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# Re-examining National Missile Defense Strategy: Defending Against China

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### Re-examining National Missile Defense Strategy: Defending Against China

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# Table of Contents

Acknowledgementsv
Executive Summaryvi
U.S. Missile Defense and Missile Defense Policy 1
Understanding Strategic Stability7
Influence of Strategic Stability Thinking on U.S. Missile Defense Policy11
Looking Ahead: Options for the Future
Conclusion
About the Author91

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#### **Executive Summary**

This paper argues that the United States needs to adopt a stronger national missile defense posture-in both policy and capability terms – in response to the rise of China as a nuclear-armed near-peer adversary of the United States. National missile defense has long had both advocates and detractors inside and outside of the U.S. government, but up to the present day, the detractors have mostly carried the day. Among the most prominent arguments opponents have put forward is that pursuing a national missile defense system capable of providing some measure of protection against great power competitors like China or Russia would provoke these states to react in ways that are detrimental to U.S. national security. Conversely, the logic goes, keeping the U.S. homeland deliberately vulnerable to such adversaries will preserve strategic stability between these powers and the United States. However, the current threat environment-particularly China's rapid expansion of its nuclear arsenal, coupled with its increasingly assertive behavior in the Indo-Pacific - shows that the long-observed U.S. policy of voluntary vulnerability is no longer tenable or wise.

America remains the world's top military power and relies on its nuclear weapons to deter attacks against itself and its allies in both Europe and the Indo-Pacific. The United States has long premised its deterrence strategy primarily on threats of imposing unacceptable costs on an attacker by retaliation, rather than on denying the attacker the benefits of an attack by defensive capabilities. In fact, the historical U.S. position is to keep the homeland purposefully vulnerable to attack from large strategic adversaries like China and Russia as a means of maintaining "strategic stability". The logic undergirding this policy is that protecting the United States from large nuclear-armed adversaries provoke might those

adversaries to arms racing to offset U.S. defenses, and possibly to feel pressured to strike the United States first in a crisis or conflict out of fear that the United States, being protected from strategic attack, would feel confident in initiating a nuclear attack itself. Following this line of reasoning, keeping the U.S. homeland vulnerable would reassure powerful nuclear-armed adversaries that the United States is not in a position to defend itself from a large-scale strategic attack and will thus be hesitant to engage in nuclear escalation. Although the United States does field a modest strategic missile defense capability, the Ground-based Midcourse Defense (GMD) system, this is designed only to defend against limited attacks from the likes of North Korea-an adversary which, in contrast to China and Russia, Washington regards as more likely to be "irrational" in its behavior and therefore not subject to the perceived self-regulating equilibrium of "strategic stability".

the proliferation However, and technological advancement of long-range missiles and nuclear weapons by China, Russia, North Korea, and potentially Iran, pose an increasingly serious threat to the United States homeland, as well as to deployed U.S. forces and U.S. allies and partners globally. North Korea's regime continues its decades-long expansion of its nuclear weapons arsenal and is advancing its mobile intercontinental-range ballistic missile (ICBM) capability, raising questions as to whether the current U.S. strategic defense system, which was originally intended to protect against arsenals like North Korea's, is still adequate to the task.1 Russia continues to rattle its nuclear saber, to apparent effect, to shield its vicious invasion of Ukraine and to ward off interference

<sup>&</sup>lt;sup>1</sup> Robert Soofer, "Is the United States falling behind the North Korean ICBM threat? Congress needs answers," Atlantic Council, April 11, 2024, available at https://www.atlanticcouncil.org/blogs/new-atlanticist/is-the-united-states-falling-behind-the-north-korean-icbm-threat-congress-needs-answers/.

from the United States and North Atlantic Treaty Organization (NATO) allies as it ruthlessly bombards Ukrainian territory with an array of missiles, rockets, and drones.<sup>2</sup> But more worrying than either Russia or North Korea as individual threats is the very recent addition of China as a powerful nuclear near-peer challenger of the United States. In the words of the most recent U.S. National Security Strategy, China is currently "the only competitor with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military, and technological power to do it."3 Contrary to hopes that China's economic rise and integration into the global order would lead to greater political openness, the Chinese Communist Party (CCP) has entrenched its authoritarian rule at home and used China's place in the international community as a vehicle for an aggressive foreign policy.<sup>4</sup> The nationalist vision purportedly animating these policies,

1.amazonaws.com/files.cnas.org/documents/CNAS-Report-Defense-Ukraine-Drones-Final.pdf; Benjamin Jensen and Yasir Atalan, "Assessing Russian Firepower Strikes in Ukraine," Center for Strategic and International Studies, October 23, 2024, available at https://www.csis.org/analysis/assessing-russianfirepower-strikes-ukraine; Henrik Larsen, "Stabilizing the NATO-Russian Deterrence Relationship," Washington D.C.: *Georgetown Journal of International Affairs*, July 26, 2024, available at

<sup>&</sup>lt;sup>2</sup> Stacie Pettyjohn, "Evolution Not Revolution: Drone Warfare in Russia's 2022 Invasion of Ukraine," Center for New American Security, February 2024, pp. 14-15, 34-35, available at https://s3.us-east-

https://gjia.georgetown.edu/2024/07/26/stabilizing-the-nato-russia-deterrence-relationship/.

<sup>&</sup>lt;sup>3</sup> The White House, *National Security Strategy*, (Washington, D.C.: The White House, October 2022), p. 23, available at

https://bidenwhitehouse.archives.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.

<sup>&</sup>lt;sup>4</sup> Rana Mitter and Elsbeth Johnson, "What the West Gets Wrong About China: Three Fundamental Misconceptions," *Harvard Business Review*, May–June 2021, available at https://hbr.org/2021/05/what-the-west-gets-wrong-about-china; Richard N. Haass, "U.S. Policy toward the Indo-Pacific: The Case for a Comprehensive Approach," testimony by Richard N. Haass (Washington, D.C.: U.S. Congress, House of Representatives, House Foreign Affairs Subcommittee on Asia, the Pacific, Central Asia, and Nonproliferation, March 19, 2021), p. 3, available at https://cdn.cfr.org/sites/default/files/report\_pdf/haass-richardprepared-statement-3-19-21.pdf.

"the rejuvenation of the Chinese nation,"<sup>5</sup> foresees a China that will, under CCP leadership, emerge from the "darkness" of the "semi-colonial, semi-feudal society" to which China had been reduced by foreign powers between the mid-nineteenth and the mid-twentieth centuries,<sup>6</sup> and will attain global superpower status by 2049, the onehundredth anniversary of the People's Republic of China (PRC).7

The most alarming element of China's plan to reshape the international order is the fast-paced expansion of its nuclear arsenal. China has historically maintained a small number of nuclear weapons as a minimum deterrent, but its current rapid expansion and diversification of its arsenal suggests that Beijing now sees broader utility in nuclear weapons. While China's nuclear calculus is not well understood, the capabilities China is pursuing indicate that Beijing likely views nuclear weapons as effective tools of coercion against the United States and its allies in a potential future regional conflict. Beijing has, over the last decade, forcefully pursued claims over various territories in the Indo-Pacific region, and leveraging military power to do so-in the last few years, China has greatly increased its tempo of intimidating military exercises and sorties in the

https://www.cfr.org/backgrounder/chinese-communist-party; Kenton Thibaut, "China's Understanding of Discourse Power and World Order," ed. Iain Robertson, Chinese Discourse Power: Aspirations, Reality, and Ambitions in the Digital Domain, Atlantic Council, 2022, p. 9, available at

<sup>&</sup>lt;sup>5</sup> Lindsay Maizland and Eleanor Albert, "The Chinese Communist Party," Council on Foreign Relations, October 6, 2022, available at

http://www.jstor.org/stable/resrep42753.5.

<sup>&</sup>lt;sup>6</sup> Michael Mandelbaum, The Rise and Fall of Peace on Earth (New York: Oxford University Press, 2019), pp. 56-58; Xi, Jinping, Xi Jinping: The Governance of China, IV (Beijing: Foreign Languages Press, 2022), pp. 3-5.

<sup>7</sup> Thibaut, "China's Understanding," op. cit., pp. 9-10; Mandelbaum, Rise and Fall, op. cit., p. 71; Susan L. Shirk, Overreach: How China Derailed Its Peaceful Rise (New York: Oxford University Press, 2023), pp. 182-186; Patricia Kim, "Understanding China's Military Expansion," Pacific Council on International Policy, September 19, 2019, available at

https://www.pacificcouncil.org/newsroom/understanding-china's-militaryexpansion.

Taiwan Strait, the Indo-Pacific's tensest flashpoint, reflecting a willingness to use military force to achieve reunification and to repel outside interference.<sup>8</sup> Indeed, China is now investing in a range of tools—including nuclear warheads and mid- to long-range delivery systems—with which it can dominate the Indo-Pacific region while dissuading intervention from the United States and U.S. allies.

These threats are exacerbated by the fact that the United States has long maintained a policy of deliberate vulnerability toward both China and Russia. While exact political emphases have varied across Administrations, U.S. policy since the George H.W. Bush Administration has supported homeland missile defenses only to defend against limited missile attacks from "rogue" states and actors and limited accidental or unauthorized launches, and has relied on strategic deterrence alone to address the intercontinental-range missile threat from both China and Russia. While Congressional legislation broadened U.S. policy in 2016 to endorse pursuing missile defenses against "the developing and increasingly complex ballistic missile threat,"<sup>9</sup> U.S. missile defense strategies since then have still

<sup>9</sup> National Defense Authorization Act for Fiscal Year 2017, Public Law No: 114-328 (Washington, D.C.: U.S. Congress, December 23, 2016), available at https://www.congress.gov/bill/114th-congress/senate-bill/2943/text; Thomas Karako, "Missile Defense and the Nuclear Posture Review," *Strategic Studies Quarterly* 11, no. 3 (2017): 48–64, pp. 48-49, available at

<sup>&</sup>lt;sup>8</sup> Brian Hart, "China Escalates Cross-Strait Military Activity Under Taiwan President William Lai," Center for Strategic and International Studies, February 14, 2025, available at https://www.csis.org/analysis/china-escalates-cross-straitmilitary-activity-under-taiwan-president-william-lai.

http://www.jstor.org/stable/26271603; Charles D. Ferguson and Bruce W. MacDonald, "Nuclear Dynamics in a Multipolar Strategic Ballistic Missile Defense World," Federation of American Scientists, July 2017, p. 7, available at https://fas.org/pub-reports/nuclear-dynamics-in-a-multipolar-strategic-ballistic-missile-defense-world/; Linton F. Brooks, "Perceptions of Sino-American Strategic Stability: A U.S. View," Washington, D.C.: Carnegie Endowment for International Peace, November 7, 2017, available at https://carnegieendowment.org/2017/11/07/perceptions-of-sino-american-strategic-stability-u.s.-view-pub-74629.

explicitly reiterated a reliance on strategic deterrence alone to address the threat of an intercontinental-range missile attack from China or Russia. This policy stance is grounded in long-entrenched ways of thinking about the conditions required for maintaining "strategic stability" with nuclear great power rivals, especially the notion that "mutual vulnerability" creates stability in such relationships. This notion has, in turn, heavily influenced U.S. approaches to homeland missile defense, approaches that vocally are reinforced by Moscow and Beijing. Russia, and the Soviet Union before it, has protested U.S. interest in homeland missile defenses (even in limited systems) since the days of Ronald Reagan's Strategic Defense Initiative. China too has long objected to any U.S. pursuit of homeland missile defenses, and increasingly does so today, claiming that U.S. homeland missile defenses threaten the survivability of China's smaller nuclear deterrent.

Therefore, as Beijing and Moscow invest in modernizing and expanding their nuclear weapons capabilities, both regimes will likely feel emboldened to wield their nuclear arsenals coercively against the United States and U.S. allies and partners in order to achieve their respective territorial ambitions. While the United States remains the greater military and nuclear power, Russia and China may perceive that the United States has less of a stake in the outcomes of such potential regional conflicts. This asymmetry of national interest in the fate of Taiwan and Ukraine, as well as potentially other areas on the peripheries of China and Russia respectively, coupled with a growing set of nuclear options at Beijing's and Moscow's disposal, introduces a tremendous degree of geopolitical instability in both Europe and the Indo-Pacific. In this sense, the deliberate U.S. vulnerability that was intended to preserve strategic stability has actually resulted in instability, both regionally and globally. In the case of China specifically, instead of inspiring Beijing to restrain its own nuclear buildup, U.S.

self-imposed vulnerability appears rather to have emboldened Beijing to rapidly expand its arsenal, aggress its neighbors, and challenge the U.S. position as global leader.

In light of these current realities, this paper seeks to learn lessons from the past by tracing the intellectual history of the concept of strategic stability and its influence over U.S. missile defense policy from the Cold War to the present day. This history offers several insights that can inform the U.S. domestic debate today. One is that, notwithstanding the U.S. decision in 2001 to pull out of the Anti-Ballistic Missile (ABM) Treaty and deploy a limited national missile defense architecture, as well as the broadening of its national missile defense policy over time to include defending the homeland against all enemies, old Cold Warera notions of "mutual vulnerability" as a necessary ingredient of strategic stability continue to exert a subliminal influence in U.S. national missile defense policy. Included in this overall intellectual framework is the notion that the regimes of large strategic adversaries such as China (in contrast to "rogue" states such as North Korea) will behave in predictable, "rational" ways that will support stable, mutual deterrence with the United States. Second, China's intense pursuit of a larger and more diverse nuclear weapons capability is evidently not commensurate with the restrained and modest development of U.S. limited homeland defense capability and suggests that Beijing has motives other than reacting to U.S. force developments. Third, it is clear at this point that U.S. self-limitation of national missile defenses has not only failed to inspire nuclear restraint on the part of China, but has rather supplied Beijing an incentive to abandon its traditional minimum deterrent posture in favor of a broader array of nuclear weapons for coercive and "counterbalancing"

purposes to enable China's dominance of the Indo-Pacific.<sup>10</sup> Fourth, the continued U.S. restraint of its own national missile defense development will, far from promoting strategic stability, likely provoke further geopolitical instability by weakening U.S. strategic and extended deterrence, especially in the Indo-Pacific theater, as China appears poised to pursue its hegemonic aims of "national rejuvenation" through the reclamation of its historical territories, most notably Taiwan.

Drawing on these insights, this paper argues that the way the United States must prepare to counter Chinese (and Russian and North Korean) coercive nuclear threats is to do two things. One, Washington should recognize that the outmoded notion of missile defenses as "destabilizing" to relationships with nuclear great power adversaries is no longer serving U.S. interests, particularly in its relationship with China. Even though some of the parlance of strategic stability and its understood condition of vulnerability has gradually disappeared from national-level missile defense strategies, its ghost is still evident in declarations that the United States relies only on strategic deterrence to address the threat of attack from large, sophisticated nuclear arsenals.<sup>11</sup> A persistent reliance on this policy position will continue to hamstring U.S. missile defense development, even as China expands its offensive forces capable of holding the United States at risk. It is, therefore, time for a change. The United States will have to update U.S.

"China's National Defense in the New Era," July 24, 2019, available at http://eng.mod.gov.cn/xb/Publications/WhitePapers/4846452.html;

Information Office of the State Council of the People's Republic of China, "China's National Defense in the New Era," July 24, 2019, available at https://www.andrewerickson.com/2019/07/full-text-of-defense-white-paperchinas-national-defense-in-the-new-era-english-chinese-versions/.

<sup>11</sup> U.S. Department of Defense, 2022 *Missile Defense Review* (Washington, D.C.: U.S. Department of Defense, 2022), pp. 1, 5, 6, available at

https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

<sup>&</sup>lt;sup>10</sup> Information Office of the State Council of the People's Republic of China,

declaratory policy on national missile defenses at both executive and legislative levels. Washington must no longer pursue deliberate vulnerability to near-peer nuclear powers but rather commit, over the long term, to defend the U.S. homeland against all avowed nuclear-armed adversaries, whether large and small. This will require dispensing with the outdated "rationality" quotient in determining which enemies the United States will defend against.

Two, the United States must update its national missile defense capabilities to provide a measure of protection against China and Russia in addition to North Korea. It is not necessary to provide comprehensive protective coverage of the United States (nor would this be a realistic goal, any more than it would be to provide complete protective coverage of the United States against contagious viruses); however, it is still possible and feasible—and prudent, given China's armament and ambition in particular—to provide enough defensive capability to undermine adversarial confidence in coercive threats against the United States.

In order to be effective and credible against China and other adversaries, new national missile defenses will have to push past the traditional limitations the United States has placed on its strategic defense by heretofore insisting on only terrestrial-based missile kill capability. While the U.S. Missile Defense Agency (MDA) is currently pursuing acquisition of 20 new, next-generation interceptors for the GMD, this expensive upgrade is still not likely to keep pace even with the threat posed by North Korea, aside from any consideration of China or Russia. In fact, the United States simply cannot rely on ground-based systems, even with massive expansions, to provide the needed capability against the potential numbers and possible trajectories of near-peer strategic arsenals.<sup>12</sup> Rather, the United States now

<sup>&</sup>lt;sup>12</sup> Henry Obering, former Director of the Missile Defense Agency, personal interview, June 21, 2023; Center for Arms Control and Non-Proliferation, "GMD:

needs a space-based missile defense system, to include both space-based sensors and space-based interceptors. Such a space-based capability is the only way the United States can achieve unbroken, comprehensive sensor coverage of all kinds of missiles as well as the ability to destroy launched missiles that threaten the U.S. homeland in their boost capabilities, especially phase. Such а space-based interceptor capability, have long been controversial. But during the decades that the United States declined to pursue any kind of strategic missile defense against nearpeer adversaries, these adversaries have exploited U.S. inaction by arming themselves with an array of weapons designed to threaten U.S. forces, people, allies, and partners with the objective of undermining U.S. global leadership. If the United States is to maintain its position as a global leader and as a protector of its citizens, friends, and interests globally, it must now take these necessary steps to safeguard its territory from coercive nuclear threats.

Fortunately, the time is ripe for the above recommendations in two respects: 1) the technology for providing this kind of defensive capability is more feasible and affordable than ever before, and 2) the current political executive leadership of the United States is more supportive than previous Administrations of the bold policies required to realize such capabilities. In terms of technology, competitive developments in commercial space boost capability, as well as advances in other space-relevant technologies such as satellite miniaturization and additive manufacturing, are dramatically lowering the prospective costs of space-based defense systems. Although a spacebased kill capability would still represent a significant investment, the Congressional Budget Office estimates that such a system would be up to 40% lower in cost over a 20-

Frequently Asked Questions," accessed February 15, 2025, available at https://armscontrolcenter.org/issues/missile-defense/gmd-frequently-asked-questions/.

year period than it estimated in earlier studies.<sup>13</sup> Moreover, as the U.S. commercial technology sector becomes more interested in supporting defense-related initiatives,<sup>14</sup> further innovations and efficiencies are doubtless in the offing if the political environment will continue to support it.

On that note, it's important to understand that strategic missiles defenses are, like nuclear weapons, strictly a national capability. Therefore, the only way that the United States will ever enjoy the protection of such a system is if initiative comes from the top levels of government, most importantly from the President. Executive-level initiative and sustained momentum is essential if U.S. private enterprise can be expected to make the investments required to provide an effective space-based sensor and interceptor defense architecture. For this reason, the Donald Trump Administration's Executive Order 14186: "The Iron Dome of America," dated January 27 2025, is an encouraging development. This order accurately points out that while official U.S. policy "has remained only to stay ahead of rogue-nation threats and accidental or unauthorized missile launches," the United States is now under threat from an array of next-generation strategic weapons developed "by peer and near-peer adversaries."15 In light of this, the President declares as the policy of the

<sup>&</sup>lt;sup>13</sup> Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," (Washington, D.C.: Congressional Budget Office, January 2021), pp. 3, 4, 21–22, available at

https://www.cbo.gov/system/files/2021-01/56949-MissileDefenseReview.pdf. https://www.cbo.gov/publication/56949.

<sup>&</sup>lt;sup>14</sup> *Economist*, "Defence tech is blowing up Silicon Valley's beliefs," February 13, 2025, available at https://www.economist.com/business/2025/02/13/defence-tech-is-blowing-up-silicon-valleys-beliefs.

<sup>&</sup>lt;sup>15</sup> Executive Office of the President, "The Iron Dome of America, Executive Order 14186 of January 27, 2025," *Federal Register* 90, no. 21 (February 3, 2025): 8767– 8769, available at

https://www.federalregister.gov/documents/2025/02/03/2025-02182/the-iron-dome-for-america.

United States that "(a) The United States will provide for the common defense of its citizens and the Nation by deploying and maintaining a next-generation missile defense shield; (b) The United States will deter — and defend its citizens and critical infrastructure against — any foreign aerial attack on the Homeland; and (c) The United States will guarantee its secure second-strike capability."<sup>16</sup> The order goes on to require the Secretary of Defense to "[s]ubmit to the President a reference architecture, capabilities-based requirements, and an implementation plan for the next-generation missile defense shield," which shall include plans for deployment of a space-based architecture as well as "[d]evelopment and deployment of proliferated space-based interceptors capable of boost-phase intercept."<sup>17</sup>

This new policy, communicating as a presidential-level political objective the protection of the homeland against all enemies, including near-peer powers, represents the biggest shift in U.S. missile defense policy since the United States decided to pull out of the ABM Treaty in 2001. It reflects a new willingness in Washington (even compared to the first Trump Administration) to use homeland missile defense as a means to confront the deterrence and defense challenges posed by near-peer adversaries and to consider space-based technologies that have historically been rejected as too expensive and too provocative.

However, while President Trump's "Iron Dome" executive order represents a step in the right direction, it will not automatically translate into meaningful action. In fact, the Administration likely faces a long road of opposition ahead. Belief in the stabilizing power of "mutual vulnerability," and relatedly the destabilizing nature of homeland missile defenses (a belief held over from the Cold War), is deeply entrenched in U.S. political thinking. Furthermore, executive orders can easily be canceled or

<sup>&</sup>lt;sup>16</sup> Loc. cit.

<sup>&</sup>lt;sup>17</sup> Loc. cit.

reversed by subsequent Administrations. Because of this, Executive Order 14186 is unlikely to prompt any kind of lasting breakthrough either in terms of policy or capability. For these reasons, Congressional support is needed in the form of updated legislation to make this stance an enduring policy of the United States and to lay the foundation for appropriating funds to develop and deploy new missile defense technology. The executive order therefore will require champions, potentially outside of traditional government circles, with the vision and courage to propel this historic initiative forward.

#### U.S. Missile Defenses and Missile Defense Policy

The United States has a networked, layered ballistic missile (BMD) system consisting defense of three main components: sensors, interceptors, and command and control (C2) infrastructure.<sup>18</sup> All interceptors operate as "hit-to-kill" vehicles-that is, they are designed to strike and destroy incoming adversary missiles through kinetic force.19 In the early days of missile defense development, the U.S. government used nuclear-tipped missiles as interceptors but began funding kinetic hit-to-kill technology research starting in 1975 and eventually shifted completely to the hit-to-kill approach.<sup>20</sup>

The U.S. missile defense network consists of both regional and homeland ballistic missile defense systems. Although the two types of systems are networked, U.S. policymakers distinguish between the two based on their different capabilities and operational roles. Regional missile defenses, also known as theater missile defenses, are designed to intercept short-range (up to 1,000 km) to intermediate-range (up to 5,500 km) missiles<sup>21</sup> and are

<sup>20</sup> Congressional Research Service, "Defense Primer: Ballistic Missile Defense," by Hannah D. Dennis, updated December 30, 2024, pp. 1–2, available at https://crsreports.congress.gov/product/pdf/IF/IF10541; Karako and Williams, *Missile Defense* 2020, op. cit., p. 23.

<sup>&</sup>lt;sup>18</sup> Patty-Jane Geller, "Missile Defense," in 2023 Index of U.S. Military Strength, Heritage Foundation, October 18, 2022, p. 508, available at

https://www.heritage.org/sites/default/files/2022-

<sup>10/2023</sup>\_IndexOfU.S.MilitaryStrength\_ASSESSMENT\_POWER\_MD.pdf.

<sup>&</sup>lt;sup>19</sup> Thomas Karako and Ian Williams, *Missile Defense 2020: Next Steps for Defending the Homeland, A Report of the CSIS Missile Defense Project,* Center for Strategic and International Studies, April 2017, p. 28, https://missilethreat.csis.org/wp-content/uploads/2017/04/170406\_Karako\_MissileDefense2020\_Web.pdf.

<sup>&</sup>lt;sup>21</sup> Geller, "Missile Defense," op. cit., p. 512; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; Michael Unbehauen, "The Case for Missile Defense and an Efficient Defense of the U.S. Homeland," *Wild Blue Yonder*, June 8, 2020, available at https://www.airuniversity.af.edu/Wild-Blue-

intended specifically to protect U.S. troops stationed abroad as well as U.S. allies and partners. Current U.S. regional missile defenses include three systems: the Aegis system, the Terminal High Altitude Area Defense (THAAD) system, and the Patriot Weapon System using Patriot Advanced Capability (PAC)-3 missiles.<sup>22</sup> Aegis systems are designed to intercept short- and medium-range missiles in midcourse and terminal phases of flight and intermediaterange missiles in the midcourse range of flight.<sup>23</sup> Aegis has both a sea-based version designed to deploy on Navy ships as well as a land-based version (Aegis Ashore). As of January 2025, the Missile Defense Agency plans for a total of 56 U.S. Navy ships to be equipped with Aegis BMD systems by the end of Fiscal Year (FY) 2025.<sup>24</sup> The U.S. Navy has two Aegis Ashore sites, one in Romania and another in Poland, for the protection of U.S. NATO allies.<sup>25</sup> In addition, Japan has equipped eight of its destroyers with Aegis BMD systems and has also partnered with the United States to develop the SM-3 Block IIA interceptor.26 Aegis C2 infrastructure tracks missiles of any range and therefore also supports the homeland missile defense mission.<sup>27</sup> The

Yonder/Article-Display/Article/2210755/the-case-for-missile-defense-and-anefficient-defense-of-the-us-homeland/.

 <sup>&</sup>lt;sup>22</sup> Missile Defense Agency, "PATRIOT Advanced Capability (PAC)-3," accessed January 21, 2025, available at https://www.mda.mil/system/pac\_3.html.
<sup>23</sup> Geller, "Missile Defense," op. cit., pp. 511–512.

<sup>&</sup>lt;sup>24</sup> Congressional Research Service, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress,* by Ronald O'Rourke, updated July 15, 2024, p. 6, available at

https://crsreports.congress.gov/product/pdf/RL/RL33745/253.

<sup>&</sup>lt;sup>25</sup> Congressional Research Service, *Navy Aegis*, op. cit., pp. 7–8; North Atlantic Treaty Organization, "Ballistic missile defence," last updated August 1, 2024, available at https://www.nato.int/cps/en/natohq/topics\_49635.htm.

<sup>&</sup>lt;sup>26</sup> Congressional Research Service, *Navy Aegis*, op. cit., pp. 11–12; *Japan Times*, "Japan adds two ships to its fleet of Aegis-equipped destroyers," November 21, 2022, available at

https://www.japantimes.co.jp/news/2022/11/21/national/aegis-destroyers-new-ships/.

