Missile Defense Reimagined

A Theoretical Examination of the "Golden Dome" Proposal

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Abstract

This article reexamines the strategic rationale, feasibility, and risks of deploying a layered homeland missile defense architecture—termed "Golden Dome"—modeled after Israel's Iron Dome but scaled for the continental United States. It explores the proposal through the foundational deterrence theories of Bernard Brodie, Thomas Schelling, and Herman Kahn, offering a comparative analysis of how each theorist might assess the impact of missile defense on strategic stability, crisis escalation, and allied assurance. Drawing on contemporary threat dynamics—including hypersonic weapons, drone swarms, and dual-capable missiles—the article evaluates the technical and strategic challenges of fielding space-based sensors and interceptors. It argues that while Golden Dome may offer limited protection against rogue-state threats and bolster extended deterrence, it risks undermining mutual vulnerability with peer competitors unless deployed with strategic restraint. The article concludes by recommending a measured, layered approach to missile defense—one that preserves stability, assures allies, and secures freedom of action in space.

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President Trump's second administration began with a flurry of executive orders, far outpacing his first term. Among the earliest, an order issued on 27 January 2025 directed the Secretary of War to develop options for a homeland missile defense system modeled after Israel's "Iron Dome."[1] Because "Iron Dome" is a trademarked term, the administration rebranded the initiative as "Golden Dome."[2] Standing on the steps of the Pentagon shortly after his confirmation, Secretary Pete Hegseth underscored the President's focus on defending the homeland, identifying Golden Dome as a top departmental priority.

Commanders-in-chief have long made defending the homeland a central mission. This initiative seeks to ensure that priority is met. At the same time, building a near-impenetrable missile shield raises questions that extend beyond technical feasibility. New threats to the homeland demand a defense upgrade, but Golden Dome brings political and strategic challenges the administration must navigate

[1] Donald J. Trump, "Executive Order 14186: The Iron Dome for America," 27 January 2025, https://www.whitehouse.gov/.

[2] Jen Judson, "Iron Dome for America Gets a Golden Makeover," *Defense News*, 25 February 2025, https://www.defensenews.com/.

carefully. The system must enhance protection without undermining strategic stability—and it must do so in a way that assures US allies while avoiding provocation of near-peer adversaries. A historical look at US missile defense efforts and deterrence theory helps illuminate how best to balance these competing objectives. After all, this is not the first time the United States has tried to build an all-encompassing shield against ballistic missile attacks.

Ronald Reagan and Star Wars

In his executive order, President Trump acknowledged the legacy of President Ronald Reagan's missile defense vision—best known by its informal moniker, "Star Wars." The order noted: "President Ronald Reagan endeavored to build an effective defense against nuclear attacks, and while his program resulted in many technological advances, it was canceled before its goal could be realized."[3]

Proposed in 1983 as the Strategic Defense Initiative (SDI), Reagan's program aimed to develop a layered missile defense system—primarily space-based—that could intercept and destroy incoming intercontinental ballistic missiles (ICBM), particularly those armed with nuclear warheads. The central premise was bold and deeply strategic: shift US doctrine away from exclusive reliance on mutual assured destruction and toward a posture of active defense. As Reagan put it, the objective was to render nuclear weapons "impotent and obsolete" and free the American people from living under the constant threat of annihilation.[4]

SDI never progressed to full deployment, and its more exotic elements—such as space-based lasers and kinetic energy weapons in orbit—remained largely conceptual. Several factors contributed to this outcome. First, the Soviet Union's collapse and the subsequent "peace dividend" reduced the urgency for such a system. Second, even with aggressive funding and high-level political support, the technological maturity necessary for space-based interceptors remained decades away. Finally, concerns about strategic stability, arms control treaty violations, and massive program cost dampened political enthusiasm by the early 1990s.[5]

Yet the program's impact should not be understated. Although SDI failed to achieve initial operational capability, it catalyzed significant progress in sensor technology, command-and-control architectures, and ground-based interceptor development. Many of the enabling technologies used today in missile defense—

[3] "Executive Order 14186."

[4] Atomic Heritage Foundation, "Strategic Defense Initiative (SDI)," *Nuclear Museum*, 18 July 2018, https://ahf.nuclearmuseum.org/.

[5] Aaron Bateman, "The Enduring Impact of Reagan's Strategic Defense Initiative," *Arms Control Today*, September 2023, https://www.armscontrol.org/.

such as phased-array radar, satellite-based infrared surveillance, and midcourse intercept algorithms—can trace their lineage to early SDI research. Reagan's vision also reframed the missile defense debate in US strategy circles, pushing it beyond the narrow confines of theater missile defense and into the broader conversation about homeland protection.

While Reagan's Star Wars program fell short of its ultimate goal, it laid the conceptual and technological foundation for subsequent generations of missile defense efforts. Golden Dome, in many respects, inherits this legacy—and must now contend with the same core question Reagan faced: can missile defense provide meaningful security against strategic threats without undermining the very deterrence it seeks to enhance?

Current US Ballistic Missile Defense

The defense of the US homeland against ballistic missile attack begins with Integrated Tactical Warning and Attack Assessment (ITW/AA), a system of systems designed to detect, assess, and enable response to missile threats. The backbone of initial missile launch detection resides in space-based sensors. Specifically, the Defense Support Program (DSP) and the Space-Based Infrared System (SBIRS) provide global coverage and early warning by detecting the heat signatures of missile launches anywhere on the globe. DSP satellites operate in geosynchronous orbit (GEO), while SBIRS enhances coverage by incorporating both GEO and highly elliptical orbits (HEO), increasing responsiveness to launches from multiple vectors.[6]

Once a missile launch is detected, the missile defense architecture shifts to tracking and discrimination. Ground-based radars provide vital confirmation, refine trajectory estimates, and contribute to fire-control solutions. Several key systems bolster US early warning capacity. Ballistic Missile Early Warning System (BMEWS) radars, positioned in Greenland and Alaska, monitor for launches over the polar region—historically the most likely flight path for an ICBM from Russia. PAVE PAWS, and its upgraded variant, the Solid State Phased Array Radar System (SSPARS), offer wide-area surveillance and the capacity to track multiple objects simultaneously. These phased-array systems are stationed along the US coasts to guard against submarine-launched ballistic missiles (SLBM), which remain a persistent threat due to their stealth and proximity.

[6] Steve Lambakis, *Space Sensors and Missile Defense* (Fairfax, VA: National Institute Press, August 2023), 20–22, https://nipp.org/.

