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MISSILE DEFENSE PROJECT

December 5, 2017

Dissecting the Big Missile Defense Plus-up

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CSIS Commentary

Key Points

- **Missile defense funds are likely to grow—a lot.** In addition to a September reprogramming of an additional $249 million for the Missile Defense Agency for FY 2017, appropriations for FY 2018 could exceed $11 billion, over $3 billion more that than the president's original request. This would make for the highest level of missile defense funding in a decade.

- **The increases are spread around.** Only $2.0 billion of a November $4.7 billion budget amendment for missile defense and defeat programs goes to the Missile Defense Agency. An additional $822 million goes to Army missile defense and $1.6 billion to other programs. Another $673.5 million is allocated for repairing the USS *John S. McCain* (DDG-56) and USS *Fitzgerald* (DDG-62), both of which are Aegis ballistic missile defense (BMD)-equipped destroyers currently out of action.

- **Much of the increase goes to procurement.** This includes interceptor buys for all four deployed systems (Patriot, Terminal High Altitude Area Defense [THAAD], Aegis, and Ground-based Midcourse Defense [GMD]), making up for recent procurement cutbacks.

- **It's not all for "missile defense," as typically understood.** Some of it is focused on countering missile threats earlier, or "left of launch," rather than intercepting them after they are in the air.

- **It's not real until its real.** While the National Defense Authorization Act (NDAA) and Senate Appropriations Defense Subcommittee recommendations represent strong markers of congressional intent, they are not appropriations. Failure to come to agreement on a budget bill could result in the extension of lower 2017 funding levels under a continuing resolution.

The Top Line Up Front

Over the past few months, the United States has taken major steps to increase funding for missile defense in light of the North Korean missile threat.

The Trump administration's original May 2017 budget request for fiscal year (FY) 2018 continued similar funding levels from the last years of the Obama administration. Momentum for additional funding began building over the summer and fall in the wake of several North Korean intercontinental ballistic missile (ICBM) tests, a nuclear test, and other provocations. In late September, just prior to the end of the 2017 fiscal year, Congress approved a White House reprogramming request that allocated an additional $368 million for missile defense and defeat, $249 million of which went to the Missile Defense Agency (MDA). These funds went primarily to the GMD system to begin adding 20 more Ground-Based Interceptors (GBIs) and a new missile field at Fort Greely, Alaska. This boost pushed the overall FY 2017 MDA budget to $8.5 billion.

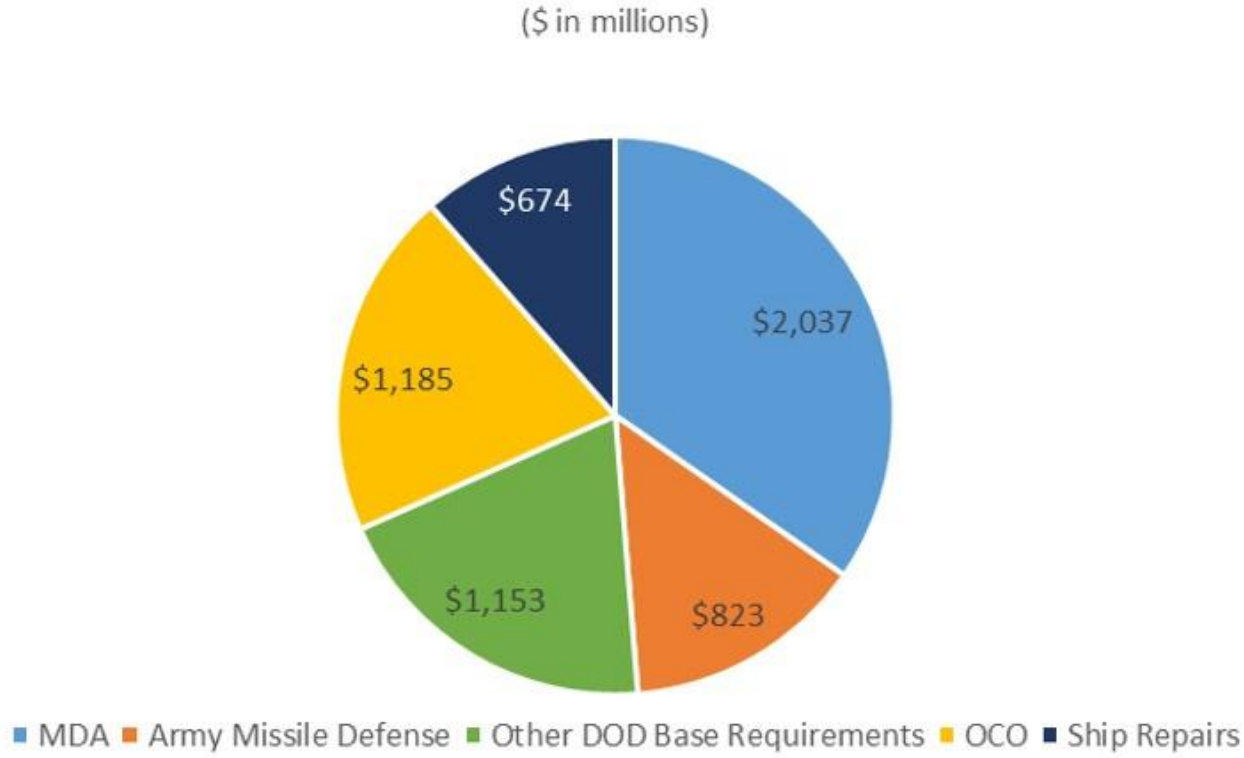
On November 6, the White House submitted to Congress a budget amendment to add $5.9 billion to its FY 2018 Department of Defense (DoD) budget, the majority for missile defense and defeat efforts, including $2 billion for MDA. Shortly thereafter, Congress passed the final post-conference version of the National Defense Authorization Act, and the Senate Appropriations Committee Defense Subcommittee (SAC-D) released its recommendations for the fiscal year 2018 budget.