<sup>&</sup>lt;sup>27</sup> U.S. Missile Defense Agency, "Aegis Ballistic Missile Defense," July 28, 2016, https://www.mda.mil/global/documents/pdf/aegis.pdf.

THAAD system is a mobile land-based system designed to intercept short- and medium-range missiles in the terminal phase of flight.<sup>28</sup> The U.S. Army operates seven THAAD batteries located in Guam, the Republic of Korea (ROK), Israel, and the Persian Gulf.<sup>29</sup> In addition, Japan, Israel, and Turkey host THAAD radars.<sup>30</sup> The Patriot system is a mobile land-based missile and air defense system designed to defend against short-range ballistic missiles in the terminal phase of flight, as well as against cruise missiles, rockets, and aircraft.<sup>31</sup> The U.S. Army operates 15 batteries throughout the world; in addition, numerous other countries including Japan, the ROK, several NATO allies, and a number of Persian Gulf countries have purchased Patriot systems from the United States.<sup>32</sup> As of late 2024, the United States has provided three Patriot batteries to Ukraine where they have performed beyond expectation, bringing down several Russian Kinzhal hypersonic missiles.33

<sup>&</sup>lt;sup>28</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2.

<sup>&</sup>lt;sup>29</sup> Geller, "Missile Defense," op. cit., p. 512; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2.

<sup>&</sup>lt;sup>30</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2.

<sup>&</sup>lt;sup>31</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2; U.S. Missile Defense Agency, "PATRIOT Advanced Capability-3 (PAC-3)," accessed January 28, 2023, https://www.mda.mil/system/pac\_3.html.

<sup>&</sup>lt;sup>32</sup> Congressional Research Service, "PATRIOT Air and Missile Defense System for Ukraine," by Andrew Feickert, updated January 18, 2023, p. 2, available at https://crsreports.congress.gov/product/pdf/IF/IF12297.

<sup>&</sup>lt;sup>33</sup> James Marson and Doug Cameron, "How the U.S. Patriot Missile Became a Hero of Ukraine War," Wall Street Journal, June 11, 2023, available at

https://www.wsj.com/articles/u-s-patriot-missile-is-an-unsung-hero-of-

ukraine-war-db6053a0; Marc Santora, Eric Schmitt, and John Ismay, "Ukraine Claims It Shot Down Russia's Most Sophisticated Missile for First Time," *New York Times*, May 6, 2023,

https://www.nytimes.com/2023/05/06/world/europe/ukraine-russia-warpatriot.html; Jen Judson, "How Patriot proved itself in Ukraine and secured a fresh future," *Defense News*, April 9, 2024, available at

https://www.defensenews.com/land/2024/04/09/how-patriot-proved-itselfin-ukraine-and-secured-a-fresh-future/.

Homeland defenses are designed to defend against intercontinental-range (exceeding 5,500 km) ballistic missiles.34 The United States has one homeland BMD system, the Ground-based Midcourse Defense (GMD) system. The GMD was fielded in 2004 for the purpose of defending all 50 U.S. states from a limited long-range missile attack.<sup>35</sup> The GMD is designed to destroy intercontinental-range missiles in the midcourse (exoatmospheric) phase of flight.36 The GMD has 44 interceptors, called Ground-Based Interceptors (GBIs), between two sites, 40 at Fort Greely, AK, and four at Vandenberg Air Force Base, CA.<sup>37</sup> In the FY 2025 National Defense Authorization Act (NDAA), Congress directed the Missile Defense Agency to establish, by 2030, a third continental interceptor site on the U.S. East Coast "to support the defense of the homeland of the United States from emerging long-range missile threats."38

Per current U.S. policy, the purpose and design of the GMD is to defend only against a limited number of incoming long-range missiles, such as those belonging to North Korea.<sup>39</sup> The GMD is not capable of defending against

HOMELANDMISSILE-DEFENSE-FINAL.PDF; Center for Strategic and

International Studies, "Ground-based Midcourse Defense (GMD) System," CSIS Missile Defense Project, last updated July 26, 2021, available at

https://www.congress.gov/118/bills/hr5009/BILLS-118hr5009enr.pdf.

<sup>&</sup>lt;sup>34</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1.

<sup>&</sup>lt;sup>35</sup> U.S. Department of Defense, "Layering Homeland Missile Defense: A Strategy for the United States," 2020, p. 2, available at

https://media.defense.gov/2020/Jun/22/2002319425/-l/-I/I/LAYERED-

https://missilethreat.csis.org/system/gmd/.

<sup>&</sup>lt;sup>36</sup> Geller, "Missile Defense," op. cit., p. 512; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; Center for Arms Control and Non-Proliferation, "U.S. Ballistic Missile Defense," accessed January 28, 2023, p. 1, available at https://armscontrolcenter.org/wpcontent/uploads/2021/04/BMD.pdf.

<sup>&</sup>lt;sup>37</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1.

<sup>&</sup>lt;sup>38</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; National Defense Authorization Act for Fiscal Year 2025, Public Law No: 118-159 (December 23, 2024), p. 410, available at

<sup>&</sup>lt;sup>39</sup> 2022 Missile Defense Review, op. cit., pp. 5, 6.

larger intercontinental-range arsenals such as those belonging to China and Russia, leaving the United States completely vulnerable to those countries' long-range missile capabilities.<sup>40</sup> Questions persist as to whether a more extensive anti-ballistic missile system is technologically possible or affordable, but advances in commercial technology, particularly space technology, are opening new possibilities. However, poor policy choices, including misguided declaratory policy, continue to hamper the ability of the U.S. government to take advantage of the technological advances that are occurring in the commercial and industrial sectors. Policy, rather than technology, remains the primary obstacle to U.S. anti-ballistic missile advancement.

Since the 1990s, U.S. policy has supported defending only against limited missile attacks from rogue states. In fact, it has been a matter of U.S. policy specifically *not* to defend against the larger and more sophisticated arsenals of great powers like Russia and China. This deliberate, declared vulnerability persists even though the U.S. government has, since the 2016 amendment to the 1999 Missile Defense Act, made incremental policy adjustments to accommodate expanded development of missile defenses for the U.S. homeland. The current threat environment notwithstanding, Washington has struggled to form a decisive, coherent policy narrative articulating its defense of the homeland against China's missile threat.

The explicit U.S. position of not defending against Russian or Chinese strategic arsenals has its roots in legacy concepts of strategic stability and deterrence developed during the Cold War and the political context of that era. By the 1960s, key U.S. policymakers had become convinced that the best way to arrest the fearsome U.S.-Soviet nuclear arms race was to create conditions under which the United

<sup>&</sup>lt;sup>40</sup> Loc. cit.

States and Soviet Union would remain vulnerable to each other's offensive weapons. This arrangement of "mutual vulnerability" would purportedly dissuade both sides from contemplating a first nuclear strike on the other under the recognition that doing so would invite devastating nuclear retaliation and destruction upon its own undefended cities. The key to cultivating this mutual vulnerability was to limit deployments strictly of ABM defenses – an arrangement eventually codified between the United States and the Soviet Union in the ABM Treaty of 1972. U.S. political considerations from that era resulted in a bifurcated missile defense policy of defending against lesser, limited threats but not greater ones. The seeds of this artificial division were planted when President Lyndon Johnson, taking a middle path between the polarized advice of his top defense officials, agreed to support limited ABM deployments against China's then small arsenal (as well as to protect U.S. ICBMs), but not against the Soviet arsenal.

This way of thinking about missile defense has produced an incoherent strategy of defending against intercontinental-range threats to the homeland based on U.S. perceptions of adversaries' proclivities for rational decision-making—perceptions that tend to beget risky assumptions and expectations about how deterrence will or will not operate<sup>41</sup>—rather than on sound national security objectives. In the current age, U.S. reliance solely on strategic deterrence to defend against China and Russia has left the United States vulnerable to nuclear attack, and, therefore, nuclear coercion. This leaves Washington susceptible to coercive manipulation—such as by the CCP—and greatly weakens U.S. strategic deterrence and

<sup>&</sup>lt;sup>41</sup> Keith B. Payne, *The Fallacies of Cold Deterrence and a New Direction* (Lexington, KY: The University Press of Kentucky, 2001), pp. 17–21; Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-First Century* (Fairfax, VA: National Institute Press, 2008), pp. 321–324.

extended deterrence postures, in addition to introducing the risk of nuclear escalation in a crisis or conflict.

It is worth examining how the United States got to this place.

#### **Understanding Strategic Stability**

"Strategic stability" is a term that grew out of the Cold War but still features prominently in today's international relations parlance. Scholars Lawrence Rubin and Adam Stulberg, who have studied the concept extensively, describe strategic stability as "a common frame of reference for how nuclear weapons affect global peace and security," one that "turns the destructiveness of nuclear weapons technology into a foundation for coexistence among rival possessor states."42 Dr. Rubin and Dr. Stulberg are quick to add that there is no shared or standard meaning of strategic stability across nations and actors, which is admittedly problematic since "mutual understanding of strategic stability and deterrence was assumed to be the linchpin of the global order during both the Cold War and immediate post-Cold War periods."43 While there remains no single agreed-upon definition of the concept, "strategic stability" in Western policy circles has generally come to be regarded as a set of conditions in which nuclear-armed rival powers are disincentivized to initiate nuclear attack.<sup>44</sup> Some

<sup>&</sup>lt;sup>42</sup> Adam N. Stulberg and Lawrence Rubin, "Introduction," in *The End of Strategic Stability? Nuclear Weapons and the Challenge of Regional Rivalries*, ed. Lawrence Rubin and Adam N. Stulberg, 1–20 (Washington D.C.: Georgetown University Press, 2018), p. 2.

<sup>&</sup>lt;sup>43</sup> Lawrence Rubin and Adam N. Stulberg, "Conclusion," in *The End of Strategic Stability? Nuclear Weapons and the Challenge of Regional Rivalries,* ed. Lawrence Rubin and Adam N. Stulberg, 298–304 (Washington D.C.: Georgetown University Press, 2018), p. 299.

<sup>&</sup>lt;sup>44</sup> Robert E. Berls, Leon Ratz, and Brian Rose, "Rising Nuclear Dangers: Diverging Views of Strategic Stability," Nuclear Threat Initiative, 2018, p. 3, available at http://www.jstor.org/stable/resrep20035; Bruce W. MacDonald, "Growing Stability Challenges to the Nuclear Weapons Domain," *SAIS Review of* 

scholars have defined strategic stability in various subcategories, such as first-strike stability and arms race stability.<sup>45</sup> First-strike stability, also referred to as crisis stability, generally refers to the absence of incentives for nuclear-armed rivals to make a nuclear strike first (to avoid being disarmed or to gain an advantage) under crisis conditions, based on the confidence that each can credibly absorb a nuclear first strike and still deliver a level of retaliation unacceptable to the first striker.<sup>46</sup> U.S. leaders historically expressed the concept of crisis stability between the United States and the Soviet Union as "mutual assured destruction."47 Achieving first-strike stability depends on ensuring that both sides have survivable retaliatory arsenals and associated command and control systems and the expectation that a retaliatory strike will reach its targets.48 Arms race stability refers to the absence of incentives for nuclear-armed rivals to build up their nuclear forces because doing so will not result in any meaningful

http://www.jstor.org/stable/resrep12086.5.

International Affairs 40, no. 1 (2020): 125–137, p. 126, available at https://muse.jhu.edu/article/763660.

<sup>&</sup>lt;sup>45</sup> Lora Saalman, "Placing a Renminbi Sign on Strategic Stability and Nuclear Reductions," in *Strategic Stability: Contending Interpretations*, ed. Elbridge A. Colby and Michael S. Gerson, 343–381, Carlisle Barracks, PA: U.S. Army War College Press, February 2013, p. 345, available at

<sup>&</sup>lt;sup>46</sup> Robert Legvold and Christopher F. Chyba, "Introduction: The Search for Strategic Stability in the New Nuclear Era," Daedalus 149, no. 2 (2020): 6-16, p. 8, available at https://www.jstor.org/stable/48591309; MacDonald, "Growing Stability Challenges," op. cit., p. 126; Frank P. Harvey, "The Future of Strategic Stability and Nuclear Deterrence," *International Journal* 58, no. 2 (2003): 321–46, pp. 321, 322, available at https://doi.org/10.2307/40203844.

<sup>&</sup>lt;sup>47</sup> Legvold and Chyba, "Introduction," op. cit., p. 8; Elbridge Colby and Thomas C. Schelling, "Defining Strategic Stability: Reconciling Stability and Deterrence," in *Strategic Stability: Contending Interpretations*, ed. Elbridge A. Colby and Michael S. Gerson, 47–84, Carlisle Barracks, PA: U.S. Army War College Press, February 2013, pp. 48–49, available at http://www.jstor.org/stable/resrep12086.5.

<sup>&</sup>lt;sup>48</sup> Saalman, "Placing a Renminbi Sign on Strategic Stability and Nuclear Reductions," op. cit., p. 345; Colby and Schelling, "Defining Strategic Stability," op. cit., p. 48; Thomas C. Schelling, and Morton H. Halperin, *Strategy and Arms Control* (Twentieth Century Fund, Inc., 1961, printed by Mansfield Centre, CT: Martino Publishing, 2014), pp. 9–11, 18.

net advantage due to offsetting reactions by the other party.<sup>49</sup> Within this framework, any capability that threatens the survivability of retaliatory capabilities is considered "destabilizing" because it undermines the adversary's confidence in being able to carry out a successful retaliatory strike; absent such confidence, the adversary is incentivized to strike first.<sup>50</sup> Per this logic, antimissile capabilities, or missile defenses, are regarded as destabilizing assets, both in deterrence and arms control contexts.<sup>51</sup>

On this basis, strategic stability during much of the Cold War was seen as achievable through a balance of forces in which both sides would be convinced that there was no advantage to initiating a nuclear war or attempting to change the military balance by expanding its military forces.<sup>52</sup> The foundational condition of strategic stability therefore, at least from the perspective of many Western analysts, is that "mutual assured destruction" ("MAD" for short)—undergirded by each side's ability to inflict a devastating retaliatory nuclear strike—would reliably disincentivize either side from striking first, thus creating stability in the relationship.<sup>53</sup> This understanding is

<sup>&</sup>lt;sup>49</sup> MacDonald, "Growing Stability Challenges," op. cit., p. 126; Colby and Schelling, "Defining Strategic Stability," op. cit., p. 49.

<sup>&</sup>lt;sup>50</sup> Gregory D. Koblentz, "Challenges to Strategic Stability," *Strategic Stability in the Second Nuclear Age*, Council on Foreign Relations, 2014, p. 19, available at http://www.jstor.org/stable/resrep21432.8.

<sup>&</sup>lt;sup>51</sup> Koblentz, "Challenges to Strategic Stability," op. cit., p. 22; Henry Obering and Rebeccah L. Heinrichs, "Missile Defense for Great Power Conflict:

Outmaneuvering the China Threat," *Strategic Studies Quarterly*, Winter 2019, pp. 44–45, available at

https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-13\_Issue-4/Heinrichs.pdf.

<sup>&</sup>lt;sup>52</sup> Brad Roberts, "Extended Deterrence and Strategic Stability in Northeast Asia," Japan National Institute for Defense Studies, NIDS Visiting Scholar Paper Series, No.1, August 9, 2013, p. 2, available at

http://www.nids.mod.go.jp/english/publication/visiting/pdf/01.pdf; Payne, *Gamble*, op. cit., pp. 50, 54–55, 70–73, 124.

<sup>53</sup> Legvold and Chyba, "Introduction," op. cit., p. 8; Brooks, "Perceptions," op. cit.

reflected in the joint acknowledgement of "strategic stability" between the United States and Soviet Union, the Soviet-United States Joint Statement on Future Negotiations on Nuclear and Space Arms and Further Enhancing Strategic Stability, released June 1, 1990.<sup>54</sup> In this statement, strategic stability is conceived of as a balance of strategic forces and a recognition of the significance of the relationship between offensive and defensive forces such that neither side had incentives to conduct a first strike, saying:

The objectives of these negotiations will be to reduce further the risk of outbreak of war, particularly of nuclear war, and to ensure strategic stability, transparency and predictability through further stabilizing reductions in the strategic arsenals of both countries. This will be achieved by seeking agreements that improve survivability, remove incentives for a nuclear first strike and implement an appropriate relationship between strategic offenses and defenses.<sup>55</sup>

<sup>54</sup> George H. W. Bush, "Soviet-United States Joint Statement on Future Negotiations on Nuclear and Space Arms and Further Enhancing Strategic Stability," June 1, 1990, *The American Presidency Project* by Gerhard Peters and John T. Woolley, accessed March 25, 2023, available at

https://www.presidency.ucsb.edu/node/263949; Brandon W. Heimer, Erin Connolly, Jessica Gott, Zach Hadfield, Michael Hamel, Ari Kattan, Marie C. Kirkegaard, et al., "Standoff Over the LRSO: Assessing the Long-Range Stand-Off Missile's Impact on Strategic Stability," ed. Sarah Minot Asrar, *On the Horizon: A Collection of Papers from the Next Generation*, Center for Strategic and International Studies, 2019, p. 52, available at

http://www.jstor.org/stable/resrep22545.8; Andrey Pavlov and Anastasia Malygina, "The Russian Approach to Strategic Stability: Preserving a Classical Formula in a Turbulent World," in *The End of Strategic Stability? Nuclear Weapons and the Challenge of Regional Rivalries*, ed. Lawrence Rubin and Adam N. Stulberg, 41–65 (Washington D.C.: Georgetown University Press, 2018), p. 43.

<sup>&</sup>lt;sup>55</sup> Bush, "Soviet-United States Joint Statement on Future Negotiations on Nuclear and Space Arms," op. cit.; Heimer et al., "Standoff," op. cit., p. 52.

Despite this being the only official joint articulation of strategic stability from the Cold War,<sup>56</sup> the overall concept of strategic stability was very influential and instrumental in directing U.S. policy starting from the late 1950s onward.<sup>57</sup>

#### Influence of Strategic Stability Thinking on U.S. Missile Defense Policy

#### Origins and Codification of Mutual Vulnerability

"Strategic stability" is primarily an American construct. The basic concept grew out of the conditions of the Cold War when the United States and the Soviet Union were the primary nuclear powers and served as leaders of opposing blocs of allies in a decades-long military, political, and ideological standoff. Strategic stability's intellectual genesis in the 1950s and 1960s reflected a growing U.S. realization that, although the United States still had nuclear superiority over the Soviet Union, the Soviet Union was beginning to catch up in terms of quantity and quality of weapons, including long-range weapons capable of reaching the United States.<sup>58</sup> Not only were analysts concerned that the United States was technologically incapable of defending

<sup>&</sup>lt;sup>56</sup> Although it never entered into force, the Treaty Between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (START II), signed January 3, 1993, included a preamble clause noting the parties' desire "to enhance strategic stability and predictability" (see "Treaty Between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (START II)," signed January 3, 1993, U.S. Department of State Archive, available at https://2009-2017.state.gov/t/avc/trty/102887.htm).

<sup>&</sup>lt;sup>57</sup> Christopher F. Chyba and Robert Legvold, "Conclusion: Strategic Stability & Nuclear War," *Daedalus* 149, no. 2 (2020): 222–37, p. 229, available at https://www.jstor.org/stable/48591322; Montgomery, "Sources of Instability in the Second Nuclear Age," op. cit., p. 23.

<sup>&</sup>lt;sup>58</sup> Henry Kissinger, White House Years (Boston: Little, Brown and Company, 1979), p. 197–198.

against such weapons,<sup>59</sup> but they also began to fear that as the Soviet Union expanded its own arsenal, it would become more capable and more incentivized to attempt a surprise first strike attack against U.S. nuclear forces – a fear animated by the recognition that, as both the United States and Soviet Union acquired greater and greater counterforce capabilities, the strategic advantage would be on the side of the party that attacked first.60 Yet, even as such apprehensions heightened through the 1960s, the Vietnam War was taking a toll on both the defense budget and the U.S. national psyche, and many Americans inside and outside of government began to view U.S. policies and defense investments as provocative of military conflict and competition across the globe.<sup>61</sup> There was a growing drive in the U.S. nuclear enterprise, therefore, to discover new approaches, policies, and measures to diminish incentives for surprise strategic attack and to arrest the Soviet nuclear buildup while still allowing the United States to rein in and reduce its own defense investments.

Many prominent academics and Washington strategists at the time devoted considerable effort to devising political and military measures that would create incentives conducive to deterring a first strike from the Soviets and to

<sup>59</sup> Michael S. Gerson, "The Origins of Strategic Stability: The United States and the Threat of Surprise Attack," in *Strategic Stability: Contending Interpretations*, ed. Elbridge A. Colby and Michael S. Gerson, 383–432, Carlisle Barracks, PA: U.S. Army War College Press, February 2013, pp. 4–8, available at

Arthy Wal College Fless, February 2013, pp. 4-8, available at https://www.jstor.org/stable/resrep12086.4; Caspar W. Weinberger, "The Strategic Defense Initiative," *Haroard International Review* 7, no. 4 (1985): 7–10, p. 7, available at http://www.jstor.org/stable/42762237; Keith B. Payne, *Strategic Defense: "Star Wars" in Perspective* (Lanham, MD: Hamilton Press, 1986), p. 29; Schelling and Halperin, *Strategy and Arms Control*, op. cit., pp. 9–11; Thomas C. Schelling, "Reciprocal Measures for Arms Stabilization," in *Arms Control*, *Disarmament, and National Security*, ed. Donald G. Brennan, 167–186 (New York: George Braziller, Inc., 1961), p. 167; Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," op. cit., p. 6.

<sup>60</sup> Schelling and Halperin, Strategy and Arms Control, op. cit., pp. 9-11.

<sup>&</sup>lt;sup>61</sup> Kissinger, White House Years, op. cit., p. 199.

restraining strategic arms competition, and soon the notion of strategic stability began to find expression in specific force posture recommendations. The term "strategic stability" itself was first introduced into U.S. parlance in preparation for the 1958 "Surprise Attack Conference" between the United States and Soviet Union, which occurred in Geneva on December 10-18, 1958.62 In conference, operations three preparation for that researchers for the U.S. Army, Vincent McRae, Philip Lowry, and Joseph Harrison, prepared a paper for the delegates titled "Stability-A Criterion for Evaluating Inspection and Control Systems," which Dr. William Burr, analyst archive senior at the non-governmental organization National Security Archive (housed at The George Washington University), believes may contain the earliest appearance of the term "strategic stability" in U.S. official documentation.<sup>63</sup> The paper suggested that U.S. delegates leverage "models of strategic stability" to assess the extent to which the probability of surprise attack would be lowered by employing various inspection protocols.64 For purposes of the paper, the authors defined a situation as "unstable" in which either country perceived a net benefit to its national interest in making a surprise attack on the other and a confidence in its ability to carry out such an

https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2021-12-07/strategicstability-during-middle-cold-war; Gerson, "The Origins of Strategic Stability," op. cit., p. 23.

<sup>&</sup>lt;sup>62</sup> William Burr, "Strategic Stability and Instability during the Middle Years of the Cold War," Washington, D.C.: National Security Archive, The George Washington University, December 10, 2021, p. 12, available at

<sup>&</sup>lt;sup>63</sup> Vincent V. McRae, Philip H. Lowry, and Joseph O. Harrison, "Stability – A Criterion for Evaluating Inspection and Control Systems," 29 October 1958, SAW/147, in "Strategic Stability and Instability during the Middle Years of the Cold War," by William Burr, Washington, D.C.: National Security Archive, The George Washington University, December 10, 2021, available at

https://nsarchive.gwu.edu/document/27191-document-2-vincent-v-mcraephilip-h-lowry-and-joseph-o-harrison-stability-criterion; Gerson, "The Origins of Strategic Stability," op. cit., pp. 29, 31, 32, 33, 35.

<sup>&</sup>lt;sup>64</sup> McRae, Lowry, and Harrison, "Stability," op. cit., p. 3.

attack successfully.<sup>65</sup> The paper further associated stability with, one, the level of damage to an opponent's cities its strategic systems were capable of inflicting; and, two, the degree to which retaliatory forces were protected from attack.<sup>66</sup> The paper promoted the idea that anti-missile defense systems, if only deployed by one side, would destabilize the strategic balance between the two rivals: "If both sides create simultaneously an anti-missile missile capability, the effectiveness of... covert deployment drops rapidly....On the other hand, if one side creates even a marginally effective anti-missile missile capability, stability itself disappears."<sup>67</sup> A key conclusion of the paper stated that, realistically, "the best stability we could get is a stability based on fear of mutual annihilation."<sup>68</sup>

While the Surprise Attack Conference itself did not make much demonstrable progress advancing the stability of the U.S.-Soviet relationship,<sup>69</sup> the idea that ABM systems were destabilizing to the relationship evidently gained a foothold in U.S. policy thinking, particularly in the burgeoning arms control community. In 1960 and 1961, several political scholars participated in a series of seminars in the Boston area to explore problems related to arms limitation and disarmament and to develop proposals for advancing effective arms control in the nuclear age.<sup>70</sup> The essays resulting from this series of discussions further contributed to the thinking that secure, survivable coupled capabilities, retaliatory with deliberate

<sup>&</sup>lt;sup>65</sup> Burr, "Strategic Stability and Instability," op. cit., p. 16; McRae, Lowry, and Harrison, "Stability," op. cit., pp. 3, 5, 35.

<sup>&</sup>lt;sup>66</sup> McRae, Lowry, and Harrison, "Stability," op. cit., p. iii.

<sup>&</sup>lt;sup>67</sup> Burr, "Strategic Stability and Instability," op. cit. p. 17; McRae, Lowry, and Harrison, "Stability," op. cit., p. 30.

<sup>68</sup> McRae, Lowry, and Harrison, "Stability," op. cit., p. iii.

<sup>69</sup> Gerson, "The Origins of Strategic Stability," op. cit., p. 24.

<sup>&</sup>lt;sup>70</sup> Jerome Wiesner, "Foreword," in Arms Control, Disarmament, and National Security, ed. Donald G. Brennan, 13–16 (New York: George Braziller, Inc., 1961), p. 13.

vulnerability of retaliatory targets (that is, population centers) could produce stable mutual deterrence and create conditions for mutual reductions in arms. In expressing the stable deterrence theory of the time, Harvard professors Thomas Schelling and Morton Halperin noted that "a 'balance of deterrence' – a situation in which the incentives on both sides to initiate war are outweighed by the disincentives – is described as 'stable' when it is reasonably secure against shocks, alarms and perturbations."71 To support a stable balance of deterrence, Schelling and Halperin suggested that the key to reducing the danger of a surprise or "premeditated" attack was to ensure the viability of both sides' retaliatory forces: "If both Soviet and American forces should succeed...in developing reasonably invulnerable retaliatory systems, so that neither could disarm the other in a sudden attack and neither needed to be obsessed with the imminence of attack, a large reduction in numbers might come naturally."72 However, the viability of retaliatory forces would depend not only on the invulnerability of the retaliatory forces themselves, but on the vulnerability of their intended targets: "[S]ince the advantage in striking first is largely in reducing or precluding a punitive attack, measures to defend the homeland against incoming punitive weapons are complementary to offensive weapons of surprise attack. Thus abstention from active defense of cities...might increase the potency of each side's retaliatory forces in a manner analogous to the protection of the retaliatory forces themselves."73 Jerome Wiesner of the Massachusetts Institute of Technology was even more straightforward in his assessment of the value of invulnerable retaliatory forces and vulnerable civilian populations in creating stable mutual deterrence: "The concept of mutual deterrence...is

<sup>&</sup>lt;sup>71</sup> Schelling and Halperin, Strategy and Arms Control, op. cit., p. 50.

