Kay Bailey Hutchison, Chairman
Bill Hughes, Staff Director

347 Russell Senate Office Building
Washington, DC 20510
202-224-2946
http://rpc.senate.gov

SENATE REPUBLICAN POLICY COMMITTEE

September 9, 2008

The Imperative of Missile Defense

Executive Summary

- The widespread proliferation of ballistic missile technologies into the hands of the world's most dangerous states and terrorist organizations poses an unprecedented security risk to the United States and the civilized world.

- Missile defense has become a major effort of the Department of Defense, absorbing about 1.7 percent of the current budget. But even that level is insufficient for both effective deployment of near-term capabilities and long-term development.

- At a time when missile defense is becoming increasingly vital both for defense of the homeland and for the regional security architecture in the Pacific Rim and the Persian Gulf, the Senate Armed Services Committee (SASC) markup of the National Defense Authorization bill for FY 2009 (S. 3001) cuts more than $411 million from the administration's request for the Missile Defense Agency's (MDA) programs.

- Most of the SASC cut ($267.8 million out of the $411 million) is an "undistributed" cut in research and development. Unless this cut is restored, the resulting budget allocations will inevitably hurt many of the very programs the SASC report designates as high priorities for funding increases.

- Both the SASC and U.S. combatant commanders assess that the military needs to double the size of both the Navy's Aegis Ballistic Missile Defense program (Aegis BMD, which is already deployed) and the Army's Theater High-Altitude Area Defense (THAAD, which is nearly ready for deployment).

- Future long-range studies should explore the feasibility and desirability of space-based and laser-based technologies. In particular, a National Academy of Sciences reporting requirement on boost-phase missile defense should be modified to add an assessment of whether space-based interceptors and/or laser weapons are likely to be necessary in order to achieve effective, persistent, and global boost-phase defense.

INTRODUCTION

The widespread proliferation of ballistic missile technologies into the hands of rogue states poses an unprecedented security risk to population centers across the civilized world. Not only does this threat dissolve the protection of borders, it also emboldens aggressive smaller powers, such as Iran, North Korea, and Syria.

For example, the U.S. defense budget is over 110 times larger than that of Iran; and yet against the asymmetrical threat from Iran's missiles the U.S. remains vulnerable. On July 9 and 10, 2008, Iran test fired several missiles and rockets of varying ranges, including a missile that the government of Iran said could reach Israel. Iran is believed to possess hundreds of short-range (SCUD-B and SCUD-C) missiles capable of reaching all the Persian Gulf states and virtually all U.S. military installations in the region. It may also possess dozens of medium-range missiles (in particular the Shahab-3) capable of reaching Israel. It is also believed to be developing longer range missiles capable of reaching Europe or the United States. It is reported to have imported missiles and missile technology from North Korea, China, and elsewhere.

The U.S. currently faces this threat with an incomplete and uncertain strategy of containment and deterrence. It is commonly thought that because deterrence worked to prevent a Soviet attack during the Cold War, it will work on its own against a much weaker power like Iran in the 21st century. But the Cold War deterrence strategy of "mutually assured destruction" was hardly a comforting security construct. By the early 1960s its conceptual flaws had led such disparate analysts as Thomas Schelling, Albert Wohlstetter, and Henry Kissinger to search for more reliable and sound strategies of national defense. These commentators argued that nuclear deterrence might not be sufficiently credible in situations of limited conflict, and that defending against these more likely threats required diminishing the adversary's confidence in the basic effectiveness of its own offensive capabilities.[1]

Moreover, while both Iran and North Korea have exhibited rational cost-benefit decision-making, neither can be presumed to be as risk-averse as the Soviet Union. Iran's ideologically messianic regime remains in what the late Peter Rodman called "the exuberant phase" of its revolution, likely to take undue risks and overreach. The strategy that the U.S. has put in place against Iran does not rest on retaliatory deterrence alone. It requires stability and strength in our regional allies—including Iraq—and rests on the umbrella of effective regional and global defenses. This includes missile defenses against the wide variety of threats posed by Iran's missile forces.[2] We have followed a similar approach with our Pacific Rim allies—both Japan and South Korea are active, avid partners in the missile defense enterprise.

---

[1] See, e.g., Schelling's *The Strategy of Conflict*. Cambridge, MA: Harvard University Press (1960); Wohlstetter's *The Delicate Balance of Terror*. Rand Corp. Pub. No. P-1472 (1958); and Kissinger's *Nuclear Weapons and Foreign Policy*. New York, NY: Harper and Brothers (1957).