These numbers suggest that missile threats from North Korea and others seem to have the attention of legislators. In the case of MDA, the proposed spending levels would be the agency's highest levels of funding in over a decade, in constant inflation-adjusted dollars, just shy of the 2005 and 2007 highs in the George W. Bush administration.

The emergency request and NDAA also emphasize the importance of moving beyond ballistic missile defense to a more integrated air and missile defense (IAMD) posture. The phrase "missile defense and defeat" appears throughout the FY 2018 NDAA, suggesting a more holistic attention to not only intercepting threat missiles once they have been launched, but a variety of ways of neutralizing or otherwise defeating their effective use by an enemy. This language was mirrored in the president's emergency request referring to "missile defeat and defense enhancements." The language also follows last year's congressional mandate for a missile defeat policy review, which has presumably been combined with the presidentially mandated Ballistic Missile Defense Review (BMDR).

Much of the $4 billion emergency request, moreover, has nothing to do with so-called right of launch missile defense, but rather missile defeat, such as "offensive" fires like the Army Tactical Missile System (ATACMS). The exact contours of the missile defeat programs remain obscure due to classification, but they likely include some advanced concepts and technologies for targeting and strike missions, using both kinetic and nonkinetic means (potentially including cyber and electronic warfare). MDA gets a significant piece of this, but so do other organizations (see figure 1).

Figure 1: Breakdown of DoD Budget Amendment Request for FY2018



The NDAA added $797 million on top of the president's total request, for a final MDA top line of $10.7 billion. This top line is $2.8 billion greater than the 2017 NDAA, a 35 percent increase, and a $2.3 billion increase over the final, post-reprogramming 2017 appropriations, a 27 percent increase. The SAC-D recommended an MDA top line of $11.1 billion. If passed, this would be the third-largest MDA appropriation ever in inflation adjusted dollars (after 2005 and 2007) and a 41 percent, or $3.3 billion, increase relative to the original President's Budget (PB) request. The overall top line in the final appropriations bill may rise by another $200 million for construction of Missile Field 4 at Fort Greely, Alaska, but this appropriation is not included in the SAC-D figure because a different appropriations committee approves military construction (MILCON) and its markup was completed before the emergency request. The SAC-D legislation will also have to be reconciled with the House Appropriations bill from June that had a substantially lower spending level—an $8.6 billion top line for MDA—but that bill was also produced before the emergency request.

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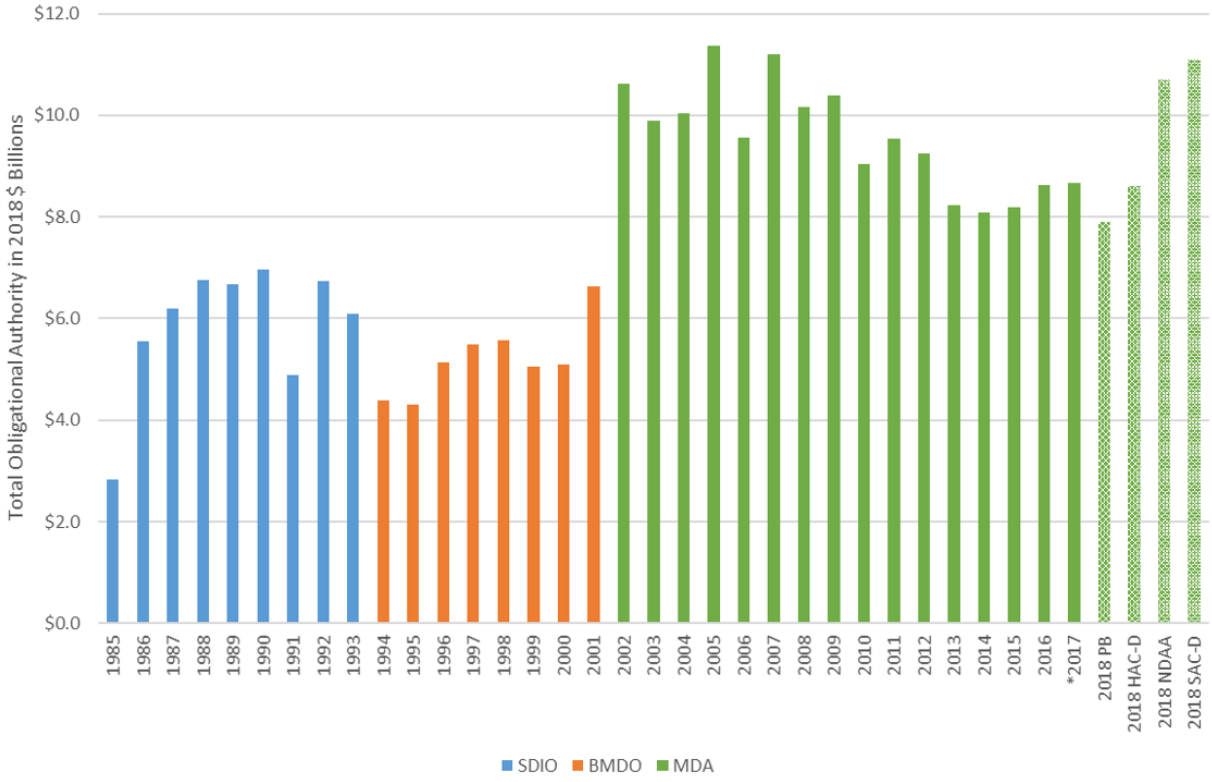
Figure 2: SDIO/BMDO/MDA Top-Level Funding

