Union of Concerned Scientists

EXECUTIVE SUMMARY

Shielded from Oversight

The Disastrous US Approach to Strategic Missile Defense

HIGHLIGHTS

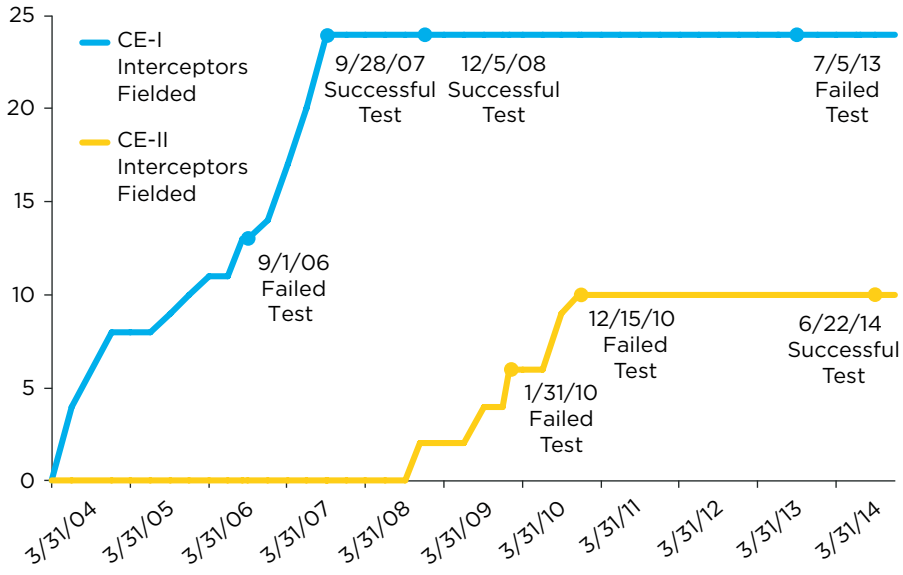
In 2002, the George W. Bush administration began to rush elements of the US Ground-based Midcourse Defense (GMD) missile defense system into the field. To do so, it exempted the system from the oversight and accountability typically considered necessary for ensuring success. The price tag is more than $40 billion (and counting) for a system with a poor test record and no demonstrated ability to stop an incoming enemy missile under real-world conditions. It is time to bring the GMD system under rigorous oversight to ensure taxpayers' dollars are spent in ways that actually make us safer.

In 2002, the George W. Bush administration announced it would rapidly field the Ground-based Midcourse Defense (GMD) missile defense system with the goal of having an initial operational capability by late 2004. To meet this tight deadline, it took the unusual step of exempting the system from standard, time-tested rules for developing complex military systems. Today, nearly 15 years later, the program's price tag is $40 billion and counting. Its test record is poor and it has no demonstrated ability to stop an incoming missile under real-world conditions. Insufficient oversight has not only exacerbated the GMD system's problems, but has obscured their full extent, which could encourage politicians and military leaders to make decisions that actually *increase* the risk of a missile attack against the United States. How did we end up in this position?

Accelerated Deployment, Reduced Oversight

The Bush administration stated its rationale for rushing the GMD system into the field was a response to the ballistic missile programs of "rogue states" such as

Interceptors Fielded without Successful Tests



Nearly all of the interceptors of the GMD system were fielded before a single interceptor of their type had been successfully tested.

Notes: Some interceptors with CE-I kill vehicles were replaced by those with CE-II kill vehicles. The total number of fielded interceptors by late 2010 was thirty. Fielding dates are approximate within the fiscal year quarter. For more information about the 9/1/06 test, see the table, p. 3.

SOURCE: DATA FROM THE MDA (SYRING 2014B) AND GAO (GAO 2011).

North Korea. While the decision was controversial, the US political climate after the terrorist attacks of September 11, 2001, made it difficult for Congress or others to question executive decisions about defense and security matters.

> ***The interceptors are not required to have been demonstrated to work under operational conditions.***

The president justified building the GMD system in a drastically different way than other military systems by arguing that the need for strategic missile defense was acute, with no time to be wasted. This less rigorous approach included exempting the system from many of the mandatory oversight, accountability, and financial transparency procedures that Congress and the Pentagon had learned through years of experience are necessary to successfully develop major military systems. Thus, the GMD system's development has not followed the Department of Defense's (DOD's) standard, time-tested "DOD5000" acquisition rules for comparing the risks and costs of alternative ways to meet a military need, setting specific performance requirements, and outlining tests a system must pass before it can be considered operational.