In addition to SSPARS, the Cobra Dane radar in Alaska plays a critical role in tracking ballistic missiles through both the exo-atmospheric and endo-atmospheric phases of flight. Sea-based assets further extend detection coverage and cue interceptors. The AN/TPY-2 radar and the Sea-Based X-Band Radar (SBX-1) contribute mobile, high-resolution tracking capabilities, particularly in support of regional and homeland defense missions. These systems support engagement decisions by queuing interceptors, whether fixed-site systems like Ground-Based Midcourse Defense (GMD) or mobile assets such as Terminal High Altitude Area Defense (THAAD).[7]

Satellite-based detection, coupled with ground- and sea-based radar tracking, creates a dual-phenomenology approach that enables decision-makers to assess the nature, trajectory, and potential target of an inbound missile. This layered detection enhances accuracy and contributes to informed decision-making under tight time constraints. At the center of this process is an integrated command-and-control structure that fuses intelligence, surveillance, and operational data. It enables military and civilian leaders to confer quickly, reach decisions with strategic implications, and direct engagement operations if necessary.

If national leadership authorizes an intercept, the United States can call upon several engagement options. The GMD system provides the primary homeland defense against long-range ballistic missiles. It employs ground-based interceptors (GBI) housed at Fort Greely, Alaska, and Vandenberg Space Force Base, California. These interceptors are designed to engage incoming warheads in the midcourse phase—outside Earth's atmosphere—where discrimination and tracking are most complex.

In addition to GMD, the US Navy operates Aegis Ballistic Missile Defense (BMD) on cruisers and destroyers equipped with Standard Missile-3 (SM-3) interceptors. These vessels provide flexible, forward-deployed missile defense and contribute to both regional and homeland defense missions. The Aegis Ashore configuration—stationed in Romania and Poland—extends this maritime capability to fixed land sites, enhancing NATO's eastern flank.

For threats at shorter ranges or in theater contexts, the United States fields mobile systems such as the THAAD and Patriot Advanced Capability-3 (PAC-3). These systems offer point defense against short- and medium-range ballistic missiles and can defend key assets, forward-deployed forces, or allied territory. They are also exportable and often deployed in support of allied missile defense requirements.

[7] Lambakis, *Space Sensors and Missile Defense*, 22–25.

Notably, while the US missile warning architecture relies heavily on space-based sensors for global coverage, the United States has not deployed space-based interceptors. All current kinetic interceptors remain land- or sea-based—a deliberate policy choice shaped by technical, fiscal, and strategic considerations, particularly concerns about arms control and escalation dynamics in space.

Today's US missile defense system offers limited protection against ICBMs and more robust defenses against short- to intermediate-range threats. Most of the kinetic kill capability resides in a relatively small number of interceptors positioned on land or at sea. A comprehensive shield against a large-scale ICBM strike—such as one launched by Russia or China—remains beyond the reach of current systems. That reality reflects deliberate policy and strategic signaling: by maintaining a limited number of interceptors and making that limitation publicly known, the United States avoids threatening the assured retaliatory capabilities of peer nuclear adversaries. In doing so, it helps preserve strategic stability.

Although Reagan's original vision of a nationwide shield against enemy missile barrages never materialized, Israel has demonstrated that a near-impenetrable homeland missile defense—at least on a small scale—is feasible. Its success raises new questions about whether the United States can, or should, attempt to scale that concept to continental proportions.

Israel's "Iron Dome"

Israel's deployment of the Iron Dome system demonstrates that a layered missile defense architecture, designed to shield a national population from a range of aerial threats, is feasible—at least on a limited scale. Although public discourse often refers to Israel's entire missile defense apparatus as "Iron Dome," that term technically applies only to the lowest layer. The actual Iron Dome system defends against short-range threats such as unguided rockets, artillery shells, and mortars. It forms the base of a broader, integrated defense structure.

The second tier, David's Sling, provides coverage against medium- to long-range rockets, tactical ballistic missiles, cruise missiles, and unmanned aerial systems. The top layer—composed of the Arrow 2 and Arrow 3 systems—targets long-range ballistic missiles, including nuclear-capable ICBMs.[8] Together, these systems create a multilayered shield capable of intercepting a variety of aerial threats at different altitudes and phases of flight.

[8] "What Are Israel's Iron Dome, David's Sling, Arrow and Thaad Missile Defences?," *BBC News*, 16 October 2024, https://www.bbc.com/.

President Trump drew direct inspiration from this structure when he issued the executive order directing the development of "Golden Dome." Israel's missile defense performance during its 2024 conflict with Iran, Hezbollah, and Hamas had captured global attention and served as a compelling model. On 13 April 2024, Iran launched a massive, coordinated strike comprising roughly 170 drones, 120 ballistic missiles, and 30 cruise missiles—originating from launch sites across Iraq, Syria, and Yemen. In response, Israel's missile defense network intercepted nearly 99 percent of incoming threats, an unprecedented success in modern warfare.[9]

Despite this performance, the system revealed limits. A ballistic missile launched by Houthi rebels in Yemen slipped through the defenses, highlighting the challenge of defending against long-range and maneuvering threats. As adversaries introduced more advanced systems—including cruise missiles with irregular trajectories and hypersonic glide vehicles—Israel's interception rate declined. By June, another Iranian salvo featuring a hypersonic missile and multiple cruise missiles managed to penetrate Israeli airspace. The overall interception rate reportedly fell to 90 percent or lower.[10] As threat complexity increases, interception probability inevitably decreases—a challenge that would confront any future US system as well.

While Israel's defense architecture has proven remarkably effective, the scale at which it operates cannot be overlooked. The State of Israel occupies an area roughly equivalent to that of New Jersey—approximately 0.3 percent of the continental United States. Building a Golden Dome over a territory nearly 300 times larger poses logistical, operational, and financial challenges of an entirely different order. A system designed to shield New Jersey might be feasible; scaling that defense to encompass the remaining 99.7 percent of US territory demands not only massive investment, but also significant breakthroughs in sensor coverage, interceptor distribution, and command and control.

New System for New Threats

The threat landscape facing the United States has evolved dramatically since the Cold War, rendering legacy missile defense architectures increasingly insufficient. While early systems were designed to counter predictable, ballistic trajectories launched by a handful of state actors, today's adversaries are developing a diverse array of capabilities—including hypersonic glide vehicles, maneuverable cruise missiles, and swarming drones—that challenge detection, tracking, and interception

[9] Josef Federman and Jon Gambrell, "Israeli Military Says 99% of Drones and Missiles Launched by Iran Were Intercepted," *AP News*, 14 April 2024, https://apnews.com/.

[10] Sarah Shamim, "How Has Iran Managed to Pierce through Israel's Air Defence Systems?," *Al Jazeera*, 19 June 2025, https://www.aljazeera.com/.

at every stage of flight. These emerging threats do not merely stretch existing defenses; they expose foundational vulnerabilities in sensor coverage, command and control, and kinetic response. As the Golden Dome initiative takes shape, it must confront this expanded threat environment head-on, designing a system not for yesterday's missile war but for tomorrow's multi-domain, multivector attack.

