command, Department of Defense

Dr. Richard Hooker

Senior Director for Europe and Russia, National Security Council

General John Hyten, USAF

Commander, U.S. Strategic Command, Department of Defense

Mr. Greg Kausner

Deputy Director, Defense Security Cooperation Agency, Department
of Defense

Mr. Chris Kevork

Counsellor Defence Strategic Policy, Australian Defence Staff,
Embassy of Australia

Mr. Iain King

Defence Counsellor, Policy & Nuclear, British Embassy

Dr. Sean M. Kirkpatrick

Director, National Security Strategy, National Security Council

General Joseph Lengyel, USAF

Chief of the National Guard Bureau, Department of Defense

The Honorable James Mattis

Secretary of Defense, Department of Defense

Dr. Michael Mazarr

Senior Political Scientist, RAND Corporation

Mr. Steve McCarthy

Minister Defence Materiel and Civil Secretary, British Embassy

General Darren McDew, USAF

Commander, U.S. Transportation Command, Department of Defense

Lieutenant General Kenneth McKenzie, USMC

Director, Joint Staff, Office of the Joint Chiefs of Staff, Department of Defense

Mr. Michael McNerney

Associate Director, International Security and Defense Policy Center and Senior International/Defense Researcher, RAND Corporation

General Mark Milley, USA

Chief of Staff of the Army, Department of Defense

Mr. R. James Mitre

Principal Director for Strategy & Force Development, Office of the Deputy Assistant Secretary of Defense for Strategy & Force Development, Office of the Under Secretary of Defense for Policy, Department of Defense

Général de brigade Jean-Pierre Montégu

Defense Attaché, Embassy of France

Colonel Philippe Geay de Montenon

Deputy Defense Attaché for Strategic Affairs, Embassy of France

Dr. Karl Mueller

Senior Political Scientist and Professor, Pardee RAND Graduate School, RAND Corporation

General Robert Neller, USMC

Commandant of the Marine Corps, Department of Defense

Dr. Leigh Nolan

Director for Strategic Analysis, Office of the Deputy Assistant Secretary of Defense for Strategy & Force Development, Office of the Under Secretary of Defense for Policy, Department of Defense

Mr. Dave Ochmanek

Senior International/Defense Researcher, RAND Corporation

Mr. Jay Okey

Central Intelligence Agency

Dr. Mira Rapp-Hooper

Senior Research Scholar in Law and Senior Fellow, Paul Tsai China Center at Yale Law School/Adjunct Senior Fellow, Asia-Pacific Security Program at the Center for a New American Security

Admiral John Richardson, USN

Chief of Naval Operations, Department of Defense

Ms. Lynn Robinson

National Intelligence Council

Admiral Michael Rogers, USN

Commander, U.S. Cyber Command, Department of Defense

Dr. Phillip Saunders

Director, Center for the Study of Chinese Military Affairs, National Defense University, Department of Defense

Ms. Kelley Sayler

Strategic Analyst, Office of the Deputy Assistant Secretary of Defense for Strategy & Force Development, Office of the Under Secretary of Defense for Policy, Department of Defense

General Curtis Scaparrotti, USA

Commander, U.S. European Command, Department of Defense

Dr. Nadia Schadlow

Deputy Assistant to the President for National Security Strategy, National Security Council

Mr. Anthony Schinella

National Intelligence Officer for Military Issues, National Intelligence Council

The Honorable Patrick Shanahan

Deputy Secretary of Defense, Department of Defense

Ms. Pamela Shepherd

Deputy for Strategic Planning and Integration, Defense Security Cooperation Agency, Department of Defense

Mr. Matthew Shipley

Deputy Assistant Secretary of Defense Force Readiness, Office of the Under Secretary of Defense for Personnel and Readiness, Department of Defense

Dr. Robert Soofer

Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy, Office of the Under Secretary of Defense for Policy, Department of Defense

The Honorable Richard Spencer

Secretary of the Navy, Department of Defense

Dr. Michael Spirtas

Senior Political Scientist, RAND Corporation

Dr. Sue Mi Terry

Senior Fellow, Korea Chair, Center for Strategic and International Studies

Mr. Matthew Turpin

Director for China, National Security Council

General Joseph Votel, USA

Commander, U.S. Central Command, Department of Defense

The Honorable Heather Wilson

Secretary of the Air Force, Department of Defense

Dr. Yuna Wong

Policy Researcher and Professor, Pardee RAND Graduate School,
RAND Corporation

Mr. Taro Yamato

Principal Director, Director for Defense Policy, Embassy of Japan

Appendix E

Commissioner Biographies

Co-Chairman, Commission on the National Defense Strategy for the United States

Ambassador Eric S. Edelman was appointed to the Commission by House Armed Services Committee Chairman Mac Thornberry (R-TX).