<sup>&</sup>lt;sup>72</sup> Ibid., p. 18.

<sup>&</sup>lt;sup>73</sup> Schelling and Halperin, Strategy and Arms Control, op. cit., p. 12.
basically quite simple....If each side has a similarly protected and invulnerable force, there will be no opportunity and therefore no incentive for either to build up a so-called counter-force capability. In this situation, an attack is deterred by the certain knowledge that it will be followed by a devastating reply."<sup>74</sup> He then went on to note that, in order to preserve this stable mutual deterrence balance, any future arms control agreements would need to ensure that missile defense systems were prohibited: "It is important to note that a missile deterrent system would be unbalanced by the development of a highly effective antimissile defense system and if it appears possible to develop one, the agreements should explicitly prohibit the development and deployment of such systems."<sup>75</sup>

According to this logic, deploying missile defense systems would destabilize the balance of mutual deterrence by undermining an adversary's confidence in his ability to retaliate. If then the United States deployed missile defense systems to protect its cities, Soviet leaders might perceive that U.S. leaders would feel invulnerable, undeterred, and therefore emboldened to strike the Soviet Union first. Such perception could accordingly undermine Soviet а confidence in the survivability of its own nuclear deterrent, thereby incentivizing Soviet leaders to conduct a preemptive strike against the United States while they still had the capability.76 In this way, U.S. missile defenses, rather than supporting stability between the two nuclear rivals, would instead destabilize the mutual deterrence balance and incentivize the Soviets to strike first.77

<sup>&</sup>lt;sup>74</sup> Jerome Wiesner, "Comprehensive Arms-Limitation Systems," in *Arms Control, Disarmament, and National Security*, ed. Donald G. Brennan, 198–233 (New York: George Braziller, Inc., 1961), p. 215.

<sup>&</sup>lt;sup>75</sup> Wiesner, "Comprehensive Arms-Limitation Systems," op. cit., p. 216.

<sup>&</sup>lt;sup>76</sup> Payne, *Gamble*, op. cit., p. 41.

<sup>77</sup> Loc. cit.

Throughout the 1960s, the notion that anti-missile systems would destabilize the U.S.-Soviet strategic balance and stoke arms racing began to manifest more prominently in U.S. policy circles, especially after Washington learned that the Soviet Union was working on an ABM system to protect Moscow.78 The United States had been researching ballistic missile defenses since the mid-1940s but had not deployed any ABM systems at that point.79 Robert McNamara, Secretary of Defense under Presidents John Kennedy and Lyndon Johnson, believed strongly in the objective, mechanistic reality of the "action-reaction" dynamic of arms racing and strove to design U.S. force structure in such a way to avoid provoking arms racing with the Soviets.<sup>80</sup> This drive was especially manifest in his personal opposition to U.S. deployment of ballistic missile defense systems and his desire to reach an agreement with the Soviets on banning such systems.<sup>81</sup> In fact, Secretary McNamara was so convinced of the mechanistic operation of this dynamic that he tried to persuade Soviet Premier Alexei Kosygin, an advocate of the necessity of ABM systems for protecting human lives,82 that it was pointless and dangerous for either the United States or the Soviet

<sup>&</sup>lt;sup>78</sup> Alexander Flax, "Ballistic Missile Defense: Concepts and History," *Daedalus* 114, no. 2 (1985): 33–52, p. 35, available at

http://www.jstor.org/stable/20024977; Kissinger, *White House Years*, op. cit., p. 204.

<sup>&</sup>lt;sup>79</sup> Kiron K. Skinner, "Missile Defense: Past, Present, And Future," Hoover Institution, October 30, 2015, p. 1, available at

https://www.hoover.org/research/missile-defense-past-present-and-future; Karako and Williams, *Missile Defense 2020*, op. cit., pp. 16, 18; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; Congressional Research Service, "Ballistic Missile Defense: Historical Overview," by Steven A. Hildreth, updated January 28, 2008, p. 2, available at

https://crsreports.congress.gov/product/pdf/RS/RS22120/6.

<sup>&</sup>lt;sup>80</sup> Payne, Gamble, op. cit., p. 309.

<sup>&</sup>lt;sup>81</sup> Loc. cit.

<sup>&</sup>lt;sup>82</sup> V.I. Mizin, S.K. Oznobistchev, and S.M. Rogov, "Swings of Soviet and U.S. Strategic Defense Policies, in Retrospect," ed. Alexei Arbatov, *Implications of Strategic Defense Deployments for U.S.-Russian Relations*, Henry L. Stimson Center, 1992, p. 1, available at http://www.jstor.org/stable/resrep10925.5.

Union to try to protect their populations from ICBMs because deploying such systems would only spur the other side to invest in offsetting offensive weapons (though Kosygin remained unconvinced).<sup>83</sup> This exchange took place at the Glassboro Summit in Glassboro, NJ in June 1967 and began to pave the way intellectually for negotiations on the ABM Treaty.<sup>84</sup> A few months later in December 1967, at the Pugwash talks, the Soviet interlocutors appeared more willing to concede the U.S. point, pressed by lead U.S. scientist Paul M. Doty, that ABM systems provoked arms racing.<sup>85</sup>

Meanwhile, although Congress has always had both opponents and advocates of ABM initiatives, complicating the ability of the Executive Branch to implement consistent and coherent policy, during the mid-1960s Congressional opinion leaned more in favor of deploying ABM systems. Given the Soviets' efforts to deploy a missile defense system around Moscow as well as the unexpectedly large increase in Soviet nuclear weaponry (including the tripling of deployed Soviet ICBMs between 1965 and 1968), many members of Congress remained hesitant to give up completely on ABM defenses and therefore pressured the Johnson Administration to deploy a U.S. ABM system.<sup>86</sup>

<sup>&</sup>lt;sup>83</sup> Payne, *Gamble*, op. cit., p. 110; John B. Rhinelander, "The ABM Treaty – Past, Present and Future (Part I)," *Journal of Conflict & Security Law* 6, no. 1 (2001): 91– 114, p. 96, available at http://www.jstor.org/stable/26294360; Steven C. Haas, "Reassessing Lessons from the ABM Treaty," *International Affairs* (Royal Institute of International Affairs 1944-) 64, no. 2 (1988): 233–40, pp. 234–235, available at https://doi.org/10.2307/2621849; Peter J. Westwick, "'Space-Strike Weapons' and the Soviet Response to SDI," *Diplomatic History* 32, no. 5 (2008): 955–79, p. 957, available at http://www.jstor.org/stable/24915966; Kissinger, *White House Years*, op. cit., p. 208.

<sup>&</sup>lt;sup>84</sup> Payne, *Gamble*, op. cit., p. 110; Emanuel Adler, "The Emergence of Cooperation: National Epistemic Communities and the International Evolution of the Idea of Nuclear Arms Control," *International Organization*, Vol. 46, no. 1 (1992): 101–45, p. 134, available at http://www.jstor.org/stable/2706953.

<sup>&</sup>lt;sup>85</sup> Burr, "Strategic Stability and Instability," op. cit. pp. 10–11.

<sup>&</sup>lt;sup>86</sup> J. I. Coffey, "Soviet ABM Policy: The Implications for the West," *International Affairs* (Royal Institute of International Affairs 1944–) 45, no. 2 (1969): 205–22, pp. 205–206, available at https://doi.org/10.2307/2613002; Kissinger, *White House* 

President Johnson's own Cabinet was divided on the issue. Secretary McNamara was convinced that the fact that "both the Soviet Union and the United States presently possess an actual and credible second-strike capability against one another ... provides us both with the strongest possible motive to avoid a nuclear war."87 He therefore opposed deploying an ABM system, contending that such systems were not effective and would only serve to provoke an arms race with the Soviet Union without reducing the risk of war.88 On the other hand, Chairman of the Joint Chiefs of Staff Earl Wheeler felt that ABMs were necessary to protect U.S. urban areas, given the investments the Soviets were making in advanced ICBMs.89 In late 1966, President Johnson chose a compromise position by agreeing to a limited ABM deployment to defend against China's small arsenal and accidental launches and to protect U.S. ICBMs, but explicitly not to defend against the Soviets in hopes that the United States could proceed with ABM negotiations.90 On this basis, and as a hedge in case ABM talks with the

https://doi.org/10.2307/2010431.

*Years*, op. cit., pp. 204–205; Morton H. Halperin, "The Decision to Deploy the ABM: Bureaucratic and Domestic Politics in the Johnson Administration," *World Politics* 25, no. 1 (1972): 62–95, p. 83, available at

<sup>&</sup>lt;sup>87</sup> Robert S. McNamara, "Speech on Anti-China Missile Defense and U.S. Nuclear Strategy," *New York Times*, September 18, 1969, available at

https://timesmachine.nytimes.com/timesmachine/1967/09/19/93873550.pdf?p df\_redirect=true&ip=0; U.S. Department of Defense, "Robert S. McNamara," Historical Office, Office of the Secretary of Defense, accessed August 13, 2023, available at https://history.defense.gov/Multimedia/Biographies/Article-View/Article/571271/robert-s-mcnamara/; Halperin, "The Decision to Deploy the ABM," op. cit., pp. 72–73.

<sup>&</sup>lt;sup>88</sup> Burr, "Strategic Stability and Instability," op. cit., pp. 22–23; Halperin, "The Decision to Deploy the ABM," op. cit., pp. 72–73, 79–80, 81.

<sup>&</sup>lt;sup>89</sup> Burr, "Strategic Stability and Instability," op. cit., pp. 22–23; Coffey, "Soviet ABM Policy," op. cit., p. 206; Halperin, "The Decision to Deploy the ABM," op. cit., p. 84.

<sup>&</sup>lt;sup>90</sup> Burr, "Strategic Stability and Instability," op. cit., pp. 22–23; Payne, *Gamble*, op. cit., p. 137; Nancy W. Gallagher, "Congress and Missile Defense," in *Regional Missile Defense From a Global Perspective*, ed. Catherine McArdle Kelleher and Peter Dombrowski, 84–104 (Stanford, CA: Stanford University Press, 2015), p. 85; Halperin, "The Decision to Deploy the ABM," op. cit., pp. 72–76, 83.

Soviets failed to materialize, the Johnson Administration requested funds from Congress for the Nike-X ABM system, later renamed Sentinel.<sup>91</sup>

In a speech in San Francisco on September 18, 1967, Secretary McNamara announced the Department's intent to develop Sentinel to defend U.S. cities against China and against accidental launches from any source. 92 In this speech, he laid out the intellectual rationale for distinguishing between the Soviet Union and China for U.S. missile defense purposes. McNamara highlighted the premise of mutual vulnerability as the basis for mutual deterrence between the United States and Soviet Union; he further explained the futility of the United States attempting to deploy ABM systems against a potential Soviet strike against U.S. cities, since the "nuclear action-reaction phenomenon" would mean that the Soviets would invest more heavily in penetration capabilities, which in turn would spark an arms competition at great expense but little advantage to either country.93 McNamara noted that the "light" ABM system that the Soviets were then deploying around Moscow was of little concern to Washington because U.S. offensive weapons had the ability to penetrate these defenses.94 However, he explained that even if the Soviets were to deploy a "massive" ABM system, it would be futile for the United States to invest in its own "heavy" ABM defenses, because doing so would simply provoke the Soviets into making offsetting investments in offensive

<sup>&</sup>lt;sup>91</sup> Burr, "Strategic Stability and Instability," op. cit., p. 23; Coffey, "Soviet ABM Policy," op. cit., pp. 205–206.

<sup>&</sup>lt;sup>92</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2; Burr, "Strategic Stability and Instability," op. cit., pp. 27–28; David J. Trachtenberg, Michaela Dodge, and Keith B. Payne, *The "Action-Reaction" Arms Race Narrative vs. Historical Realities* (Fairfax, VA: National Institute for Public Policy, March 2021), p. 23, available at https://nipp.org/wp-

content/uploads/2021/04/Action-Reaction-pub.pdf.

<sup>93</sup> McNamara, "Speech," op. cit.

<sup>&</sup>lt;sup>94</sup> McNamara, "Speech," op. cit.; Mizin, Oznobistchev, and Rogov, "Swings of Soviet and U.S. Strategic Defense Policies, in Retrospect," op. cit., p. 1.

arms.<sup>95</sup> McNamara noted that a more appropriate U.S. response in such a situation would instead be to "further expand our sophisticated offensive forces, and thus preserve our overwhelming assured destruction capability" to deny the Soviets any strategic advantage from their heavy ABM defenses.<sup>96</sup> In other words, the United States would work to strengthen its offensive weapons arsenal in order to deter via threat of retribution-also known as deterrence by punishment – rather than to invest in defense with the aim of deterring by making an adversary believe that any attack he may attempt would not succeed-or deterrence by denial.97 For this reason, McNamara explained, the United States would continue to maintain an offensive arsenal capable of decimating Soviet society (specifically Soviet cities and industrial capacity) as a retaliatory "assured destruction capability."98

McNamara then explained that the Administration would, on the other hand, take a deterrence-by-denial approach against China. He gave two reasons why the Administration felt that deterrence by denial was more acceptable in the case of China than in the case of the Soviet Union. One, deploying a reliable and credible defensive system against China's rudimentary, "emerging" nuclear capability<sup>99</sup> was more technologically feasible and affordable than the type of system that would be required against the Soviet Union. That is, while trying to deter the Soviets by denial was pointless since any attempt to defend against the Soviet arsenal would be incredible and only provoke arms racing, China's arsenal was so limited that the

<sup>&</sup>lt;sup>95</sup> McNamara, "Speech," op. cit.

<sup>&</sup>lt;sup>96</sup> Loc. cit.

<sup>&</sup>lt;sup>97</sup> Michael J. Mazarr, "Understanding Deterrence," Santa Monica, CA: RAND Corporation, 2018, p. 2, available at

https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE295/RAND\_PE295.pdf.

<sup>98</sup> McNamara, "Speech," op. cit.

<sup>99</sup> Loc. cit.

United States could credibly adopt a deterrence-by-denial strategy. Two, China, in contrast to the Soviet Union, was more likely to be "irrational" in its nuclear calculus than the Soviet Union.<sup>100</sup> McNamara explained that, while it would be "insane and suicidal" for China to attempt a nuclear attack against the United States given overwhelming U.S. nuclear superiority, "one can conceive conditions under which the Chinese might miscalculate" and "become so incautious as to attempt a nuclear attack on the United States" or U.S. allies<sup>101</sup> – that is, the Chinese might be so irrational that they would fail to fear the threat of punishment, thereby undermining the U.S. deterrence-by-punishment strategy.<sup>102</sup> In essence, McNamara believed that the "possible irrational behavior" of the Chinese warranted U.S. investments in a limited ABM system.<sup>103</sup>

For these reasons, the United States would pursue a "Chinese-oriented A.B.M. deployment."104 In keeping with the logic of mutual vulnerability, McNamara emphasized that this would be only a "limited" rather than the "socalled heavy" ABM system that ABM proponents had pressed for to defend against the Soviet Union: "We must resist that temptation [to deploy a heavy ABM capability] firmly...precisely because our greatest deterrent against such a [Soviet first] strike is not a massive, costly, but highly penetrable A.B.M. shield, but rather a fully credible offensive assured destruction capability" – hence the decision to press forward with only "limited A.B.M. deployment" against China.<sup>105</sup> He added, however, that the United States would apply this limited ABM capability to two other purposes: defending U.S. Minuteman ICBM sites,

<sup>&</sup>lt;sup>100</sup> Loc. cit.

<sup>&</sup>lt;sup>101</sup> Loc. cit.

<sup>102</sup> Loc. cit.

<sup>103</sup> Loc. cit.

<sup>104</sup> Loc. cit.

<sup>&</sup>lt;sup>105</sup> McNamara, "Speech," op. cit. (emphasis in original).

and defending the U.S. population from accidental launches from any nuclear power.<sup>106</sup> According to McNamara's logic, neither of these applications was likely to alter the deterrence calculus of mutual vulnerability with the Soviet Union. In the case of Minuteman sites, the United States regarded Minuteman ICBMs as a retaliatory capability, so defending them would, according to the balance of mutual assured destruction, strengthen rather than diminish mutual deterrence. As for defending the U.S. population against accidental strikes, this ABM application was a hedging strategy, requiring only a minimal ABM capability and not directed at any one specific adversary, and therefore unlikely to spark any Soviet offsetting investments.<sup>107</sup> Despite the logical inconsistency of this patchworked policy-deploying ABM assets to defend against one purportedly "irrational" adversary yet not against another purportedly "rational" adversary, and defending the U.S. population against accidental attack from any source but purposefully avoiding defending it against deliberate attack by the Soviet Union – McNamara's position marked the beginning of a trend in U.S. policy of the acceptability of orienting "limited" national missile defenses (NMD) against adversaries who are potentially "irrational," in apparent contrast to adversaries who are predictably rational in their calculations.

However, even a limited ABM system to defend against the Chinese faced opposition from many members of Congress and from those living in the areas where systems might be deployed.<sup>108</sup> When Richard Nixon became president in 1969, he too was impelled to chart a path of compromise between, on the one hand, those who felt that

<sup>&</sup>lt;sup>106</sup> At the time, the United States had 1,000 Minuteman launchers (McNamara, "Speech on Anti-China Missile Defense," op. cit.).

<sup>&</sup>lt;sup>107</sup> McNamara, "Speech," op. cit.

<sup>&</sup>lt;sup>108</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2; Gallagher, "Congress and Missile Defense," op. cit., p. 85; Kissinger, *White House Years*, op. cit., pp. 205–206, 537–538.

U.S. deployment of ABM systems was technically infeasible, too expensive, or likely to accelerate a U.S.-Soviet arms race, and, on the other hand, those who felt it was unwise to unilaterally give up the effort while the Soviet threat remained.<sup>109</sup> Wishing to communicate to the Soviets that the United States was not arms racing, Nixon canceled Sentinel in March 1969 and restructured and renamed the program Safeguard to defend only U.S. ICBM fields instead of cities, a decision deemed less escalatory per the logic of the action-reaction dynamic.<sup>110</sup> The same year, in November 1969, the Administration began negotiations with the Soviets to ban nationwide ABM systems altogether as part of the Strategic Arms Limitation Talks (SALT).<sup>111</sup> By this time, the Soviets were more prepared, at least from a pragmatic standpoint, to concede the arms-racing objection to ABMs in discussions with their American interlocutors. The U.S. Embassy in Helsinki telegrammed the Secretary of State's office to report that the chief Soviet negotiator, Vladimir Semenov, had agreed with the U.S. position "that the deployment by one side of defensive systems can drive the other side to compensating increases in or improvements of its offensive forces."112 Semenov went on

<sup>&</sup>lt;sup>109</sup> Payne, *Gamble*, op. cit., pp. 152–153; Coffey, "Soviet ABM Policy," op. cit., p. 206; Kissinger, *White House Years*, 205-206.

<sup>&</sup>lt;sup>110</sup> Karako and Williams, *Missile Defense* 2020, op. cit., p. 23; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2; Kissinger, *White House Years*, op. cit., pp. 207–208.

<sup>&</sup>lt;sup>111</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; Burr, "Strategic Stability and Instability," op. cit. p. 13; Daryl Kimball, "The Anti-Ballistic Missile (ABM) Treaty at a Glance," Arms Control Association, last updated December 2020, available at

https://www.armscontrol.org/factsheets/abmtreaty.

<sup>&</sup>lt;sup>112</sup> U.S. Department of State, "Nov. 28 SALT Meeting," U.S. Embassy Helsinki telegram 1433 to State Department, SALTO 53, November 28, 1969, in "Strategic Stability and Instability during the Middle Years of the Cold War," by William Burr, Washington, D.C.: National Security Archive, The George Washington University, December 10, 2021, p. 2, available at

https://nsarchive.gwu.edu/document/27221-document-25-us-embassyhelsinki-telegram-1433-state-department-salto-53-nov-28-salt.

to note that "Originally the development of ABMS for defense of cities and populations appeared to the designer's exclusively mind to have an humane purpose....However,...it became clear that defensive weapons could to a certain degree become offensive, as they could put in doubt the inevitability of retaliation."113 Rather than reflecting an ideological change,<sup>114</sup> this shift in tone from the McNamara-Kosygin exchange at the Glassboro Summit likely stemmed from a practical Soviet interest in limiting future U.S. ABM efforts.<sup>115</sup> Regardless of motivation however, the U.S. and Soviet sides reached sufficient superficial agreement on the basic U.S.-promoted tenets of strategic stability-that secure retaliatory stabilizing and ABM systems capabilities are are destabilizing-to lay the groundwork for the future ABM Treaty.

In the end, sensing that Congress might cancel the U.S. ABM system anyway, Nixon offered ABM limits as a "bargaining chip" to secure Soviet agreement to freeze the number of its ICBM launchers and limit the number of its new submarine-launched ballistic missile (SLBM) launchers.<sup>116</sup> Thus, on May 26, 1972, the United States and

https://sgp.fas.org/crs/nuke/R45861.pdf.

<sup>&</sup>lt;sup>113</sup> U.S. Department of State, "Nov. 28 SALT Meeting," op. cit., p. 2; Burr, "Strategic Stability and Instability," op. cit., pp. 40-41.

<sup>&</sup>lt;sup>114</sup> Mizin, Oznobistchev, and Rogov, "Swings of Soviet and U.S. Strategic Defense Policies, in Retrospect," op. cit., pp. 2–3.

<sup>&</sup>lt;sup>115</sup> Stanley Sienkiewicz, "SALT and Soviet Nuclear Doctrine," *International Security*, Vol. 2, no. 4 (1978): 84–100, pp. 99–100, available at

https://doi.org/10.2307/2538459; Kissinger, White House Years, op. cit., pp. 534-535.

<sup>&</sup>lt;sup>116</sup> Kissinger, *White House Years*, op. cit., pp. 820–821; Congressional Research Service, "Arms Control and Nonproliferation: A Catalog of Treaties and Agreements," op. cit. p. 6; Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms," U.S. Department of State Archive, signed May 26, 1972, available at https://1997-

<sup>2001.</sup>state.gov/global/arms/treaties/interim1.html; Congressional Research Service, *Russia's Nuclear Weapons: Doctrine, Forces, and Modernization,* by Amy F. Woolf, updated April 21, 2022, p. 14, available at

Soviet Union signed the Anti-Ballistic Missile (ABM) Treaty in mutual recognition "that effective measures to limit antiballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons," therefore ensuring "[e]ach country thus leaves unchallenged the penetration capability of the others [sic] retaliatory missile forces."117 The Treaty limited the United States and Soviet Union to two sites per country with a maximum of 100 interceptors each.<sup>118</sup> A 1974 Protocol further limited each country to one site only with a maximum of 100 interceptors.<sup>119</sup> Given this premise, the ABM Treaty legally manifested and codified the intellectual underpinnings of mutual assured destruction deterrence theory – the belief that the best way to deter nuclear attack was to ensure mutual vulnerability of the respective countries' populations.<sup>120</sup> Concurrent with and complementary to the ABM Treaty, the two countries also signed the Interim Agreement on Certain Measures With

<sup>&</sup>lt;sup>117</sup> "Treaty Between The United States of America and The Union of Soviet Socialist Republics on The Limitation of Anti-Ballistic Missile Systems (ABM Treaty)," signed May 26, 1972, U.S. Department of State Archive, available at https://2009-2017.state.gov/t/avc/trty/101888.htm.

<sup>&</sup>lt;sup>118</sup> The Treaty limited site choice in each country to the national capital and to one ICBM site. "Treaty Between The United States of America and The Union of Soviet Socialist Republics on The Limitation of Anti-Ballistic Missile Systems (ABM Treaty)," op. cit.; Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 6.

<sup>&</sup>lt;sup>119</sup> The Protocol limited site choice in each country to either the national capital or to an ICBM deployment area. "Protocol To The Treaty Between The United States Of America and The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems," signed July 3, 1974, U.S.

Department of State Archive, available at https://2009-

<sup>2017.</sup>state.gov/t/avc/trty/101888.htm#protocolabm; Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 6.

<sup>&</sup>lt;sup>120</sup> Payne, *Gamble*, op. cit., pp. 153, 155; Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2.

Respect to the Limitation of Strategic Offensive Arms that limited ICBM and SLBM launchers.<sup>121</sup>

The Soviets pursued their full ABM Treaty allowance to protect Moscow,<sup>122</sup> but the United States did not take advantage of the Treaty's allowances. In October 1975, the U.S. government deployed the Safeguard nuclear interceptors at the Grand Forks, ND ICBM field but shut down the system five months later, per direction of Congress, due to financial and technical concerns.<sup>123</sup> Congress continued to provide some funding for ABM research, but very little progress was made for the next several years.<sup>124</sup>

However, despite the apparent understanding that mutual vulnerability would promote strategic stability, the ABM Treaty failed to arrest nuclear arms competition. Following the signing of the Treaty, and at the same time that the United States was seeking precisely to reduce the risk of arms racing and nuclear conflict, both it and the Soviet Union sought to expand offensive capabilities. Both countries continued pursuing multiple independently targetable reentry vehicle (MIRV) capabilities for their respective ICBM and SLBM arsenals and developed new

<sup>121</sup> "Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms," U.S. Department of State Archive, op. cit.; Congressional Research Service, *Russia's Nuclear Weapons*, op. cit., p. 14. <sup>122</sup> Rhinelander, "The ABM Treaty – Past, Present and Future," op. cit., p. 98; Keith B. Payne, "Deterrence Via Mutual Vulnerability? Why Not Now,"

Information Series, Issue No. 536, Fairfax, VA: National Institute for Public Policy, October 19, 2022, p. 2, available at https://nipp.org/wpcontent/uploads/2022/10/Info-Series-536.pdf; U.S. Defense Intelligence Agency, "Strategic Defense and Space Operations," in *Soviet Military Power*, posted on Federation of American Scientists, updated June 8, 1997, available at https://irp.fas.org/dia/product/smp\_86\_ch3.htm.

<sup>&</sup>lt;sup>123</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1; Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 2; Rhinelander, "The ABM Treaty – Past, Present and Future," op. cit., p. 95; Kissinger, *White House Years*, op. cit., p. 210.