Legacy Threats

President Reagan's vision for missile defense centered on protecting the American people from the threat of nuclear-armed ICBMs, with the ultimate goal of rendering thermonuclear weapons obsolete. While his SDI fell short of that ambition, it helped lay the groundwork for today's missile defense architecture. The United States now fields a limited system designed to intercept a small number of ICBMs, primarily those launched by rogue states or accidental actors. Yet the current threat environment has grown far more complex than the Cold War-era scenarios Reagan envisioned.

As noted in President Trump's executive order, the Golden Dome system must address not only traditional ballistic missiles but also hypersonic glide vehicles, maneuverable cruise missiles, and an array of advanced aerial platforms—including unmanned systems and drone swarms.[11] Unlike ICBMs, which follow predictable, gravity-bound trajectories and lack midcourse maneuverability, these new threats exploit speed, agility, and stealth to evade existing detection and interception networks. They challenge the foundational assumptions on which legacy systems were built. Golden Dome, if it is to be credible, cannot merely update Cold War defenses—it must adapt to an era in which the lines between strategic, tactical, and asymmetric threats are increasingly blurred.

New Threats to the Homeland

Both China and Russia have demonstrated operational hypersonic capabilities, signaling a major evolution in strategic threat dynamics. Hypersonic weapons—defined by their ability to exceed Mach 5 (approximately 3,800 mph)—pose unique challenges to existing US detection and defense systems. These weapons fall into two primary categories: hypersonic glide vehicles (HGV) and hypersonic cruise missiles (HCM).[12] HGVs are typically launched atop ballistic missiles; after reaching the upper atmosphere, the glide vehicle separates and maneuvers at hypersonic

[11] "Executive Order 14186."

[12] Paul Bernstein and Dain Hancock, "China's Hypersonic Weapons," *Georgetown Journal of International Affairs*, 27 January 2021, https://gjia.georgetown.edu/.

speeds through the atmosphere, exploiting both speed and agility to evade intercept. Space-based early warning systems, such as SBIRS, may detect the initial launch, but tracking the glider's unpredictable flight path strains current radar capabilities and undermines timely engagement.

HCMs, by contrast, use air-breathing engines—such as scramjets—for sustained flight at hypersonic speeds. These missiles can be deployed from aircraft, fly at lower altitudes, and maneuver aggressively, further complicating detection and tracking. Because their launch profiles do not resemble those of traditional ballistic missiles, space-based infrared sensors may fail to detect them in real time. Their low radar cross-section and rapid maneuverability mean that current US systems—designed primarily for ballistic threats—would struggle to generate effective fire-control data within the time needed for interception.

General Glen VanHerck, then-commander of US Northern Command and North American Aerospace Defense Command (NORAD), highlighted these concerns in 2023 congressional testimony. He noted that while existing systems remain effective against traditional Russian strategic bombers, Russia has reconstituted a credible threat to North America using modernized bombers, advanced surface ships, and submarines armed with long-range, highly accurate nuclear and conventional cruise missiles. He further warned that the People's Republic of China is rapidly closing the gap, developing similar capabilities that could soon neutralize the warning-and-response margin upon which US homeland defense relies.[13] As these systems mature, they risk overwhelming the existing architecture and shortening the decision window for national leaders—an operational and strategic problem that Golden Dome must be built to address.

Detecting New Threats

Hypersonic weapons, drones, and advanced cruise missiles present detection challenges that exceed the capabilities of the legacy DSP and SBIRS. These Cold War-era systems rely on satellites in geosynchronous and highly elliptical orbits, which are optimized for detecting the infrared signatures of traditional ballistic missile launches. However, the maneuverability, low flight profiles, and varied launch platforms of emerging threats demand a fundamentally different approach to space-based sensing.

To meet this challenge, the Department of War is developing the Hypersonic and Ballistic Tracking Space Sensor (HBTSS) constellation. Unlike DSP and

[13] Glen VanHerck, "Statement of USNORTHCOM and NORAD Commander to the HASC" (press release, USNORTHCOM, 8 March 2023), https://www.northcom.mil/.

SBIRS, which emphasize persistent coverage from high orbits, HBTSS will rely on a proliferated network of satellites in low Earth orbit (LEO), providing layered, trackable coverage across threat vectors. These sensors are designed to detect hypersonic launches during their boost phase and to maintain track through their unpredictable glide phase—something current systems cannot reliably do. Because of the limited dwell time associated with LEO satellites, achieving continuous coverage will require dozens—if not hundreds—of platforms operating in synchronized orbits. This shift represents a fundamental architectural transformation in space-based missile warning and tracking.

In testimony before the House Armed Services Committee, General Gregory Guillot, Commander of US Northern Command and NORAD, underscored that space-based infrared sensors alone will not be sufficient. He emphasized the need for a truly layered architecture that integrates multiple detection modalities. In addition to hypersonic detection, General Guillot advocated for incorporating space-based airborne moving target indication (AMTI) systems, which would allow for the detection and tracking of airborne threats, including low-flying cruise missiles and hostile aircraft. He also stressed the importance of terrestrial over-the-horizon radar, which would extend the nation's awareness beyond the curvature of the Earth—crucial for identifying threats that approach at low altitude and from nontraditional launch points.

Once detected, these threats could be engaged by a range of platforms, including fighter aircraft equipped with advanced interceptor missiles. As General Guillot noted, air-to-air missile engagement may represent one of the most viable options for cruise missile defense in the near term.[14] These layered detection and response capabilities—spanning space, air, and ground—will form the backbone of any credible Golden Dome system. Without them, the United States risks relying on an outdated warning architecture ill-suited to counter next-generation threats.

Intercepting New Threats

The United States currently fields a variety of land-based and sea-based interceptors capable of defending against ballistic missile threats. However, countering the next generation of threats—hypersonics, low-flying cruise missiles, and unmanned systems—will require expanded capabilities across all domains. This includes an increase in homeland-based interceptor aircraft, enhanced forward-deployed assets, and potentially, the deployment of space-based interceptors.

[14] Greg Hadley, "NORAD Boss: Fighters Will 'Certainly' Play Role in Golden Dome," *Air & Space Forces Magazine*, 30 April 2025, https://www.airandspaceforces.com/.