Ambassador Edelman currently serves as Roger Hertog Practitioner in Residence at Johns Hopkins' Paul H. Nitze School of Advanced International Studies and Counselor at the Center for Strategic and Budgetary Assessments. He retired as a career minister from the U.S. Foreign Service on May 1, 2009. He has served in senior positions at the Departments of State and Defense as well as the White House, where he led organizations providing analysis, strategy, policy development, security services, trade advocacy, public outreach, citizen services, and congressional relations.

As Under Secretary of Defense for Policy from August 2005 to January 2009, he was DOD's senior policy official, overseeing strategy development with global responsibility for bilateral defense relations, war plans, special operations forces, homeland defense, missile defense, nuclear weapons and arms control policies, counterproliferation, counternarcotics, counterterrorism, arms sales, and defense trade controls. He served as U.S. Ambassador to Finland in the Clinton administration and Turkey in the Bush administration and was Vice President Cheney's principal deputy assistant for national security affairs. He was chief of staff to Deputy Secretary of State Strobe Talbott, special assistant to Undersecretary of State for Political Affairs Robert Kimmitt, and special assistant to Secretary of State George Shultz. His other assignments included the State Department Operations Center, Prague, Moscow, and Tel Aviv, where he was a member of the U.S. Middle East delegation to the West Bank/Gaza autonomy talks. Ambassador Edelman has been awarded the Department of Defense Medal for Distinguished Public Service, the Chairman of the Joint Chiefs of Staff Joint Distinguished Civilian Service Award, the Presidential Distinguished Service Award, and several Department of State Superior Honor Awards. In 2010, he was named a knight of the French National Order of the Legion of Honor.

Ambassador Edelman received a B.A. in history and government from Cornell University and a Ph.D. in U.S. diplomatic history from Yale University. He is a distinguished fellow at the Center of Strategic and Budgetary Assessment and a senior associate of the international security program at the Belfer Center for Science and International Affairs at Harvard University. He also serves on the National Defense Panel and on the bipartisan board of directors of the United States Institute of Peace.

Co-Chairman, Commission on the National Defense Strategy for the United States

Admiral Gary Roughead, USN, Retired was appointed to the Commission by House Armed Services Committee Ranking Member Adam Smith (D-WA).

Admiral Roughead is a 1973 graduate of the U.S. Naval Academy. He became the 29th Chief of Naval Operations in September of 2007, after holding six operational commands. He is one of only two officers in the history of the Navy to have commanded both the U.S. Atlantic and Pacific Fleets.

Ashore he served as the Commandant, U.S. Naval Academy where he led the strategic planning effort that underpinned that institution's first capital campaign. He was the Navy's Chief of Legislative Affairs, responsible for the Department of the Navy's interaction with Congress. Admiral Roughead was also the Deputy Commander, U.S. Pacific Command during the massive relief effort following the tsunami of 2004.

In retirement, Admiral Roughead is Robert and Marion Oster Distinguished Military Fellow at the Hoover Institution at Stanford University and serves on the boards of directors of the Northrop Grumman Corporation, Maersk Line, Limited and the Center for a New American Security. He is a Trustee of Dodge and Cox Funds, a Trustee of the Johns Hopkins University, and serves on the Board of Managers of the Johns Hopkins University Applied Physics Laboratory. He advises companies in the national security and medical sectors.

The Honorable Christine H. Fox was appointed to the Commission by Senate Armed Services Committee Ranking Member Jack Reed (D-RI).

Ms. Fox currently serves as Assistant Director for Policy and Analysis of the Johns Hopkins University Applied Physics Laboratory (APL). Prior to joining APL, she served as Acting Deputy Secretary of Defense from December 2013 to May 2014, making her the highest-ranking female official in history to serve in the Department of Defense. From 2009 to 2013, Ms. Fox served as the Director, Cost Assessment and Program Evaluation in the Office of the Secretary of Defense. In that position, she was the principal civilian advisor to the Secretary of Defense for analyzing and evaluating plans, programs, and budgets in relation to U.S. defense objectives and resource constraints.