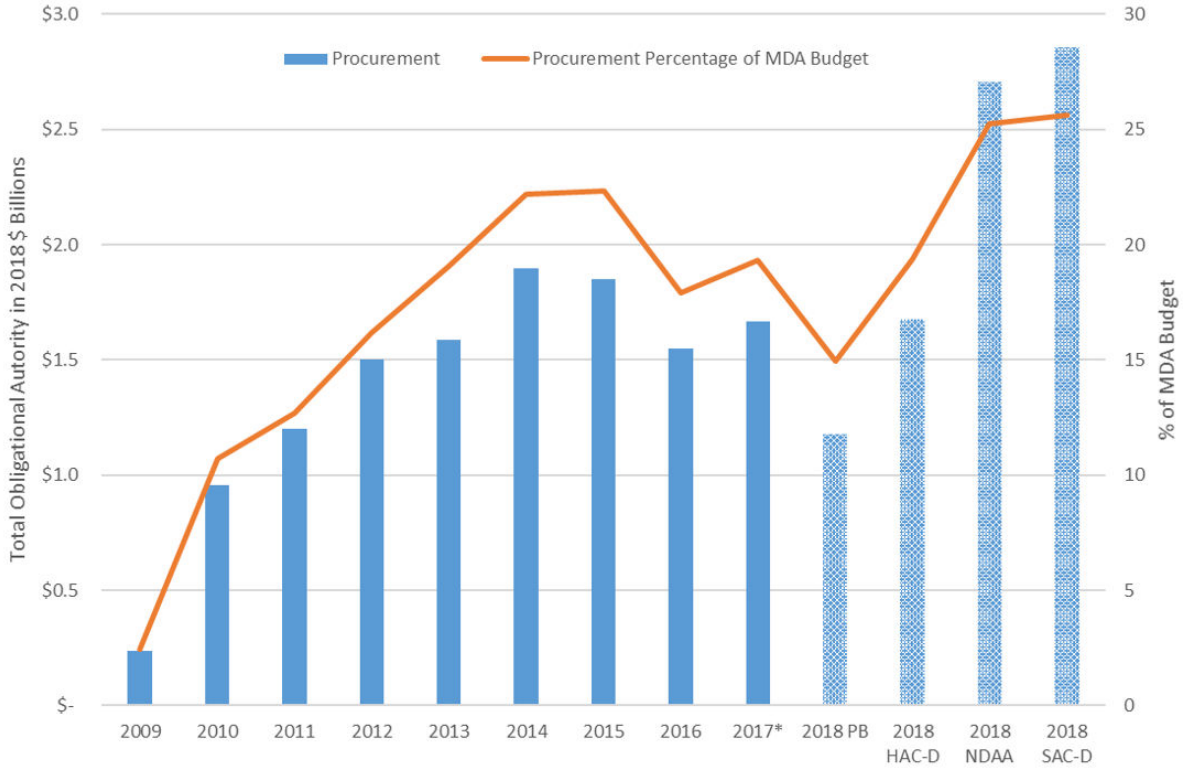


The Procurement Uptick and MDA's Identity

Much of the boost goes to procurement accounts—buying more of all four families of missile defense interceptors, including PAC-3 (within the Army), THAAD, Aegis, and GMD. This procurement funding is sorely needed to make up for shortfalls in the last decade. In 2016, for instance, former MDA director VADM James Syring specifically highlighted cutbacks to the procurement of interceptors as an area of increased risk that had been accepted given MDA's declining topline. Procurement accounts for just over 25 percent of MDA's budget approved in the NDAA and Senate appropriations bill, a historic high (see figure 2).