<sup>&</sup>lt;sup>124</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 1.

nuclear warheads.<sup>125</sup> Through the 1970s and 1980s, the United States continued deployment of the MIRVed Minuteman III and later the MX (Peacekeeper) ICBM,<sup>126</sup> improved SLBM range, warhead capacity, and accuracy with the Trident SLBM,<sup>127</sup> developed and deployed the B-1 bomber, and began development of the B-2 bomber.<sup>128</sup> The Soviet Union also developed and deployed new ICBMs, SLBMs, and bombers.<sup>129</sup> Furthermore, it is important to note

Congressional Research Service, *Russia's Nuclear Weapons*, op. cit., pp. 14–15; Rose Gottemoeller, "Lessons from the Cold War on Preventing a U.S.-China Arms Race," *Politico*, November 23, 2021, p. 3, available at

https://www.politico.com/news/magazine/2021/11/23/biden-xi-cold-warnuclear-arms-race-523248; Frank P. Harvey, "National Missile Defence Revisited, Again a Reply to David Mutimer," *International Journal* 56, no. 2 (2001): 347–60, p. 354, available at https://doi.org/10.2307/40203561; U.S. Department of State, "Strategic Arms Limitations Talks/Treaty (SALT) I and II," Office of the Historian, accessed November 12, 2022, available at https://history.state.gov/milestones/1969-1976/salt.

https://www.rand.org/content/dam/rand/pubs/perspectives/PEA1400/PEA 1434-1/RAND\_PEA1434-1.pdf; Russell E. Dougherty, "The Value of ICBM Modernization," *International Security* 12, no. 2 (1987): 163–72, pp. 164–165, available at https://doi.org/10.2307/2538818.

<sup>127</sup> Lockheed Martin Corporation, "The Long View: Fleet Ballistic Missiles," October 1, 2020, available at https://www.lockheedmartin.com/enus/news/features/history/fbm.html; Harvey M. Sapolsky, "The U.S. Navy's Fleet Ballistic Missile Program and Finite Deterrence," ed. Henry D. Sokolski, in *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice,* Strategic Studies Institute, U.S. Army War College, 2004, pp. 130–131, available at http://www.jstor.org/stable/resrep12035.7.

<sup>&</sup>lt;sup>125</sup> Burr, "Strategic Stability and Instability," op. cit. p. 13; Trachtenberg, Dodge, and Payne, *The "Action-Reaction" Arms Race Narrative*, op. cit., pp. 25, 27;

<sup>&</sup>lt;sup>126</sup> Frank G. Klotz and Alexandra T. Evans, *Modernizing the U.S. Nuclear Triad: The Rationale for a New Intercontinental Ballistic Missile*, Santa Monica, CA: RAND Corporation, January 2022, pp. 15–16, available at

<sup>&</sup>lt;sup>128</sup> Peter Suciu, "B-1: The Air Force Bomber That Changed Everything," 19FortyFive, April 19, 2022, available at

https://www.19fortyfive.com/2022/04/b-1-the-air-force-bomber-that-changedeverything-pictures/; Kyle Mizokami, "Bombs Away: Why the B-2 Stealth Bomber Wins Wars," *National Interest*, December 21, 2021, available at https://nationalinterest.org/blog/reboot/bombs-away-why-b-2-stealthbomber-wins-wars-198254.

<sup>&</sup>lt;sup>129</sup> James Cameron, "What History Can Teach," *Daedalus* 149, no. 2 (2020): 116–32, pp. 125–126, available at https://www.jstor.org/stable/48591316; Kissinger, White House Years, op. cit., p. 821; Burr, "Strategic Stability and Instability," op. cit. p. 13; Congressional Research Service, *Russia's Nuclear Weapons*, op. cit. pp.

that the Soviets' nuclear modernization was not a validation of the "action-reaction" phenomenon against which McNamara had warned, but rather a reflection of the Soviet Union's own requirements, in line with Soviet military thinking and practice, to acquire and maintain a strategic force capable of prevailing and overcoming in a conflict should deterrence fail.<sup>130</sup>

However, the influence of the ABM Treaty and notions of strategic stability on U.S. policy and technological development in the ballistic missile defense arena were profound, enduring even beyond the U.S. withdrawal from the Treaty in 2002. Though all presidents from Ronald Reagan onward have pursued some level of missile defense, U.S. political considerations and the legacy of mutual vulnerability logic have heavily restrained efforts to develop missile defenses to protect the homeland. Indeed, the reasoning underpinning the concept of strategic stability weaves throughout the history of U.S. BMD policy like a connecting thread from the ABM Treaty up until today, revealing the depth of its hold on U.S. political thinking.

## Rise and Demise of the Strategic Defense Initiative

In contrast to his predecessors, President Reagan sought to move beyond the notion of mutual vulnerability.<sup>131</sup> Early in Reagan's Administration, concern was growing in the U.S.

<sup>130</sup> Colin S. Gray, "Nuclear Strategy: The Case for a Theory of Victory," *International Security* 4, no. 1 (1979): 54–87, pp. 54, 82–84, available at https://doi.org/10.2307/2626784; Benjamin S. Lambeth, "How to Think About Soviet Military Doctrine," Santa Monica, CA: RAND Corporation, 1978, pp. 1–3, 7–8, 10–13, 19–20, available at https://www.rand.org/pubs/papers/P5939.html.

<sup>14–15;</sup> Trachtenberg, Dodge, and Payne, *The "Action-Reaction" Arms Race Narrative*, op. cit., p. 27.

<sup>&</sup>lt;sup>131</sup> Payne, *Strategic Defense*, op. cit., p. 37; Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2.

defense enterprise that the huge growth in Soviet offensive strategic forces, especially its advanced ICBMs, would negate the U.S. strategic deterrent, undermining U.S. reliance on the threat of retaliation alone to deter a Soviet nuclear attack.<sup>132</sup> Furthermore, the Reagan Administration perceived that arms control solutions were insufficient to arrest the growing strategic imbalance between the United States and the Soviet Union.<sup>133</sup> Reagan was also motivated by a moral objection to nuclear weapons and believed that defensive systems were the key to eliminating the power that the nuclear threat held over the world.<sup>134</sup>

In 1983, President Reagan announced a plan, largely of his own devising based on consultations with advisors and select scientists including Edward Teller,<sup>135</sup> to establish a long-term research and development program to develop defensive technological systems capable of defending the United States from Soviet strategic ballistic missiles. Reagan recognized the policy implications of his proposal. He explained in his famous televised speech to the nation on March 23, 1983, that the U.S. deterrence strategy had relied for many years solely on the threat of offensive retaliation but that the growth of offensive nuclear arms and the moral

132 Zbigniew Brzezinski, "Foreword," in Strategic Defense: "Star Wars" in

Perspective, by Keith B. Payne, xv-xviii, Lanham, MD: Hamilton Press, 1986, xvi; Susan J. Koch, "Addressing the Missile Threat: 1980–2008," in *Regional Missile* Defense From a Global Perspective, ed. Catherine McArdle Kelleher and Peter Dombrowski, 17–32 (Stanford, CA: Stanford University Press, 2015), p. 20; Karako and Williams, Missile Defense 2020, op. cit., pp. 25–26.

<sup>133</sup> Brzezinski, "Foreword," op. cit., p. xvi.

<sup>&</sup>lt;sup>134</sup> Peter W. Rodman, *Presidential Command* (New York: Vintage House, 2009), p. 157; Ronald Reagan, "Address to the Nation on Defense and National Security," Ronald Reagan Presidential Library and Museum, March 23, 1983, available at https://www.reaganlibrary.gov/archives/speech/address-nation-defense-andnational-security; Weinberger, "The Strategic Defense Initiative," op. cit., p. 10; Robert Joseph, former Undersecretary of State for Arms Control and International Security, personal interview, June 6, 2023.

<sup>&</sup>lt;sup>135</sup> Payne, Strategic Defense, op. cit., pp. 38–40; Rodman, Presidential Command, op. cit., p. 158; Reagan, "Address to the Nation," op. cit.; Adler, "The Emergence of Cooperation," op. cit., p. 140.

obligation "to save lives [rather] than to avenge them" demanded exploring a different approach.<sup>136</sup> He therefore called on the American scientific and industrial base to apply its abilities "to give us the means of rendering nuclear weapons impotent and obsolete."<sup>137</sup> This effort was soon termed the Strategic Defense Initiative (SDI).

Reagan's initial aims envisioned broad protection for the United States in which novel technologies-which might take years to deploy-could effectively defend U.S. population centers from strategic attack.138 The effort initially commenced as a set of studies to explore the technologies required for BMD and to assess the implications for arms control policy, which resulted in the proposal for a long-term research and development program to explore a large-scale layered BMD system employing futuristic technological concepts to achieve a comprehensive level of protection for the nation.<sup>139</sup> The Pentagon established a new office, the Strategic Defense Initiative Office (SDIO), in 1984 to oversee missile defense research efforts.<sup>140</sup> SDIO consolidated several ongoing research efforts, including the Army's Homing Overlay Experiment (HOE).<sup>141</sup> The HOE project sought to develop a

<sup>&</sup>lt;sup>136</sup> Reagan, "Address to the Nation," op. cit.

<sup>&</sup>lt;sup>137</sup> Reagan, "Address to the Nation," op. cit.; Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2; McGeorge Bundy, George F. Kennan, Robert S. McNamara, and Gerard Smith, "The President's Choice: Star Wars or Arms Control," *Foreign Affairs* 63, no. 2 (1984): 264–78, p. 265, available at https://doi.org/10.2307/20042182.

<sup>&</sup>lt;sup>138</sup> Reagan, "Address to the Nation," March 23, 1983; Brzezinski, "Foreword," op. cit., p. xvi; Koch, "Addressing the Missile Threat," op. cit., p. 20.

<sup>&</sup>lt;sup>139</sup> Payne, Strategic Defense, op. cit., pp. 19–20, 22.

<sup>&</sup>lt;sup>140</sup> Dov S. Zakheim, "Evaluating the Opportunity and Financial Costs of Missile Defense," in *Regional Missile Defense From a Global Perspective*, ed. Catherine McArdle Kelleher and Peter Dombrowski, 264–281 (Stanford, CA: Stanford University Press, 2015), p. 266; Kingston Reif, "Missile Defense Systems at a Glance," Arms Control Association, August 2019, available at https://www.armscontrol.org/factsheets/missiledefenseataglance.

<sup>&</sup>lt;sup>141</sup> U.S. Army Space and Missile Defense Command Historical Office, "The first 'hit-to-kill' kinetic energy interceptor missile," *The Eagle*, June/July 2007, available at

hit-to-kill interceptor to obviate the need for nuclear-armed kill vehicles and achieved a successful ICBM reentry vehicle intercept test in 1984, laying the groundwork for U.S. missile defenses to switch completely to the non-nuclear hit-to-kill model.<sup>142</sup> SDIO also investigated several cutting-edge technologies and concepts, including "Brilliant Pebbles," a space-based layer of orbiting satellites (potentially a thousand or more) with hit-to-kill interceptors.<sup>143</sup> In addition, SDIO explored the feasibility of leveraging directed-energy technologies, including lasers and particle beams, to intercept Soviet missiles in boost phase from space.<sup>144</sup>

However, SDI's ambitious, lofty aim of a system capable of defending the United States against a large-scale Soviet ICBM attack quickly drew protests not only from the Soviet Union but from members of Congress and current and former U.S. officials.<sup>145</sup> Domestic critics quickly dubbed the effort "Star Wars" and opposed the initiative over cost and technical feasibility concerns, the potential it might undermine strategic stability, and the threat it posed to the ABM Treaty.<sup>146</sup> Robert McNamara, the original champion of mutual vulnerability, teamed with George Kennan, former Ambassador to the Soviet Union, McGeorge Bundy, National Security Advisor under Presidents Kennedy and Johnson, and Gerard Smith, Chief of the U.S. Delegation to

https://www.smdc.army.mil/Portals/38/Documents/Publications/History/Ea gle%20articles/TheHomingOverlayExperiment.pdf?ver=2019-01-11-144934-457; Joseph, personal interview, op. cit.

<sup>&</sup>lt;sup>142</sup> U.S. Army Space and Missile Defense Command Historical Office, "The first 'hit-to-kill' kinetic energy interceptor missile," op. cit.

<sup>143</sup> Karako and Williams, Missile Defense 2020, op. cit., pp. 17, 32.

<sup>&</sup>lt;sup>144</sup> Payne, *Strategic Defense*, op. cit., pp. 18–19, 74; Westwick, "'Space-Strike Weapons' and the Soviet Response to SDI," op. cit., pp. 958–959.

<sup>&</sup>lt;sup>145</sup> Bundy et al., "The President's Choice," op. cit., pp. 270-271; Westwick, "'Space-Strike Weapons' and the Soviet Response to SDI," op. cit., pp. 958-959.

<sup>&</sup>lt;sup>146</sup> Payne, *Strategic Defense*, op. cit., pp. 18–19; U.S. Department of State, "Strategic Defense Initiative (SDI), 1983," Office of the Historian, accessed June 3, 2023, https://2001-2009.state.gov/r/pa/ho/time/rd/104253.htm.

the SALT talks, to author an article in 1984 in Foreign Affairs outlining objections to the initiative. Notably, they acknowledged that their primary concerns were political, not technical.<sup>147</sup> They claimed, in keeping with strategic stability logic, that pursuing this initiative would stoke arms competition with Russia: "The Star Wars program is bound to exacerbate the competition between the superpowers in three major ways. It will destroy the Anti-Ballistic Missile (ABM) Treaty, our most important arms control agreement; it will directly stimulate both offensive and defensive systems on the Soviet side; and as long as it continues it will darken the prospect for significant improvement in the currently frigid relations between Moscow and Washington."148 They further asserted that, while the U.S.-Soviet relationship was not particularly good at that time, the ABM Treaty had been "profoundly constructive" in restraining what they admitted was a "continuing and excessive competition...in offensive weapons."149 For these men, the answer to progress in reducing the danger of nuclear war was not defensive capabilities, but arms control: "[T]he problem of nuclear danger is in its basic reality a common problem,...one that we shall never resolve if we cannot transcend negotiating procedures that give a veto to those in each country who insist on the relentlessly competitive maintenance and enlargement of what are already, on both sides, exorbitantly excessive forces....The renewal of hope cannot be left to await another president without an appeal to the President and his more sober advisors to take a fresh hard look at Star Wars, and then to seek arms control."150

Objections from thousands of U.S. scientists and academics showed the degree to which assumptions about

<sup>147</sup> Bundy et al., "The President's Choice," op. cit., p. 264.

<sup>148</sup> Ibid., pp. 269-270.

<sup>149</sup> Ibid., p. 274.

<sup>150</sup> Ibid., p. 278.

mutual vulnerability had also become ingrained among the educated elite. An anti-SDI movement gained momentum in the mid-1980s as 7,000 university scientists and graduate students signed an anti-SDI pledge never to accept or solicit funds related to SDI research.<sup>151</sup> The pledge characterized SDI as "ill-conceived and dangerous" and went on to claim that developing a system capable of protecting the U.S. population was technically infeasible.<sup>152</sup> However, even more notable was the pledge's objection to exploring even limited missile defenses on the grounds that it would spark arms racing and destabilize international security: "Efforts to develop a system of more limited capability will only induce a build-up of offensive missiles by the Soviet Union, jeopardize existing arms control agreements, stalemate current strategic negotiations and, consequently, accelerate the nuclear arms race and undermine international security."153

Reagan's Secretary of Defense, Caspar Weinberger, who became a chief advocate of SDI, defended SDI in a public article in the Jan./Feb. 1985 issue of *Harvard International Review*, explaining that Reagan's objective was not only to achieve "Effective Defense" of the nation but also to strengthen deterrence by denying the Soviets the ability and confidence to achieve their military objectives, to deter nuclear intimidation and blackmail, and to advance efforts to reduce offensive strategic arms.<sup>154</sup> While Weinberger emphasized that SDI was a research program and did not violate the ABM Treaty, he was clear that it represented a

<sup>152</sup> Massachusetts Institute of Technology, *MIT Newspaper*, Vol. 105, No. 40, Opinion Page, page 5, archival material, available at

http://tech.mit.edu/V105/N40/sdi.400.html and

<sup>&</sup>lt;sup>151</sup> Timothy Aeppel, "Scientists lining up for and against Reagan's 'star wars'. Politics intrudes on missile defense research," *Christian Science Monitor*, October 23, 1986, available at https://www.csmonitor.com/1986/1023/adeb.html.

http://tech.mit.edu/V105/PDF/V105-N40.pdf, accessed February 25, 2023.

<sup>&</sup>lt;sup>153</sup> Massachusetts Institute of Technology, *MIT Newspaper*, Vol. 105, No. 40, op. cit.

<sup>&</sup>lt;sup>154</sup> Weinberger, "The Strategic Defense Initiative," op. cit., pp. 8, 9, 10.

new policy perspective, highlighting that the initiative was paving the way for "a new order that would shift the basis of deterrence from retaliation to defense."155 Unfortunately, this emphasis on strengthening deterrence over damage limitation gave ABM Treaty defenders an opportunity to demand alternative approaches for enhancing deterrence that would still preserve the ABM Treaty.<sup>156</sup> Due to political pressure, Reagan soon had to scale back his plans to focus more on defensive capabilities designed to protect U.S. retaliatory forces – technologies which were more feasible to develop and field in the near term<sup>157</sup>-and thus reflecting a return to the more traditional notion of security by deterrence.<sup>158</sup> The Administration further revised its ambitions with the "Nitze Criteria," developed by Paul Nitze, Reagan's special advisor on arms reduction negotiations, as a standard by which to measure the suitability of homeland missile defense technologies for deployment.<sup>159</sup> The three conditions stipulated that a given technology must be feasible, survivable, and "cost-effective at the margin"-meaning that the defensive capability gained must cost less than the development of offensive countermeasures to overcome those defenses-to be considered for deployment.<sup>160</sup> Moreover, the Reagan Administration kept the option open for a more limited NMD option oriented around accidental or unauthorized

<sup>&</sup>lt;sup>155</sup> Weinberger, "The Strategic Defense Initiative," op. cit., p. 7; Joseph, personal interview, op. cit.

<sup>&</sup>lt;sup>156</sup> Keith B. Payne, former Deputy Assistant Secretary of Defense for Forces Policy, personal interview, June 7, 2023.

<sup>&</sup>lt;sup>157</sup> Brzezinski, "Foreword," op. cit., p. xvii; Koch, "Addressing the Missile Threat," op. cit., p. 20.

<sup>&</sup>lt;sup>158</sup> Payne, personal interview, op. cit.

<sup>&</sup>lt;sup>159</sup> Koch, "Addressing the Missile Threat," op. cit., p. 20; Matthew R. Costlow, "A Curious Criterion: Cost Effective at the Margin for Missile Defense," Information Series, Issue No. 537, October 21, 2022, National Institute of Public Policy, p. 1, available at https://nipp.org/wp-content/uploads/2022/10/IS-537.pdf.

<sup>&</sup>lt;sup>160</sup> Koch, "Addressing the Missile Threat," op. cit., p. 20; Costlow, "Curious Criterion," op. cit., p. 2.

Soviet launches rather than a large deliberate attack.<sup>161</sup> All of these shifts signaled the start of a trend that lasted into the Clinton Administration of decreasing ambition not only of SDI but also of the scale of envisioned NMD systems.<sup>162</sup>

Even with the revisions, the Soviet Union regarded SDI with concern. Soviet President Mikhail Gorbachev feared the potential of SDI to spark an arms race in space – a race that the Soviet Union was not in a position to afford or win.<sup>163</sup> At a summit with Reagan in Reykjavik in 1986, Gorbachev, desperate to arrest U.S. progress in SDI, proposed unprecedented cuts in nuclear weapons-the elimination of all nuclear weapons by the year 2000 - on the condition that Reagan confine SDI to the laboratory.164 Although Reagan passionately opposed nuclear weapons and agreed that elimination was a desirable goal, he adamantly refused to foreswear research, testing, and development of SDI technologies, which he insisted were permitted under the ABM Treaty.<sup>165</sup> Neither Gorbachev nor Reagan would yield, and the summit broke up without an agreement.<sup>166</sup> But Reagan's stalwart refusal to yield ground on SDI presented the United States as a confident, ascendant

https://www.nti.org/analysis/articles/reykjavik-summit-legacy/.

<sup>&</sup>lt;sup>161</sup> Koch, "Addressing the Missile Threat," op. cit. p. 21.

<sup>&</sup>lt;sup>162</sup> Koch, "Addressing the Missile Threat," op. cit. p. 20; Karako and Williams, *Missile Defense* 2020, op. cit., p. 17.

<sup>&</sup>lt;sup>163</sup> Gerold Yonas and Jill Gibson, "It's Laboratory or Goodbye," *STEPS: Science, Technology, Engineering, and Policy Studies,* STEPS Issue 3 (2016): 12–23, Potomac Institute Press, p. 16, available at

https://www.potomacinstitute.org/steps/images/PDF/Articles/YonasSTEPS\_ 2016Issue3.pdf; Lawrence Livermore National Laboratory, "Gorbachev and the end of the Cold War," May 3, 2011, available at

https://www.llnl.gov/article/36836/gorbachev-and-end-cold-war.

<sup>&</sup>lt;sup>164</sup> B. Wayne Howell, "Reagan and Reykjavík: Arms Control, SDI, and the Argument from Human Rights," *Rhetoric and Public Affairs* 11, no. 3 (2008): 389– 415, pp. 389–390, available at http://www.jstor.org/stable/41940375; Nikolai Sokov, "Reykjavik Summit: The Legacy and a Lesson for the Future," Nuclear Threat Initiative, November 30, 2007, available at

<sup>&</sup>lt;sup>165</sup> Yonas and Gibson, "It's Laboratory or Goodbye," op. cit., p. 19.

<sup>&</sup>lt;sup>166</sup> Rodman, Presidential Command, op. cit., p. 158.

power—contrasting with the image of a flailing, furtive Soviet Union still dealing with literal and political fallout from the Chernobyl nuclear accident a few months prior and challenged Soviet leadership with the prospect of having to divert more resources in an already heavily compromised economy to expend on arms.<sup>167</sup>

The overarching focus of SDI during the Reagan Administration remained the Soviet threat; neither China nor rogue states attracted much political attention at the time.<sup>168</sup> But threat perceptions shifted significantly in the early 1990s. In 1991, the Soviet Union collapsed, diminishing the likelihood of a large-scale strategic attack against the United States.<sup>169</sup> However, it in turn stoked increased fears of global proliferation of missiles and potential weapons of mass destruction (WMD) to rogue states and terrorist groups, as well as the risk of potential unauthorized attacks smaller-scale or accidental launches.<sup>170</sup> In other developments, Iraqi dictator Saddam Hussein invaded Kuwait, and in response the United States and a coalition of partner countries went to war with Iraq. Although the U.S.-led coalition quickly liberated Kuwait in Operation Desert Storm, Saddam Hussein's use of Scud missiles against U.S. forces and partners galvanized U.S. political attention on regional missile threats and convinced Washington policymakers of the need to invest in missile

<sup>&</sup>lt;sup>167</sup> Hal Brands, What Good Is Grand Strategy? (Ithaca: Cornell University Press, 2014), p. 132; Atomic Heritage Foundation, "Strategic Defense Initiative (SDI)," July 18, 2018, available at https://ahf.nuclearmuseum.org/ahf/history/strategic-defense-initiative-sdi/; Rodman, Presidential Command, op. cit., p. 158; Sokov, "Reykjavik Summit: The Legacy and a Lesson for the Future," op. cit.; Howell, "Reagan and Reykjavík," op. cit., pp. 395–396.

<sup>&</sup>lt;sup>168</sup> Koch, "Addressing the Missile Threat," op. cit. p. 22.

<sup>&</sup>lt;sup>169</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 3.

<sup>&</sup>lt;sup>170</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., pp. 1, 3; Koch, "Addressing the Missile Threat," op. cit. p. 23.

defense systems to defend against regional threats from the smaller arsenals of proliferant states.<sup>171</sup>

Reflecting the changing threat perceptions, President George H.W. Bush promoted a new NMD concept, the Global Protection Against Limited Strikes (GPALS) system, to defend against "limited ballistic-missile attack" of a few hundred warheads.<sup>172</sup> GPALS, a modified version of SDI, was envisioned as a global system with space-based and ground-based sensors as well as ground-based and spacebased interceptors (the space-based interceptor layer was to be provided by SDI's "Brilliant Pebbles" system) to detect missiles from "unauthorized or rogue-nation ballisticmissile attacks."173 The Missile Defense Act of 1991, which passed as part of the FY 1992 NDAA in December 1991, signaled Congressional support for a limited NMD system by directing DoD to pursue initial deployment of an "ABM Treaty-compliant anti-ballistic missile system at a single site...designed to protect the United States against limited ballistic missile threats, including accidental or

<sup>&</sup>lt;sup>171</sup> Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 3; Henry A. Obering, Keith B. Payne, Brad Roberts, and Kenneth Todorov, *Missile Defense and Defeat: Considerations for the New Policy Review*, ed. Thomas Karako, Center for Strategic and International Studies, March 2017, p. 45, available at https://csis-websiteprod.s3.amazonaws.com/s3fs-

public/publication/170228\_Karako\_MissileDefenseDefeat\_Web.pdf; The White House, *National Security Strategy of the United States*, January 1993, p. 1, available at https://nssarchive.us/wp-content/uploads/2020/04/1993.pdf; Koch, "Addressing the Missile Threat," op. cit., p. 23.

<sup>&</sup>lt;sup>172</sup> National Security Strategy, January 1993, op. cit., p. 14.

<sup>&</sup>lt;sup>173</sup> Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 7; *National Security Strategy*, January 1993, op. cit., p. 17; William T. Tow and William Choong,

<sup>&</sup>quot;Asian Perceptions of BMD: Defence or Disequilibrium?" *Contemporary Southeast Asia* 23, no. 3 (2001): 379–400, p. 383, available at

http://www.jstor.org/stable/25798559; Koch, "Addressing the Missile Threat," op. cit., p. 23; Lawrence Livermore National Laboratory, "Brilliant Pebbles," accessed June 10, 2023, available at

https://www.llnl.gov/archives/1980s/brilliant-pebbles; Karako and Williams, Missile Defense 2020, op. cit., p. 33.

unauthorized launches or Third World attacks."174 The Act also called for the President to pursue discussions with the Soviet Union on the possibility of amendments to the ABM Treaty to permit additional ABM sites and ground-based interceptors, the use of space-based sensors "for direct battle management," clarification regarding development and testing of space-based missile defenses, and clarification of the distinction between theater missile defense (TMD) and NMD systems.<sup>175</sup> President Bush accordingly pursued talks with Russia in 1992 to accommodate under the ABM Treaty the envisioned 750 land-based interceptors and possibly 1,000 space-based GPALS, and while he proposed interceptors for amendments to the Treaty, no agreements were reached prior to Bill Clinton's election as president in 1992.176 Although President Bush judged that the threat of strategic attack from Russia had been greatly reduced now that "[o]ur former nemesis, the Soviet Union, so long an enemy bristling with...nuclear missiles aimed at us, is gone,"177 he continued to use language reflective of U.S. mutual vulnerability thinking by noting that his talks with the Russians aimed to "ensure that missile defenses can be deployed in a stabilizing manner."<sup>178</sup> In response to interest from Russian President Boris Yeltsin in collaborating on

<sup>&</sup>lt;sup>174</sup> Koch, "Addressing the Missile Threat," op. cit., p. 23; William J. Broad,

<sup>&</sup>quot;Pentagon Space-Arms Stance Faulted," *New York Times*, March 11, 1992, available at https://www.nytimes.com/1992/03/11/us/pentagon-space-armsstance-faulted.html?searchResultPosition=1; Karako and Williams, *Missile Defense* 2020, op. cit., pp. 35–36; National Defense Authorization Act for Fiscal Years 1992 and 1993, Public Law No: 102-190 (December 5, 1991), p. 33, available at https://www.congress.gov/102/statute/STATUTE-105/STATUTE-105-Pg1290.pdf.

