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Missile Defense: Time to Go Big
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Overview

Nations around the world continue to develop a growing range of ballistic and cruise missiles to asymmetrically threaten U.S. forces, allies, and the American homeland. Missile defenses have now become an essential part of U.S. defense policy and strategy, and their importance shows no sign of diminishing.

During the campaign, President-elect Donald Trump pledged to “develop a state of the art missile defense system.” Several means to a more effective, robust, and layered missile defense include increased capacity and capability, new concepts of operation, more expectations of allies and partners, a space sensor layer, and next generation technologies. These and others will require a budgetary correction away from the downward trend of the past decade, during which the Missile Defense Agency (MDA) budget declined by nearly a quarter, from $11 billion in 2007 to $8.4 billion in 2016 (2017 dollars).

“We propose to rebuild the key tools of missile defense.”

President-elect Donald Trump – September 7, 2016
One especially pressing threat is posed by North Korea. Pyongyang has accelerated the pace of its provocations to unprecedented levels, with 22 missile tests and two nuclear detonations in 2016 alone. Iran is also bolstering its missile capabilities, with a steady testing program and the apparent aim of improving accuracy to better threaten military targets.

Russia and China continue to advance their already sophisticated missile arsenals at both the strategic and tactical level. Russia is modernizing all three legs of its nuclear triad, maintains a suite of short-range ballistic missiles and cruise missiles to hold NATO at risk, and has tested an intermediate-range ground-launched cruise missile (GLCM) in violation of the INF Treaty. Besides improving its intercontinental ballistic missiles (ICBMs) and submarine launched ballistic missiles (SLBMs), shorter-range missiles are a key part of Beijing’s anti-access/area denial (A2/AD) strategy for regional conflict.

The Trump administration’s missile defense initiatives will also be informed by two recent actions on Capitol Hill. The first is a provision in the recently passed defense authorization act, updating the 1999 National Missile Defense Act. Much has transpired in the past 17 years, including the deployment of homeland missile defenses, a globalized demand for regional defenses, and a
much more complex threat set. The revision mandates that the United States maintain and improve an effective, robust and layered defense of the U.S. homeland, allies, deployed forces, and other capabilities against increasingly complex missile threats. In so doing, it removes some anachronisms and more closely tracks the emerging strategic environment.

<table>
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<th>1999 NMD Act</th>
<th>FY 2017 NDAA</th>
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<td>It is the policy of the United States to <strong>deploy as soon as is technologically possible</strong></td>
<td>It is the policy of the United States to <strong>maintain and improve</strong></td>
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<td>an <strong>effective</strong> National Missile Defense system</td>
<td>an <strong>effective, robust layered</strong> missile defense system</td>
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<td>capable of defending the <strong>territory</strong> of the United States</td>
<td>capable of defending the territory of the United States, <strong>allies, deployed forces, and capabilities</strong></td>
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<td>against <strong>limited</strong> ballistic missile attack (whether accidental, unauthorized, or deliberate)</td>
<td>against the <strong>developing and increasingly complex</strong> ballistic missile threat</td>
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<td>with funding subject to the annual authorization of appropriations and the annual appropriation of funds for National Missile Defense.</td>
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Besides the “increasingly complex ballistic missile threat,” non-ballistic missiles are also a problem. The recent defense bill also mandates that the incoming administration undertake a new Missile Defeat Review, a more expansive successor to the 2010 Ballistic Missile Defense Review (BMDR). Due in January 2018, this report requires declaratory policy and strategy to defeat cruise and ballistic missiles using kinetic and non-kinetic means, both before and after launch, and with improved integration of offensive and defensive capabilities.

**Recommended Changes**

**Broad Review.** One initial task of the incoming administration will be to evaluate the state and direction of current missile defense policy, programs, and strategy. For good reason, the past three administrations have shared a discomfort about remaining wholly defenseless against ballistic missile attack. The refusal to rely on purely offensive deterrence or accept strategic vulnerability with North Korea should be retained, but additional action may be required to outpace the threat.

A separate question concerns Russia and China. The 2010 BMDR observed that long range homeland missile defenses would be used against missile attack from “any source,” but also noted that interceptor capacity is insufficient to defeat large scale attacks and furthermore is “not
intended to affect the strategic balance” with Russia and China. As the administration conducts a review of missile defense and defeat strategies and policy, missile defense should be examined as a means to enhance deterrence. Defenses for military forces and strategic capabilities, for instance, could improve their survivability, and thus enhance strategic stability. At a minimum, the Trump administration should continue to refuse any legally binding limitations on the capability, capacity, or characteristics of U.S. missile defenses.

*New Concepts of Operation.* Further opportunities exist in revolutionizing missile defense with alternative basing modes and concepts of operations. The Army’s forthcoming Integrated Battle Command System may provide the basis for moving from the current interceptor-specific construct and toward a more distributed and network-centric architecture. Just as the launch tubes of Aegis ships carry mixed loads, a given launcher or platform might carry Standard Missiles (SMs), THAADs, PATRIOTs, or other effectors, networked to support “any-sensor-any-shooter” flexibility. Such a mix-and-match philosophy would permit a wider defended area, increased defense depth, and greater survivability and resilience. Further possibilities may exist with other multi-mission applications. With a new seeker, for example, the SM-6 has evolved to support anti-ship and land-attack missions.