From 2005 to 2009, Ms. Fox served as the President of the Center for Naval Analyses (CNA), a Federally Funded Research and Development Center, and as the scientific analyst to the Chief of Naval Operations. During her 28-year career at CNA, Ms. Fox oversaw analysis of real-world operations, from the first Gulf War and the operations in Bosnia and Kosovo in the 1990s, to the operations in Afghanistan immediately following the September 11th attacks, and the operation in Iraq in early 2003. From 2003 to 2005, Ms. Fox served as a member of NASA's Return to Flight Task Group, chartered by the NASA Administrator to certify the recommendations made by the Columbia Accident Investigation Board.

Ms. Fox currently serves on the Board of Trustees for the Woods Hole Oceanographic Institution and is a member of the Council on Foreign Relations. She previously served on the Advisory Board of the Applied Physics Laboratory, University of Washington.

With nearly 6,000 staff at what is the nation's largest University Affiliated Research Center, Johns Hopkins APL makes critical contributions to a wide variety of national and global technical and scientific challenges. As the Director of Policy and Analysis, Ms. Fox leads efforts to increase APL's engagement on technical policy issues and directs research and analysis projects on behalf of the Department of Defense, the intelligence community, the National Aeronautics and Space Administration, and other federal agencies.

Ms. Fox is a three-time recipient of the Department of Defense Distinguished Service Medal. She has also been awarded the Department of the Army's Decoration for Distinguished Civilian Service.

Ms. Fox earned a B.S. in mathematics and an M.S. in applied mathematics from George Mason University.

The Honorable Kathleen H. Hicks was appointed to the Commission by House Armed Services Committee Ranking Member Adam Smith (D-WA).

Dr. Hicks is senior vice president, Henry A. Kissinger Chair, and director of the International Security Program at CSIS. With over 50 resident staff and an extensive network of nonresident affiliates, the CSIS International Security Program undertakes one of the most ambitious research and policy agendas in the security field. Dr. Hicks is a frequent writer and lecturer on geopolitics, national security, and defense matters. She served in the Obama administration as Principal Deputy Under Secretary of Defense for Policy and Deputy Under Secretary of Defense for Strategy, Plans, and Forces. She led the development of the 2012 Defense Strategic Guidance and the 2010 Quadrennial Defense Review. She also oversaw DOD contingency and theater campaign planning. From 2006 to 2009, Dr. Hicks served as a senior fellow in the CSIS International Security Program. From 1993 to 2006, she served as a career civil servant in the Office of the Secretary of Defense, rising from Presidential Management Intern to the Senior Executive Service.

Dr. Hicks is concurrently the Donald Marron Scholar at the Kissinger Center for Global Affairs, Johns Hopkins School of Advanced International Studies. She serves on the Boards of Advisors for the Truman Center and Soldier-Strong and is a member of the Council on Foreign Relations. Dr. Hicks served on the National Commission on the Future of the Army and currently serves on the Commission on the National Defense Strategy. She holds a Ph.D. in political science from the Massachusetts Institute of Technology, an M.P.A. from the University of Maryland, and an A.B. magna cum laude and Phi Beta Kappa from Mount Holyoke College. She is the recipient of distinguished service awards from three secretaries of defense and the chairman of

the Joint Chiefs of Staff and received the 2011 DOD Senior Professional Women's Association Excellence in Leadership Award.

General John M. “Jack” Keane, USA, Retired, was appointed to the Commission by Senate Armed Services Committee Chairman John McCain (R-AZ).

General Jack Keane is president, GSI Consulting. He serves as chairman of the Institute for the Study of War and the Knollwood Foundation, executive chairman of AM General, a director of the Center for Strategic and Budgetary Assessments and the Smith Richardson Foundation, and a former and recent member, for 9 years, of the Secretary of Defense Policy Board. General Keane is also a Trustee Fellow of Fordham University, and an advisor to the George C. Marshall Foundation.