<sup>&</sup>lt;sup>175</sup> Karako and Williams, *Missile Defense* 2020, op. cit., p. 36; National Defense Authorization Act for Fiscal Years 1992 and 1993, op. cit., pp. 33–34.

<sup>&</sup>lt;sup>176</sup> Karako and Williams, *Missile Defense* 2020, op. cit., pp. XVIII, 17; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 3; Koch, "Addressing the Missile Threat," op. cit., p. 24.

<sup>&</sup>lt;sup>177</sup> National Security Strategy, January 1993, op. cit., p. i.

<sup>178</sup> Ibid. p. 18.

missile defenses, President Bush and President Yeltsin together formed a high-level working group, led by U.S. diplomat Dennis Ross and Russian diplomat Georgiy Mamedov, to explore ways to cooperate on missile defense, including potentially sharing early warning information, developing threat assessments, and developing common technologies.<sup>179</sup>

It was during the Clinton Administration that the overall momentum first generated by the Reagan Administration for any ambitious SDI-related NMD system definitively subsided.<sup>180</sup> Soon after Clinton assumed the presidency in 1993, he signaled a significant shift in missile defense policy from a focus on homeland defenses to theater defenses and proceeded to roll back the GPALS initiative to cancel the Ross-Mamedov talks.181 and The Administration assessed that regional ballistic missile threats and WMD proliferation were the top BMD-related concerns of the time and, responding to the results of a presidentially directed comprehensive review of U.S. BMD policy as well as recommendations made by the Pentagon,

Erik Jones, European Security and the Future of Transatlantic Relations, Istituto Affari Internazionali (IAI), 2011, pp. 51–52, available at

http://www.jstor.org/stable/resrep09855.7; U.S. Government Publishing Office, "Defense of America's Homeland," speech by Representative Curt Weldon of Pennsylvania, January 3, 2001, Congressional Record (Bound Edition), Volume 147 (2001), Part 5, House of Representatives, 6855–6862, available at https://www.govinfo.gov/content/pkg/CRECB-2001-pt5/html/CRECB-2001pt5-Pg6855.htm.

<sup>&</sup>lt;sup>179</sup> Koch, "Addressing the Missile Threat," op. cit., p. 24; James Goldgeier, "NATO's Role in European Security – and Beyond," ed. Riccardo Alcaro and

<sup>&</sup>lt;sup>180</sup> Payne, personal interview, op. cit.

<sup>&</sup>lt;sup>181</sup> Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 3; Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 7; The White House, *A National Security Strategy for a New Century*, December 1999, p. iii, available at https://history.defense.gov/Portals/70/Documents/nss/nss1999.pdf?ver=SL09 09OTm5IAh0LQWBrRHw%3d%3d; Karako and Williams, *Missile Defense 2020*, op. cit., pp. 36–37; Koch, "Addressing the Missile Threat," op. cit., p. 24; Goldgeier, "NATO's Role in European Security – and Beyond," op. cit., pp. 51– 52; U.S. Government Publishing Office, "Defense of America's Homeland," op. cit.

Clinton directed that U.S. BMD programs focus on enhancing U.S. TMD capability while maintaining NMD as a technology research and development program.<sup>182</sup> Clinton's Secretary of Defense, Les Aspin, a former Congressman who had opposed SDI during the Reagan Administration, announced "the end of the Star Wars era" upon taking office and renamed SDIO the Ballistic Missile Defense Organization (BMDO) to reflect the shift to an emphasis on regional defenses.<sup>183</sup> Furthermore, Clinton directed as U.S. policy in 1993 that the United States adhere to the "narrow" interpretation of the ABM Treaty (in contrast to Reagan's endorsement of a more expansive interpretation) as prohibiting development, testing, and deployment of space-based, sea-based, air-based, and mobile land-based ABM systems.<sup>184</sup> He also declared his intention to clarify with ABM Treaty parties (Soviet Union successor states) compliance criteria for TMD systems under the Treaty.<sup>185</sup> However, Republicans won control of both chambers of Congress in 1994 and included in the "Contract with America" a renewed call for deployment of homeland BMD to defend against ballistic missile threats, from which point forward Clinton faced ongoing

<sup>184</sup> Koch, "Addressing the Missile Threat," op. cit., pp. 21–22; Thomas L.

<sup>&</sup>lt;sup>182</sup> Zakheim, "Evaluating the Opportunity and Financial Costs of Missile Defense," op. cit., p. 275; William Clinton, Presidential Decision Directive/NSC-17: "U.S. Policy on Ballistic Missile Defenses and the Future of the ABM Treaty," December 11, 1993, p. 1–2, available at https://irp.fas.org/offdocs/pdd/pdd-17.pdf.

<sup>&</sup>lt;sup>183</sup> Koch, "Addressing the Missile Threat," op. cit., p. 25; Karako and Williams, *Missile Defense* 2020, op. cit., p. 36.

Friedman, "U.S. Formally Rejects 'Star Wars' in ABM Treaty," *New York Times*, July 15, 1993, available at https://www.nytimes.com/1993/07/15/world/us-formally-rejects-star-wars-in-abm-treaty.html?searchResultPosition=1;

Washington Post, "U.S. Abandons 'Broad' Interpretation of ABM Treaty," July 15, 1993, available at

https://www.washingtonpost.com/archive/politics/1993/07/15/us-abandonsbroad-interpretation-of-abm-treaty/474753de-6fdc-478a-a7d4-c92dbb9ac700/.

<sup>&</sup>lt;sup>185</sup> Koch, "Addressing the Missile Threat," op. cit., pp. 21–22; Clinton, Presidential Decision Directive/NSC-17: "U.S. Policy on Ballistic Missile Defenses and the Future of the ABM Treaty," op. cit., p. 3.

Congressional resistance to shifting emphasis away completely from NMD.<sup>186</sup>

Clinton, like Bush, continued to premise missile defense policy decisions on the assumption that limits to strategic missile defenses help to foster stability. His Administration affirmed the ABM Treaty as "a cornerstone of strategic stability,"187 and, eager not to provoke the Russians, sought to reassure President Yeltsin that U.S. TMD initiatives would be completely compliant with the ABM Treaty.<sup>188</sup> In September 1997, the AMB Treaty parties – the United States and Soviet Union successor states of Russia, Belarus, Kazakhstan, and Ukraine, per a linked agreement – signed two Agreement Statements on demarcation between TMD and NMD.<sup>189</sup> One statement clarified that TMD systems would be deemed in compliance with the Treaty if they did not have the capability to counter strategic ballistic missiles, if the velocity of the interceptor missile did not exceed 3 km per second, and if the velocity of the ballistic-target missile did not exceed 5 km per second and did not exceed 3,500 km in range.<sup>190</sup> The statement stipulated that any land-

<sup>&</sup>lt;sup>186</sup> Koch, "Addressing the Missile Threat," op. cit., p. 25; James M. Acton, "U.S. National Missile Defense Policy," in *Regional Missile Defense From a Global Perspective*, ed. Catherine McArdle Kelleher and Peter Dombrowski, 33–47 (Stanford, CA: Stanford University Press, 2015), p. 36; Erik K. Pratt, "Missile Defense Sponsors: Shifting Political Support for Strategic Defense After Reagan," *Asian Perspective* 25, no. 1 (2001): 11–72, p. 32, available at http://www.jstor.org/stable/42704299; Karako and Williams, *Missile Defense* 2020, op. cit., pp. 36–37.

 <sup>&</sup>lt;sup>187</sup> A National Security Strategy for a New Century, December 1999, op. cit., p. 7.
<sup>188</sup> Strobe Talbott, "Unfinished Business: Russia and Missile Defense Under Clinton," Arms Control Association, June 2006, available at https://www.armscontrol.org/act/2002-06/features/unfinished-businessrussia-missile-defense-under-clinton.

<sup>&</sup>lt;sup>189</sup> Koch, "Addressing the Missile Threat," op. cit., p. 27; "First Agreed Statement Relating To The Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems Of May 26, 1972," signed September 26, 1997, U.S. Department of State Archive, available at https://2009-2017.state.gov/t/avc/trty/101888.htm.

<sup>&</sup>lt;sup>190</sup> Koch, "Addressing the Missile Threat," op. cit., p. 27; "First Agreed Statement Relating To The Treaty Between The United States Of America And The Union

based, sea-based, or air-based components of ABM systems observing these protocols would be deemed compliant with the ABM Treaty.<sup>191</sup> However, space-based systems were excluded from the exemptions, and the other statement explicitly committed the parties to forgo developing, testing, or deploying space-based interceptor missiles designed to counter ballistic missiles other than strategic missiles.<sup>192</sup> The Clinton Administration initially described the demarcation negotiation process as an attempt to "clarify" elements of the ABM Treaty rather than to make substantive changes and therefore maintained that it was not required to seek the advice and consent of the U.S. Senate for ratification.<sup>193</sup> However, pressure from Congress, coupled with the Duma's conditioning of its ratification of START II on U.S. ratification of the demarcation statements as formal addenda to the ABM Treaty, prompted Clinton to change course.<sup>194</sup> However, by the time the agreements

Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems Of May 26, 1972," op. cit.

<sup>&</sup>lt;sup>191</sup> "First Agreed Statement Relating To The Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems Of May 26, 1972," op. cit.; Koch, "Addressing the Missile Threat," op. cit., p. 27.

<sup>&</sup>lt;sup>192</sup> "First Agreed Statement Relating To The Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems Of May 26, 1972," op. cit.; "Second Agreed Statement Relating To The Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems Of May 26, 1972," signed September 26, 1997, U.S. Department of State Archive, available at https://2009-

<sup>2017.</sup>state.gov/t/avc/trty/101888.htm; Koch, "Addressing the Missile Threat," op. cit., p. 27.

<sup>&</sup>lt;sup>193</sup> Congressional Research Service, Anti-Ballistic Missile Treaty Demarcation and Succession Agreements: Background and Issues, by Amy F. Woolf, updated April 27, 2000, p. 17, available at https://crsreports.congress.gov/product/pdf/RL/98-496/2.

<sup>&</sup>lt;sup>194</sup> Congressional Research Service, *Anti-Ballistic Missile Treaty Demarcation and Succession Agreements: Background and Issues*, op. cit., pp. 17–18; Garrett Hinck, Alex Bednarek, Brian Benedicks, Alan Cummings, John Fernandez, B.M. Gautam, Matthew S. Golub, et al., "Strategic Arms Control, Presidents, and Politics: Why MIRVs Fell Off the Agenda," ed. Reja Younis, On the Horizon: A Collection of Papers from the Next Generation, Center for Strategic and International

were signed, it was clear that the Senate had enough opposition votes to defeat the agreements;<sup>195</sup> thus, Clinton never submitted them, and they were never ratified.<sup>196</sup>

However, Clinton devised a compromise position on ABM systems development in a nod to NMD proponents by pursuing a "3+3" strategy which aimed to develop NMD to defend against limited deliberate ballistic missile attack from hostile states or terrorists or against accidental or unauthorized launches from any source.<sup>197</sup> This strategy would continue development of NMD for three years, would then allow the Administration to determine whether the system was technologically feasible and justified in light of current threats, and, if so judged, would deploy the system in three more years.<sup>198</sup> The test results of the system at the end of the first phase were mixed, so Clinton decided to leave the NMD deployment decision to his successor.<sup>199</sup>

Yet, Congressional support for an NMD system was galvanized toward the end of the Clinton Administration by the 1998 report of the Rumsfeld Commission, which asserted that the long-range missile threat to the United States was greater than previously thought, and, soon after that, North Korea's firing of a Taepodong missile over

Studies, 2021, p. 104, available at http://www.jstor.org/stable/resrep29483.11; Andrei Shoumikhin, "Nuclear Weapons in Russian Strategy and Doctrine," ed. Stephen J. Blank, *Russian Nuclear Weapons: Past, Present, and Future*, Strategic Studies Institute, U.S. Army War College, 2011, p. 120, available at http://www.jstor.org/stable/resrep12072.7.

 <sup>&</sup>lt;sup>195</sup> Hinck et al., "Strategic Arms Control, Presidents, and Politics," op. cit., p. 104.
<sup>196</sup> Koch, "Addressing the Missile Threat," op. cit., p. 27; Acton, "U.S. National Missile Defense Policy," op. cit., pp. 41–42; Gallagher, "Congress and Missile Defense," op. cit., pp. 88–89.

<sup>&</sup>lt;sup>197</sup> Koch, "Addressing the Missile Threat," op. cit., p. 25; Karako and Williams, *Missile Defense* 2020, op. cit., pp. 37–38; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 4.

<sup>&</sup>lt;sup>198</sup> Koch, "Addressing the Missile Threat," op. cit., p. 25; Congressional Research Service, "Ballistic Missile Defense," op. cit., p. 4.

<sup>&</sup>lt;sup>199</sup> Koch, "Addressing the Missile Threat," op. cit., p. 26; Karako and Williams, *Missile Defense* 2020, op. cit., pp. 40-41.

45

Japan.<sup>200</sup> This growing concern produced the veto-proof Missile Defense Act of 1999, declaring it U.S. policy to deploy an NMD system as soon as technologically possible to defend the United States against "limited" ballistic missile attack.<sup>201</sup>

The 1999 Missile Defense Act, and the political context that produced it, served to cement what had been a gradual re-orientation of U.S. NMD from defense against strategic adversary missiles to limited long-range missile threats, such as those posed by rogue states.<sup>202</sup> In addition, with his Administration's shutdown of GPALS and political investment in drawing a strict distinction between TMD and NMD systems, President Clinton ended any near-term prospects of using space-based interceptors for U.S. missile defense.

<sup>&</sup>lt;sup>200</sup> Center for Strategic and International Studies, "Ground-based Midcourse Defense (GMD) System," op. cit.; Tow and Choong, "Asian Perceptions of BMD," op. cit., p. 384; John Kyl, "The Rumsfeld Commission Report," *Congressional Record*, July 31, 1998, posted on Federation of American Scientists, available at https://irp.fas.org/congress/1998\_cr/s980731-rumsfeld.htm; Floyd Spence, "National Security Report Background and Perspective on Important National Security and Defense Policy Issues," Vol. 2, Issue 4, U.S. Congress, House of Representatives, House National Security Committee, August 1998, pp. 1–3, available at https://irp.fas.org/threat/missile/nsr2-4rumsfeldreport.pdf; Greg Thielmann, "The National Missile Defense Act of 1999," Arms Control Association, accessed October 29, 2022, available at

https://www.armscontrol.org/act/2009-07/national-missile-defense-act-1999. <sup>201</sup> National Missile Defense Act of 1999, Public Law No: 106-38 (July 22, 1999), available at https://www.congress.gov/106/plaws/publ38/PLAW-106publ38.pdf; Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 7; Tow and Choong, "Asian Perceptions of BMD," op. cit., p. 383; George Bush, "National Policy on Ballistic Missile Defense Fact Sheet," The White House, Office of the Press Secretary, May 20, 2003, available at https://georgewbushwhitehouse.archives.gov/news/releases/2003/05/20030520-15.html; Koch, "Addressing the Missile Threat," op. cit., p. 27; Acton, "U.S. National Missile Defense Policy," op. cit., p. 36; Pratt, "Missile Defense Sponsors: Shifting Political Support for Strategic Defense After Reagan," op. cit., p. 32; Karako and Williams, *Missile Defense* 2020, op. cit., p. 37.

<sup>&</sup>lt;sup>202</sup> Peppino DeBiaso, remarks in "Deterrence in a Trilateral Strategic Environment," *Journal of Policy & Strategy*, Vol. 3, No. 1 (2023): 81–85, p. 81, available at https://nipp.org/wp-content/uploads/2023/03/Vol.-3-No.-1.pdf.

## **Establishment and Continuance of Ground-Based Midcourse Defense**

President George W. Bush, who came to office in 2001, made defending the United States against WMD attack a top national security priority. A few months after taking office, in May 2001, Bush announced his intent to press beyond the constraints of the ABM Treaty in order to develop defensive systems to protect the United States from the growing global missile threat.<sup>203</sup> He noted that while the United States no longer considered Russia a strategic enemy, smaller renegade powers were pursuing WMD and ballistic missile technology and that it was time for the United States to free itself from the restrictions of the ABM Treaty. Bush described the basis of the ABM Treaty as a belief that mutual vulnerability between the United States and Russia would prevent nuclear war: "Security of both the United States and the Soviet Union was based on a grim premise: that neither side would fire nuclear weapons at each other, because doing so would mean the end of both nations. We even went so far as to codify this relationship in a 1972 ABM Treaty, based on the doctrine that our very survival would best be insured by leaving both sides completely open and vulnerable to nuclear attack."204 However, Bush went on to explain that the rise of unpredictable WMD-pursuing regimes necessitated that the United States invest in missile defenses to enhance deterrence and to protect itself in an era of uncertainty.<sup>205</sup> "Deterrence can no longer be based solely on the threat of nuclear retaliation," Bush said.<sup>206</sup> "We need a new framework that allows us to build missile defenses to

<sup>&</sup>lt;sup>203</sup> George W. Bush, "Remarks by the President to Students and Faculty at National Defense University," The White House, Office of the Press Secretary, May 1, 2001, available at https://georgewbush-

whitehouse.archives.gov/news/releases/2001/05/20010501-10.html.

<sup>&</sup>lt;sup>204</sup> Loc. cit.

<sup>&</sup>lt;sup>205</sup> Loc. cit.

<sup>&</sup>lt;sup>206</sup> Loc. cit.

counter the different threats of today's world. To do so, we must move beyond the constraints of the 30-year-old ABM Treaty....It enshrines the past. No treaty that prevents us from addressing today's threats, that prohibits us from pursuing promising technology to defend ourselves, our friends and our allies is in our interests or in the interests of world peace."<sup>207</sup>

The 9/11 attacks a few months afterward greatly energized U.S. political and popular concern about the threat of WMD attacks from terrorists and rogue states, bolstering the Administration's missile defense aims. On December 13, 2001, Bush provided six months' notice (as required by the ABM Treaty) of the U.S. intent to withdraw from the Treaty, with withdrawal completed on June 13, 2002.<sup>208</sup> Bush issued a new National Security Presidential Directive (NSPD), NSPD-23 in December 2002, declaring as national policy the intent "to develop and deploy, at the earliest possible date, ballistic missile defenses drawing on the best technologies available."209 Notably, Russian President Vladimir Putin's response was muted. He noted that while he felt the U.S. decision to withdraw from the ABM Treaty was "an erroneous one," he added, "Russia and the U.S., unlike other nuclear powers, have for a long time possessed the effective means to overcome missile

<sup>208</sup> "Treaty Between The United States of America and The Union of Soviet Socialist Republics on The Limitation of Anti-Ballistic Missile Systems (ABM Treaty)," op. cit.; Terence Neilan, "Bush Pulls Out of ABM Treaty; Putin Calls Move a Mistake," *New York Times*, December 13, 2001, available at https://www.nytimes.com/2001/12/13/international/bush-pulls-out-of-abmtreaty-putin-calls-move-a-mistake.html?searchResultPosition=6; Jonathan Marcus, "U.S. formally dumps ABM treaty," *BBC*, June 13, 2002, available at http://news.bbc.co.uk/2/hi/americas/2042766.stm.

<sup>&</sup>lt;sup>207</sup> Loc. cit.

<sup>&</sup>lt;sup>209</sup> The White House, "National Security Presidential Directive/NSPD-23: National Policy on Ballistic Missile Defense," December 16, 2002, p. 3, available at

https://s3.amazonaws.com/NARAprodstorage/opastorage/live/17/828/26082 817/content/presidential-libraries/bushgw/foia/2014-0390-F/t030-021-012nspd23-20140390f.pdf. https://irp.fas.org/offdocs/nspd/nspd-23.pdf.

defenses....Therefore I fully believe that the decision taken by the president of the United States does not pose a threat to the national security of the Russian Federation."<sup>210</sup> Meanwhile, the newly renamed U.S. Missile Defense Agency (MDA) began developing the GMD based on technological concepts inherited from the Clinton Administration and emplaced the first interceptor of the GMD at Fort Greeley, AK in 2004.<sup>211</sup>

In a related development, Bush also sought to adjust the overall U.S. strategic posture to align with the new unpredictable global security environment. His goals spanned ensuring deterrence against WMD attack from proliferating states and actors while also reducing U.S. dependence on nuclear weapons and on forward-operating bases, as well as maintaining positive relations with Russia by creating room for further reductions in strategic offensive arms.<sup>212</sup> Given that the United States began pulling forces back from forward military bases at the end of the Cold War, coupled with the ongoing unpredictability of the threat environment of the post-Cold War world, Washington sought to develop a concept that would give the United States a flexible strike capability to target potential adversaries or combinations of adversaries,

<sup>212</sup> U.S. Department of Defense, *Nuclear Posture Review*, December 2001, p. 1, available at https://www.documentcloud.org/documents/3109636-2001-Nuclear-Posture-Review; Susan Turner Haynes, "Dragon in the Room: Nuclear Disarmament's Missing Player," *Strategic Studies Quarterly* 12, no. 1 (2018): 25-47, p. 36, available at http://www.jstor.org/stable/26333876; Congressional Research Service, *Conventional Prompt Global Strike and Long-Range Ballistic Missiles: Background and Issues*, by Amy F. Woolf, updated July 16, 2021, pp. 1–2, available at https://crsreports.congress.gov/product/pdf/R/R41464; Lynn F. Rusten, "U.S. Withdrawal from the Antiballistic Missile Treaty," ed. Jeffrey A. Larsen and Erin R. Mahan, Center for the Study of Weapons of Mass Destruction, Case Study 2, Washington, D.C.: National Defense University, January 2010, p. 13, available at

 <sup>&</sup>lt;sup>210</sup> Neilan, "Bush Pulls Out of ABM Treaty; Putin Calls Move a Mistake," op. cit.
<sup>211</sup> Karako and Williams, *Missile Defense* 2020, op. cit., pp. 42, 45–46.

https://inss.ndu.edu/Portals/97/Documents/Publications/Case%20Studies/cs wmd\_cs2.pdf.

possibly armed with a variety of military capabilities, globally and quickly in acute crises.<sup>213</sup> The specific goal was for the United States to strike targets with non-nuclear force precisely anywhere in the world, preferably within one hour, without needing to depend on forward-deployed forces.<sup>214</sup> Following several Pentagon studies, Bush announced in his 2001 Nuclear Posture Review (NPR) his intent to include conventional offensive capabilities in a new "triad" and to develop long-range, precision-guided conventional weapons capable of substituting for nuclear weapons to hold certain targets at risk.<sup>215</sup> The development of this long-range strike capability was sanctioned as the Conventional Prompt Strike program, later renamed the Conventional Prompt Global Strike program.<sup>216</sup> Based on several research and development efforts throughout the 2000s, DoD eventually chose to focus on hypersonic glide vehicles (HGV) mounted on rocket boosters as the best technology to perform the new prompt strike mission.<sup>217</sup>

Barack Obama, who served as president from 2008–2016, sought a more moderate homeland missile defense posture in favor of theater missile defenses.<sup>218</sup> In February 2010, the Administration published the first national-level Ballistic Missile Defense Review (BMDR), which claimed that while "[t]here is some uncertainty about when and how...[the] intercontinental ballistic missile (ICBM) threat to the U.S. homeland will mature...there is no uncertainty

<sup>&</sup>lt;sup>213</sup> *Nuclear Posture Review*, December 2001, op. cit., p. 5; Haynes, "Dragon in the Room," op. cit., p. 36; Congressional Research Service, *Conventional Prompt Global Strike*, op. cit., p. 3.

<sup>&</sup>lt;sup>214</sup> Haynes, "Dragon in the Room," op. cit., p. 36; Congressional Research Service, *Conventional Prompt Global Strike*, op. cit., pp. 1–2.

<sup>&</sup>lt;sup>215</sup> *Nuclear Posture Review*, December 2001, op. cit., pp. 9, 10; Haynes, "Dragon in the Room," op. cit., p. 36; Congressional Research Service, *Conventional Prompt Global Strike*, op. cit., p. 1.

<sup>&</sup>lt;sup>216</sup> Congressional Research Service, Conventional Prompt Global Strike, op. cit., p. 5.

<sup>&</sup>lt;sup>217</sup> Congressional Research Service, Conventional Prompt Global Strike, op. cit., p. 2.

<sup>&</sup>lt;sup>218</sup> Zakheim, "Evaluating the Opportunity and Financial Costs of Missile Defense," op. cit., p. 275.

about the existence of regional threats."<sup>219</sup> It went on to note that, at that time, the United States was sufficiently against "limited ICBM attacks...for protected the foreseeable future" by the GMD's then 30 interceptors.220 The Administration chose to pause the previously planned deployment of 14 additional GMD interceptors but allowed the completion of construction of silos for these interceptors as a "hedge against future threat uncertainty."<sup>221</sup> The BMDR admitted that "[t]hreats may mature more rapidly or more slowly than predicted, may appear in unexpected locations, or may involve novel technologies or concepts of operations," and that "[i]t is essential that the United States be well hedged and have a strong posture against unpredicted threat developments."222 However, despite this, the BMDR went on to announce its decision to roll back several technology development programs, shifting funds "away from technologies intended to defeat adversarial missile threats that do not exist and are not expected to evolve in the near to midterm."223 This included canceling the Multiple Kill Vehicle program (aimed at destroying multiple warheads and countermeasures in midcourse), the Kinetic Energy Interceptor program (for destroying warheads in boost phase from sea or land), and the Airborne Laser program (which was exploring the use of lasers mounted on aircraft to destroy warheads in boost phase).<sup>224</sup> Obama also reduced the GMD base budget by

<sup>&</sup>lt;sup>219</sup> U.S. Department of Defense, *Ballistic Missile Defense Review*, February 2010, p. iii., available at https://apps.dtic.mil/sti/pdfs/ADA514210.pdf.

<sup>220</sup> Ibid., p. iv.

<sup>&</sup>lt;sup>221</sup> Ibid., pp. 16, 17.

<sup>&</sup>lt;sup>222</sup> Ibid., p. 9.

<sup>&</sup>lt;sup>223</sup> Ibid., p. 11.

