Assessing the 2019 Missile Defense Review

- Arms Control Today

March 2019
In January 2019, the Trump administration released the results of the last of its planned major strategic policy reviews, the Missile Defense Review, to examine U.S. “policies, strategies, and capabilities...to counter the expanding missile threats posed by rogue states and revisionist powers.” It is the first such review since the Obama administration conducted one in 2010. To assess how U.S. missile defense goals and programs are evolving, *Arms Control Today* invited two experts to comment on the review: Laura Grego, a senior scientist at the Union of Concerned Scientists, and Elaine Bunn, a consultant with extensive government experience in missile defense policy.
Mixed Messages on Missile Defense
By Laura Grego

The arms control community has been waiting with great anticipation for the Trump administration’s 2019 Missile Defense Review to learn how the U.S. Department of Defense’s strategy would depart from previous Pentagon plans, whether new defenses would be proposed, and how the United States views the missile threats of its potential adversaries. With the new report in hand, many questions remain, but the review plants the seeds of a deeply problematic policy shift.

Some of the administration’s preferences were apparent before the report was released in January. President Donald Trump's budget requests in fiscal years 2018 and 2019 directed the expansion of existing theater and strategic ballistic missile defense systems. The 2018 National Defense Strategy and 2017 National Security Strategy, outlined missile defense goals broadly consistent with those of the Obama administration in its 2010 Ballistic Missile Defense Review, which focused on regional missile defense and development of a capability to defend the U.S. homeland against limited potential threats from North Korea and Iran.

The Obama administration sought ways to cooperate with Russia on missile defense and to engage Russia and China in discussions “to help them better understand the stabilizing benefits of missile defense.” The Obama administration investments largely reflected these objectives. It canceled its predecessor’s plan to put long-range interceptors in Europe and replaced it with a phased NATO system to defend against existing Iranian short- and medium-range threats and future longer-range missiles. The Obama administration also pursued negotiated limits on Iran’s capability to develop nuclear weapons, which culminated in 2015 with the Joint Comprehensive Plan of Action.

The Trump administration’s National Security Strategy report, released in December 2017, identified the “revisionist” powers of Russia and China as the United States’ primary strategic challenge, but it took pains to point out that “missile defense is not intended to undermine strategic stability or disrupt longstanding strategic relationships with Russia or China.”
Programmatic Continuity

The review reflects continuing support for established programs. It supports earlier Trump administration budget increases to augment the capacity of existing systems. For example, the administration sought funds to expand the Ground-Based Midcourse Defense (GMD) system in Alaska and California, which is designed to defend the U.S. homeland against a North Korean or Iranian intercontinental ballistic missile (ICBM) attack, from 44 to 64 interceptors and to build additional radars to enhance missile tracking and discrimination. The budget boost also supported increasing the number of ships comprising the sea-based Aegis regional missile defense system from 38 to 60 by 2023 and procuring more of that system’s most capable, Standard Missile-3 (SM-3) Block IIA interceptors and testing them against ICBM targets by 2020.

Surprisingly, the review delayed decisions on a number of issues. Although the report discusses different boost-phase ballistic missile defense ideas, including space-based interceptors and new interceptors for F-35 Lightning II aircraft, it does not begin programs of record for them. Rather, it orders the Pentagon to conduct six-month studies on them and continues research and development on the existing drone-based, directed-energy, boost-phase program.

Defense against cruise and hypersonic missiles are part of the review’s vision, regionally at first and eventually for the homeland. The report orders the Defense Department to flesh out plans for these defenses in the coming months.

No fewer than 11 studies or decisions are left as homework to be completed in the year after the report’s release. These include looking at a laundry list of possible new programs without clarifying which potential programs are most important, what criteria they must meet, or how they would fit into the overall missile defense posture.

Strategy and Policy

Although the review did not introduce major new systems or cancel any current systems, it should not be mistaken for a simple continuation of previous policy.
Until 2016, U.S. missile defense policy was guided by the carefully negotiated National Missile Defense Act of 1999, in which Congress called for deploying an effective system to defend against a limited missile attack on the United States. Limited attack was understood to be a few missiles from a country such as North Korea or a small accidental or unauthorized launch by China or Russia.