This high percentage of procurement spending once again raises questions about the roles and missions of MDA, an ostensibly research and development focused agency. MDA's increased attention to both procurement and operations is partially due to budget crunches in service budgets and MDA's streamlined acquisition authorities. Yet there is a risk that these efforts will crowd out funding for crucial programs to outpace future threats technologically. A rebalance toward research and development may be required in future budgets to stay ahead of the rapidly developing missile problem.

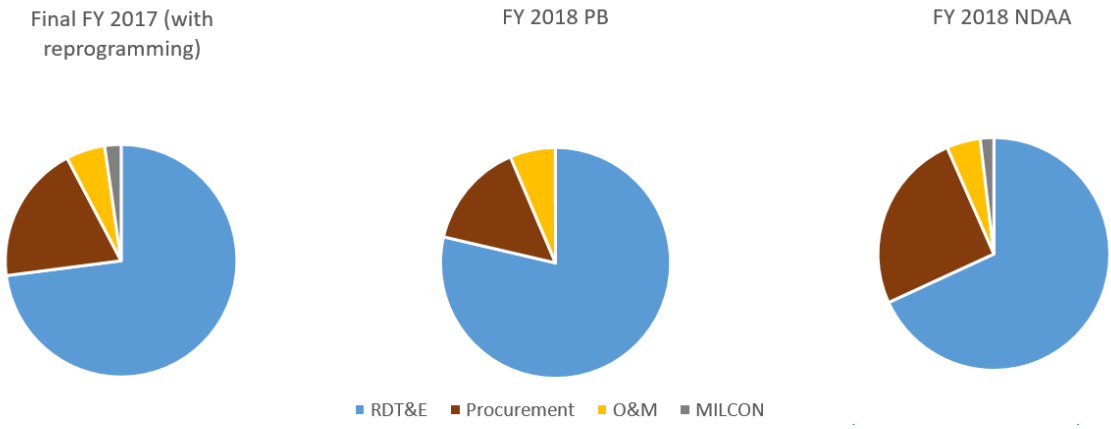
Figure 3: MDA Procurement Appropriations: Amounts and Percentage of MDA Budget



This procurement emphasis also stands in tension with one of the NDAA's policy directives. Section 1676 of the act requires the transfer of programs from MDA to one of the respective military services by 2021 once those programs have reached Milestone C, the point at which procurement would typically begin. This aligns with MDA's original charter. In practice, however, mature programs like Aegis BMD and THAAD have remained within the agency rather than being transferred to the services. The bill serves as a congressional reemphasis that MDA should focus on research and development activities, rather than serving as a procurement agency. The transfer issue is a significant one that cannot be handled immediately, so for the near term it makes sense to retain procurement where it is, within MDA.

As noted last year in a CSIS Missile Defense Project study, a larger issue concerns the relative attention to MDA's traditional focus, namely research and development. The NDAA's congressional mandate does not resolve previous hurdles to transferring programs, including budget crunches within the services, disharmony between acquisition practices of MDA and the services, and aggregation of ballistic missile defense systems into a single Major Defense Acquisition Program (MDAP). The congressional decision to also deem missile defense and defeat programs a unified major force program could add impetus for the military services to assume budgetary responsibility for these programs.

Figure 4: Allocation of MDA Funds by Color of Money



Another element that in recent years has strained MDA's research and development focus has been the increased use of its budget for missile defense–related foreign assistance to Israel. The NDAA continues Congress's robust support of Israeli missile defense, adding $558 million above the PB request, bringing the total for Israeli programs to $706 million. This total authorization is, however, over $200 million greater than the $500 million level of nonemergency missile defense funding that Israel and the United States agreed to in last year's security assistance Memorandum of Understanding that will take effect next year, so Israel is likely to receive a smaller sum in future budgets. The plus-up follows a pattern where the executive branch submits a modest number for Israeli programs (around $150 million) and Congress then raises it substantially. In recent years, the Israeli plus-up by appropriators has come at the cost of reductions to U.S. missile defense programs within other parts of MDA; this year's substantial plus-up for MDA's topline, however, makes that much less of an issue.

The effect of these strains has historically been felt especially within MDA's RDT&E account, and in particular for hard research and development of advanced technologies needed to outpace missile threats. For 2018, the original PB request allocated 78.6 percent of MDA's budget to research, development, test, and evaluation (RDT&E) activities. In the final NDAA with a substantially increased topline, the percentage was 68.1 percent, despite an increase of $1.1 billion in RDT&E funding. While many have recently suggested that the Department of Defense is looking into new and more innovative ways to pursue missile defense, the budgetary profile still heavily emphasizes procurement, operations, and marginal improvements for existing systems.