General Keane, a four-star general, completed over 37 years of public service in December 2003, culminating in his appointment as acting Chief of Staff and Vice Chief of Staff of the U.S. Army. As the chief operating officer of the Army for over 4 years, he directed 1.5 million soldiers and civilians in 120 countries, with an annual operating budget of \$110 billion. General Keane was in the Pentagon on 9/11 and provided oversight and support for the wars in Afghanistan and Iraq. Since 2004, General Keane spent a decade conducting frequent trips to Iraq and Afghanistan for senior defense officials with multiple visits during the surge period in both countries directly assisting General David Petraeus.

General Keane appears before Congress regularly, offering testimony on matters of foreign policy and national security, having provided testimony in May on “ISIS: Post Caliphate.” As well he regularly speaks throughout the country on leadership and America's global security challenges.

General Keane is a career infantry paratrooper, a combat veteran of Vietnam, decorated for valor, who spent much of his military life in operational commands where he commanded the famed 101st Airborne Division (Air Assault) and the legendary 18th Airborne Corps, the Army's largest warfighting organization.

General Keane graduated from Fordham University with a Bachelor of Science degree and received a Master of Arts degree from Western Kentucky University. He is a graduate of the Army War College and the Command and General Staff College.

Dr. Andrew F. Krepinevich, Jr. was appointed to the Commission by House Armed Services Committee Chairman Mac Thornberry (R-TX).

Dr. Krepinevich currently serves as President and Chief Operating Officer of Solarium LLC, a defense consulting firm. From 1995 to 2016, he served as president of the Center for Strategic and Budgetary Assessments (CSBA), which he founded in 1995. His service at CSBA was preceded by a 21-year career in the U.S. Army. In 2005, he published an influential *Foreign Affairs*

article, “How to Win in Iraq.” The article called for adopting a population-centric counterinsurgency strategy much like the approach implemented during the “Surge” of U.S. forces two years later.

Dr. Krepinevich has served in the DOD’s Office of Net Assessment, and on the personal staff of three secretaries of defense. He has also served as a member of the National Defense Panel, the Defense Science Board Task Force on Joint Experimentation, and Secretary of Defense Robert Gates’s Defense Policy Board. He currently serves as chairman of the Chief of Naval Operations Executive Panel and on the Advisory Council of Business Executives for National Security.

Dr. Krepinevich has lectured before a wide range of professional and academic audiences, and has served as a consultant for many senior government officials, including several secretaries of defense, as well as all four military services. Dr. Krepinevich has taught on the faculties of West Point, George Mason University, Johns Hopkins University’s School of Advanced International Studies, and Georgetown University.

Dr. Krepinevich’s most recent book is *The Last Warrior: Andrew Marshall and the Shaping of Modern Defense Strategy*, which he co-authored with Barry Watts. He also authored *7 Deadly Scenarios: A Military Futurist Explores War in the 21st Century*. Dr. Krepinevich received the Furniss Award for his book, *The Army and Vietnam*. His recent articles are “Preserving Primary: A Defense Strategy for the New Administration” (with Congressman Mac Thornberry), and “How to Deter China: The Case for Archipelagic Defense,” both published in *Foreign Affairs*. His recent monographs include: “Preserving the Balance: A U.S. Eurasia Defense Strategy;” and “Archipelagic Defense: The Japan-U.S. Alliance and Preserving Peace and Stability in the Western Pacific.”

A graduate of West Point, Dr. Krepinevich holds an M.P.A. and Ph.D. from Harvard University. He is a member of the Council on Foreign Relations. He is married to the former Julia Ellen Milians. They reside in Leesburg, Virginia, and have three children, Jennifer, Andrew, and Michael, and five grandchildren.

Senator Jon L. Kyl (R-AZ) was appointed to the Commission by Senate Armed Services Committee Chairman John McCain (R-AZ). He is the junior U.S. Senator from Arizona, having succeeded the late John McCain in September 2018.

Prior to returning to the Senate, Senator Kyl advised companies on domestic and international policies that influence U.S. and multi-national businesses and assisted corporate clients on tax, health care, defense, national security, and intellectual property matters among others. He retired from Congress in January 2013 as the second-highest ranking Republican senator.