In 2016, however, Congress quietly and with little substantive debate rewrote the act, eliminating the word “limited” and opening the door to defending against the larger and more sophisticated Russian and Chinese missile arsenals. How far would the Trump administration walk through this open door? The Magic 8 Ball says, “Reply hazy.”

Some of this is due to inconsistent messaging. When unveiling the document at the Pentagon in January, Trump described an expansive but certainly unachievable vision for missile defense: “to ensure that we can detect and destroy any missile launched against the United States—anywhere, anytime, anyplace.”

This is a stark departure from long-standing policy, not to mention unattainable technically or financially. The president has yet to amend this statement. In fact, his administration has amplified the message. U.S. Secretary of State Pompeo has suggested that Russia would see itself as a target of U.S. missile defense: “What is Russia seeing from the Trump administration?… [A] missile defense review that makes sure that America will be capable of defending itself not only next year but 20 years from now. I assure you that none of these things sat well with [Russian President] Vladimir Putin.”

This approach stands in sharp contrast to the statement of principle in the review: “Russia and China also are expanding and modernizing their strategic offensive missile systems, including the development of advanced technologies. The United States relies on nuclear deterrence to prevent potential Russian or Chinese nuclear attacks employing their large and technically sophisticated intercontinental missile systems.”

The president’s comments could indicate a lack of disciplined discourse, but a careful read of the report reveals a tension between this language and its actual approach. Although the Trump report argues that missile defense is “stabilizing,” as did the Obama administration, its contents counter this framing.

First, the significant buildup of strategic-capable ballistic missile defenses, including the GMD system and the Aegis ship- and shore-based missile defense interceptors, will have strategic implications for Russia and China whether they are currently described as its targets or not.

The Aegis system's most capable interceptor, the SM-3 Block IIA, is slated to be tested against an intercontinental-range missile target by 2020. The inventory of GMD and SM-3 Block IIA interceptors may eventually number in the hundreds. They will be supported by additional ground-based radars to track adversary missiles and to improve the system's capability to discriminate warheads from decoys. The report also refers to plans for a space-based constellation of sensors to track missiles launched from anywhere “from birth to death.” Hundreds of strategic-capable interceptors, an expansive constellation of space-based sensors, and new suite of radars would be difficult for a near-peer adversary to overlook.

As these investments continue, Russia and China fear the United States may one day believe it has a credible first-strike capability; this is an incentive to improve and diversify their nuclear delivery systems. Indeed, the Chinese and Russian development of systems designed to overcome ballistic missile defenses, such as multiple independently targetable re-entry vehicles and hypersonic and cruise missiles, are presented in the report as novel threats rather than steps taken to hedge against a U.S. missile defense system that has not been constrained since the 2002 U.S. withdrawal from the Anti-Ballistic Missile (ABM) Treaty. This action-reaction cycle is the very dynamic the 1972 ABM Treaty was designed to prevent. Indeed, without any intervening arms control, a cyclical, costly, and dangerous buildup of offense and defense seems all but guaranteed.

This review amplifies the issue with its very deliberate integration of offensive and defensive
strategies. The report proposes bringing attack operations into the overall missile defense posture as a triad along with active defenses, such as interceptors, and passive defenses, such as hardening and dispersal of potential missile targets. These attack operations, essentially a kinetic version of “left of launch,” are a pre-emptive strategy of targeting potentially mobile missiles before an adversary’s first attack.

Although the report’s discussion of pre-emptive attack centers on rogue states, Russia and China will find it difficult to ignore the elevation of this strategy, particularly as the United States spends more on overhead sensors designed to provide constant coverage and long-range conventional prompt global-strike capabilities, including hypersonic missiles, that could hold strategic targets at risk. This begins to look more like a strategy supporting a disarming first strike rather than a deterrence strategy. Indeed, the first Russian statement on the review cited this exact concern.2

The renewed interest in space-based missile defense is likely to worsen these concerns. The report suggests that a space-based interceptor layer could “increase the overall likelihood of successfully intercepting offensive missiles [and] reduce the number of U.S. defensive interceptors required to do so.”