MDA's programs within the RDT&E account would suffer significantly under a continuing resolution. For example, the program for Improved Homeland Defense Interceptors, which includes MDA's Redesigned Kill Vehicle (RKV) for GMD, would have to work with a $409 million smaller budget than if

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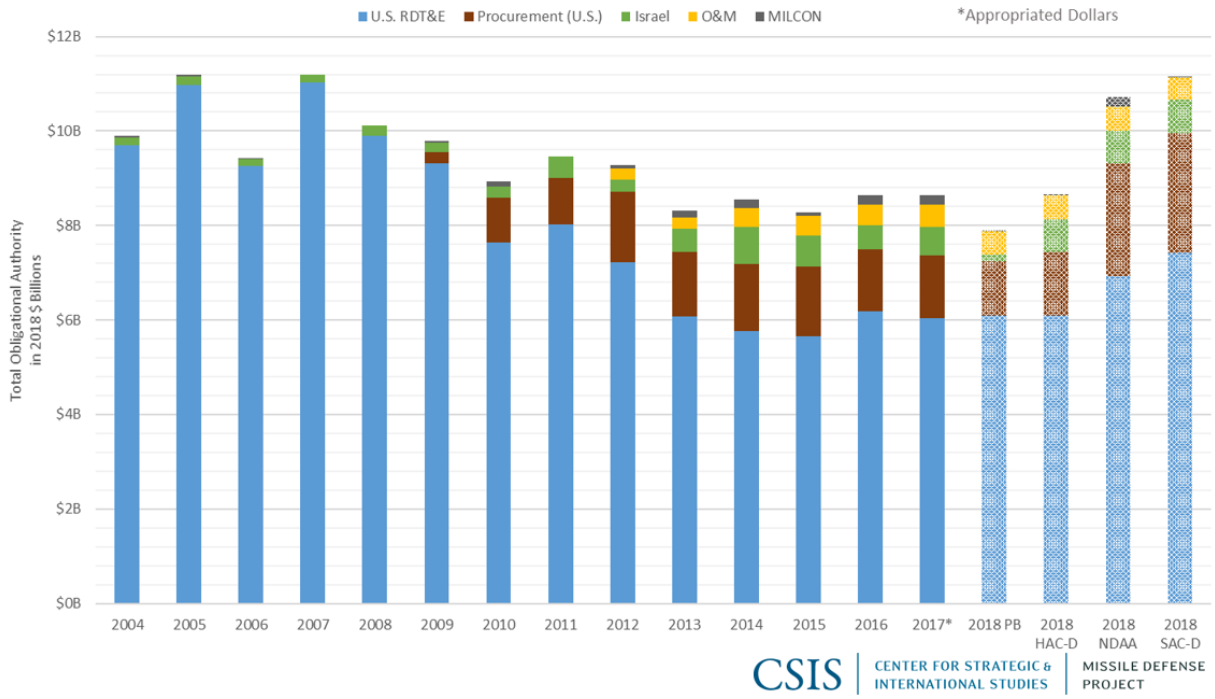
the NDAA were to become the appropriation. The new program added this year for Hypersonic Defense also could not start under a continuing resolution.