During Senator Kyl’s 26 years in Congress, he built a reputation for mastering the complexities of legislative policy and coalition building, first in the

House of Representatives and then in the Senate. In 2006, he was recognized by Time magazine as one of America's Ten Best Senators. Kyl was ranked by National Journal in 2007 as the fourth-most conservative U.S. Senator. In 2010, Time magazine called him one of the 100 most influential people in the world, noting his "encyclopedic knowledge of domestic and foreign policy, and his hard work and leadership" and his "power to persuade."

Senator Kyl sat on the powerful Senate Finance Committee where he was the top Republican on the Subcommittee on Taxation and Internal Revenue Service Oversight. The senator also served as the ranking Republican on the Senate Judiciary Committee's Subcommittee on Crime and Terrorism. A member of the Republican Leadership for well over a decade, Senator Kyl chaired the Senate Republican Policy Committee and the Senate Republican Conference, before becoming Senate Republican Whip.

Dr. Thomas G. Mahnken was appointed to the Commission by Senate Armed Services Committee Chairman John McCain (R-AZ).

Dr. Mahnken currently serves as President and Chief Executive Officer of the Center for Strategic and Budgetary Assessments and a Senior Research Professor at the Philip Merrill Center for Strategic Studies at The Johns Hopkins University's Paul H. Nitze School of Advanced International Studies. He was formerly the Jerome E. Levy Chair of Economic Geography and National Security at the U.S. Naval War College.

Dr. Mahnken served as the Deputy Assistant Secretary of Defense for Policy Planning from 2006 to 2009. In that capacity, he was responsible for the DOD's major strategic planning functions, including the preparation of guidance for war plans and the development of the defense planning scenarios. He was the primary author of the 2008 National Defense Strategy and contributing author of the 2006 Quadrennial Defense Review (QDR). He spearheaded the Secretary of Defense's Minerva Research Initiative, which will provide \$100 million in grants to universities to conduct basic research in the social sciences, and led an interagency effort to establish, for the first time in five decades, a National Security Council-run interagency policy planning body.

Prior to joining DOD, he served as a Professor of Strategy at the U.S. Naval War College. From 2004 to 2006, he was a Visiting Fellow at the Merrill Center at SAIS. During the 2003 to 2004 academic year, he served as the Acting Director of the SAIS Strategic Studies Program. His areas of primary expertise are strategy, intelligence, and special operations forces. Dr. Mahnken has held positions in both the government and the private sector. He served on the Staff of the 2014 National Defense Panel and as Staff Director of the 2010 QDR Independent Panel's Force Structure and Personnel Sub-Panel. He served on the staff of the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction. He served in DOD's Office of Net Assessment, where he conducted research into the emerging revolution in military affairs. He also served as a member

of the Gulf War Air Power Survey, commissioned by the Secretary of the Air Force to examine the performance of U.S. forces during the war with Iraq. Prior to that, he served as an analyst in the Non-Proliferation Directorate of the Office of the Secretary of Defense, where he was responsible for enforcing U.S. missile proliferation policy. In 2009, Dr. Mahnken received the Secretary of Defense Medal for Outstanding Public Service.

Dr. Mahnken is the author or editor of *Strategy in Asia: The Past, Present, and Future of Regional Security* (2014), *Competitive Strategies for the 21st Century* (2012), *Secrecy and Strategem: Understanding Chinese Strategic Culture* (2011), *Technology and the American Way of War Since 1945* (2008), *Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941* (2002), and (with James R. FitzSimonds) of *The Limits of Transformation: Officer Attitudes toward the Revolution in Military Affairs* (2003). He has appeared on Fox News, CNN, BBC, and CBC, among other networks. He is editor of the *Journal of Strategic Studies*.

Dr. Mahnken earned his master's degree and doctorate in international affairs from SAIS and was a National Security Fellow at the John M. Olin Institute for Strategic Studies at Harvard University. He was a summa cum laude graduate of the University of Southern California with bachelor's degrees in history and international relations (with highest honors) and a certificate in defense and strategic studies.

The Honorable Michael J. "Mike" McCord was appointed to the Commission by House Armed Services Committee Ranking Member Adam Smith (D-WA).

Mr. McCord currently serves as the Director, Civil-Military Programs at the Stennis Center for Public Service Leadership and as an Adjunct Research Staff Member at the Institute for Defense Analyses.