Recent combat experience has underscored the effectiveness of airborne missile defense. During the April 2024 Iranian attack on Israel, American F-15s and F-16s operating in the region helped intercept incoming drones and missiles, contributing to an overall kill rate approaching 99 percent.[15] This engagement highlighted the value of air-breathing platforms in high-volume, multivector threat environments. However, as previously noted, defending Israel—a country the size of New Jersey—is not analogous to defending the continental United States. Scaling such defense across vast American territory would require a sustained increase in alert aircraft, a concern voiced repeatedly by senior commanders. General VanHerck cautioned that the United States lacks sufficient aircraft on constant alert to handle a massed, time-sensitive threat. His successor, General Guillot, acknowledged the challenge, testifying that Northern Command is working to strike the right balance between "just-in-time" and "just-in-case" force postures.

Even with additional aircraft, land-based and air-breathing interceptors alone will likely fall short of the coverage and responsiveness needed to fulfill Golden Dome's promise. General Stephen Whiting, Commander of US Space Command, has argued that the United States must develop "orbital interceptors" capable of projecting force in space and defending against threats that originate or transit through that domain.[16] These interceptors could take a variety of forms—kinetic kill vehicles, nonkinetic effectors, or directed-energy weapons—but all would represent a dramatic leap beyond current missile defense paradigms.

Yet the technical challenges remain formidable. Boost-phase interception from space, while theoretically ideal, remains extraordinarily difficult. The physics of timing, target acquisition, and intercept geometry make such engagements a narrow-margin endeavor. Jeff Schrader, Vice President of Strategy and Business Development at Lockheed Martin's space division, captured this complexity when he noted that hitting a missile in its boost phase from orbit is still "a pretty wicked hard problem, physics-wise."[17] While the technology has advanced significantly since Reagan's Star Wars era, Golden Dome's success will depend not just on innovation, but on operational integration, credible redundancy, and sustainable cost.

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[15] Hadley, "NORAD Boss."

[16] Brett Tingley, "US Needs 'Orbital Interceptors' to Win a War in Space, Space Command Chief Says," *Space.com*, 8 April 2025, https://www.space.com/.

[17] Audrey Decker, "Industry Eyes 'Wicked Hard' Golden Dome Space Interceptor Challenge," *Defense One*, 18 April 2025, https://www.defenseone.com/.

What If . . .

Whether Golden Dome can fulfill the technological and strategic promise once envisioned by the architects of Reagan's Star Wars remains an open question. But what if it can? Should the United States pursue it? Few would dispute that the US homeland now faces an expanding array of threats that extend well beyond traditional ballistic missiles—threats that legacy systems were never designed to counter. It is no longer a matter of *if* missile defense needs to evolve, but *how far* it should go, *how fast*, and *at what cost*.

At its core, the Golden Dome initiative forces policy makers to confront several foundational questions. Should the system be designed to handle only limited rogue-state attacks or scaled to defeat a full-spectrum barrage from a peer nuclear adversary? Can the United States enhance its defensive posture without undermining the strategic stability that nuclear deterrence has helped preserve since 1945? If Golden Dome succeeds too well—achieving even the perception of invulnerability—might it provoke an arms race or incentivize a first strike in a crisis?

These are not merely technical questions; they are strategic dilemmas grounded in the enduring logic of deterrence. Revisiting the insights of early Cold War theorists—figures like Bernard Brodie, Thomas Schelling, and Herman Kahn—offers a framework for assessing the risks, trade-offs, and potential consequences of an expansive missile defense architecture. Their arguments, still relevant in the age of hypersonics and space-based systems, provide a sobering lens through which to evaluate what Golden Dome must achieve—and what it must avoid.

Bernard Brodie: Deterrence, Economics, and Missile Defense

Bernard Brodie stands as one of the foundational figures in the theory of nuclear deterrence, shaping early American strategic thought in the aftermath of Hiroshima and Nagasaki. Writing in an era when thermonuclear weapons redefined the nature of war, Brodie departed from traditional notions of victory and instead argued that the primary purpose of military power in the nuclear age was to prevent war altogether. His contributions remain critical to evaluating the strategic logic behind any missile defense initiative. As the United States considers building the Golden Dome system, Brodie's emphasis on economic efficiency, marginal deterrence, and the inherent limitations of active defenses offers a sobering—and still highly relevant—lens through which to assess its utility and potential consequences.

Brodie's Deterrence Theory

In *Strategy in the Missile Age*, Bernard Brodie advanced a theory of deterrence grounded in strategic restraint and economic rationality. He rejected the prevailing

"cult of the offensive"—the belief that security lay in striking first—and warned that such thinking, when applied to nuclear weapons, invited catastrophe. Instead, he championed a strategy of *marginal deterrence*: the idea that national security could best be preserved not through massive arsenals or preventive war, but through a carefully calibrated force structure designed to deter aggression by guaranteeing retaliatory capability.[18]

Brodie borrowed from the economic principle of diminishing marginal utility to frame his argument. Just as the value derived from each additional unit of a consumed good declines, so too does the strategic value of building additional nuclear weapons beyond what is necessary for credible deterrence. For Brodie, the utility of a second-strike force rested not in sheer numbers, but in survivability, credibility, and cost-effectiveness. He advocated for investing in hardened missile silos and dispersed bomber bases over more costly and uncertain "active measures" like missile defense. Missiles, once deployed in quantity, offered more reliable deterrence at lower marginal cost than manned bombers or complex defensive systems.

Brodie's critique of excess remains relevant. At one point, the United States possessed nearly 32,000 nuclear weapons—a force size he would have deemed strategically redundant. His enduring insight was that stability does not require overwhelming superiority; it requires the minimum force necessary to impose unacceptable costs on an aggressor. In that framework, every dollar spent on missile defense must be weighed not only against its marginal effectiveness, but also against its potential to disrupt the very equilibrium deterrence seeks to maintain.

Brodie and Missile Defense

Brodie remained deeply skeptical of active missile defenses, particularly their strategic implications in a nuclear context. He argued that the pursuit of an impenetrable shield was not only technologically improbable but strategically destabilizing. From a technical standpoint, Brodie noted that no system could reliably intercept large numbers of fast, independently-targeted missiles, particularly in a saturation or spoofed attack. His skepticism stemmed not from cynicism, but from a sober assessment of physics, cost, and operational limitations—an assessment rooted in his analysis of German V-1 and V-2 rocket attacks during World War II, which formed the only empirical basis available to early missile defense theorists.[19]

[18] Bernard Brodie, *Strategy in the Missile Age* (Princeton, NJ: Princeton University Press, 2015), chapters 8–10 outline Brodie's argument that "strategy wears a dollar sign."

[19] Brodie, *Strategy in the Missile Age,* 185.

Brodie drew a sharp distinction between active and passive defense. Active measures—such as interceptor systems—seek to prevent or disrupt an incoming strike but come at significant financial and technical cost. Passive measures, by contrast, aim to absorb or mitigate damage (e.g., hardening silos, dispersing forces) and are generally more cost-effective. In his view, missile defense offered diminishing returns, particularly when adversaries could respond with relatively cheap countermeasures—more warheads, decoys, or penetration aids. Even with today's advanced systems, interception rates remain imperfect. Israel's Iron Dome, the most successful modern example, claims a 96 percent success rate—but as Brodie would argue, that four percent failure margin becomes unacceptable when dealing with nuclear weapons.