Figure 5: MDA Budget Categories, FY 2004–2018



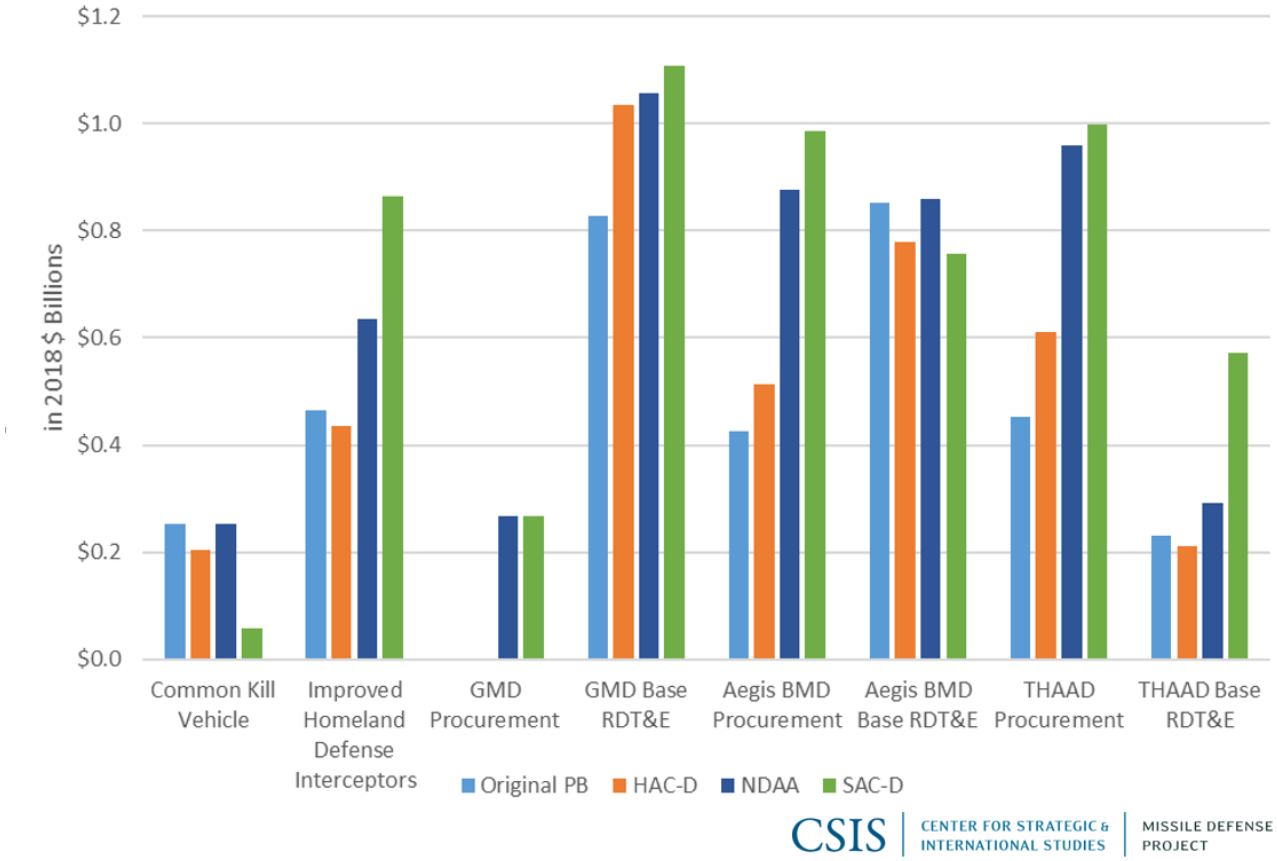
Policy and Programs

The NDAA and SAC-D bill both include short-term upgrades to the capacity of GMD, subject to the recommendations of the Ballistic Missile Defense Review. Consistent with the earlier FY 2017 reprogramming to begin construction on a new missile field at Fort Greely, Alaska, the NDAA authorizes the deployment of up to an additional 28 interceptors above the 44 already emplaced. The NDAA also permits the secretary of defense to expand existing missile fields to increase GBI capacity. These moves are likely in response to the first three North Korean ICBM tests this year, suggesting that the current number of interceptors may be insufficient to outpace the threat in the near term. The Senate bill indicates that new interceptors should be outfitted with the forthcoming RKV, as opposed to the current configuration, and adds funding to accelerate those efforts.

One area where the NDAA and Senate bill diverge is on the future of more advanced, multi-object kill vehicles for GMD and perhaps other interceptors. Such a capability would improve attempts to deal with more complex challenges in midcourse discrimination. While the NDAA supports the administration's full request of $253 million for the Common Kill Vehicle program, the Senate bill appropriates just $56 million. The Senate bill instead increases investment in the RKV to accelerate its development as part of the Improved Homeland Defense Interceptors program, appropriating $866 million compared to the $636 million authorization. This funding profile suggests the Senate appropriators would prefer a stepwise development of kill vehicles, completing deployment of the

RKV before starting significant work on more advanced technologies. The authorizers, on the other hand, appear to support a more parallel effort.

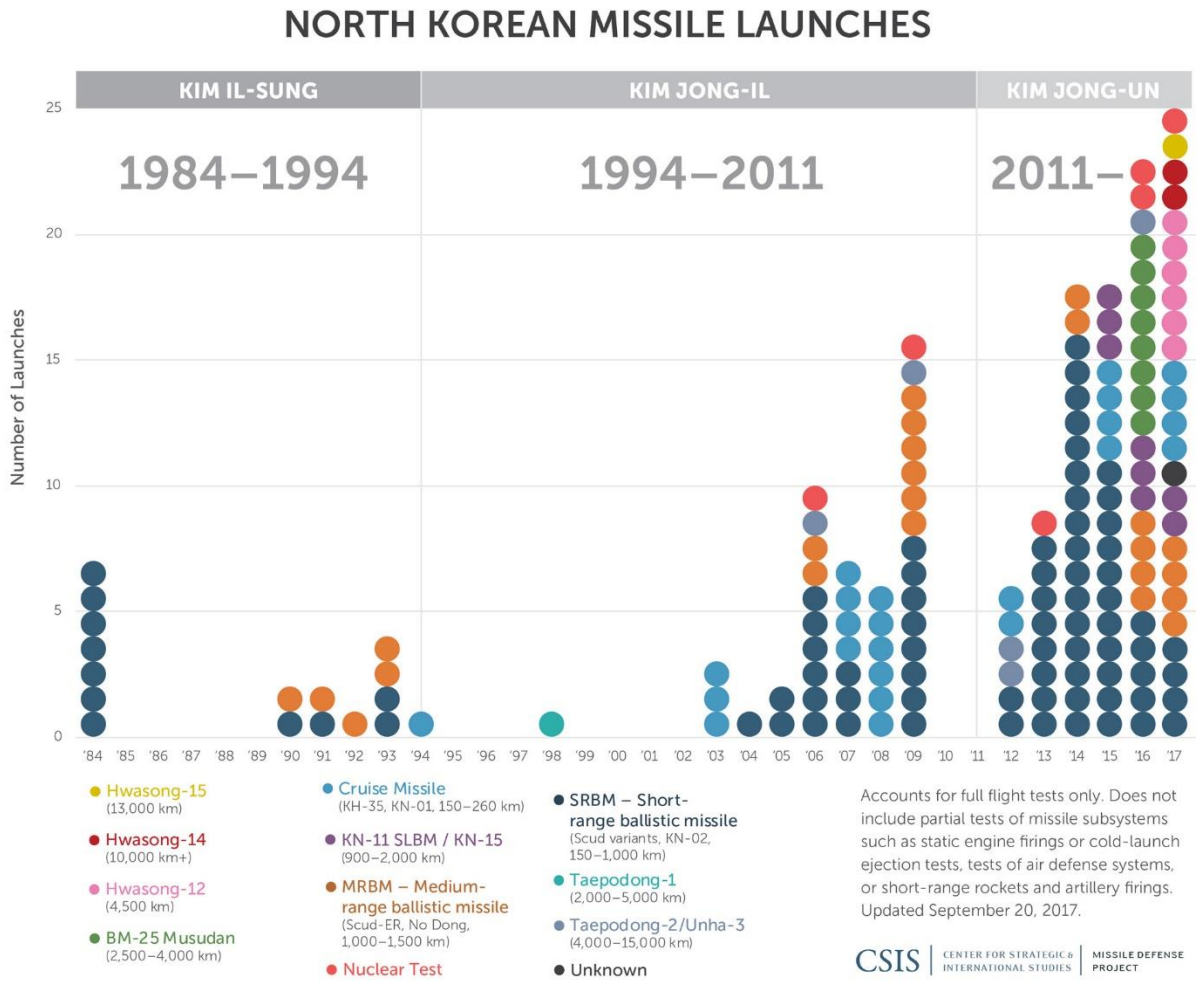
Figure 6: Proposed Missile Defense Agency Funding, Selected Programs