Prior to his current positions, Mr. McCord had 32 years of service in national security in the executive and legislative branches. From 2009 through January 2017, he served at the Department of Defense as the Under Secretary of Defense (Comptroller)/Chief Financial Officer and as the Principal Deputy Under Secretary of Defense (Comptroller). In these roles he served as principal advisor to four secretaries of defense on all budgetary and financial matters including contingency operation funding and policy, and management and financial audit of the world's largest military budget. While at DOD, he was a four-time recipient of the Department of Defense Medal for Distinguished Public Service.

Mr. McCord joined DOD with 24 years of experience in national security issues in Congress, including 21 years as a Professional Staff Member on the Senate Armed Services Committee for former Senators Sam Nunn and Carl Levin. He served on the full committee staff from 1987 through 2002 and again from 2004 through 2008, with oversight of defense funding issues. From 1995 through 2008, he also served as the minority or majority staff lead on the Subcommittee on Readiness and Management Support where he

was responsible for readiness, military construction and basing, and base closure matters.

He has also served as a defense and veterans affairs analyst on the staff of the House Budget Committee and began his career as an analyst at the Congressional Budget Office.

Mr. McCord has a degree in economics from the Ohio State University and currently serves on the Board of Advisors of their Department of Economics. He also has a Master's degree in Public Policy from the University of Pennsylvania. He guest-lectures on national security and budgeting at the American University and George Washington University, and is a Fellow of the National Academy of Public Administration.

Mr. Michael J. Morell was appointed to the Commission by Senate Armed Services Committee Ranking Member Jack Reed (D-RI).

Mr. Morell currently serves as Senior Counselor and Global Chairman of Geo-Political Risk at Beacon Global Strategies LLC. He served as the Deputy Director of the Central Intelligence Agency (CIA) from 2010 to 2013 and twice as its Acting Director.

In his over 30 years at the Agency, he played a central role in the United States' fight against terrorism, its initiatives to halt the proliferation of weapons of mass destruction, and its efforts to respond to trends that are altering the international landscape—including a revanchist Russia, the rise of China, and cyber threat.

As Deputy Director, he oversaw the Agency's analytic, collection, and covert action operations; represented the Agency at the White House and on Capitol Hill; and maintained the CIA's relationships with foreign intelligence services and foreign leaders. He was one of the leaders in the search for Osama bin Laden and participated in the deliberations that led to the raid that killed bin Laden in May 2011. Mr. Morell served as Acting Director longer than anyone in the history of the CIA, for two months following Leon Panetta's confirmation as Secretary of Defense and for five months following David Petraeus' departure from government. He served as a member of the National Security Council's Deputies Committee.

Mr. Morell started his career at the CIA in 1980. He worked on East Asia for 14 years, holding a number of jobs in analysis and management. In 1999, Mr. Morell became the Director of the Office of Asian Pacific and Latin American Analysis. He also served as President George W. Bush's intelligence briefer and as the Executive Assistant to CIA Director George J. Tenet.

In July 2006, Mr. Morell was named the Executive Director of the CIA, overseeing the administration of the Agency. In this role, he worked to strengthen the CIA's leadership development program and established a cost-savings program for the Agency's numerous support elements. In 2008, Mr. Morell became the Director for Intelligence at the Agency, leading the

CIA's analytic effort. In this assignment, he strengthened the quality of CIA analysis and enhanced professional development opportunities for analysts. He served in this role until he was appointed Deputy Director in May 2010.

Mr. Morell received a B.A. in Economics from the University of Akron and an M.A. in Economics from Georgetown University.

Throughout his career, Mr. Morell has received a number of awards. These include the Presidential Rank Award, the CIA's Distinguished Career Intelligence Medal, the Department of Defense Service Medal, the National Intelligence Distinguished Service Medal, the National Intelligence Reform Medal, the Intelligence Community Seal Medallion, and five CIA Director's Awards.

Ambassador Anne W. Patterson was appointed to the Commission by Senate Armed Services Committee Ranking Member Jack Reed (D-RI).

Ambassador Patterson served as Assistant Secretary of State for Near East Affairs from 2013 to 2017. She previously served as United States Ambassador to Egypt until 2013 and as United States Ambassador to Pakistan from July 2007 to October 2010.

Ambassador Patterson was the Deputy Inspector General of the Department of State from 2003 to 2004, Ambassador to Colombia from 2000 to 2003, and Ambassador to El Salvador from 1997 to 2000.