<sup>&</sup>lt;sup>224</sup> Ibid., pp. 40–41; Zakheim, "Evaluating the Opportunity and Financial Costs of Missile Defense," op. cit., p. 273; George N. Lewis, "Technical Controversy: Can Missile Defense Work?" in *Regional Missile Defense From a Global Perspective*, ed. Catherine McArdle Kelleher and Peter Dombrowski, 63–83 (Stanford, CA: Stanford University Press, 2015), p. 76.

nearly 60% over the course of his Administration.<sup>225</sup> He instead focused U.S. missile defense efforts on regional capabilities such as THAAD procurements and on developing more advanced interceptors and sensors for regional missile defense systems.<sup>226</sup> In 2009, Obama announced a decision to deploy a new missile defense architecture in Europe, the European Phased Adaptive Approach (EPAA), to defend NATO allies from Iran's short, medium-, and intermediate-range missiles,<sup>227</sup> and in 2016 to deploy a THAAD system to the ROK for defense against North Korea.<sup>228</sup>

decisions reflected Administration's These the particular assessment of the threat environment, which held that the main missile threat for the foreseeable future was from short- to intermediate-range missiles belonging primarily to "regional actors" such as North Korea and Iran, and from non-state actors against U.S. deployed forces and U.S. allies and partners.<sup>229</sup> The BMDR noted its concern that China was deploying an array of non-strategic ballistic missile capabilities along the Taiwan Strait but emphasized that the Administration viewed China as a partner, not necessarily an adversary.<sup>230</sup> The BMDR recognized China's (and Russia's) ability to conduct large-scale missile strikes against the United States but explicitly noted that this was "very unlikely and not the focus of U.S. BMD."231 It also acknowledged that China and Russia "have repeatedly

<sup>&</sup>lt;sup>225</sup> Obering et al., *Missile Defense and Defeat*, op. cit., p. 47.

<sup>&</sup>lt;sup>226</sup> Ballistic Missile Defense Review, February 2010, op. cit., p. 20.

<sup>&</sup>lt;sup>227</sup> Koblentz, "Challenges to Strategic Stability," op. cit., p. 22; Barack Obama, "Obama's Romarks on Missila Defense Strategy," *New York Times*, Sontomber 1

<sup>&</sup>quot;Obama's Remarks on Missile Defense Strategy," *New York Times,* September 17, 2009, available at

https://www.nytimes.com/2009/09/18/us/politics/18shield.text.html?searchR esultPosition=1.

<sup>&</sup>lt;sup>228</sup> Ferguson and MacDonald, "Nuclear Dynamics," op. cit. p. 15.

<sup>&</sup>lt;sup>229</sup> Ballistic Missile Defense Review, February 2010, op. cit., pp. 11, 12–13, 29.

<sup>230</sup> Ibid., pp. 4-5.

<sup>&</sup>lt;sup>231</sup> Ibid., pp. 4-5.
expressed concerns that U.S. missile defenses adversely affect their own strategic capabilities and interests" and sought to allay such concerns by noting that "homeland missile defense capabilities are focused on regional actors such as Iran and North Korea" and that the GMD "does not have the capacity to cope with large scale Russian or Chinese missile attacks, and is not intended to affect the strategic balance with those countries."232 These statements signaled that China, in the view of U.S. BMD policy, had graduated to the category of a strategic and allegedly "rational" adversary (having passed the mantle of "irrational" adversary off to North Korea and other rogues back in the Bush and Clinton years). From this point forward to the present, China would be regarded as more of a near peer to the United States in the context of strategic stability thinking.

In concert with his restrained missile defense strategy, Obama also pursued a conservative nuclear posture. In fact, in contrast to his predecessors, he made reducing the role of nuclear weapons in national security strategy a centerpiece of his national security policy. In a speech in Prague in April 2009, Obama put forward his vision of "a world without nuclear weapons."<sup>233</sup> Obama's NPR, released in April 2010, prioritized preventing nuclear proliferation and nuclear terrorism over nuclear deterrence and announced the Administration's aim to create conditions that would one day in the future allow the U.S. government to make nuclear deterrence the "sole purpose" of nuclear weapons (although it acknowledged that, given the strategic environment, the United States was not yet prepared to

<sup>&</sup>lt;sup>232</sup> Ibid., pp. 12-13.

<sup>&</sup>lt;sup>233</sup> Barack Obama, "President Obama's Speech in Prague," speech given in Prague, Czech Republic, April 5, 2009, available at

https://cz.usembassy.gov/our-relationship/president-obamas-speech-in-prague/.

adopt such a policy).234 It also committed to maintaining strategic deterrence and stability at reduced nuclear force levels as well as strengthening non-nuclear capabilities, including missile defenses and conventional long-range missile systems, for deterring non-nuclear attacks, continuing Bush's conventional prompt global strike initiative.235 The NPR also announced the retirement of the Tomahawk Land Attack Missile-Nuclear (TLAM-N), which the Navy retired in 2013.236 However, in 2016, toward the end of the Obama Administration, DoD secured approval to proceed with development of the AGM-181 Long-Range Standoff Weapon (LRSO) to replace the air-launched cruise missile and the Ground-Based Strategic Deterrent to replace the Minuteman III.237 Given changes in the threat environment, particularly the demonstrated technological advances by North Korea, Obama eventually reversed his stance on the GMD and deployed the additional 14 GBIs, helping to cement the GMD's status as the NMD system of choice and ending the trend of the Reagan, Bush '41, Clinton, and Bush '43 Administrations of pursuing different NMD visions than their predecessors.238

<sup>&</sup>lt;sup>234</sup> U.S. Department of Defense, Nuclear Posture Review, April 2010, pp. viii, ix, 16, 17, available at

https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010\_Nucl ear\_Posture\_Review\_Report.pdf; Frank A. Rose, "Strategic Stability in East Asia," remarks at the Johns Hopkins-Nanjing Center for Chinese and American Studies, Nanjing, China, December 8, 2014, available at https://2009-

<sup>2017.</sup>state.gov/t/avc/rls/2014/235384.htm; Haynes, "Dragon in the Room," op. cit., pp. 16–17.

<sup>&</sup>lt;sup>235</sup> Rose, "Strategic Stability in East Asia," op. cit.; *Nuclear Posture Review*, April 2010, op. cit., pp. 7, 17, 46; Zhao, "Conventional Challenges to Strategic Stability," op. cit., p. 2.

 <sup>&</sup>lt;sup>236</sup> Congressional Research Service, "Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N)," op. cit., p. 1; *Nuclear Posture Review*, April 2010, op. cit., p. 28.
 <sup>237</sup> Heimer et al., "Standoff," op. cit., p. 50; Klotz and Evans, *Modernizing the U.S. Nuclear Triad*, op. cit., pp. 11, 13–14, 16–19.

<sup>&</sup>lt;sup>238</sup> Center for Strategic and International Studies, "Ground-based Midcourse Defense (GMD) System," op. cit.; Patty-Jane Geller, "It's Time To Get Homeland Missile Defense Right," Heritage Foundation, January 5, 2021, available at https://www.heritage.org/missile-defense/commentary/its-time-get-

The NPR noted Obama's desire to establish strategic stability dialogues with China and to encourage mutual transparency in the U.S.-Sino relationship.239 While his Administration was unable to secure Beijing's interest in official senior-level dialogues, the U.S. government continued to fund a dialogue series, begun during the George W. Bush Administration, of unofficial Track 1.5 U.S.-China nuclear dialogues.240 This dialogue series enjoyed a "golden phase" during the Obama Administration due, in the opinion of experts, to Obama's nuclear policies, such as his focus on future nuclear disarmament and reducing the role of nuclear weapons in U.S. national security strategy.<sup>241</sup> However, even in 2009, it remained clear that there was little leadership interest in Beijing in addressing strategic issues at the Track 1 level;<sup>242</sup> rather, Chinese interlocutors kept saying the time was not right for Track 1, although they never satisfactorily elaborated on that point.243 The United States and China successfully commenced an official dialogue on the security and safety of nuclear materials and facilities during the Obama Administration, but this series did not include

https://cgsr.llnl.gov/content/assets/docs/CGSR\_U.S.-China-Paper.pdf; Middlebury Institute of International Studies, "Institute Co-Hosts U.S.-China Conference on Arms Control," April 20, 2016, available at https://www.middlebury.edu/institute/news/institute-co-hosts-us-china-

https://www.middlebury.edu/institute/news/institute-co-hosts-us-chin conference-arms-control.

homeland-missile-defense-right; Koch, "Addressing the Missile Threat," op. cit., p. 18; Acton, "U.S. National Missile Defense Policy," op. cit., p. 38.

<sup>&</sup>lt;sup>239</sup> Saalman, "Placing a Renminbi Sign on Strategic Stability and Nuclear Reductions," op. cit., p. 345; *Nuclear Posture Review*, April 2010, op. cit., pp. 28, 29, 46.

<sup>&</sup>lt;sup>240</sup> Brad Roberts, ed., "Taking Stock: U.S.-China Track 1.5 Nuclear Dialogue," Center for Global Security Research (Livermore, CA: Lawrence Livermore National Laboratory, December 2020), pp. 5, 7, available at

<sup>&</sup>lt;sup>241</sup> Roberts, "Taking Stock," op. cit., p. 8.

<sup>&</sup>lt;sup>242</sup> Roberts, "Taking Stock," op. cit., p. 24.

<sup>243</sup> Roberts, "Taking Stock," op. cit., p. 41; Brooks, "Perceptions," op. cit.

55

discussion of nuclear weapons, arms control, or deterrence.<sup>244</sup>

Despite Obama's lack of enthusiasm for homeland defenses throughout his presidency, U.S. NMD received a political boost toward the end of his second term. In the FY 2017 NDAA, Congress updated U.S. missile defense policy from the National Missile Defense Act of 1999, stating, "It is the policy of the United States to maintain and improve an effective, robust layered missile defense system capable of defending the territory of the United States, allies, deployed forces, and capabilities against the developing and increasingly complex ballistic missile threat with funding subject to the annual authorization of appropriations and the annual appropriation of funds for National Missile Defense."245 This signaled three important changes from the 1999 policy. One, it expressed an intent to "maintain and improve an effective, robust layered missile defense system" whereas the 1999 legislation sought to deploy an effective NMD system.<sup>246</sup> Two, it noted that the intent of the U.S. missile defense system would be to defend not only U.S. territory but also "allies, deployed forces, and capabilities."247 Three, it broadened the aim of U.S. policy from defending against "limited ballistic missile attack" to "the developing and increasingly complex ballistic missile threat,"248 leaving the policy door open to defend the homeland against threats from vectors other than rogue

<sup>&</sup>lt;sup>244</sup> Patricia M. Kim, "Nuclear Forces and Strategic Stability," *Enhancing U.S.-China Strategic Stability in an Era of Strategic Competition: U.S. and Chinese Perspectives*,

U.S. Institute of Peace, 2021, p. 22, available at http://www.jstor.org/stable/resrep34022.6.

<sup>&</sup>lt;sup>245</sup> National Defense Authorization Act for Fiscal Year 2017, Public Law No: 114-328, op. cit.

<sup>&</sup>lt;sup>246</sup> Obering et al., *Missile Defense and Defeat*, op. cit., p. 7.

<sup>&</sup>lt;sup>247</sup> Loc. cit.

<sup>&</sup>lt;sup>248</sup> National Defense Authorization Act for Fiscal Year 2017, Public Law No: 114-328, op. cit.; Karako, "Missile Defense and the Nuclear Posture Review," op. cit., pp. 48–49; Ferguson and MacDonald, "Nuclear Dynamics," op. cit., p. 7; Brooks, "Perceptions," op. cit.

states or accidental or unauthorized launches. While the updated policy has not, at this point, resulted in significant material improvements to the GMD, it did reveal a growing interest from Congress in positioning the United States to respond to changes in the threat environment.

Although President Donald Trump, who came to office in 2017, largely followed the legacy missile defense policy of his predecessors, his Administration sought to reframe missile defenses as a stabilizing element in great power relations. Trump's Missile Defense Review (MDR), published in 2019, declared, "Missile Defenses are Stabilizing. Missile defense capabilities provide the U.S., allies, and partners the ability to prevent or limit damage from an adversary offensive missile strike. They provide an additional option to offensive strikes to prevent damage to the United States, deployed forces, allies, and partners."249 Although the term "strategic stability" was largely absent from national-level strategic documents during the Trump Administration,<sup>250</sup> echoes of old strategic stability thinking continued to be evident as Trump oriented his missile defense policy primarily around "rogue state and regional missile threats" while continuing the policy of relying "on deterrence to protect against...Russian and Chinese intercontinental ballistic missile threats to the U.S. homeland."251 The 2019 MDR reiterated that "U.S. missile

<sup>&</sup>lt;sup>249</sup> U.S. Department of Defense, *Missile Defense Review: Executive Summary*, 2019, p. VI, available at https://www.defense.gov/Portals/1/Interactive/2018/11-2019-Missile-Defense-

Review/The%202019%20MDR\_Executive%20Summary.pdf (emphasis in original).

<sup>&</sup>lt;sup>250</sup> Brad Roberts, ed., "Fit for Purpose? The U.S. Strategic Posture in 2030 and Beyond," Center for Global Security Research, Lawrence Livermore National Laboratory, October 2020, p. 50, available at

https://cgsr.llnl.gov/content/assets/docs/The-U.S.-Strategic-Posture-in-2030and-Beyond.pdf; Tong Zhao, "Tides of Change: China's Nuclear Ballistic Missile Submarines and Strategic Stability," Carnegie Endowment for International Peace, 2018, p. 5, available at

https://carnegieendowment.org/files/Zhao\_SSBN\_final.pdf.

<sup>&</sup>lt;sup>251</sup> Missile Defense Review: Executive Summary, 2019, op. cit., p. III.

defense capabilities will be sized to provide continuing effective protection of the U.S. homeland against rogue states' offensive missile threats" and that "[t]he United States relies on nuclear deterrence to address the large and more sophisticated Russian and Chinese intercontinental ballistic missile capabilities."252 Even so, the MDR was far more pointed than the 2010 BMDR in its focus on China as a threat. It devoted attention to describing the strategic ballistic missile threat that China posed the United States, highlighting that "China can now potentially threaten the United States with about 125 nuclear missiles, some capable of employing multiple warheads, and its nuclear forces will increase in the coming years."253 The MDR also drew attention to China's conventional ballistic missiles "designed to prevent U.S. military access to support regional allies and partners,"254 as well as its diverse and growing cruise missile arsenal, hypersonic missiles, and anti-satellite and missile defense capabilities.255

In light of the growing threats, Trump's MDR announced efforts to explore advanced technologies, such as space-based sensors, high-energy lasers and space-based interceptors for ICBM boost-phase attack, and capabilities to neutralize missile threats "left of launch" (that is, prior to launch).<sup>256</sup> It also announced plans to add 20 additional GBIs to the GMD by 2023,<sup>257</sup> although MDA later

<sup>&</sup>lt;sup>252</sup> U.S. Department of Defense, "Layering Homeland Missile Defense," op. cit., p. 1; *Missile Defense Review: Executive Summary*, 2019, op. cit., p. VII.

<sup>&</sup>lt;sup>253</sup> Missile Defense Review: Executive Summary, 2019, op. cit., p. III.

<sup>&</sup>lt;sup>254</sup> Missile Defense Review: Executive Summary, 2019, op. cit., p. IV.

<sup>&</sup>lt;sup>255</sup> Missile Defense Review: Executive Summary, 2019, op. cit., pp. II, IV.

<sup>&</sup>lt;sup>256</sup> Missile Defense Review: Executive Summary, 2019, op. cit., pp. VII, XIV, 1; Arms Control Association, "Current U.S. Missile Defense Programs at a Glance," last reviewed August 2019, available at

https://www.armscontrol.org/factsheets/usmissiledefense; Roberts, "Fit for Purpose?" op. cit., p. 81.

<sup>&</sup>lt;sup>257</sup> Missile Defense Review: Executive Summary, 2019, op. cit., p. XI.

announced a delay in this plan.<sup>258</sup> The 2019 MDR also announced the intent to explore using the SM-3 Block IIA interceptor, a regional interceptor used in Aegis systems, as a backup to homeland defense GBIs for protecting the homeland against ICBM threats.<sup>259</sup> During Trump's Administration, the United States achieved some significant missile defense milestones, including the GMD's first successful intercept test against an ICBM-class target (May 2017),<sup>260</sup> and the GMD's first successful intercept test against more than one target (March 2019).<sup>261</sup>

Trump's NPR, which was published a year prior to the MDR, outlined the strategic threat environment, underscoring that the United States faced "an international security situation that is more complex and demanding than any since the end of the Cold War."<sup>262</sup> It noted in particular "the return of Great Power competition" between the United States, China, and Russia, China's and Russia's nuclear and conventional weapons buildup, and their overall aggressive behavior and defying of international

Freedberg, Jr., "GMD Missile Defense Hits ICBM Target, Finally," *Breaking Defense*, May 30, 2017, available at

<sup>&</sup>lt;sup>258</sup> Kingston Reif, "National Missile Defense Set Back," Arms Control Association, July/August 2019, available at

https://www.armscontrol.org/act/2019-07/news/national-missile-defense-set-back.

<sup>&</sup>lt;sup>259</sup> Missile Defense Review: Executive Summary, 2019, op. cit., p. XIII; Arms Control Association, "Current U.S. Missile Defense Programs at a Glance," op. cit.

<sup>&</sup>lt;sup>260</sup> Arms Control Association, "Current U.S. Missile Defense Programs at a Glance," op. cit.; Reif, "National Missile Defense Set Back," op. cit. See also Sydney J.

https://breakingdefense.com/2017/05/missile-defense-hits-icbm-target-success-rate-now-50/.

<sup>&</sup>lt;sup>261</sup> Reif, "National Missile Defense Set Back," op. cit.; Sarah Mineiro, "Next Generation Defense Strategy: Missile Defense," Center for New American Security, November 16, 2020, available at

https://www.cnas.org/publications/commentary/next-generation-defensestrategy-missile-defense.

<sup>&</sup>lt;sup>262</sup> U.S. Department of Defense, *Nuclear Posture Review*, 2018, p. I, available at https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

59

norms.<sup>263</sup> Against this backdrop, the NPR pledged to modernize U.S. nuclear forces to strengthen the credibility of U.S. deterrence.<sup>264</sup> Recognizing the need to strengthen the U.S. ability not only to deter threats but also to assure allies and to "hedge against future uncertainty," the NPR called for "a flexible, tailored nuclear deterrent strategy" and the development of diverse nuclear capabilities to support tailored deterrence.<sup>265</sup> Trump therefore not only continued the nuclear modernization efforts initiated at the end of the Obama Administration but also the development of a low-yield SLBM warhead (W76-2), and a nuclear sea-launched cruise missile (SLCM-N).<sup>266</sup>

When Joe Biden defeated Trump's re-election bid for president in 2021, he quickly reverted to a more restrained missile defense stance. Although President Biden continued elements of President Trump's hardline stance on China, he reinstated the explicit mention of "strategic stability" in national-level security strategies after its hiatus under Trump. In fact, President Biden's National Defense Strategy (NDS) and NPR, published concurrently with his MDR in 2022, framed strategic stability as a keystone of national security, and although neither document specifically defined strategic stability, the context of the term's use reflected a legacy understanding of the term as a set of conditions between the United States and great power, nuclear-armed adversaries (China and Russia) that will prevent nuclear escalation and enable predictable, nonescalatory management of crises. Biden's NDS prominently featured China as the U.S. "pacing challenge" and aimed to prevent China's "dominance of key regions while

<sup>&</sup>lt;sup>263</sup> Ibid., pp. 2, 3, 6-7.

<sup>&</sup>lt;sup>264</sup> Ibid., p. I.

<sup>&</sup>lt;sup>265</sup> Ibid., pp. I-II, 34, 42, 50.

<sup>&</sup>lt;sup>266</sup> Matthew R. Costlow, Vulnerability is No Virtue and Defense is No Vice: The Strategic Benefits of Expanded U.S. Homeland Missile Defense, Occasional Paper, September 2022 (Fairfax, VA: National Institute Press, 2022), pp. x, 8–9, available at https://nipp.org/wp-content/uploads/2022/09/OP-Vol.-2-No.-9.pdf.

protecting the U.S. homeland and reinforcing a stable and open international environment" and "to dissuade the PRC from considering aggression as a viable means of advancing goals that threaten vital U.S. national interests."267 In describing the current security environment, the NDS noted that "[t]he United States and its allies and partners will increasingly face the challenge of deterring two major powers with modern and diverse nuclear capabilities - the PRC and Russia-creating new stresses on strategic stability."268 However, despite recognizing this novel deterrence challenge, Biden's NPR returned to Obama's aim of reducing the role of nuclear weapons in national strategy.<sup>269</sup> While it recognized the continued relevance of nuclear weapons for deterrence and assurance, it eliminated "hedge against an uncertain future" as a role for nuclear weapons.<sup>270</sup> Instead, the NPR announced a plan to mitigate the risks associated with unexpected challenges by developing a flexible and balanced stockpile and by making the nuclear weapons production and science and technology enterprise more adaptive and resilient (although these are long-term rather than near-term goals).<sup>271</sup> Similar to Obama's NPR, it made a "sole purpose" declaratory policy a future goal but refrained from adopting it.<sup>272</sup> Pursuant to this aim and in line with reducing the role of nuclear weapons in national strategy, the NPR also

<sup>&</sup>lt;sup>267</sup> 2022 National Defense Strategy, op. cit., pp. 1, 2.

<sup>&</sup>lt;sup>268</sup> Ibid., p. 4.

<sup>&</sup>lt;sup>269</sup> Gerson, "The Origins of Strategic Stability," op. cit., pp. 13, 26; U.S. Department of Defense, 2022 *Nuclear Posture Review*, op. cit., p. 7.

<sup>&</sup>lt;sup>270</sup> 2022 Nuclear Posture Review, op. cit., p. 1, 3.

<sup>&</sup>lt;sup>271</sup> Susan Koch, "2022 Nuclear Posture Review: Ideology Meets Reality," in *Expert Commentary on the 2022 Nuclear Posture Review, Occasional Paper*, Vol. 3, No. 3 (Fairfax, VA: National Institute Press, March 2023), p. 54–55, available at https://www.nipp.org/wp-content/uploads/2023/02/Web-Cover-OP-Vol-3-No3.pdf; 2022 Nuclear Posture Review, op. cit., pp. 7, 23–24.

<sup>&</sup>lt;sup>272</sup> 2022 Nuclear Posture Review, op. cit., p. 9.

retired the B83-1 gravity bomb and canceled the SLCM-N, judging that the W76-2 can deter in place of the SLCM-N.<sup>273</sup>

Rather, to strengthen strategic stability with China and Russia, the NPR sought an approach that balanced deterrence with arms control, nonproliferation, and risk reduction measures.<sup>274</sup> In this vein, it announced its intent to pursue efforts in these areas to strengthen strategic stability with China and Russia, saying, "We are placing renewed emphasis on arms control, nuclear nonproliferation, and risk reduction. These policies complement U.S. nuclear policy and force structure decisions and enable us to pursue opportunities to reduce the role of nuclear weapons globally, enhance strategic stability with the PRC and Russia, and reduce the risks of war or escalation during war. In particular, limitations on and greater transparency into adversary nuclear and possibly non-nuclear strategic capabilities through arms control is central to any approach to reduce the role of nuclear weapons."275 The NPR acknowledged that, because arms control requires "reliable partners prepared to engage responsibly and on the basis of reciprocity," near-term progress on negotiations with either Russia or China was unlikely; however, it noted that the Administration would "prepare for engagement and realistic outcomes in dialogues with both [PRC and Russian] governments."276 It hedged on China by stating that considerations of China's nuclear force posture would take a backseat to Russia in U.S. policy priorities: "Russia will remain a focus of U.S. efforts given the size, diversity, and continuing modernization of its nuclear arsenal."277 Regarding the

<sup>&</sup>lt;sup>273</sup> Ibid., p. 3.

<sup>274</sup> Ibid., pp. 1, 16.

<sup>&</sup>lt;sup>275</sup> Loc. cit.

<sup>&</sup>lt;sup>276</sup> 2022 Nuclear Posture Review, op. cit., pp. 1, 16-17.

<sup>&</sup>lt;sup>277</sup> 2022 Nuclear Posture Review, op. cit., p. 16; Koch, "2022 Nuclear Posture Review: Ideology Meets Reality," op. cit. pp. 60–61.

potential nuclear challenges posed by Beijing, the NPR simply noted that "we will need to account for the PRC's nuclear expansion in future U.S.-Russia arms control discussions"<sup>278</sup> and held out an open invitation to China for engagements at some unspecified time in the future, saying, "[a]though the PRC has been reluctant to discuss these items, the United States remains ready to engage the PRC on a full range of strategic issues....[and] remains prepared to meet with the PRC in bilateral and multilateral fora."279 In June 2023, Biden's national security advisor announced the Administration's intent to work to bring China into arms control talks, indicating that the Administration was now placing higher priority on engaging China on arms control.<sup>280</sup> Unfortunately, the Administration was not able to engage China meaningfully on arms control before the end of President Biden's term. In November 2023, U.S. and Chinese officials met in Washington to discuss arms control, but the engagement produced no outcomes of substance.281 President Biden and President Xi Jinping held a summit in San Francisco a few days after this meeting and agreed to reopen military-to-military communication channels, but they did not specifically discuss arms control.282 Biden and Xi had their final meeting in November 2024 and agreed in discussion that humans rather than artificial intelligence

<sup>&</sup>lt;sup>278</sup> 2022 Nuclear Posture Review, op. cit., p. 16; Koch, "2022 Nuclear Posture Review: Ideology Meets Reality," op. cit., pp. 60–61.

<sup>&</sup>lt;sup>279</sup> 2022 Nuclear Posture Review, op. cit., p. 17.

<sup>&</sup>lt;sup>280</sup> Julian E. Barnes and David E. Sanger, "U.S. Will Try to Bring China Into Arms Control Talks," *New York Times*, June 2, 2023, available at

https://www.nytimes.com/2023/06/02/us/politics/china-arms-controlnuclear-weapons.html.

<sup>&</sup>lt;sup>281</sup> Chelsey Wiley and William Alberque, "Meagre results from the U.S.-China meeting on arms control," International Institute for Strategic Studies, November 21, 2023, available at https://www.iiss.org/online-analysis/missile-dialogueinitiative/2023/10/meagre-results-from-the-us-china-meeting-on-arms-control/.

<sup>&</sup>lt;sup>282</sup> Peter Nicholas and Megan Lebowitz, "Biden says 'real progress' was made after meeting China's Xi Jinping," *NBC News*, November 15, 2023, available at https://www.nbcnews.com/politics/joe-biden/biden-chinas-xi-jinping-meeteffort-smooth-tensions-rcna124924.

should continue to exercise decision control over nuclear weapons, but no arms-related outcomes came of the interaction.<sup>283</sup>

President Biden's MDR also continued the U.S. legacy policy of relying on strategic deterrence to deter a largescale, intercontinental-range nuclear missile attack from China or Russia.<sup>284</sup> It noted that the value of homeland missile defense was to "raise the threshold for nuclear conflict by denying an aggressor the ability to execute small-scale coercive nuclear attacks or demonstrations" 285 but went on to note that, "[t]hough the United States maintains the right to defend itself against attacks from any source, GMD is neither intended for, nor capable of, defeating the large and sophisticated ICBM, air-, or sealaunched ballistic missile threats from Russia and the PRC. The United States relies on strategic deterrence to address those threats."286 Significantly, in contrast to the 2010 and 2018 MDRs, the 2022 MDR also notably omitted an explicit refusal to accept negotiated limits to U.S. ballistic missile defenses (refusals the 2010 and 2018 MDRs included).287 Instead, in apparent deference to U.S. strategic stability thinking, the MDR recognized "the interrelationship between strategic offensive arms and strategic defensive systems," and contended that "[s]trengthening mutual transparency and predictability with regard to these systems could help reduce the risk of conflict."288 In terms

<sup>&</sup>lt;sup>283</sup> Jarrett Renshaw and Trevor Hunnicutt, "Biden, Xi agree that humans, no AI, should control nuclear arms," *Reuters*, November 16, 2024, available at

https://www.reuters.com/world/biden-xi-agreed-that-humans-not-ai-should-control-nuclear-weapons-white-house-2024-11-16/.