The NDAA includes a requirement for MDA to develop a plan to deploy a space-based sensor layer to provide persistent tracking of ballistic missiles. While the last five administrations have had some sort of space-based sensor layer as part of their missile defense architectures on paper, none so far has actually deployed anything substantial.

A space-based sensor system would provide significant benefits for birth-to-death tracking of missile threats, as well as with discrimination of the lethal warhead from potential countermeasures and other debris. All this would improve the ability of missile defense systems to target warheads more efficiently, reducing interceptor wastage. The NDAA also mandates that MDA begin research on space-based interceptors, focuses on boost-phase defenses, and reestablishes the space test bed for demonstrating the relevant technologies if such a program is consistent with the BMDR.

Figure 7: North Korea Missile Launches and Nuclear Tests



Not Yet Real

These high budget levels might signal a degree of enthusiasm for the near future of missile defense efforts, but expectation control is also in order. The NDAA authorization and the SAC-D recommendations are not yet real money. The Senate still needs to pass its final budget and the House and Senate appropriators will still need to reconcile their two bills as part of a broader spending agreement. That agreement would either have to raise the current defense budget cap by over $30 billion to accommodate the Senate bill or $85 billion to accommodate the NDAA, or cut overall defense programs to meet statutory requirements. The classification by Senate appropriators of the $4 billion as "emergency funding" may help to secure missile defense appropriations against cuts by circumventing the defense budget cap.

Failure to come to any budget agreement, however, would likely result in a continuing resolution, which without an anomaly provision would freeze funding at the 2017 levels.

Conclusion

The president's emergency request and both the NDAA and Senate bill together reflect the immediacy of the North Korean missile threat, and budgets are being adjusted to match. While the NDAA and SAC-D legislation represents a step forward for missile defense programs, much remains to be done before mere paper budgets are converted into actual appropriations. But the missile threats from North Korea and others are not going anywhere, so prospects for increased attention in the near term seems high.

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Figure 8: MDA Budget Tracker