Moreover, the Bush administration delegated much of the responsibility for oversight to the very office developing the GMD system: the Missile Defense Agency (MDA). It gave the MDA authority to set its own requirements; to review its own performance; and to consolidate, establish, or cancel programs at will without outside review. It also exempted the MDA from standard reporting requirements about programs' progress and cost, which allowed the GMD program to proceed without an estimated total cost. This special treatment also permitted most MDA expenditures—including fielding interceptors—to come from research and development funds—funds not subject to the same level of oversight as procurement or construction funds. The interceptors are not required to have been demonstrated to work under operational conditions. The MDA has now fielded 30 interceptors and is preparing to field 14 more under this process.

No Demonstrated Real-World Capability

The GMD system's exemption from the proven "fly-before-you-buy" process has had dire and lasting consequences.

Nearly all of its interceptors—the core of its defensive capability today—were fielded before their design had been successfully intercept-tested even once. The GMD system's test record has been notably poor despite the fact that the tests have been simplified and scripted (for example, the timing and other details of the simulated attacks are known in advance). Identifying and fixing the cause of these failures has cost considerable time and money. The system has still not been tested against realistic targets such as tumbling warheads, warheads accompanied by credible decoys, or warheads traveling at speeds and from distances similar to that of incoming intercontinental ballistic missiles (ICBMs).

Nearly 15 years after the GMD system was put on the fast track, the Pentagon's own testing officials have said the system has not demonstrated an operationally useful capability to defend the US public from a missile attack. A scathing 2012 National Academy of Sciences study called the system "deficient" with respect to all of its fundamental principles for a cost-effective missile defense, and recommended a complete overhaul of the interceptors, sensors, and concept of operations.

Moreover, given the problems with the current development process, the GMD is not on a credible path to achieving an operationally useful capability.

The Obama administration has continued a similarly lax approach to missile defense. It has declined to bring the GMD system back under standard requirements-setting and DOD5000 acquisition processes. While the Pentagon made some improvements to the MDA's acquisition process, it still lacks the rigor of established processes. And as a result, the current system of oversight has not prevented the recurrence of many of the same problems.

Conclusions and Recommendations

KEY FINDINGS

- The Bush administration exempted missile defense from the normal oversight and accountability processes required of other major military systems, with the goal of quickly fielding the GMD system. This decision allowed the Pentagon to field missile defense systems without undergoing operational testing. Nearly 15 years of this approach has led to an expensive and poorly performing system.
- Obama administration attempts to improve oversight and accountability without bringing missile defense under the normal processes have led to ongoing problems.

The Poor Testing Record of the GMD System

Test	Date	Designation	Kill Vehicle
1	10/2/99	IFT-3	prototype
2	1/18/00	IFT-4	prototype
3	7/7/00	IFT-5	prototype
4	7/14/01	IFT-6	prototype
5	12/3/01	IFT-7	prototype
6	3/15/02	IFT-8	prototype
7	12/14/02	IFT-9	prototype
8	12/11/02	IFT-10	prototype
Deployment decision			
9	12/15/04	IFT-13C	prototype
10	2/14/05	IFT-14	prototype
11	9/1/06*	FTG-02	CE-1
12	9/28/07	FTG-03A	CE-1
13	12/5/08	FTG-05	CE-1
14	1/31/10	FTG-06	CE-II
15	12/15/10	FTG-06A	CE-II
16	7/5/13	FTG-07	CE-1
17	7/22/14	FTG-06B	CE-11

GMD interceptors failed to destroy their targets in more than half of their intercept tests, and the record is not improving over time. The table lists all the intercept tests of the GMD system, including Integrated Flight Tests (IFTs) tests of prototype interceptors (tests 1-10) and Flight Test Ground-based Interceptor (FTG) tests of operationally configured interceptors, Tests in green succeeded; tests in orange failed.

* The interceptor in FTG-02 hit the target with a glancing blow but did not destroy it. MDA rates this test as a "hit" but not a "warhead kill," and counts it as a success. Since the goal of the interception is to destroy the warhead, we do not count this as a successful intercept test.

SOURCE: DATA FROM SYRING 2014B.

These include projects that have been started without sufficient vetting and later canceled, and components that are being fielded based on imposed deadlines rather than technical maturity—in some cases with known flaws.