<sup>&</sup>lt;sup>284</sup> 2022 Missile Defense Review, op. cit., pp. 1, 5, 6.

<sup>&</sup>lt;sup>285</sup> Ibid., p. 6.

<sup>&</sup>lt;sup>286</sup> 2022 Missile Defense Review, op. cit., p. 6; Thomas Karako, The 2022 Missile Defense Review: Still Seeking Alignment, Center for Strategic and International Studies, October 27, 2022, available at https://www.csis.org/analysis/2022missile-defense-review-still-seeking-alignment.

<sup>&</sup>lt;sup>287</sup> Karako, The 2022 Missile Defense Review: Still Seeking Alignment, op. cit.

<sup>&</sup>lt;sup>288</sup> 2022 Missile Defense Review, op. cit., p. 6.

of strengthening homeland missile defenses, the MDR committed to developing the Next-Generation Interceptor (NGI) "to augment and potentially replace" the GBI.289 The FY 2024 NDAA, which President Biden signed on December 22, 2023, reiterated the traditional U.S. policy of relying on strategic deterrence alone to address the threat of long-range missile attack from Russia of China, saying, "It is the policy of the United States -(1) to research, develop, test, procure, deploy, and sustain, with funding subject to the annual authorization of appropriations for National Missile Defense, systems that provide effective, layered missile defense capabilities to defeat increasingly complex missile threats in all phases of flight; and (2) to rely on nuclear deterrence to address more sophisticated and larger quantity near-peer intercontinental missile threats to the homeland of the United States."290

In reviewing the history of U.S. missile defense policy from the 1960s to the present day, it is apparent that the belief that deliberate vulnerability creates conditions for strategic stability – and that homeland missile defenses are relationships destabilizing to between strategic adversaries – has had a restraining effect on missile defense development. This is especially true of homeland missile defense systems, which overall have enjoyed far less robust political support than regional defenses. Although several U.S. presidents have pursued improvements to NMD, U.S. leaders have, thus far, been unable to reconcile legacy strategic stability thinking in U.S. policy with anything

<sup>290</sup> U.S. Congress, "National Defense Authorization Act for Fiscal Year 2024," 118th Cong., 1st sess., December 22, 2023, p. 468, available at

https://www.congress.gov/118/bills/hr2670/BILLS-118hr2670enr.pdf; Joseph Biden, "Statement from President Joe Biden on H.R. 2670, National Defense Authorization Act for Fiscal Year 2024," The White House, December 22, 2023, available at https://www.whitehouse.gov/briefing-room/statements-releases/2023/12/22/statement-from-president-joe-biden-on-h-r-2670-national-defense-authorization-act-for-fiscal-year-2024/.

<sup>&</sup>lt;sup>289</sup> Loc. cit.

other than a modest homeland missile defense posture.291 Ambitions have varied, peaking with President Reagan's SDI, which envisioned potentially several thousand interceptors across land and space, as the most enterprising to date.<sup>292</sup> President George H.W. Bush's GPALS aimed for 1,000 space-based and 750 ground-based interceptors, and President Clinton's NMD concept at one time envisioned up to 250 ground-based interceptors.<sup>293</sup> The current GMD system, now over 20 years old, has 44 interceptors, although MDA is currently pursuing acquisition of 20 NGIs.294 Overall, the GMD system remains grounded in the original technological design from the 1990s and could, as one expert noted, be described as an "advanced prototype." 295 perceptions, While changing threat financial considerations, and technical difficulties have also been significant factors, policy inconsistency and timidity have been, and remain, the notable obstacle to advances in U.S. homeland missile defenses. New technological concepts are waiting to be exploited, but such efforts will be hamstrung from inception as long as U.S. policy remains beholden to Cold War notions of strategic stability.

Obsolete," Heritage Foundation, March 23, 2023, available at https://www.heritage.org/missile-

<sup>&</sup>lt;sup>291</sup> Karako and Williams, Missile Defense 2020, op. cit., p. 16.

<sup>&</sup>lt;sup>292</sup> Karako and Williams, *Missile Defense* 2020, op. cit., p. XVIII; Patty-Jane Geller, "40 Years After Reagan, Neglected U.S. Missile Defense is Dangerously

defense/commentary/40-years-after-reagan-neglected-us-missile-defensedangerously-obsolete.

<sup>&</sup>lt;sup>293</sup> Karako and Williams, Missile Defense 2020, op. cit., pp. XVIII, 16-17.

<sup>&</sup>lt;sup>294</sup> Lee Ferran, "Next Generation Interceptor selection coming this month, MDA chief says," *Breaking Defense*, April 12, 2024, available at

https://breakingdefense.com/2024/04/next-generation-interceptor-selection-coming-this-month-mda-chief-says/.

<sup>&</sup>lt;sup>295</sup> Karako and Williams, *Missile Defense* 2020, op. cit., p. XX; Center for Strategic and International Studies, "Ground-based Midcourse Defense (GMD) System," op. cit.

## Looking Ahead: Options for the Future

China's growing nuclear arsenal has thrown into sharp relief the U.S. homeland's vulnerability and susceptibility to nuclear coercion – a situation that creates instability in the U.S.-Sino relationship and between the United States and its allies who rely on U.S. extended deterrence for their own protection. Yet, there remains ongoing tension in Washington between two broad perspectives: one of continuing to follow the traditional U.S. policy of limiting homeland missile defenses to incentivize China's restraint in both arms buildup and aggression, and one advocating to pursue stronger missile defense capabilities, with an accompanying change in U.S. policy, with the aim of providing a measure of defense against the heightening nuclear coercion risk from China. The first perspective has clearly not produced the desired results. The second perspective is therefore worthy of strong consideration.

Even though Washington has started to move slowly to free the policy reins on missile defenses with President Trump's "Iron Dome for America" executive order, it has vet to update the theoretical underpinnings for U.S. BMD policy, which are still premised on vulnerability vis-à-vis China and Russia.<sup>296</sup> U.S. policy is unlikely to change until this assumption is addressed. To update U.S. policy, policymakers and strategists first need to embrace the notion that missile defenses are stabilizing and can bring stability to the U.S.-Sino relationship. More specifically, there are five key interconnected ways effective U.S. NMD can contribute to stability in great power politics: protecting the U.S. population, enabling U.S. leaders to deter and resist coercion, providing time for deliberation for U.S. decisionmaking in a crisis, assuring U.S. allies, and limiting damage in case deterrence fails.

<sup>&</sup>lt;sup>296</sup> Roberts, "Taking Stock," op. cit., p. 29.

Homeland missile defenses are an essential ingredient for fulfilling U.S. leaders' most important role: protecting the U.S. population.<sup>297</sup> A commitment to developing and deploying an effective missile defense system covering the U.S. homeland, coupled with a clear missile defense policy of defending the homeland against great power adversaries, would communicate to Beijing and Moscow that the United States is prepared to protect its people and that any plans to attack the United States would be unlikely to succeed or to accrue any operational advantage. This knowledge would serve to degrade the value of nuclear missiles in Beijing's plans and ambitions and would undermine the CCP's calculus in achieving any meaningful advantage through an attack. Of course, effective missile defenses would also offer protection to the U.S. population from unauthorized or accidental launches, which are an increasing risk as missile technology proliferates.<sup>298</sup> U.S. leaders have long seen the value in missile defenses as a means to protect against these risks, and with China's intercontinental-range missile arsenal growing and U.S.-Sino tensions rising, it is only logical to seek U.S. homeland defenses capable of providing a hedge against unauthorized or accidental launches in addition to intentional attacks.299

A closely related stabilizing contribution of homeland missile defenses would be empowering U.S. leaders to deter and resist CCP coercion. Given that dual-capable missiles appear to occupy a central place in China's coercive strategy, missile defenses can play a crucial role in

<sup>&</sup>lt;sup>297</sup> Frederic Labarre, "Is Missile Defence Moral?" *International Journal* 60, no. 2 (2005): 553–73, p. 570, available at https://doi.org/10.2307/40204311.

<sup>&</sup>lt;sup>298</sup> Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 5; Dodge, Alliance Politics in a Multipolar World, op. cit., pp. 38–39; Labarre, "Is Missile Defence Moral?" op. cit., p. 562.

<sup>&</sup>lt;sup>299</sup> Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 5; Labarre, "Is Missile Defence Moral?" op. cit., p. 562.

undermining CCP confidence in its coercive power<sup>300</sup> and effectively dissuade China from attempting to deter the United States or its allies from pursuing their interests.<sup>301</sup> Missile defenses can also complicate PRC calculations by raising the level of attack required to overcome defenses, requiring Chinese planners to expend more of the PRC arsenal in an initial attack and leaving fewer missiles for deterring a counterstrike.<sup>302</sup> Such a prospect would increase the potential cost-in military, political, and economic terms – of any PRC plans to attack the United States, U.S. forces, or U.S. allies, and is therefore likely to introduce caution into CCP decision-making.303 Even a degree of protection could undermine CCP confidence in leveling coercive threats against the United States, including threats of limited nuclear escalation.<sup>304</sup> In this way, a strong U.S. missile defense policy and architecture would send a powerful deterrent message to the CCP, strengthening the impression that U.S. leaders have the political will to defend their people and allies.<sup>305</sup>

In addition, missile defenses would strengthen deterrence by contributing to crisis stability; that is, in providing a measure of protection for U.S. people and assets, they would buy precious time in a crisis for U.S. decision-makers to assess the situation and make measured

<sup>&</sup>lt;sup>300</sup> Costlow, *Vulnerability is No Virtue*, op. cit., p. 25; Robert Joseph, "U.S. must field space-based kill capabilities to deter enemies," *The Washington Times*, February 20, 2023, available at

https://www.washingtontimes.com/news/2023/feb/20/us-must-field-space-based-kill-capabilities-to-det/.

<sup>&</sup>lt;sup>301</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 59; Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 7.

<sup>&</sup>lt;sup>302</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 52–53; Roberts, "Extended Deterrence," op. cit., p. 11.

<sup>&</sup>lt;sup>303</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., pp. 52–53; Costlow, *Vulnerability is No Virtue*, op. cit., p. xii.

<sup>&</sup>lt;sup>304</sup> Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 6; Costlow, *Vulnerability is No Virtue*, op. cit., pp. xii, 25, 38.

<sup>&</sup>lt;sup>305</sup> Costlow, Vulnerability is No Virtue, op. cit., p. xiv.

responses.306 This is a lesson drawn from theater missile defenses. Theater missile defenses protect regional U.S. and allied forces and allow operational flexibility by making U.S. commanders relatively confident that their troops are protected.<sup>307</sup> By the same principle, missile defense protection of the U.S. homeland could increase the spectrum of options available to U.S. leaders and, coupled with providing time for deliberation, could also relax any pressure to make rushed or rash decisions, such as the impulse to strike first.<sup>308</sup> One can imagine the stress U.S. leaders would come under during the threat of a PRC missile strike. In January 2018, the Hawaii Emergency Management Agency mistakenly sent an alert to cellphones all across Hawaii announcing that a missile strike was imminent.<sup>309</sup> At the time, tensions were unusually high between Washington and Pyongyang, making a missile alert appear credible.<sup>310</sup> Although the warning ended up being a false alarm, it threw the Hawaiian population into panic and caused a great deal of confusion for citizens and leaders alike.<sup>311</sup> This experience illustrates the coercive potential of missile threats to the homeland-threats that would be even more alarming coming from a powerful rival such as China – and points to the real possibility of nuclear escalation, intended or unintended. Having reliable homeland missile defenses against China would therefore communicate to Beijing that U.S. leaders are prepared to bear a certain level of risk in a crisis or conflict and that they

<sup>&</sup>lt;sup>306</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 52.

<sup>&</sup>lt;sup>307</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 53; Roberts, "Extended Deterrence," op. cit. p. 11.

<sup>&</sup>lt;sup>308</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., pp. 52, 53; Costlow, *Vulnerability is No Virtue*, op. cit., pp. xiv, xv, 37–38.

<sup>&</sup>lt;sup>309</sup> Adam Nagourney, David E. Sanger, and Johanna Barr, "Hawaii Panics After Alert About Incoming Missile Is Sent in Error," *New York Times*, January 13, 2018, available at https://www.nytimes.com/2018/01/13/us/hawaii-missile.html.
<sup>310</sup> Loc. cit.

<sup>&</sup>lt;sup>311</sup> Loc. cit.

will not be pressured into reactive or risk-avoidant decisions.<sup>312</sup> This could have a valuable deterrent effect on Beijing and bring stability to potential crisis situations.<sup>313</sup>

A fourth key contribution of effective U.S. homeland missile defense to stability is its role in assuring U.S. allies. The United States has unique responsibilities as the leader of a powerful network of allies in both the Pacific and Atlantic regions. This role entails special obligations for protecting allies through extended deterrence and basing U.S. troops abroad. Such obligations would benefit from strong missile defenses. Homeland BMD would reinforce the credibility of U.S. extended deterrence by allaying concern in the minds of allies about potential U.S. abandonment.<sup>314</sup> If both the U.S. homeland and U.S. forces are protected, U.S. allies can be confident that the United States will not be forced to choose between defending itself or its allies.<sup>315</sup> This assurance in turn would support U.S.allied unity of resolve and action in the Indo-Pacific and weaken any attempts by Beijing to divide Washington from Tokyo, Seoul, Canberra, or any of the NATO allies. Conversely, pursuing a state of "mutual vulnerability," or continuing to rely solely on strategic deterrence to address missile threats from China, might introduce caution into U.S. decision-making and prompt U.S. leaders to make decisions to minimize risk, even in cases of very limited escalation.<sup>316</sup> If allies suspect that Washington will be successfully deterred from coming to the aid of its allies,

<sup>&</sup>lt;sup>312</sup> Caitlin Talmadge, "China and Nuclear Weapons," *Global China: Assessing China's Growing Role in the World*, September 2019, p. 2, available at https://www.brookings.edu/wp-

content/uploads/2019/09/FP\_20190930\_china\_nuclear\_weapons\_talmadge-1.pdf.

<sup>&</sup>lt;sup>313</sup> Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 6; Costlow, *Vulnerability is No Virtue*, op. cit., p. 65.

<sup>&</sup>lt;sup>314</sup> Roberts, "Extended Deterrence," op. cit., p. 11.

<sup>&</sup>lt;sup>315</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 55.

<sup>&</sup>lt;sup>316</sup> Zhao, "U.S.-China Strategic Stability and the Impact of Japan," op. cit.

those allies might choose to take matters into their own hands, either conciliating China on one end of the spectrum, or pursuing their own nuclear arsenals on the other.<sup>317</sup> Either prospect is bound to destabilize the Indo-Pacific and have reverberating impacts across the globe. On the other hand, a protected homeland would strengthen the assurance of U.S. allies (and the conviction of adversaries) that the United States will fully and faithfully defend its allies. In this way, contrary to CCP propaganda that alleges that a secure United States diminishes the security of other nations by undermining "global strategic stability,"<sup>318</sup> a defended United States reinforces the security of other nations – U.S. allies and partners.

Finally, effective homeland missile defenses could limit damage in case deterrence fails, minimizing harm to the American people and infrastructure.<sup>319</sup> The current U.S. missile defense system, the GMD, is not capable of, or designed to, defend against a large attack from China or Russia.<sup>320</sup> Given the trajectory of U.S. relations with both China and Russia, increasing tensions in the Pacific, and China's expanding nuclear and missile capabilities, there are conceivable situations in which adversaries could calculate (or miscalculate) the necessity of a strike. Although one hopes to never see the day that deterrence fails, it would be prudent in the current threat landscape to make plans to minimize damage–plans which could, in

<sup>318</sup> As an example, Ministry of Foreign Affairs of the People's Republic of China, "Maintaining Global Strategic Stability, Reducing Risks of Nuclear Conflicts – Statement by H.E. Mr. Fu Cong, Director-General of the Department of Arms Control of MFA at the 16th PIIC Beijing Seminar on International Security," October 16, 2019, previously available at

<sup>&</sup>lt;sup>317</sup> Payne, *Gamble*, op. cit., pp. 383–384; Dodge, *Alliance Politics in a Multipolar World*, op. cit., pp. 33–34, 65–66, 83–84.

https://www.fmprc.gov.cn/mfa\_eng/gjhdq\_665435/3376\_665447/3432\_664920/3435\_664926/201910/t20191016\_590827.html.

<sup>&</sup>lt;sup>319</sup> Karako, "Missile Defense and the Nuclear Posture Review," op. cit., p. 56; Costlow, *Vulnerability is No Virtue*, op. cit., pp. xiii–xiv.

<sup>&</sup>lt;sup>320</sup> Obering, personal interview, op. cit.

turn, dissuade China from striking in the first place. The historical record shows that deterrence can fail, despite the level of retaliation threatened; therefore, some degree of damage limitation is simply prudent.<sup>321</sup>

Some suggest that deploying U.S. missile defenses oriented to China may cause Beijing to doubt the survivability of its nuclear deterrent and feel pressured to strike first while it still has the ability.322 As a point of reason, this is illogical: it assumes that China would, out of fear of nuclear destruction, start a war that would almost guarantee its nuclear destruction.<sup>323</sup> However, Beijing could plausibly seek to strike the United States first if it perceived some advantage in doing so; but in this case, U.S. national defenses could deny Beijing such an advantage.324 Yet, as a matter of historical fact, China has been under a nuclear asymmetry with the United States for decades, including during times of tension with the United States, and without resorting to a first strike.<sup>325</sup> While this does not guarantee that Beijing will make the same calculation in the future, it does suggest an ability of Chinese leaders to tolerate this type of risk. In addition, the first-strike logic can just as easily work in the other direction: Given its smaller arsenal, coupled with the numerous demands upon it (of deterring, coercing, and potentially fighting multiple adversaries), Beijing is likely to be more cautious in its strike calculations.<sup>326</sup> In a crisis, knowing that its expended arsenal might be absorbed by U.S. missile defenses and that an attack would most certainly invite a devastating U.S.

<sup>&</sup>lt;sup>321</sup> Keith B. Payne and David J. Trachtenberg, "Deterrence in the Emerging Threat Environment: What is Different and Why it Matters," *Occasional Paper*, Vol. 2, No. 8 (Fairfax, VA: National Institute Press, August 2022), pp. 7–12, available at https://www.nipp.org/wp-content/uploads/2022/08/OP-Vol.-2-No.-8.pdf.

<sup>&</sup>lt;sup>322</sup> Cunningham and Fravel, "Assuring Assured Retaliation," op. cit., pp. 38–39.

<sup>&</sup>lt;sup>323</sup> Payne, personal interview, op. cit.

<sup>&</sup>lt;sup>324</sup> Loc. cit.

<sup>&</sup>lt;sup>325</sup> Costlow, Vulnerability is No Virtue, op. cit., pp. xvi, 50.

<sup>&</sup>lt;sup>326</sup> Payne, "Deterrence Via Mutual Vulnerability?" op. cit., pp. 5-6.

response, Beijing would likely be motivated to explore other remedies, such as diplomatic settlements.<sup>327</sup>

All of these five major benefits of effective U.S. homeland missile defenses-protecting U.S. and allied populations, enabling U.S. decision-makers to resist PRC coercion and to effectively manage crisis situations, bolstering allied assurance, and limiting damage if deterrence fails – would contribute to stability between the United States and China by disincentivizing China from wielding its arsenal coercively and thus checking its willingness to use force to advance its revanchist goals.<sup>328</sup> Given these benefits, it would behoove the United States to adopt a declaratory policy of defending the homeland in some measure against the PRC long-range missile threat. This would require, naturally, that Washington move away from thinking of NMD simply as a hedge against adversarial irrationality, a notion that underlies the current U.S. policy of defending only against rogues. Policymakers must recognize that not only rogue states but also China or Russia could make "irrational," unexpected calculations that could threaten the homeland.<sup>329</sup> In addition, the United States needs to entertain the possibility that China could, potentially, deliberately and rationally choose to threaten U.S. territory in the confidence that U.S. leaders will be so risk-averse that they will quickly back down in an effort to avoid open confrontation and conflict. Indeed, it is likely that China will gamble on the expectation that an overstretched, domestically riven United States caught off guard will lack the political will to abide by its commitments or resist coercion, particularly in a regional context.330 That is why layering defensive capabilities on top of offensive retaliatory capabilities and threats-undergirding U.S.

<sup>&</sup>lt;sup>327</sup> Loc. cit.

<sup>328</sup> Payne, personal interview, op. cit.

<sup>&</sup>lt;sup>329</sup> Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>330</sup> Mazarr, "Understanding Deterrence," op. cit., pp. 9-10.

deterrence by punishment with deterrence by denial – would help the United States retain the advantage, especially in conflicts in regions beyond U.S. territory.<sup>331</sup>

It is time, therefore, to resolve the bifurcated policy of defending against lesser "irrational" threats but not greater strategic adversaries. The next MDR should be clear that U.S. NMD capable of defending against near peers such as China is an essential ingredient of a layered strategy to protect the U.S. population from attack, deter coercion, assure allies of U.S. deterrence commitments, and limit damage in case deterrence fails. Congress should do its part to support this policy shift by updating the amended language of the Missile Defense Act to reflect its support of capabilities for defending against all types of adversaries. These policy changes are important not only as strategic signaling to both adversaries and allies, but are absolutely essential to encouraging the scientific and technological innovation<sup>332</sup> and acquisition support<sup>333</sup> needed to upgrade U.S. missile defense capabilities.

There are some significant hopeful signs that many Washington strategists and policy advisors are seeing the need for such a policy shift. In October 2023, the Institute for Defense Analyses (IDA) released *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States*. Congress established this bipartisan commission in the FY 2022 NDAA "to examine and make recommendations to the President and Congress with respect to the long-term strategic posture of the United States."<sup>334</sup> The Commission's final report unequivocally underscored the urgency of the strategic

<sup>&</sup>lt;sup>331</sup> Ibid., p. 10.

<sup>&</sup>lt;sup>332</sup> Joseph, personal interview, op. cit.

<sup>&</sup>lt;sup>333</sup> Payne, personal interview, op. cit.

<sup>&</sup>lt;sup>334</sup> U.S. Congress, "National Defense Authorization Act for Fiscal Year 2022," 117th Cong., 1st sess., December 27, 2021, p. 586, available at

https://www.congress.gov/117/plaws/publ81/PLAW-117publ81.pdf.

military threat posed to the United States by both China and Russia, saving, "our nation will soon encounter a fundamentally different global setting than it has ever experienced: we will face a world where two nations possess nuclear arsenals on par with our own. In addition, the risk of conflict with these two nuclear peers is increasing. It is an existential challenge for which the United States is ill-prepared, unless its leaders make decisions now to adjust the U.S. strategic posture."335 Furthermore, it urged Congress and the President to assess U.S. strategic requirements in light of "the possibility of combined aggression" from China and Russia, noting in particular that "U.S. strategy should no longer treat China's nuclear forces as a 'lesser included' threat," and that "[t]he United States needs a nuclear posture capable of simultaneously deterring both countries."336 The report's overarching conclusion is that "America's defense strategy and strategic posture must change in order to properly defend its vital interests and improve strategic stability with China and The report then Russia."337 details numerous recommendations for strengthening the U.S. strategic defense posture, including, notably, strengthening homeland missile defense capabilities. This includes reassessing missile defense requirements to account not only for ballistic missile threats, but also cruise and hypersonic missile threats, from any adversary,338 developing and deploying new homeland missile defenses capabilities, including new sensor and interceptor

<sup>&</sup>lt;sup>335</sup> Madelyn R. Creedon and Jon L. Kyl, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Alexandria, VA: The Institute for Defense Analyses, October 2023), p. vii, available at https://www.ida.org/-

<sup>/</sup>media/feature/publications/a/am/americas-strategic-posture/strategic-posture-commission-report.ashx.

<sup>&</sup>lt;sup>336</sup> Ibid., p. viii.

<sup>&</sup>lt;sup>337</sup> Ibid., p. vii.

<sup>&</sup>lt;sup>338</sup> Ibid., p. 72.

capabilities, oriented to Russia's and China's coercive nuclear threats,<sup>339</sup> and conducting research, development, testing, and evaluation of new integrated all-domain missile defense capabilities including sensor architectures and command and control networks.<sup>340</sup> Overall, the report reflects a surprising degree of bipartisan consensus in support of expanding and strengthening U.S. national missile defenses capable of denying China and Russia advantage in wielding coercive threats against the United States and its allies. However, such recommendations still need to be translated into policy to have the intended impact.

Furthermore, achieving objectives along these lines will require much more than adding capacity to the current U.S. NMD system. The GMD is a legacy system designed for an old threat environment and was built to specifications of a narrowly scoped threat (rogue states).<sup>341</sup> This has left the GMD with two critical shortfalls which make it incapable of protecting against larger, sophisticated arsenals: an inadequate intercept capability, and an insufficient sensor architecture.

In terms of interceptor capability, there are several reasons why the GMD, even with upgrades, would be inadequate to address the missile threat from China. One, the GMD currently has only 44 GBIs, each with a single kill vehicle<sup>342</sup> – too few to reliably address a large salvo attack on the homeland.<sup>343</sup> Congress has only episodically funded the addition of new interceptors since the GMD's fielding, but it is questionable whether this has even resulted in a net increase in firepower since the technical reliability problems associated with the aging hardware and software

<sup>&</sup>lt;sup>339</sup> Ibid., p. 72.

<sup>&</sup>lt;sup>340</sup> Ibid., p. 73.

<sup>&</sup>lt;sup>341</sup> Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>342</sup> Geller, "Next-Generation Interceptor Needed in Greater Quantities," op. cit.

<sup>&</sup>lt;sup>343</sup> Geller, "It's Time To Get Homeland Missile Defense Right," op. cit.

architecture demand a higher number of interceptors to keep the system credible.<sup>344</sup> The NGI that is currently under development will be capable of carrying multiple kill vehicles each, augmenting the arsenal's overall kill capability.345 However, even if MDA proceeds with its current plan to acquire and deploy 20 multi-kill NGIs,<sup>346</sup> this would not be sufficient against a large missile attack, particularly as China expands its offensive capabilities over the next several years. Second, the GMD is a ground-based system, lacking the necessary mobility and flexibility needed to address China's growing precision-strike capabilities.<sup>347</sup> Third, the GMD was designed to destroy long-range ballistic missiles in the midcourse, exoatmospheric phase of flight.<sup>348</sup> It is not prepared to intercept cruise missiles, ballistic missiles with shorter ranges, which is an increasingly serious limitation as China's investment in dual-capable shorter-range missiles and diverse delivery systems means it could plausibly hold the U.S. homeland at risk with missiles launched from ships or aircraft<sup>349</sup>-or

<sup>&</sup>lt;sup>344</sup> Karako and Williams, *Missile Defense* 2020, op. cit., pp. XV, XX.