Fiscal Year 2018 Missile Defense Agency Budget Tracker								
Appropriations	Program	FY18 Request	House NDAA	Senate NDAA	HAC-D	SAC-D	Revised PB Request	Conference NDAA
Operations and Maintenance	AEGIS BMD	96.346	96.346	96.346	86.346		96.346	96.346
	THAAD	78.761	78.761	78.761	78.761		78.761	78.761
	TPY-2 Radars	191.055	191.055	191.055	191.055		191.055	191.055
	Midcourse	137.896	137.896	137.896	137.896		137.896	137.896
Total O&M		504.058	504.058	504.058	494.058	475.050	504.058	504.058
Procurement	AEGIS Ashore	59.739	59.739	59.739	59.739	59.739	59.739	59.739
	AEGIS BMD	425.018	583.018	425.018	512.562	987.265	876.018	876.018
	Aegis BMD Advance Procurement	38.738	38.783	38.738	-	38.738	38.738	38.738
	AEGIS BMD Hardware and Software	160.330	160.330	160.330	157.070	160.330	160.330	160.330
	BMDS AN/TPY-2 Radars	0.947	0.947	0.947	0.947	11.947	11.947	11.947
	Iron Dome	42.000	42.000	92.000	92.000	92.000	42.000	92.000
	Iron Dome OCO	-	50.000	-	-	-	-	-
	Arrow Upper Tier	-	-	120.000	120.000	120.000	-	120.000
	DAVID'S SLING	-	-	120.000	120.000	120.000	-	120.000
	THAAD	451.592	770.992	770.992	611.592	998.532	960.732	960.732
	Ground-based Midcourse Defense	-	-	-	-	180.000	180.000	180.000
	GMD Defense Advance Procurement	-	-	-	-	88.000	88.000	88.000
Total Procurement		1,178.364	1,705.809	1,787.764	1,673.910	2,856.551	2,417.504	2,707.504
RDT&E	Cyber Security	0.986	0.986	0.986	0.986	0.986	0.986	0.986
	Advanced Concepts and Performance Assessment	12.996	12.966	12.966	12.996	12.996	12.996	12.996
	Weapons Technology	5.495	60.595	5.495	5.495	5.495	5.495	5.495
	Advanced Research	20.184	20.184	20.184	20.184	20.184	20.184	20.184
	Pacific Radar	-	-	-	21.000	109.000	-	-
	BMD Terminal Defense	230.162	230.162	230.162	210.162	570.762	292.262	292.262
	BMD Midcourse Defense	828.097	850.093	850.093	1,036.097	1,109.093	957.097	1,058.093
	BMD Midcourse Defense OCO	-	351.000	-	-	-	-	-
	BMD Sensors	247.345	326.207	305.207	226.345	322.107	278.145	305.207
	BMD Enabling Programs	449.442	478.884	478.886	439.442	524.584	465.642	472.784
	Special Programs	320.190	320.190	320.190	304.677	365.190	365.190	365.190
	BMD AEGIS	852.052	852.052	852.052	779.327	757.741	860.788	860.788
	STSS	34.907	34.907	34.907	34.907	34.907	34.907	34.907
	BMDS Space Program	16.994	16.994	44.494	16.994	30.994	30.994	44.494
	BMDS Space Program OCO	-	27.500	-	-	-	-	-
	BMD C2BMC	430.115	430.115	430.115	422.615	487.862	454.862	454.862
	BMD Joint Warfighter	48.954	48.954	48.954	48.954	48.954	48.954	48.954
	MDIOC	53.265	53.265	53.265	53.265	53.265	53.265	53.265
	Regarding Trench	9.113	9.113	9.113	9.113	9.113	9.113	9.113
	Sea Based X-Band Radar	130.695	130.695	130.695	150.695	158.695	145.695	145.695
	Israeli Cooperative Programs	105.354	105.354	373.804	373.800	373.800	105.354	373.800
	Israeli Cooperative Programs OCO	-	507.646	-	-	-	-	-
	BMD Test	305.791	305.791	305.791	305.791	341.593	316.193	316.193
	BMD Targets	410.425	410.425	410.425	410.425	517.246	460.125	460.125
	Hypersonic Defense	75.300	75.300	75.300	75.300	55.100	75.300	75.300
	Technology Maturation Initiatives	128.406	258.406	128.406	128.406	164.406	128.406	128.406
	Long Range Discrimination Radar	357.659	357.659	357.695	337.659	370.159	357.659	357.659
	Improved Homeland Defense	465.530	545.530	545.530	435.530	864.630	636.430	636.430
	BMD Terminal Defense Segment Test	36.239	36.239	36.239	36.239	36.239	36.239	36.239
	AEGIS BMD Test	134.468	160.819	160.819	129.468	137.783	137.783	160.819
	BMD Sensor Test	84.239	84.239	84.239	84.239	101.839	101.839	101.839
	Land-Based SM-3	30.486	97.761	97.761	30.486	30.486	30.486	97.761
	Aegis SM-3 Blk IIA	9.739	9.739	9.739	9.739	9.739	9.739	9.739
	BMD Midcourse Segment Test	76.757	76.757	76.757	76.757	86.057	76.757	76.757
	Multi-Object Kill Vehicle	6.500	6.500	6.500	6.500	6.500	6.500	6.500
	Management Headquarters	29.947	29.947	29.947	29.947	29.947	29.947	29.947
	Common Kill Vehicle	252.879	252.879	252.879	202.964	56.879	252.879	252.879
Total RDT&E		6,200.711	7,575.853	6,779.595	6,466.504	7,804.331	6,798.211	7,305.668
MILCON	Unspecified Minor Construction	3.000	3.000	3.000	3.000	3.000	3.000	3.000
	Fort Greely Missile Field 4	-	-	-	-	-	200.000	200.000
	Planning and Design	-	10.000	-	10.000	-	-	-
Total MILCON		3.000	13.000	3.000	13.000	3.000	203.000	203.000
Total MDA		7,886.133	9,798.720	9,074.417	8,647.472	11,138.932	9,922.773	10,720.230

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