At the strategic level, Brodie feared that missile defense could incentivize arms racing and increase the likelihood of preemption. If one side believed it could neutralize the other's retaliatory capability—or appear poised to do so—it might be tempted to strike first.[20] Conversely, an adversary might conclude that a first strike is its only chance to overcome defenses before they fully mature. In either case, the result is heightened instability, not deterrence. For Brodie, strategic stability rested on mutual vulnerability: the assurance that any aggressor would face devastating retaliation. Missile defense—particularly if perceived as capable of negating that second strike—threatens to erode that equilibrium.

In the final analysis, Brodie did not reject missile defense out of technical conservatism or moral opposition. Rather, he saw it as strategically self-defeating—an expensive illusion that could destabilize deterrence, provoke escalation, and offer only the false promise of security. His insights remain as relevant today as when he first warned that in any arms race, "there is always a hole, an Achilles' heel."[21]

Implications for Golden Dome

In *Strategy in the Missile Age*, Brodie articulated a deterrence strategy rooted in cost-effectiveness, credibility, and restraint. His framework emphasized passive defense and second-strike survivability over expensive and technologically uncertain active defenses. Golden Dome, as currently envisioned, departs from that model. The Congressional Budget Office has estimated its price tag at more than USD 542 billion—a figure likely to rise. As the US Space Force Commander recently remarked, "I've never seen an early estimate that was too high."[22] Even if

[20] Brodie, *Strategy in the Missile Age,* 303.

[21] Brodie, *Strategy in the Missile Age,* 202.

[22] Chris Gordon, "Golden Dome's Price Tag Will Likely Exceed Half a Trillion Dollars, Space Force Chief Says," *Air & Space Forces Magazine*, 16 May 2025, https://www.airandspaceforces.com/.

such a system could be built, Brodie would argue that the payoff—an imperfect shield against potentially catastrophic threats—does not justify the enormous cost, especially when weighed against simpler adversary responses.

Unlike Israel, whose adversaries are numerous but generally lack the capacity to inflict existential damage, the United States must contend with two nuclear-armed peer competitors. China remains the pacing threat; Russia remains the existential one. In this context, failure carries far greater consequences. When a rocket slips through Israel's Iron Dome, the result may be tragic but localized. A single nuclear-armed missile penetrating Golden Dome, however, would be strategically devastating. Brodie's core concern—cost versus effectiveness—becomes amplified in this environment.

The economics are stark. Space-based interceptors, a likely component of any fully realized Golden Dome, remain prohibitively expensive. At a 2023 forum hosted by the American Enterprise Institute, defense analyst Todd Harrison estimated that approximately 950 space-based interceptors would be required to reliably target a single missile in boost phase. To counter a launch of just 10 missiles, the United States would need more than 10,000 orbital interceptors—a force dwarfed by the actual capabilities of Russia and China.[23] Meanwhile, adversaries could simply build more missiles or deploy penetration aids at a fraction of the cost, exploiting the law of diminishing returns that Brodie so frequently emphasized.

For Brodie, the central lesson was clear: a nation should not chase strategic invulnerability when it can achieve stability through credible, economical deterrence. By that standard, Golden Dome risks becoming a strategically seductive but fiscally unsustainable endeavor—one that might invite arms racing, strain alliances, and still fail in the moment it matters most.

Thomas Schelling: Deterrence and Strategic Stability

Thomas Schelling brought a fundamentally different lens to the theory of deterrence—one that emphasized psychology, perception, and strategic bargaining over sheer numerical force. A Nobel Prize–winning economist and Cold War strategist, Schelling explored how the threat of violence, rather than its actual use, could shape adversary behavior and preserve stability in a nuclear world. His concept of mutual vulnerability as the foundation for strategic stability challenged conventional thinking and remains central to modern deterrence theory. As the United States considers expanding missile defense through Golden Dome, Schelling's insights raise critical questions: Could such a system undermine the

[23] Decker, "Industry Eyes 'Wicked Hard' Golden Dome."

very stability it seeks to protect? Might it encourage risk-taking, misperception, or even preemption? To understand these dynamics, we must revisit the logic of deterrence as Schelling understood it—where credibility, uncertainty, and restraint are as vital as capability.

Schelling Deterrence Theory

Schelling argued that nuclear weapons transformed the logic of military power by decoupling warfighting from political coercion. In the pre-nuclear era, military force was primarily a tool for imposing one's will on the adversary through battlefield victory. Nuclear weapons, however, introduced a new dynamic: the ability to inflict catastrophic damage in a matter of minutes, making the threat of use more powerful than actual use. For Schelling, the essence of deterrence lay in the *threat* of violence—not in its execution. Deterrence worked when an adversary believed that crossing a certain line would trigger devastating retaliation, even if that retaliation remained uncertain or probabilistic.[24]

Central to Schelling's framework was the concept of the secure second-strike capability—what he saw as the bedrock of strategic stability. If both sides possessed survivable forces capable of assured retaliation, neither would have an incentive to strike first. For the United States, this meant maintaining a credible triad: ICBMs, SLBMs, and nuclear-capable bombers. Stealthy submarines armed with SLBMs, in particular, provided a nearly invulnerable deterrent that ensured any nuclear attack on the homeland would be met with intolerable consequences.

This condition of mutual vulnerability—what Schelling termed the "balance of terror"—created a paradoxical form of stability.[25] As long as both sides remained exposed to unacceptable damage and believed the other's retaliation to be credible, the cost of aggression would outweigh any conceivable gain. In this framework, deterrence did not depend on perfect defense or total dominance but on the *perception* of inevitable, punishing retaliation. Strategic equilibrium was not achieved by denying an adversary's capabilities but by preserving the mutual certainty of destruction should deterrence fail.

In Schelling's framework, coercion became what he called the "diplomacy of violence." Unlike classical warfare, where force was used to achieve victory through attrition or maneuver, nuclear deterrence relied on leveraging *the threat* of force to shape adversary behavior. This required manipulating the perceived risk of

[24] Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2020), chapters 1 and 2 outline Schelling's view of how nuclear weapons have changed the strategic environment.

[25] This *balance of terror* is similar to the *stability* Brodie advocated, see footnote 20.

escalation—strategies that intentionally left outcomes uncertain. Brinkmanship, in Schelling's view, was not irrational recklessness but a calculated gamble: by creating situations where neither side could fully control events, one might compel an adversary to back down for fear of mutual catastrophe.