Ambassador Patterson joined the Foreign Service in 1973 as an economic officer. She has served as Principal Deputy Assistant Secretary and Deputy Assistant Secretary of Interamerican Affairs and as Office Director for Andean Affairs. She also served as political counselor to the U.S. Mission to the United Nations in Geneva from 1988 to 1991 and as economic officer and counselor in Saudi Arabia from 1984 to 1988. She has held a variety of other economic and political assignments, including in the Bureau of Interamerican Affairs, the Bureau of Intelligence and Research, and the Bureau of Economic and Business Affairs.

She received the State Department's superior honor award in 1981 and 1988, its meritorious award in 1977 and 1983, and a Presidential honor award in 1993. She has also received the Order of the Congress, from the Congress of Colombia, and the Order of Boyaca, from the Government of Colombia, for her work in that country. She was also recognized by the Government of El Salvador with the Order of Jose Matias Delgado.

Ambassador Patterson was born in Fort Smith, Arkansas. She graduated from Wellesley College and attended graduate school at the University of North Carolina. She is married and has two sons.

Mr. Roger I. Zakheim was appointed to the Commission by House Armed Services Committee Chairman Mac Thornberry (R-TX).

Mr. Zakheim is the Washington Director of the Ronald Reagan Presidential Foundation. Prior to his appointment at the Ronald Reagan Presidential Foundation, he served as Partner at the law firm Covington & Burling LLP and practiced in the firm's Public Policy and Government Affairs practice group, where he served as co-chair, as well as the Committee on Foreign Investment in the United States and Government Contracts practice groups. Mr. Zakheim provided advisory and advocacy support to clients facing policy and regulatory challenges in the aerospace, defense, and national security sector.

Before joining the firm, Mr. Zakheim was General Counsel and Deputy Staff Director of the U.S. House Armed Services Committee. In this role, Mr. Zakheim managed the passage of the annual National Defense Authorization Act (NDAA). The NDAA is the annual defense policy bill that authorizes the Defense Department's budget.

Mr. Zakheim's previous experience includes serving as Deputy Assistant Secretary of Defense, where he managed the department's policies and programs related to the Iraq and Afghanistan coalition affairs.

Mr. Zakheim frequently speaks and writes on national security and defense issues. His views have appeared in the *Wall Street Journal*, *New York Times*, *Politico*, National Public Radio, Fox News, CNN, BBC, *The Weekly Standard*, and *National Review*, among other media outlets.

Defense News called Mr. Zakheim one of the "100 Most Influential People in U.S. Defense," noting that he is widely "regarded as one of the top GOP young guns." *Foreign Policy* magazine recently named him one of the "Top 50 Republicans in GOP Foreign Policy."

Appendix F

Commission Staff

Paul Hughes
Executive Director

Hal Brands
Lead Writer

Thomas Bowditch
Senior Adviser

Raphael Cohen
Matthew Costlow
Mackenzie Eaglen
Giselle Donnelly
Mara Karlin
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PROVIDING FOR THE COMMON DEFENSE

In January 2018, the Department of Defense completed the National Defense Strategy (NDS), a congressionally mandated assessment of how the Department will protect the United States and its national interests using the tools and resources at its disposal. That assessment is intended to address an array of important subjects: the nature of the strategic environment, the priority objectives of the Department of Defense, the roles and missions of the armed forces, the size and shape of the force, the major investments in capabilities and innovation that the Department will make over the following five-year period, and others. The 2018 NDS is a classified document; an unclassified summary was released publicly.

To enhance America's ability to address these issues, Congress also convened a bipartisan panel to review the NDS and offer recommendations concerning U.S. defense strategy. The members of the Commission on the National Defense Strategy for the United States represent a group of distinguished national security and defense experts. They analyzed issues related not just to defense strategy, but also to the larger geopolitical environment in which that strategy must be executed. They consulted with civilian and military leaders in the Department of Defense, representatives of other U.S. government departments and agencies, allied diplomats and military officials, and independent experts. This publication is the consensus report of the Commission. The Commission argues that America confronts a grave crisis of national security and national defense, as U.S. military advantages erode and the strategic landscape becomes steadily more threatening. If the United States does not show greater urgency and seriousness in responding to this crisis, if it does not take decisive steps to rebuild its military advantages now, the damage to American security and influence could be devastating.



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