- The MDA has conducted intercept tests of the GMD system at a rate of fewer than one per year since the end of 2002. Moreover, the tests have been conducted under simplified, scripted conditions. Even with the limited objectives of those tests, only a third have been successful since deployment began, and the record is not improving over time. Pentagon testing officials assess that the GMD system has not demonstrated an operationally useful capability.
- The GMD system currently includes 30 fielded interceptors. The majority use a type of kill vehicle (CE-I) that has had only two successful intercept tests in four tries. The last successful intercept test was in 2008; the most recent one failed. Other interceptors are equipped with the CE-II kill vehicle, which has had only a single successful intercept test in three tries. None of the tests have been operationally realistic.
- The MDA began fielding both the CE-I and CE-II kill vehicles before they underwent any intercept tests.
- The MDA will not be able to test the GMD system often enough and under a broad enough range of conditions to develop a high degree of confidence in its effectiveness under operational conditions and against real-world threats, which may have unknown characteristics. This lack of confidence limits the system's military utility. While computer simulations can help characterize its effectiveness under known, tested conditions, they cannot substitute for actual tests. For example, they cannot reliably predict the system's behavior under conditions or against targets that differ significantly from those used in real-world tests, and cannot uncover weaknesses that are not already known, including quality control and design problems.
- The GMD system was designed to defend against a very limited threat. Modifying it to engage more sophisticated threats would require substantial changes and additions. Even a modified system would face fundamental problems in dealing with countermeasures that an adversarial ballistic-missile state would be expected to field.
- The continued development of the GMD system without adequate oversight and accountability, and the continued fielding of interceptors without adequate testing, means the system is not even on a path to achieving a useful ability to intercept ballistic missiles.
- US officials have strong incentives to exaggerate the capability of the GMD system to reassure the public and international allies—and have done so, despite its poor test record.
- The pursuit of a strategic missile defense system can make the United States less safe by encouraging a riskier foreign policy, by encouraging potential adversaries to

modernize and increase their arsenals, by short-circuiting creative thinking about solving strategic problems diplomatically, and by interfering in US efforts to cooperate with other nuclear powers on nuclear threat reduction. The United States may incur these costs whether or not the system provides an effective defense.

RECOMMENDATIONS

- The secretary of defense should bring the GMD system under oversight at least as rigorous as that required of other major military systems. We recommend that missile defense systems be returned to the standard, time-tested DOD5000 acquisition process rather than continuing to modify the current, alternate acquisition process.

  A rigorous acquisition process should include:

  – Requiring a rigorous interagency process, including the intelligence community and the State Department, that characterizes the current and projected ballistic missile threat.

  – Specifying the particular missile threats the GMD system is intended to counter and over what timeline, and assessing the system's efficacy, risks, and costs (financial and strategic) compared with alternate methods of countering the threat.

  – Specifying what capability the system must demonstrate against that particular threat in order to merit deployment.

  – Assigning the task of developing operationally realistic and challenging test targets and conditions to a team outside the MDA itself.

  – Requiring the GMD system to undergo extensive and rigorous testing to evaluate its real-world effectiveness, with the highest priority on operational realism. The test program must be certified by the director of operational test and evaluation.

  – Analyzing new missile defense initiatives rigorously on the basis of costs, risks, benefits, and alternatives before funding can be granted. Neither Congress nor the administration should be able to create programs, such as a third interceptor site or a space-based missile defense element, that have not undergone appropriate scrutiny.

- Missile defense development must not be schedule-driven. Congress and the administration must refrain from imposing deadlines that are not based on technical maturity.

- Fielding of the system should not continue to be funded from research and development budgets.

- Congress and the administration should halt the deployment of additional interceptors until all known flaws have been eliminated from those additional interceptors and a testing program shows they are effective and reliable.

- Congressional oversight should involve hearings that include the perspectives of independent experts as well as government experts, as it has in the past.

- The current and future US administrations should work with China and Russia to ensure that development of a strategic missile defense system does not interfere with progress on strategic issues important to all three countries.

In short, the United States must fundamentally change its approach to strategic missile defense. If the GMD system is to be part of addressing the ballistic missile threat, the United States must make its development and deployment a process with clear goals, rigorous testing, and effective oversight and accountability. Components must not be fielded on timetables set by imposed deadlines but by technical maturity. It is time to treat strategic missile defense like the serious military system it is supposed to be. Congress and the president should ensure that taxpayers' dollars are spent in ways that actually make us safer.

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