Such tactics worked precisely because of the high cost of failure. In a world of shared vulnerability—where each side could inflict intolerable damage on the other—there was a powerful incentive to avoid crossing certain thresholds. But this condition also created an uneasy form of stability: it was stable *because* it was terrifying. For Schelling, mutual vulnerability was not just an unfortunate consequence of the nuclear age—it was the foundation of deterrence, the central fact that made coercion possible and war unthinkable.

Like Bernard Brodie, Schelling believed that the goal of military strategy had shifted from winning wars to preventing them. But Schelling took the logic a step further. He focused less on force size and more on the credibility of retaliation. Stability depended not on the number of warheads but on the survivability of second-strike forces. Hardened missile silos, dispersed submarine fleets, and survivable command-and-control systems became the cornerstones of deterrence—not population defense. In fact, Schelling viewed efforts to shield civilians, such as civil defense programs, with suspicion. A robust civil defense system, he argued, might tempt a nation to believe it could absorb a retaliatory strike—thus lowering the threshold for initiating conflict. This logic influenced policy: in the 1960s, Secretary of Defense Robert McNamara, reflecting Schelling's influence, significantly cut civil defense funding—a posture that has endured to this day.[26]

Missile defense, too, posed a threat to mutual vulnerability. By attempting to negate an adversary's second-strike capability, missile defense systems risked undermining the very condition that underpinned strategic stability. For Schelling, anything that eroded mutual vulnerability—whether by shielding populations or neutralizing retaliatory forces—risked upsetting the delicate balance of deterrence. In that sense, Golden Dome raises the same dilemma Schelling grappled with decades ago: can security be enhanced through defense without provoking instability through fear of disarmament?

Schelling's Theory and Missile Defense

Schelling viewed missile defense with deep ambivalence, recognizing its potential to erode the very foundation of strategic stability: mutual vulnerability. In his view,

[26] Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-first Century* (Fairfax, VA: National Institute for Public Policy, 2008), 123.

any defense system capable of negating a retaliatory strike would undermine deterrence, not strengthen it. If one state could credibly defend against another's second-strike capability, the balance of terror that preserved peace would unravel. In such a scenario, an adversary—fearing disarmament or strategic impotence—might feel compelled to strike first, hoping to preempt the full deployment of the defensive system. Rather than reducing the risk of nuclear war, missile defense could paradoxically increase it.

Schelling also warned of the broader consequences that missile defense might unleash. A state perceived to be developing an effective shield might invite adversary countermeasures: more warheads, more launch platforms, more penetration aids. In his logic, defenses provoke responses, and the cycle of measure and countermeasure leads to an arms race—not stability.[27] From this perspective, missile defense becomes less about security and more about illusion, creating a false sense of invulnerability while driving adversaries to escalate their offensive capabilities.

To mitigate these risks, Schelling advocated for restraint in the development and deployment of missile defense. He did not oppose all defensive systems outright but insisted that they must be subordinate to—and never replace—credible retaliatory capabilities. Deterrence, for Schelling, rested not on denying an attack but on ensuring the promise of intolerable consequences in response. Missile defense might supplement deterrence in limited cases, particularly against rogue-state threats, but it could not serve as the foundation of strategic stability between nuclear peers.

This logic continues to shape US policy today. To avoid destabilizing perceptions, the United States has consistently signaled that its homeland missile defense systems are limited in scope and not intended to negate the retaliatory capabilities of Russia or China. The clearest evidence lies in the small number of GBIs currently deployed—too few to blunt a full-scale second strike by a peer adversary. In this way, the United States walks a narrow line: fielding defenses to manage regional threats while preserving the strategic logic of mutual vulnerability that Schelling believed was essential to nuclear peace.

Implications for Golden Dome

Schelling's deterrence model rested on two essential pillars: mutual vulnerability and the threat that "leaves something to chance."[28] As long as both adversaries retained confidence that a retaliatory strike would penetrate, strategic stability—however uneasy—could be sustained. In this view, deterrence depends not on

[27] Payne, *The Great American Gamble,* 52–53.
[28] Payne, *The Great American Gamble,* 31–33.

eliminating risk, but on preserving it. Anything that undermines an adversary's belief in its own second-strike capability—such as a highly effective missile defense system—risks collapsing this balance and triggering destabilizing behavior.

Applied to Golden Dome, Schelling's logic issues a clear warning. If a missile defense architecture were perceived as capable of neutralizing a peer adversary's retaliatory forces, that adversary might feel pressure to act preemptively—especially if it believed the system was nearing operational readiness. This creates the very condition Schelling feared most: crisis instability fueled by mistrust and perceived closing windows of opportunity. Rather than deterring war, an overambitious missile defense posture could accelerate it.

If Schelling were advising policy makers today, he might counsel strategic ambiguity. Announcing capabilities, timelines, or deployment goals too early could invite the very arms race or first-strike fears that missile defense aims to avoid. A more prudent course—consistent with Schelling's thinking—would be to field elements of Golden Dome quietly, with minimal signaling, and only discuss capabilities publicly once they are irreversible and operational. In deterrence, perception is often more powerful than performance, and stability sometimes requires silence more than signaling.

Herman Kahn: Missile Defense, Prevailing, and Assuring Allies

Herman Kahn, often regarded as the most provocative of the early nuclear strategists, approached deterrence not as a fragile balance to be preserved but as a dynamic contest to be shaped—and, if necessary, survived. Where Brodie emphasized restraint and Schelling focused on stability through mutual vulnerability, Kahn argued that the United States should plan to *prevail* in a nuclear exchange and recover from one if deterrence failed. He championed civil defense, damage limitation, and active missile defenses not merely as supplements to deterrence but as tools to strengthen it by reducing US vulnerability and increasing adversary uncertainty. In contrast to Brodie's economic skepticism and Schelling's caution, Kahn saw missile defense as a means to reinforce credibility, reassure allies, and complicate enemy calculations. As Golden Dome emerges as a policy option, Kahn's unapologetically hawkish vision provides a sharply different lens through which to evaluate its strategic utility.

Kahn's Deterrence Theory

Kahn—a physicist, RAND analyst, and co-founder of the Hudson Institute—was one of the most controversial and influential nuclear strategists of the Cold War. His seminal work, *On Thermonuclear War* (1960), brought a Clausewitzian

rigor to the unthinkable, analyzing not only how to deter nuclear war but how to fight and survive one.[29] While other theorists like Schelling and Brodie emphasized the prevention of conflict through mutual vulnerability or strategic restraint, Kahn advanced a theory of *prevailing*—arguing that superiority in nuclear forces and national preparedness increased deterrent credibility and, if deterrence failed, would help a nation endure and ultimately prevail.