Space-based missile defense has not been a Pentagon favorite and has not appeared in a budget request for a decade. Expert advice has consistently warned that such a system would be exorbitantly expensive. A 2012 National Research Council study concluded that an “austere” space-based defense to defeat a few North Korean missiles would require more than 650 satellites and cost more than $300 billion.3

That expense is likely to be prohibitive, but is not the greatest challenge. Space-based missile defenses, whether interceptors or lasers, are vulnerable to being overwhelmed by salvo missile launch or disabled by anti-satellite weapons, rendering the system ineffective. Space-basing would allow U.S. interceptors to get close to a launching missile, but putting assets in space makes them particularly susceptible to attack. It is difficult to imagine such a system could be constructed in full without it being challenged politically by opponents to space weaponization and militarily by adversaries.

The review-mandated “examination” of space-based missile defense concepts may include on-orbit experiments. This would be extremely problematic because even a small number of interceptors in the guise of research and development would be destabilizing. Putting weapons in space would cross a line that has held firm for more than 60 years and make much more difficult any prospect for limits on space weapons and anti-satellite weapons necessary to underpin a secure and sustainable space environment into the future.

Implications for Future Arms Control

The report makes no more than a cursory reference to arms control and states clearly, as did the Obama administration’s report, that “[t]he United States will not accept any limitations on the development or deployment of missile defense capabilities.” Russia has made it very clear, however, that it is not prepared to negotiate further limits on offensive nuclear weapons without including defenses in the discussion. This creates some urgency for U.S.-Russian leaders to agree to extend the New Strategic Arms Reduction Treaty, which is due to expire in 2021. An extension would provide more time for what are likely to be difficult negotiations for a follow-on agreement. Without a treaty extension, there is a dangerous prospect of having no limits on strategic nuclear systems in the near future.

Whether Trump’s vision of an all-encompassing missile defense or the more moderate review carries the day will become more clear when the fiscal year 2020 budget request is submitted this month. The full impact of the review, however, will not be felt until the completion of the many commissioned studies later this year. The biggest changes may instead appear in the fiscal year 2021 budget submission.

Congress will certainly get its say and will be significantly more skeptical about missile defense than it has been in past years. The Senate’s main patrons of space-based missile defense, Senator Ted
Cruz (R-Texas) and former Senator Jon Kyl (R-Ariz.), are no longer on the U.S. Senate Armed Services Committee. Furthermore, the new Democratic leadership of the House of Representatives has made clear it intends to increase missile defense oversight and to reject programs that could fuel an arms race.  

Musings of a Missile Defense Moderate
By Elaine Bunn

The 2019 Missile Defense Review describes U.S. planning for new and modified missile defense technologies to face increasingly complex missile threats from the nation’s adversaries. Some of these developments do not fit neatly into categories implicit in past missile defense discussions. In some respects, what the report describes and the way it was presented leave uncertainty and ambiguity.
Over the past two decades, three intersecting questions have informed missile defense efforts. First, is the objective to defend the U.S. homeland or forces abroad and allies? Second, what types of missiles are U.S. defenses intended to defeat? Historically, the targets were ballistic missiles, but the new review includes cruise missiles and hypersonic glide vehicles. Third, which countries’ missiles are U.S. defenses designed to destroy? Earlier U.S. missile defense policies aimed to protect the U.S. homeland and areas abroad from North Korea and Iran, to provide regional but not homeland defense against Chinese threats; and to offer neither homeland nor, in practice, regional defense against Russian missiles.

The 2019 review suggests that the answers to these questions are evolving, redefining the missile defense discussion into five “To Be Determined” areas.

The Scope of Homeland Defense

The report says that homeland missile defense is intended to protect against rogue states such as North Korea and potentially Iran, not against Russia and China. “U.S. missile defense capabilities will be sized to provide continuing effective protection of the U.S. homeland against rogue states’ offensive missile threats. The United States relies on nuclear deterrence to address the large and more sophisticated Russian and Chinese intercontinental ballistic missile capabilities, as well as to deter attacks from any source.” This was also the approach of the two previous administrations regarding the long-range missile threats of Russia and China.