[2] Peter Rodman, "Countering Iran's Revolutionary Challenge: A Strategy for the Next Phase," in Opportunity '08. Washington, DC: Brookings Institution (2007), http://www.brookings.edu/papers/2007/~/media/Files/Projects/Opportunity08/PB_Iran_Rodman.pdf. Rodman describes America's Iran strategy as follows:

> In 2006, the State and Defense Departments jointly launched an initiative called the Gulf Security Dialog. The United States has worked in concert with all of Iran's Arab neighbors on ***measures to deter Iran, including strengthening air and missile defenses,*** improving conventional defense capabilities, cooperation in counter-proliferation and counter-terrorism, engaging them in stronger support for Iraq, and

To maximize the stabilizing effect of U.S. military power, it is urgent to minimize the strategic advantage that minor powers such as Iran and North Korea can acquire with ballistic missile forces. This is why, despite many political and technological obstacles, missile defense has become a major national endeavor. Slated to absorb about $11 billion in fiscal year 2009 (defense-wide), the effort attempts to balance long-term research and development with readily deployable capabilities—many of which have already been fielded.

Yet even at 1.7 percent of U.S. defense spending, the missile defense budget is still inadequate to defend the nation and its allies either in the short-term or the long-term. The initial budget requests are barely sufficient to keep the major programs alive, and any substantial congressional cuts further delay the development and fielding of these urgently needed defense capabilities. Though the nominal policy is to balance research and development with readily deployable capabilities, both lines of effort are often funded just short of levels that would be required for breakthroughs in long-term development and for fielding operational systems in adequate quantities to be effective deterrents.

The Senate Armed Services Committee (SASC) markup of the National Defense Authorization Act (NDAA, S. 3001) arbitrarily cuts more than $411 million from the administration's request for Missile Defense Agency (MDA) programs.[3] Most of the SASC cut ($268.7 million out of $411 million) is an "undistributed" cut in research and development, in addition to the many cuts specified in the SASC report. Unless this cut is restored, the resulting budget allocations will inevitably hurt many of the very programs that the SASC report designates as high priorities for funding increases. In many cases this undistributed cut may completely break the affected programs.

In its bill, the House went even further, cutting more than $741 million from the budget request.[4]

KEY MISSILE DEFENSE PROGRAMS

The survey below groups selected major missile defense programs in two parts: (1) current generation "near-term" capabilities that are already being deployed or nearing deployment; and (2) next-generation "long-term" developmental capabilities to address more complex and emerging threats.[5] MDA has followed a rule-of-thumb in balancing these needs: 75 percent of funding goes to near-term capabilities, and the other 25 percent to long-term development; the SASC has generally concurred.

> other steps. Egypt and Jordan have joined a foreign ministers' forum with the Gulf Arabs, and with us, with the same strategic purpose..… All of them welcome this American commitment.

P. 7 (emphasis added).

[3] Of the total request for missile defense programs of nearly $11 billion, about 85 percent is for programs under the Missile Defense Agency and the rest chiefly for Army programs. The request for MDA programs was $9.3 billion, and the SASC recommends an authorization of $8.9 billion.

[4] H.R. 5658 (passed May 22, 2008).

[5] This survey is not comprehensive, but focuses instead on those missile defense programs that are critical for purposes of this paper.

Near-Term Capabilities

Among near-term capabilities, the three highest-priority programs are the Ground-Based Midcourse Defense (GMD), meant to counter long-range[6] missiles in midcourse phase; and the Terminal High-Altitude Area Defense (THAAD) and sea-based Aegis Ballistic Missile Defense system (Aegis BMD), both of which are generally meant to counter short- and medium-range missiles.

Ground-Based Midcourse Defense (GMD)

GMD is the premier system of the missile defense architecture. It is the only technology currently capable of intercepting Intercontinental Ballistic Missiles (ICBMs) and some Intermediate Range Ballistic Missiles (IRBMs) in midcourse phase—well outside the earth's atmosphere. In its current configuration, the system is planned to defend the U.S. against the North Korean missile threat, and both Europe and the U.S. against the Iranian missile threat.

It uses an array of advanced sensors and radars in space, on land, and on the sea (including the massive Sea-based X-Band Radar in the northern Pacific) to track, discriminate, and target incoming warheads. The GMD interceptor is a three-stage ground-based interceptor (GBI) with a non-exploding kill vehicle that destroys the incoming target on impact. Interceptor fields are currently positioned at Fort Greely, (Alaska) and Vandenberg Air Force Base (California). There are currently almost two dozen interceptors in Alaska and several more in California; a total of 44 are planned for deployment in the U.S. by 2013. A European component of the GMD system will include an interceptor field in Poland (10 modified two-stage interceptors planned initially) and a powerful X-band radar in the Czech Republic. The GMD system has scored kills on six of seven flight tests when the interceptor has reached the target.