At the core of Kahn's thinking was the concept of *damage limitation*, patterned on Clausewitz's idea that victory amounts to compelling the enemy to do one's will while minimizing harm to oneself. For Kahn, deterrence was not simply about the threat of massive retaliation—it was about reducing the cost of escalation to the United States while increasing it for the adversary. That meant investing not only in offensive nuclear capabilities but also in civil defense and missile defense.[30] Unlike Schelling, who favored ambiguity and risk manipulation, Kahn believed deterrence should leave *nothing* to chance. A credible strategy, he argued, depended on the ability to absorb a nuclear strike and continue to fight, knowing that US forces—and the population—had some protection against retaliation.

In this framework, missile defense played an indispensable role. It was not merely a technological shield but a signal of resolve. A nation that built defenses for its people and its retaliatory forces demonstrated both the intent and the means to escalate deliberately. In Kahn's view, missile defense enhanced deterrence not by achieving invulnerability but by reinforcing the credibility of US willpower and survivability in a nuclear exchange.

Kahn's Thoughts on Missile Defense

Kahn viewed missile defense not as a panacea but as a critical component of a credible and layered deterrence posture. He believed a well-designed missile defense system—particularly one focused on point defense of strategic assets and population centers—could reduce the scale of catastrophe in the event deterrence failed. For Kahn, the goal was not to build an impenetrable shield, but to complicate an adversary's targeting calculus and limit the damage from an attack. This approach reflected his broader philosophy of damage limitation: reduce what can be destroyed, preserve what can survive, and retain the will to prevail.

While Kahn was optimistic about technological progress, he acknowledged the persistent limitations of missile defense. No system, he argued, would be perfect—deception, saturation attacks, and advanced offensive technologies such as multiple

[29] Herman Kahn, *On Thermonuclear War* (New Brunswick, NJ: Transaction Publishers, 2011).
[30] Payne, *The Great American Gamble*, 37–38.

independently targetable reentry vehicles (MIRV) would always pose challenges. Moreover, the deployment of effective defenses could provoke adversaries to build more sophisticated arsenals or adopt destabilizing countermeasures. These risks led Kahn to advocate for transparency, caution, and a balanced posture.[31] Missile defense should reinforce deterrence—not replace it—and should be pursued in conjunction with resilient second-strike forces and civil defense infrastructure.

Kahn was particularly attuned to the high cost of missile defense and the difficulty of quantifying its strategic payoff. Nevertheless, he argued that its value extended beyond homeland protection. As a provider of extended deterrence, the United States needed to convince its allies not only of its will to defend them but of its ability to do so without suffering annihilation in return.[32] Missile defense, in this context, served as a political and psychological tool. By demonstrating an ability to absorb a retaliatory strike, the United States could strengthen the credibility of its nuclear guarantees. If US leaders believed they could selectively shield the American population from retaliation, they would be more likely to respond decisively to aggression against an ally.

In this regard, Kahn's logic sharply diverged from Schelling's. Schelling believed credibility flowed from reputation, resolve, and the posture of retaliatory forces—not from the ability to defend one's own cities. In Schelling's view, the threat alone was sufficient; missile defense added risk. Kahn, by contrast, saw defense as a force multiplier for assurance. It gave weight to US commitments abroad by reinforcing the perception that America could—and would—act if deterrence failed.

Implications for Golden Dome

Kahn's theoretical framework would support the development of a robust missile defense architecture like Golden Dome. From his perspective, the system's most immediate benefit would be to reduce civilian casualties in the event deterrence fails—a core element of his damage limitation strategy. Missile defense, in this logic, enhances national resilience and provides leaders with options in the midst of crisis. It increases the probability that the United States could fight through a nuclear exchange, preserve national cohesion, and re-establish deterrence in the aftermath of an attack.

But for Kahn, the value of missile defense extended beyond the homeland. A functioning shield—especially one perceived as credible—would strengthen America's extended deterrence posture. By signaling that the United States can

[31] Payne, *The Great American Gamble,* 51–53.
[32] Payne, *The Great American Gamble,* 37–39.

defend itself while still honoring its commitments, missile defense becomes a strategic enabler of alliance cohesion. If Washington can selectively shield its population from retaliatory attack, it lowers the perceived cost of fulfilling nuclear guarantees to allies under threat. In short, Kahn viewed missile defense not as a risk to deterrence, but as a reinforcement of it—both by complicating adversary decision-making and by bolstering allied confidence in US resolve.

Golden Dome, viewed through this lens, offers more than defensive capability. It projects strategic will. For Kahn, that projection is essential: a nation that prepares to prevail—even in the worst-case scenario—deters more credibly and assures more effectively than one that relies solely on the threat of mutual annihilation.

Conclusion

Brodie, Schelling, and Kahn developed their theories of deterrence in a Cold War environment dominated by a single nuclear peer. That world no longer exists. Today, the United States faces a more complex threat landscape—marked not only by two nuclear-armed great-power competitors in Russia and China, but also by regional actors and a broader array of delivery systems capable of striking the homeland. Traditional BMD systems, anchored in the Integrated Tactical Warning and Attack Assessment (ITWAA) architecture, were designed for a more linear threat. They now require urgent modernization. A new architecture—layered, multi-domain, and equipped with advanced sensors and interceptors—offers a potential pathway to defend against emerging threats, including hypersonics, cruise missiles, and drones. Yet protecting the homeland is no longer a stand-alone objective; it must be balanced with the need to reassure allies and preserve strategic stability with adversaries. Golden Dome, if it is to succeed, must navigate these competing imperatives with clarity, restraint, and purpose.

Interceptor Capability and Numbers

The current capabilities of US missile defense are well known. Both allies and adversaries are aware that the United States maintains 40 GBIs in Alaska and four at Vandenberg Space Force Base in California, supplemented by sea-based interceptors aboard Aegis-equipped cruisers and destroyers.[33] As Brodie and Schelling argued, this limited architecture plays a stabilizing role: it signals that US defenses are not designed to neutralize a peer adversary's second-strike capability, thereby preserving mutual vulnerability and contributing to strategic stability. While emerg-

[33] "Current U.S. Missile Defense Programs at a Glance" (fact sheet, Arms Control Association, January 2025), https://www.armscontrol.org/.

ing threats such as drones and hypersonics may demand new forms of interception, the most important variable for maintaining stability remains the number of interceptors capable of defeating ICBMs.

Here the arithmetic of deterrence becomes critical. China is estimated to possess roughly 400 ICBMs, with a potential launch capacity approaching 550.[34] Reports estimate that Russia has more than 500 ICBMs/SLBMs in total that could threaten America.[35] To field a homeland missile defense capable of reliably defeating either of these arsenals—let alone both—would require an interceptor inventory of enormous scale, whether deployed on land, at sea, or in orbit. Such an undertaking would be not only cost-prohibitive but strategically counterproductive. As Brodie warned, missile defense invites counteraction. For every US interceptor deployed, adversaries could respond by building additional offensive missiles at lower cost, rapidly restoring their numerical advantage and undermining the original investment.