<sup>&</sup>lt;sup>345</sup> Geller, "Next-Generation Interceptor Needed in Greater Quantities," op. cit.; Jen Judson, "Pentagon eyes broader missile defense amid calls for more advanced countermeasures," *Defense News*, August 9, 2022, available at https://www.defensenews.com/pentagon/2022/08/09/pentagon-eyesbroader-missile-defense-amid-calls-for-more-advanced-countermeasures/.

<sup>&</sup>lt;sup>346</sup> Ferran, "Next Generation Interceptor selection coming this month, MDA chief says," op. cit.

<sup>&</sup>lt;sup>347</sup> Thomas Karako, "The Missile Defense Review: Insufficient for Complex and Integrated Attack," *Strategic Studies Quarterly* 13, no. 2 (2019): 3–15, pp. 11–12, available at https://www.jstor.org/stable/26639670.

<sup>&</sup>lt;sup>347</sup> Jon Harper, "Pentagon Examining Options for Space-Based Missile Interceptors," *National Defense* 102, no. 764 (2017): 35–37, p. 1, available at https://www.jstor.org/stable/27021837.

<sup>&</sup>lt;sup>348</sup> Harper, "Pentagon Examining Options for Space-Based Missile Interceptors," op. cit. p. 1.

<sup>&</sup>lt;sup>349</sup> Karako and Williams, *Missile Defense* 2020, op. cit., pp. XIX, XXIX; Patty-Jane Geller, "China's Nuclear Expansion and Its Implications for U.S. Strategy and Security," Heritage Foundation, September 14, 2022, available at

https://www.heritage.org/missile-defense/commentary/chinas-nuclearexpansion-and-its-implications-us-strategy-and-security.

HGVs.<sup>350</sup> But the greater shortcoming is the GMD's inability to intercept long-range missiles in boost phase. The boost phase of flight is the most desirable window for interception because it occurs farther away from the defended area than any other phase of flight and before the missile has had a chance to deploy reentry vehicles and countermeasures, making it easier for defensive missiles to discriminate and to destroy their targets completely.<sup>351</sup> In practical terms however, boost-phase interception is difficult to achieve because the flight phase is very short, between one and five minutes, depending on missile range and fuel type,352 reducing the time available for defense systems to detect and intercept, although some missiles may continue ascent for up to 100 more seconds after booster burnout but before payload deployment, lengthening the potential intercept window.<sup>353</sup> This would require any terrestrial defense systems, such as airborne interceptors, to be geographically close to the launch site, which in turn would make such assets vulnerable to counter-defenses.<sup>354</sup> Space-based interception would overcome the proximity problem but has thus far been deemed too expensive and impractical for defending against limited missile attacks.<sup>355</sup> These reasons, coupled with technical, cost, and schedule problems of

<sup>&</sup>lt;sup>350</sup> Ellison et al., "Without Precedent," op. cit., p. 28.

<sup>&</sup>lt;sup>351</sup> Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," op. cit., pp. 6–7; Harper, "Pentagon Examining Options for Space-Based Missile Interceptors," op. cit., p. 1.

<sup>&</sup>lt;sup>352</sup> National Research Council, Making Sense of Ballistic Missile Defense: An Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives, Washington, D.C.: The National Academies Press, 2012, p. 26, available at https://doi.org/10.17226/13189.

<sup>&</sup>lt;sup>353</sup> National Research Council, *Making Sense of Ballistic Missile Defense*, op. cit. pp. 2, 9.

<sup>&</sup>lt;sup>354</sup> Obering, personal interview, op. cit., follow-up on May 8, 2025; Ian Williams and Masao Dahlgren, *Boost-Phase Missile Defense: Interrogating the Assumptions*, Center for Strategic and International Studies, June 2022, pp. 5, 9, 19, available at https://missilethreat.csis.org/wp-

content/uploads/2022/07/220624\_Williams\_BoostPhase\_MissileDefense.pdf. <sup>355</sup> Ibid., p. 9.

specific boost-phase research projects, have thus far stymied any deployment of U.S. boost-phase missile defenses.<sup>356</sup>

For all these reasons, simply attempting to "update" the GMD to address the emerging threat from China would require building hundreds of new silos and adding hundreds of new ground-based interceptors to the current GMD architecture – an infeasible and prohibitively expensive solution,<sup>357</sup> and one that would still lack the needed capability to destroy the full spectrum of missile threats or to destroy ballistic missiles in boost and ascent phase.<sup>358</sup> While the U.S. government should continue plans to deploy NGIs as a necessary improvement to the current system in the immediate interim, it must consider more comprehensive interceptor capabilities on the level of addressing threats from a near-peer nuclear adversary.

In addition to deficient interceptor capability, the GMD also lacks the sensing capability needed to address missile threats from China. In the current "terrestrially biased" sensor architecture,<sup>359</sup> a set of space-based sensors communicate ICBM launch detection data to ground-based and sea-based radars which then detect and track with precision the trajectory of the incoming missile.<sup>360</sup> However, the gapping between space and terrestrial sensors as well as the lack of global radar coverage by land- and sea-based radars means that adversary HGVs can maneuver in ways that avoid continuous coverage, and cruise missiles flying

<sup>359</sup> Wes Rumbaugh and Tom Karako, *Extending the Horizon: Elevated Sensors for Targeting and Missile Defense*, Center for Strategic and International Studies,

<sup>&</sup>lt;sup>356</sup> Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," op. cit., pp. 6–7.

<sup>&</sup>lt;sup>357</sup> Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>358</sup> Harper, "Pentagon Examining Options for Space-Based Missile Interceptors," op. cit. p. 1; Obering, personal interview, op. cit., follow-up on May 8, 2025.

September 2021, p. 2, available at https://csis-website-prod.s3.amazonaws.com/s3fspublic/publication/210927\_Rumbaugh\_Extending\_Horizon.pdf?VersionId=4A\_Sv5v 1HuR5cghHC1proU6iJ1m2gjx1.

<sup>&</sup>lt;sup>360</sup> Obering, personal interview, op. cit.

at low altitudes can evade detection until close to their targets.<sup>361</sup> Attempting to redress this problem with the GMD alone would require multiplying land-based and seabased radars across the globe, an unaffordable and technically impractical solution.<sup>362</sup> In short, the GMD is not the answer for addressing the threats posed by China to the homeland. A new system is needed altogether.

The only way to provide needed full-spectrum sensor and kill capability up to the challenges of the emerging threat landscape is to develop and deploy capabilities in space.363 Space is the only domain that can support comprehensive, continuous sensor coverage as well as a large array of interceptors that can be readily positioned to quickly destroy adversary missiles in boost phase.364 Fortunately, in terms of space sensor capability, the MDA and Congress are now embracing a broader suite of spacebased sensors to enable detection and tracking of missiles of all kinds – ballistic, non-ballistic, and HGVs – continuously to interception.<sup>365</sup> The MDA, Space from launch Development Agency, and U.S. Space Force are currently collaborating to develop the Hypersonic and Ballistic Tracking Space Sensor (HBTSS), a prototype satellite

<sup>&</sup>lt;sup>361</sup> Obering and Heinrichs, "Missile Defense," op. cit., p. 50; Obering, personal interview, op. cit.; Rumbaugh and Karako, *Extending the Horizon: Elevated Sensors for Targeting and Missile Defense*, op. cit., p. 2; Congressional Research Service,

<sup>&</sup>quot;Hypersonic Missile Defense: Issues for Congress," by Kelley M. Sayler, updated January 24, 2023, p. 1, available at

https://crsreports.congress.gov/product/pdf/IF/IF11623.

<sup>&</sup>lt;sup>362</sup> Obering and Heinrichs, "Missile Defense," op. cit., pp. 49–50.

<sup>&</sup>lt;sup>363</sup> Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>364</sup> Jon Harper, "Special Report: Pentagon Reexamining Space-Based

Interceptors," National Defense, April 22, 2019, available at

https://www.nationaldefensemagazine.org/articles/2019/4/22/special-report-pentagon-reexamining-space-based-interceptors.

<sup>&</sup>lt;sup>365</sup> Obering and Heinrichs, "Missile Defense," op. cit., pp. 47, 49, 50, 51; Costlow, *Vulnerability is No Virtue*, op. cit., pp. 21–22, 68; Thomas Karako, "A Conversation with Vice Admiral Jon Hill," transcript of moderated event, Center for Strategic and International Studies, October 7, 2019, p. 5, available at https://csis-website-prod.s3.amazonaws.com/s3fs-

public/event/191018\_Jon%20Hill%20Transcript.pdf.

constellation in low-earth orbit designed to acquire and transmit target quality fire control data directly to groundbased interceptors.<sup>366</sup> If deployed, this capability would allow U.S. forces to continuously track all types of missile threats and would support the U.S. ability to destroy incoming PRC missiles early in their flight trajectories before they have opportunity to deploy decoys or other countermeasures.<sup>367</sup> On-orbit testing of the system commenced in February 2024 and is scheduled to continue through 2026.368 This is an essential development to keep up with the PRC missile threat, and Congress should be prepared to provide priority oversight and funding to the program to ensure its effective fielding and integration, once successfully tested, into the missile defense architecture as early as practicable.

While this enhanced sensor layer promises to improve the "eyes" of U.S. NMD, the United States also needs a space-based interceptor system to have a truly effective defense against the Chinese missile threat. Although the concept has been studied since the days of SDI, it remains an unrealized innovation, having long lacked necessary Congressional support, not only because it is regarded as destabilizing but also as technically infeasible and

<sup>&</sup>lt;sup>366</sup> Jon Harper, "U.S. Challenged to Defend Against Chinese Missiles," *National Defense*, March 7, 2022, available at

https://www.nationaldefensemagazine.org/articles/2022/3/7/us-challengedto-defend-against-chinese-missiles; Obering and Heinrichs, "Missile Defense," op. cit., pp. 47, 50, 52; Congressional Research Service, "Hypersonic Missile Defense," op. cit., p. 1; Joseph, "U.S. must field space-based kill capabilities to deter enemies," op. cit.; U.S. Missile Defense Agency, "Fact Sheet: Hypersonic and Ballistic Tracking Space Sensor," January 25, 2024, available at https://www.mda.mil/global/documents/pdf/hbtss.pdf.

<sup>&</sup>lt;sup>367</sup> Obering and Heinrichs, "Missile Defense," op. cit., pp. 49–52; Congressional Research Service, "Hypersonic Missile Defense," op. cit. pp. 1–2; Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>368</sup> U.S. Department of Defense, "MDA, SDA Confirm Successful Launch of the Hypersonic and Ballistic Tracking Space Sensor and Tranche 0 Satellites," February 15, 2024, available at

https://www.defense.gov/News/Releases/Release/Article/3677785/mda-sdaconfirm-successful-launch-of-the-hypersonic-and-ballistic-tracking-spac/.

prohibitively costly.369 Yet, space-based interception is, today, the most feasible way to achieve a boost- and ascentphase kill capability against the full spectrum of threats from China and other U.S. adversaries.<sup>370</sup> Current advances and convergences in technology-especially in artificial learning, intelligence and machine peer-to-peer manufacturing, networking, additive and satellite miniaturization-have greatly improved the feasibility of space-based interception.<sup>371</sup> General Trey Obering, former MDA Director, is currently advocating for a concept for a constellation of 2,000 interceptor-armed nano-satellites across multiple orbital planes.<sup>372</sup> While this specific concept remains hypothetical, MDA is already piloting several applicable technologies (although not kill capability) as part of the HBTSS initiative with the launch of four CubeSats (a type of nanosatellite weighing around three pounds) aboard commercial launch vehicles to demonstrate networked radio communications between nanosatellites in orbit.373

<sup>&</sup>lt;sup>369</sup> Harper, "Special Report: Pentagon Reexamining Space-Based Interceptors," op. cit.

<sup>&</sup>lt;sup>370</sup> Joseph, "U.S. must field space-based kill capabilities to deter enemies," op. cit.; Obering and Joseph, "Putin's nuclear threats worked against Biden," op. cit.; Joseph, "U.S. must field space-based kill capabilities to deter enemies," op. cit. <sup>371</sup> Obering, personal interview, op. cit.

<sup>&</sup>lt;sup>372</sup> Obering, personal interview, op. cit., follow-up on May 8, 2025.

<sup>&</sup>lt;sup>373</sup> David Vergun, "Nanosatellites Could Play Pivotal Role in Defense Against Enemy Missiles," U.S. Department of Defense News, July 12, 2021, available at https://www.defense.gov/News/News-

Stories/Article/Article/2685840/nanosatellites-could-play-pivotal-role-indefense-against-enemy-missiles/; Missile Defense Agency, "MDA Deploys Tiny Satellites with Potential Big Impact on Missile Defense Development," MDA News Release, July 12, 2021, available at https://www.mda.mil/news/21news0010.html; *Space Daily*, "MDA Deploys a second set of cubesats in space," June 1, 2022, available at

https://www.spacedaily.com/reports/MDA\_deploys\_a\_second\_set\_of\_cubesat s\_in\_space\_999.html; Missile Defense Agency, "MDA Successfully Deploys a Second Set of CubeSats in Space to Test New Tech, Support HBTSS Development," MDA News Release, May 31, 2022, available at https://www.mda.mil/news/22news0005.html.

In addition to being more and more technically feasible, space-based interception is also becoming more affordable and is likely to continue to become so in the future, thanks largely to private sector investment and innovation in commercial space capabilities as well as U.S. government partnerships with private companies.374 For example, SpaceX and Blue Origin are advancing "fly-back" capability which permits reuse of first-stage rocket boosters.375 The National Aeronautics and Space Administration has teamed with the company Made In Space to pilot additive manufacturing capability in space, and SpaceX, Blue Origin, Planetary Resources, and Deep Space Industries are exploring on-orbit mine and manufacturing capabilities to use space materials, such as asteroid minerals, to create satellite components in orbit.376 There are also both government (the Defense Advanced Research Projects Agency) and private sector efforts underway to develop onorbit satellite servicing vehicles.377 All such efforts, in combination, have the potential to drastically reduce the cost of launching and maintaining space-based systems.378

<sup>&</sup>lt;sup>374</sup> Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," op. cit., pp. 20–21; Obering and Joseph, "Putin's nuclear threats worked against Biden," op. cit.

<sup>&</sup>lt;sup>375</sup> Todd Harrison, Andrew Hunter, Kaitlyn Johnson, Thomas Roberts, Scott Aughenbaugh, Kristen Hajduk, John Schaus, and Jake Stephens, *Implications of Ultra-Low-Cost Access to Space*, Center for Strategic and International Studies, March 2017, p. 5, available at https://csis-website-prod.s3.amazonaws.com/s3fspublic/publication/170316\_Harrison\_UltraLowCostAccess\_Web.pdf?LPQ6EI200 hsZglqXWA8bYrdWflQ4ucPJ; Will Robinson-Smith, "SpaceX launches, lands first stage booster for record-setting 25th time during Starlink flight," *Spaceflight Now*, January 10, 2025, available at

https://spaceflightnow.com/2025/01/10/live-coverage-spacex-to-launch-21-starlink-satellites-on-falcon-9-rocket-from-cape-canaveral-5/.

<sup>&</sup>lt;sup>376</sup> Harrison et al., *Implications of Ultra-Low-Cost Access to Space*, op. cit., pp. 8–9.

<sup>&</sup>lt;sup>377</sup> Harrison et al., *Implications of Ultra-Low-Cost Access to Space*, op. cit., p. 8; Loura Hall, "NASA to Support DARPA Robotic Satellite Servicing Program," National Aeronautics and Space Administration, September 5, 2024, available at https://www.nasa.gov/technology/nasa-to-support-darpa-robotic-satellite-servicing-program/.

<sup>&</sup>lt;sup>378</sup> Ibid., pp. V, 7-9; Denise Chow, "To cheaply go: how falling launch costs fueled a thriving economy in orbit," *NBC News*, April 8, 2022, available at

In fact, the Congressional Budget Office assessed in 2021 that the cost of deploying a space-based kill capability, though still pricey, would be as much as 20%–40% lower over a 20-year period than earlier estimates made in 2004 and 2012 studies.<sup>379</sup>

Given the changing threat environment, lower costs, and increased technical feasibility, Congress should recognize that space-based kill capability's time has come and should authorize and fund a pilot. This does not mean abandoning the GMD - the GMD should be sustained in the meantime given the absence of other homeland defenses and because of the limited protection it provides. However, Congress should give priority to accelerating the development of a space-based interceptor system.<sup>380</sup> Such a capability may not provide an absolute guarantee of total defense (nor need that be the goal), but it would disallow Beijing the confidence that it can achieve its objectives through coercive nuclear threats against the United States, while at the same time allowing the United States to hedge against possible deterrence failure.381

In looking to the future of homeland defenses, another technological concept showing potential for missile defense applications is directed energy (non-kinetic concentrated electromagnetic energy).<sup>382</sup> Directed energy could

https://www.nbcnews.com/science/space/space-launch-costs-growingbusiness-industry-rcna23488.

<sup>&</sup>lt;sup>379</sup> Congressional Budget Office, "Costs of Implementing Recommendations of the 2019 Missile Defense Review," op. cit., pp. 3, 4, 21–22.

<sup>&</sup>lt;sup>380</sup> Jen Judson, "Industry teams move to accelerate work on MDA's next-

generation missile interceptor," Defense News, June 27, 2022, available at

https://www.defensenews.com/pentagon/2022/06/27/industry-teams-move-to-accelerate-work-on-mdas-next-generation-missile-interceptor/.

<sup>&</sup>lt;sup>381</sup> Obering and Joseph, "Putin's nuclear threats worked against Biden," op. cit.; Payne, "Deterrence Via Mutual Vulnerability?" op. cit., p. 5; Costlow, *Vulnerability is No Virtue*, op. cit., pp. 21, 38.

<sup>&</sup>lt;sup>382</sup> Congressional Research Service, "Directed-Energy Weapons," by Kelley M. Sayler, updated November 14, 2022, p. 1, available at

https://crsreports.congress.gov/product/pdf/IF/IF11882.

eventually revolutionize homeland missile defenses both in terms of operational effectiveness and cost in that it could provide an "inexhaustible magazine" for intercepting incoming missiles.<sup>383</sup> Space-based lasers in particular could potentially facilitate destruction of adversary missiles in boost phase anywhere in the world, and as fast as the speed of light.<sup>384</sup> However, this is still a distant goal; much work remains to be done.<sup>385</sup> DoD and other parts of the U.S. government currently fund several directed energy projects in various stages of development, with some already testing capability for slow and small targets such as unmanned aerial vehicles,<sup>386</sup> but lasers effective enough to intercept from space would require a tremendous increase in both the power generation and effective distance of current laser technology.<sup>387</sup> The MDA has identified the diode-pumped alkali laser (DPAL), under development by Lawrence Livermore National Laboratory, as having the greatest promise for boost-phase interception due to its potential for generating megawatt-class power (in contrast to kilowattclass power like other laser types).<sup>388</sup> While the United States should proceed with piloting space-based

<sup>&</sup>lt;sup>383</sup> Obering and Heinrichs, "Missile Defense," op. cit., p. 51; Skinner, "Missile Defense: Past, Present, And Future," op. cit., p. 2; Congressional Research Service,

<sup>&</sup>quot;Directed-Energy Weapons," op. cit. p. 1.

<sup>&</sup>lt;sup>384</sup> Jeff Hecht, "Testing 50 kW lasers in weapon systems," Laser Focus World, November 17, 2021, available at https://www.laserfocusworld.com/laserssources/article/14211951/testing-50-kw-lasers-in-weapon-systems; Jon Harper, "Special Report: The Pentagon Could Put Directed Energy Weapons in Space," National Defense, April 25, 2019, available at

https://www.nationaldefensemagazine.org/articles/2019/4/25/special-report-the-pentagon-could-put-directed-energy-weapons-in-space.

<sup>&</sup>lt;sup>385</sup> Congressional Research Service, "Directed-Energy Weapons," op. cit. p. 2.

<sup>&</sup>lt;sup>386</sup> Congressional Research Service, "Directed-Energy Weapons," op. cit. p. 1; U.S. Government Accountability Office, *Directed Energy Weapons: DOD Should Focus on Transition Planning*, GAO-23-105868, Washington, D.C.: April 2023, pp. 15–18, available at https://www.gao.gov/assets/gao-23-105868.pdf; Hollings, "The U.S. is Losing the Hypersonic Arms Race to China," op. cit.

<sup>&</sup>lt;sup>387</sup> Hecht, "Testing 50 kW lasers," op. cit.

<sup>&</sup>lt;sup>388</sup> Hecht, "Testing 50 kW lasers," op. cit.

interceptors, Congress should also continue to ensure a stable funding stream for research into directed energy for missile defense applications to support maturing of the next generation of space-based missile defense technology at a relevant pace.

It is to be expected that any progress toward developing such a capability will invite opposition from those who feel that space-based missile defenses are "destabilizing" assets<sup>389</sup> that will serve to "weaponize" outer space and provoke arms racing with China and Russia.<sup>390</sup> Yet, it is becoming clear that neither China nor Russia share such qualms about their own space programs, which include a variety of weapon-enabling space capabilities and counterspace weapons, including possibly space-based weapons systems in the near future.<sup>391</sup> In fact, DoD has officially acknowledged that "[s]pace is now a distinct warfighting domain," recognizing the need to defend vulnerable U.S. space assets and capabilities from China and Russia, both of which "have weaponized space as a means to reduce U.S. and allied military effectiveness and challenge our freedom of operation in space."392 Indeed, it

<sup>&</sup>lt;sup>389</sup> Union of Concerned Scientists, "Space-based Missile Defense," August 30, 2018, available at https://www.ucsusa.org/resources/space-based-missile-defense-0.

<sup>&</sup>lt;sup>390</sup> Michael Elleman and Gentoku Toyoma, "Will space-based missile interceptors weaponize space?" International Institute for Strategic Studies, December 20, 2018, available at https://www.iiss.org/online-analysis/online-

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<sup>&</sup>lt;sup>391</sup> Creedon and Kyl, *America's Strategic Posture*, op. cit., pp. 13–14, 17–19; David E. Sanger and Julian E. Barnes, "U.S. Fears Russia Might Put a Nuclear Weapon in Space," *New York Times*, February 17, 2024, available at

https://www.nytimes.com/2024/02/17/us/politics/russia-nuclear-weapon-space.html?searchResultPosition=5.

<sup>&</sup>lt;sup>392</sup> U.S. Department of Defense, *Defense Space Strategy: Summary*, June 2020, p. 1, available at https://media.defense.gov/2020/Jun/17/2002317391/-1/-

<sup>1/1/2020</sup>\_DEFENSE\_SPACE\_STRATEGY\_SUMMARY.PDF; Congressional Research Service, "Space as a Warfighting Domain: Issues for Congress," by Stephen M. McCall, August 10, 2021, p. 1, available at

https://crsreports.congress.gov/product/pdf/IF/IF11895.

would be far better for the United States to preserve and advance its ability to use space for national defense purposes while it still has the opportunity rather than to allow China and Russia to deny the United States and its allies access to space while also actively weaponizing space.

As a final note, despite promising advancements in technology and unprecedented cost efficiencies, it is undeniable that achieving a national-level missile defense capability to deny Beijing confidence in its ability to wield limited nuclear coercive threats will require commitment of significant political and economic capital. Achieving this level of protection of the United States and its allies, will, therefore necessitate strong and sustained commitment and vision from the highest level of government. The U.S. president, as head of the Executive Branch, has unique authority and responsibility for supplying unitary political impulse to the development of national-level capabilities. For that reason, a degree of what Peter Rodman terms "presidential command" will be required to advance national missile defense efforts in a meaningful way.<sup>393</sup>

## Conclusion

In conclusion, Washington needs to dispense with the old notion that missile defenses are harmful to strategic stability and instead embrace a policy that accommodates homeland missile defenses as a stabilizing force in the U.S. relationship with China. While direct Chinese attack against the United States homeland appears unlikely (though still possible), a scenario in which China uses nuclear threats to deter the United States from intervening in a Chinese invasion of Taiwan or other types of aggressive territorial expansion in the Indo-Pacific is increasingly plausible, especially as the CCP forcefully pursues its "rejuvenation" vision. Given the

<sup>&</sup>lt;sup>393</sup> Rodman, Presidential Command, op. cit., pp. 277-279, 288-289.
growing number of escalatory options available to China, it is no longer credible for the United States to depend on the threat of massive nuclear retaliation alone to deter conventional and nuclear provocations great and small. The United States needs to be able to demonstrate to China and to U.S. allies that it can defend itself from nuclear threats in order to freely pursue its national security objectives and to aid its allies and partners. Time may not be on Washington's side in a crisis. U.S. leaders cannot count on the time and foreign political will to marshal broad diplomatic pressure against China quickly enough to prevent a fait accompli. Washington needs to create room for its own will and decision-making as it faces an uncertain future. Effective homeland missile defenses capable of providing a measure of defense against any adversary would serve to deter threats in the first place, give U.S. leaders confidence to resist coercion in a crisis, and limit damage to the American people and infrastructure in the event that deterrence fails. In short, homeland missile defenses designed and declared to defend against China's arsenal are essential for strategic stability in a new era. But given the expense, technological sophistication, and intrinsic political nature of such a system, achieving the degree of missile defense capability needed to deny Beijing any advantage to its limited nuclear coercive threats will require a level of sustained political vision and energy that only a U.S. president can provide. Fortunately, the new Trump Administration appears to have grasped the growing importance of strategic defenses for the United States and to recognize the need for "presidential command" to propel necessary policy and technological change.<sup>394</sup> President Trump, at the outset of his second Administration, announced his intention to pursue a stronger homeland missile defense posture in a new executive order, Executive Order 14186: "The Iron

<sup>&</sup>lt;sup>394</sup> Loc. cit.

Dome of America," on January 27, 2025. In this order, President Trump states, "it is the policy of the United States that: (a) The United States will provide for the common defense of its citizens and the Nation by deploying and maintaining a next-generation missile defense shield; (b) The United States will deter-and defend its citizens and critical infrastructure against – any foreign aerial attack on the Homeland; and (c) The United States will guarantee its secure second-strike capability."395 While this represents tremendous positive progress in U.S. political views on the value of homeland missile defenses to protect U.S. people and interests and to strengthen deterrence, it remains to be seen whether it will marshal the significant resources and action required to field a modern, credible space-based missile defense architecture. While the rhetorical stake has been placed, moving forward to an actual deployed capability will require a dedicated champion with knowledge of space, faith in American innovation, a devotion to the American people, and a belief in the importance of U.S. leadership in the world, to translate this vision into reality.

<sup>&</sup>lt;sup>395</sup> Executive Office of the President, "Iron Dome," op. cit.

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