The SASC markup meets the budget request, but conditions authorization for several elements of the European component on ratification of the underlying agreements by the host countries. However, the House bill cuts $80 million from the $133 million military construction request for the interceptor field in Poland, and $60 million from the $109 million request for the radar site in Czechoslovakia. A substantial cut in funding for the Czech site is particularly problematic for several reasons:

- The Czech Republic and the U.S. signed a radar basing agreement on July 8, 2008. A tough ratification fight in Prague is expected in fall of this year. A reduction of more than half the pertinent request could have a negative impact on the ratification process.
- The Czech radar is crucial to any European GMD system. It will also significantly enhance other NATO and U.S. missile defense capabilities, such as those based on Aegis BMD and THAAD.
- A substantial cut in funding for a radar site that has already been approved in a bilateral agreement will signal weakening U.S. political support for missile defense, which will in turn weaken U.S. negotiating leverage with respect to Iran, Russia, and other interested parties.

[6] Missile defense capabilities can be classified according to the *type* of missile they seek to engage (long-range, medium-range, short-range) as well as the *stage* in the missile's trajectory at which interception is targeted (boost-phase, midcourse phase, terminal phase).

- NATO endorsed the European Missile Defense Site Initiative on April 3, 2008. The recent conflict in Georgia has bolstered NATO's desire for missile defense; shortly after the Russian invasion in early August, Poland agreed to host the related interceptor field.

Theater High-Altitude Area Defense (THAAD)

The Army's THAAD is one of the most promising capabilities of the missile defense enterprise. It is capable of intercepting some IRBMs, and medium- and short-range ballistic missiles in their terminal phase of flight, both inside and outside the earth's atmosphere. If deployed in sufficient numbers, it will be capable of defending our regional allies and forces in-theater from the threat posed by North Korea, Iran, Syria, and other rogue actors capable of deploying medium- and short-range missiles.

THAAD is a mobile land-based system that consists of a truck-mounted launcher, up to eight interceptors, a powerful x-band radar, and other components, known collectively as a "fire unit." The system is designed for rapid long-range mobility: a complete fire unit can be transported by C-17 aircraft and deployed within hours of the order to move. The interceptor is a single-stage rocket with a non-exploding interceptor that kills its target on impact. Four THAAD fire units are being readied for deployment.

In its NDAA markup, the SASC made a number of modifications to the THAAD request of $865 million. It added $75 million in procurement to the $65 million request for interceptors and ground equipment for THAAD Fire Units 3 and 4. The SASC moreover recommended an increase of $40 million for the radar system of Fire Unit 3, to avoid a production gap and a schedule disconnect.

The SASC notes that "the THAAD system is a high-priority near-term system, and the committee believes that delaying its production for budget reasons is unacceptable." It places great weight on the Joint Capabilities Mix (JCM) Study conducted by the Joint Staff, which concluded that the military needs more than twice as many THAAD and Aegis SM-3 interceptors as currently planned. The SASC goes on to note:

> Furthermore, the committee is disappointed that MDA is only planning and budgeting to procure 4 THAAD Fire Units and 96 THAAD interceptors. […]
>
> The committee observes that the United Arab Emirates has expressed an interest in purchasing three THAAD Fire Units and 144 THAAD interceptors for defense of its territory, which is about the size of Maine. Their purchase would be 50 percent larger than the number of interceptors currently planned by MDA for all U.S. forces, and would include twice as many interceptors per fire unit as MDA is currently planning for U.S. forces.

This indicates both the urgent need for THAAD, and the extent to which it needs further funding in the U.S. defense budget.

Aegis Ballistic Missile Defense (Aegis BMD)

The sea-based Aegis BMD is the Navy's leading missile defense program, and is capable of intercepting medium- and short-range ballistic missiles during their midcourse phase of flight.

Already deployed (though inadequately), it is ideal for protecting our allies and forces around the Sea of Japan and the Persian Gulf.

Aegis BMD is designed for deployment on specially-fitted cruisers and destroyers. The Navy plans a total of 18 ballistic missile defense-configured Aegis cruisers and destroyers by the end of 2008. Born of the Navy's anti-aircraft fleet-defense Standard Missile interceptor, the three-stage SM-3 is effective against short- to medium-range missiles in mid-course phase of flight. Future SM-3 configurations being jointly developed with the Japanese will enhance capability and extend defensive coverage. The older SM-2, already deployed on Aegis ships, provides sea-based defenses against short-range missiles in the terminal phase. In addition to U.S. Navy deployments, four Japanese destroyers will be outfitted with an Aegis BMD capability by the end of 2010.