There is also the problem of performance. No system, past or present, has demonstrated perfect reliability. Even Israel's Iron Dome—arguably the most effective operational missile defense system to date—has a 3–4 percent failure rate under optimal conditions, and considerably higher rates when facing maneuvering targets. For the United States, where adversaries possess thermonuclear warheads and global delivery systems, even a small margin of failure would carry existential risk. Brodie and Schelling both cautioned against seeking invulnerability through defense. The prudent course, consistent with their thinking, would be to deploy a limited number of interceptors sufficient to protect critical national infrastructure and defend against rogue-state attacks, while ensuring that China and Russia retain confidence in their second-strike capability.

Should future US strategy include the deployment of space-based interceptors capable of negating peer retaliation, that step must be taken with extreme discretion. If announced prematurely, such a system could destabilize deterrence and trigger an arms race before it is even operational. In line with Schelling's logic, any such capability should be treated as a strategic fait accompli—revealed only after it is deployed, functional, and irreversible. Moreover, as the United States moves to field new space-based sensors or interceptors, it must do so with a coherent strategy for securing freedom of action in space while avoiding actions that could provoke conflict in this increasingly contested domain.

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[34] Military and Security Developments Involving the People's Republic of China, 2024 (Washington: Department of Defense, 18 December 2024), https://media.defense.gov/.

[35] Hans M. Kristensen et al., "Russian Nuclear Weapons, 2025," *Bulletin of the Atomic Scientists*, 13 May 2025, https://thebulletin.org/.

Protecting Freedom of Action in Space

The success of Golden Dome will depend heavily on access to—and freedom of maneuver within—the space domain. Achieving the layered sensor coverage required to detect, track, and classify the full spectrum of modern threats will necessitate deploying additional satellites across multiple orbits, including LEO, MEO, and GEO. Space may also become the eventual home for future interceptors, should kinetic or directed-energy systems be stationed on orbit. Yet while space offers strategic vantage and global coverage, it is also an environment governed by physical and political constraints that make freedom of action uniquely difficult to preserve.

Unlike terrestrial battlefields, the laws of orbital mechanics—Kepler's and Newton's alike—render most space activity highly predictable. Satellites follow known trajectories, and maneuvering options are limited by fuel, physics, and position. In this domain, very little goes unnoticed. Any major deployment, repositioning, or unusual behavior by US assets would be immediately observable by adversaries. That level of transparency makes space both valuable and vulnerable, especially as Golden Dome becomes increasingly reliant on on-orbit infrastructure.

Preserving secure and assured access to space must therefore become a strategic imperative. This logic already found expression during the first Trump administration's 2018 *Nuclear Posture Review*, which declared that nonnuclear strategic attacks—including those targeting US or allied nuclear forces, command and control, and missile warning systems—could constitute "extreme circumstances" warranting a nuclear response. Notably, this formulation included attacks on space-based early warning and attack assessment systems.[36] As Golden Dome advances from concept to capability, a similarly clear declaratory policy will be necessary—one that makes explicit that attacks on key space-based assets will be treated as strategic in nature.

If the second Trump administration intends to field Golden Dome, it must also make clear that US freedom of maneuver in space is nonnegotiable. This means not only building resilient space architectures and redundant systems but also establishing credible deterrence against hostile acts in space. As the line between terrestrial and orbital warfare continues to blur, the protection of space-based capabilities will be foundational to the success—and survivability—of any future missile defense strategy.

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[36] *Nuclear Posture Review, 2018* (Washington: Office of the Secretary of Defense, February 2018), https://defenseinnovationmarketplace.dtic.mil/.

Assuring Allies . . . the Biggest Payoff

While Golden Dome is intended to enhance homeland defense, its most consequential strategic payoff may lie abroad—in the assurance it provides to US allies under the nuclear umbrella. As Herman Kahn argued, missile defense does more than protect populations; it signals to adversaries that the United States is prepared to escalate in a nuclear conflict while retaining the ability to shield its own citizens. This logic reflects Kahn's core principle of "leaving nothing to chance": when a nation builds defensive systems that reduce the cost of retaliation, it enhances the credibility of its deterrent posture. For allies facing nuclear coercion, that credibility is everything.

Although strategic stability between major powers has largely held since 1945, the United States' extended deterrence commitments have come under growing strain. The Russian invasion of Ukraine, rising Chinese assertiveness in the Indo-Pacific, and the rapid evolution of North Korea's nuclear arsenal have tested allied confidence. In his book *The Case for U.S. Nuclear Weapons in the 21st Century*, former Obama administration nuclear strategist Brad Roberts warns that "hedging"—allied efforts to seek independent capabilities—often reflects declining faith in America's extended deterrence.[37] The evidence is mounting. Polling in South Korea shows majority support for the return of US nuclear weapons to the peninsula, and even for domestic nuclear development.[38] In Europe, Poland has voiced interest in joining the NATO nuclear sharing arrangement, citing concerns over Russia's aggression and the forward deployment of Russian nuclear weapons in Belarus.[39]

In this environment, missile defense offers a powerful signal of American resolve. By investing in the ability to defend its own population, the United States demonstrates to allies that it is willing and able to uphold its security guarantees—making it more likely that Washington would follow through on nuclear commitments in a crisis. Golden Dome, then, becomes not just a shield for the homeland but a strategic reassurance mechanism for allies who increasingly view their security through the lens of proximity to nuclear-armed adversaries.

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[37] Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Stanford, CA: Stanford Security Studies, 2015), chapters 7 and 8 are where Roberts outlines his measures of performance for evaluating US extended deterrence.

[38] Mark A. Green, "Seventy-One Percent of South Koreans Now Support the Return of Nuclear Weapons to Their Country—Even if It Means Developing Their Own," *Stubborn Things* (blog), 31 January 2023, https://www.wilsoncenter.org/.

[39] Marek Magierowski, "Why Poland's President Wants US Nuclear Weapons - Atlantic Council," *New Atlanticist* (blog), 17 March 2025, https://www.atlanticcouncil.org/.

That said, the technical challenges remain formidable. Physics is only half the battle. The strategic utility of Golden Dome will depend not just on its performance, but on how its development and deployment are communicated to allies and adversaries alike. US policy makers must weigh how much transparency to offer: enough to reassure allies and deter opportunistic aggression, but not so much as to provoke arms racing or preemptive fears from peer competitors. Striking that balance—between credibility, ambiguity, and restraint—will be one of the most consequential strategic challenges of the coming decade.

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