*Realign Homeland Focus to Match Policy.* Both the Bush and Obama administrations identified homeland missile defense as the first U.S. missile defense priority. Since 2010, however, both the homeland missile defense funding topline and its percentage share within MDA have fallen considerably. In the face of growing missile threats, the Trump administration should focus on improving capability and reliability with a newly redesigned kill vehicle, completing the new discrimination radar in Alaska, and paving the way to put multiple kill vehicles aboard a single interceptor for “volume kill.” Near-term capacity improvements may also be necessary, in the form of more Ground-based Interceptors at Fort Greely, Alaska. The current rate of adding about one interceptor per month will deliver the currently-planned 44 interceptors by the end of 2017. Continuing that same pace would yield about 68 by 2019 and 80 by 2020.
Regional Defenses. President-elect Trump highlighted on the campaign the shortfall in BMD-capable Aegis ships and his plan to modernize the cruisers and preserve their missile defense capability. Similar capacity shortfalls afflict the THAAD and PATRIOT forces. The Army does not have a plan to get to its stated requirement of nine THAAD batteries, a number set in 2012 amid a comparatively rosy geopolitical environment. THAAD follow-on improvements are also stalled. Capacity shortfalls have led to a strained and unsustainable operational tempo for the Army’s PATRIOT battalions, which has also complicated the timing for much-needed modernization. An additional battalion or different rotations could relieve this strain.

Europe and Aegis Ashore. Another decision point will be the future of missile defenses for Europe, and in particular the Aegis Ashore sites oriented towards Iran. NATO adopted missile defense as a core alliance mission in 2010, with Aegis Ashore and Aegis ships representing the principal U.S. contribution. In the future, the Russian threat, most notably from aircraft, cruise missiles, and short-range or theater ballistic missiles, will require NATO’s attention. The Obama administration steered missile defense efforts for Europe entirely away from Russian capabilities, but this may need to change. The first “A” in the European phased adaptive approach (EPAA) stood for adaptive, and it is time to both acknowledge and adapt to new lower-tier missile threats to NATO, including aircraft, UAVs, cruise missiles such as the Kalibr, and short-range ballistic missiles like
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Iskander. A new initiative for Integrated Air and Missile Defense (IAMD) for NATO that protects military bases, forces, and critical communication and transportation nodes would help deter aggression and support the European Reassurance Initiative. One way to advance IAMD for Europe might be with a NATO air and missile defense Center of Excellence, perhaps located in Poland.

Ask more of Allies and Partners. Another opportunity is to do more with, and expect more from, friends and allies. Building partner missile defense capacity could greatly alleviate actual and potential strain on U.S. forces, and defray costs. This effort should include a prioritization on missile defense Foreign Military Sales or co-development like the joint U.S.-Japan work on the SM-3 IIA interceptor. Other avenues to reduce cost and increase defenses include coordinated, trans-national and even trans-regional bulk buys to reduce the unit costs. Both executive and legislative branches must also ensure that plus-ups for missile defense-related foreign assistance to allies do not inadvertently shortchange U.S. missile defenses.

Update the MDA Charter. When created in 2002, the express intention for MDA was to develop and field new missile defense systems and then transfer to the Services the responsibility for ongoing procurement and operational costs. For a variety of reasons, MDA has instead retained significant responsibility for procurement and operations, which when combined with a declining top line has squeezed out the research and development focus necessary to outpace future threats—becoming more like a Combat Support Agency and less like the DARPA of missile defense. Congress has furthermore designated MDA as the responsible agency for both emerging hypersonic boost-glide vehicles and for technical aspects of IAMD. This trend of increased expectations for MDA seems likely to continue, so both the scope of MDA’s charter and its budgetary profile may need an update.

Space Sensor Layer. The vantage point of orbiting sensors provides both persistence and potentially the “holy grail” of birth-to-death tracking of hostile missiles, which dramatically improves the lethality of both homeland and regional defenses. The value of such sensors is well accepted, and the technologies and concepts have been demonstrated. Every missile defense architecture across five administrations has (on paper) included a space sensor layer for missile tracking and discrimination—but each failed to actually build it. A Trump campaign memo from
October 2016, however, specifically endorsed "a comprehensive ballistic missile defense system with a heavy emphasis on space-based early warning and missile tracking technologies."

For more about missile proliferation and missile defenses, visit the CSIS Missile Defense Project site at www.MissileThreat.CSIS.org.

Next Generation Technologies. A final area in which the Trump administration can correct a recent adverse trend is with advanced missile defense technology, which has experienced considerable funding decline. While the technology is not yet ready for fielding, various forms of directed energy have the potential to revolutionize the missile defense enterprise, increase capacity, and considerably lower the cost of intercept. One current concept that should receive additional attention is mounting lasers on UAVs, both for missile tracking and boost phase intercept. Additional investments should be directed to the continued block evolution of the Standard Missile and THAAD programs and on accelerating work on volume kill.
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