Separating Russian and Chinese threats from other state threats stems from the technical question of what missiles the United States is capable of defeating. Defending the U.S. homeland from a North Korean intercontinental ballistic missile (ICBM) or a hypothetical Iranian one is within the realm of the doable. Defending against Russia or China, when they are determined to be able to strike the United States, is not doable, at least not without some technological breakthrough.

The review’s recommendation to add 20 ground-based interceptors (GBIs) at Fort Greely, Alaska, simply continues the past policy of “staying ahead” of the North Korean ICBM threat and a potential Iranian one. Russia and China may complain about the increase in the number of GBIs; they have been reacting negatively for years to U.S. homeland and some regional missile defense deployments, even when the last U.S. administration repeatedly made clear that U.S. homeland defense capabilities were not designed against and would not undermine Russian or Chinese strategic deterrent capabilities.

At the January announcement of the report’s release, however, President Donald Trump said, “Our goal is simple: to ensure that we can detect and destroy any missile launched against the United States—anywhere, anytime, anywhere.” Although such rhetoric may be merely aspirational, it would appear to envision defending the U.S. homeland not just from North Korean and Iranian threats, but also from Russian and Chinese missile attacks. The variance between the report and Trump’s words, combined with the U.S. exploration of new technologies, raises the question of whether the administration is creating intentional policy ambiguity. This lack of clarity could be viewed as an effort to undermine Russian confidence that it could ever succeed in a very limited, “escalate-to-de-escalate” strike against the U.S. homeland.

Homeland Defense Against Nonballistic Targets

It is unclear whether the report proposes defending the U.S. homeland by intercepting Russian and Chinese cruise missiles and hypersonic glide vehicles or just seeks to improve early warning of such attacks. In some sections, the report focuses on early warning; in others, it appears to be talking only about regional defense against Russian and Chinese cruise missiles and hypersonic glide vehicles. In still other sections, the report states that enhancing U.S. ability to track hypersonic glide vehicles and advanced cruise missiles will make defeating them possible.

Addressing cruise missiles specifically, the report mentions plans to improve defenses for the United States and Canada. The report also calls for a six-month study on which organization should have
the responsibility for acquiring U.S. capabilities to defend the homeland against cruise missiles.

The recommended policy and program directions are unclear and possibly self-contradictory. The report reaffirms the U.S. policy of not designing or sizing homeland defense to deal with the sophisticated and numerous Russian and Chinese ballistic missile threats. Then why try to defend the U.S. homeland against just their cruise missile or hypersonic glide vehicle threats with missile defenses? Improving early-warning systems, on the other hand, would increase warning time to disperse national command authorities and avoid the perception that a decapitating strike could work.

**Testing Interceptors Against ICBMs**

In the area of regional missile defense, this year’s review produced continuity and change from previous ones. In continuity, the report maintains the long-standing U.S. emphasis on cooperation and interoperability with allies and partners on regional missile defenses. In addition, the European Phased Adaptive Approach (EPAA), the U.S. contribution to NATO missile defense against threats from the Middle East, is unchanged. Plans continue for Aegis Ashore deployments in Poland, though by 2020 instead of 2018 due to construction delays, including at least some of the more advanced Standard Missile-3 (SM-3) Block IIA interceptors.

As for change, the report discusses plans to test this interceptor against an ICBM by 2020 to assess its potential to provide an additional layer for homeland defense against rogue states’ long-range missiles. Russia will likely complain that such testing will enable NATO sites with SM-3 Block IIA interceptors to intercept Russian ICBMs.

The locations of the Polish base and another in Romania will, however, prevent their interceptors from destroying Russian long-range missiles. By the time the interceptors are alerted to a launch, they would need to chase the faster-accelerating Russian targets from behind and could not catch up. As a “catcher’s mitt” near the U.S. homeland, SM-3 Block IIA interceptors may be able to defend a small area against relatively simple ICBMs, not Russian ones. Nevertheless, testing these interceptors against an ICBM may well increase U.S.-Russian and NATO-Russian tensions. Likewise,
China may complain about such tests because Japan is co-producing and plans to deploy its own SM-3 Block IIA interceptors.

How this interceptor will fare in tests against an ICBM, where it may be deployed for homeland defense if tests are successful, and what the implications will be for relations with Russia, China, and allies are all open issues.

**Countering Russia’s Anti-Access and Area Denial Missiles**

Although EPAA plans remain unchanged, the 2019 report is more explicit about regional missile defense against all potential adversaries, including Russia. The 2010 report was clear about using regional defenses to counter rogue states’ and Chinese short- and intermediate-range missiles. This year’s report makes clear that Russia is now included in such defenses.

There were multiple reasons the last administration did not design and plan defenses against Russia’s regional missiles. Under the Intermediate-Range Nuclear Forces Treaty, Russia was not supposed to have land-based, intermediate-range missiles; and there was scant concern over sea- or air-launched regional missiles or the short-range, land-based missiles allowed by the treaty.

Russia’s 2014 invasion of Ukraine and its illegal annexation of Crimea changed the way the United States and NATO viewed Russia. The strategic concern now is that Russia could use its regional ballistic and cruise missiles to prevent or complicate U.S. reinforcement of its allies in Europe. The vulnerability of ports and airfields and the need to defend them came up late in the Obama administration as planners worried about potential scenarios in the Baltic countries.

NATO’s Integrated Air and Missile Defense policy and doctrine seem to allow for such regional missile defense capabilities, but the United States and its allies have lacked any significant capability in this area since the Cold War. An increased focus on missile defense against Russian anti-access and area-denial threats will necessitate further conversations with European allies about what capabilities are needed, how much the United States will do, and how much allies will be expected to contribute. Current relations with allies, some of which are anxious about Trump’s commitment to alliances, will likely make these conversations more difficult. In any event, there will continue to be competing demands on U.S. and allied budgets. It is not clear how far or how fast increased regional missile defense capabilities will materialize.

**New and Repurposed Technology**

The 2019 report places renewed emphasis on new technology, funded at low levels in the last administration, as well as repurposing existing technology and solving the long-standing problems of boost-phase intercept, directed energy for defenses, and space-based interceptors.

Enthusiasm about boost-phase intercept is understandable because it is conceptually very attractive to be able to shoot down missiles near their launch point. In the past, either technological hurdles, such as getting lasers to propagate through the atmosphere, or operational drawbacks, such as flying continuous air patrols near ballistic missile targets, have undermined boost-phase defense efforts. A new study may find new solutions, such as interceptors on F-35 aircraft or directed-energy breakthroughs, or again burst the conceptual bubble.

Several of the most interesting decisions about cutting-edge capabilities have been put into studies due six months after the report’s release. These include a study on developing and fielding a space-based intercept layer capable of boost-phase defense and a study identifying the resources, testing, and personnel requirements necessary for defense against hypersonic threats. That means the implications of the review for space-based intercept and for defense against hypersonic missiles are not yet known and will not be clear until at least June. Until then, celebration on the part of supporters or chagrin on the part of opponents is premature.

If successful, programs for boost-phase intercept, directed-energy, and space-based interceptors could be relevant for homeland and regional defenses against multiple types of missiles from a variety of countries, thus blurring the previous missile defense distinctions.
Evolving Thinking

How these “To Be Determined” issues play out will be affected by the answers to two additional questions: What will Congress do this year and in coming years about missile defense? Will the U.S. Department of Defense get the money needed to do all the things in the report?

Funding aside, the 2019 report recognizes growing complexity in the distinctions that previously defined missile defense policy, plans, and programs: homeland versus regional defenses, ballistic missiles only or cruise or hypersonic missiles too, and the identification of which countries’ missiles were to be included in homeland defense and which in regional defense programs. Given those complexities, the thinking about missile defense policy and programs, as well as discussions with allies on cooperation and with adversaries on potential arms control and transparency, will need to evolve.

ENDNOTES (Mixed Messages on Missile Defense by Laura Grego)


Laura Grego is a senior scientist in the Global Security Program at the Union of Concerned Scientists. She is a physicist by training and focuses her research and advocacy on missile defense and space security issues.

Elaine Bunn is a consultant whose previous 40-year U.S. government career spanned six presidential administrations. Her first missile defense job was in 1986, and her last was serving as deputy assistant secretary of defense for nuclear and missile defense policy in the Obama administration.