The $1.2 billion request for the Aegis BMD program included only $57 million for procurement of the critical SM-3 interceptors. The SASC added $100 million to increase procurement and production rates for the Aegis BMD SM-3 interceptors, as well as development of engage-on-remote and ascent-phase engagement capabilities. The SASC also recommends reimbursing MDA for the cost of destroying a falling satellite earlier this year, a mission carried out using an Aegis SM-3 missile.

Because of the mobility, versatility, and proven operational effectiveness of the Aegis BMD system, Congress should significantly increase procurement of the SM-3 interceptor. It should also increase the numbers of cruisers and destroyers outfitted for Aegis BMD to defend our allies and forces in and around the Persian Gulf and Pacific Rim. Even the SASC expressed deep disappointment that the administration "has not planned or budgeted to acquire more than a fraction of the SM-3 interceptors needed to meet the warfighters' minimum operational needs." The SASC reiterated the importance it places on the Joint Staff's JCM Study, in which combatant commanders reported that they need more than twice as many THAAD and Aegis BMD interceptors as are currently planned.

Long-Term Capabilities

Those capabilities most ideally suited for targeting missiles in boost phase (lasers, space-based interceptors, and extremely rapid kinetic energy interceptors) have faced uniquely difficult political and technological hurdles. As a result, the development of effective capabilities for boost-phase missile defense has lagged behind the rest of the missile defense enterprise. A major omission in long-term capabilities development is exploring the feasibility and advisability of space-based technologies.

Boost-Phase Systems Report: National Academy of Sciences

The SASC requires a long-range report by the National Academy of Sciences on boost-phase systems. This reporting requirement should be modified to ask for a specific assessment of whether space-based interceptors and/or laser weapons may be necessary in order to achieve effective, global, and persistent boost-phase defense.

Studying Space-Based Missile Defenses

The SASC once again cuts the entire $10 million request for an MDA "test bed" project to explore the feasibility of space-based missile defense capabilities. Section 236 of the SASC markup provides $5 million for an independent study of the feasibility and advisability of developing a space-based element to the ballistic missile defense system.

Since the 1980s, there has been resistance to what some call the "weaponization of space." But as leading missile defense experts argue, space has already been weaponized by ICBMs and other missile technologies now in the possession of some of the world's most dangerous regimes. These missiles target and transit through space, thereby using space for offensive advantage. Space-based capabilities can *counter* that weaponization of space. Moreover, space-based missile defense may well be the only feasible and cost-effective way to target missiles in the boost phase all over the world.

The scale of the looming missile threats we face, combined with the fact that it might not be possible to counter many of those threats *except* from space, means that the development of space-based capabilities is almost certainly inevitable in the long run. An inquiry into the feasibility of space-based missile defense is as legitimate as a dialogue about the desirability of such capabilities; both should begin before a catastrophic attack resolves the latter question for us.

Next-Generation Missile Defense Programs in Development

The SASC also makes significant cuts to virtually every major long-term missile defense program currently under development, including the following:

- the **Airborne-Laser System (ABL)**, a high-power chemical laser that fires from the nose of a Boeing 747, which will be able to defeat missile launches in boost-phase at distances of up to 200 miles;
- the **Kinetic Energy Interceptor (KEI)**, an extremely fast land- and sea-based interceptor increasingly viewed as a next-generation interceptor for the GMD system;
- the **Multiple-Kill Vehicle (MKV)**, which is designed to counter attacks using multiple warheads and/or countermeasures in midcourse phase (after separation) with a single interceptor missile; and
- the **Space Tracking and Surveillance System (STSS)**, a system of highly sensitive space-based sensors for detecting and tracking missile launches, midcourse travel, and atmospheric reentry. Current ground-based radars cannot detect a missile launch until the missile is well past boost-phase.

MAJOR RECOMMENDATIONS

In order to sustain and improve upon the missile defense programs in place, funding for a variety of programs should be increased. The nearly half-billion dollar cut to missile defense programs in the SASC markup should be reversed. In particular, the following should be considered urgent priorities for both authorizers and appropriators in the fiscal year 2009 NDAA budget cycle:

- The undistributed (and unexplained) $268.7 million SASC cut to missile defense research and development should be restored. This cut would jeopardize programs that the SASC itself has characterized as priorities.
- Programs related to the European Missile Defense Site should be protected as vital priorities for the U.S. and its allies.
- Procurement of those operational and nearly operational interceptors that have been deemed by the SASC and by the combatant commanders to be underfunded should be significantly increased.
    - The SASC itself notes there is a need for "about twice as many THAAD and Standard Missile-3 [Aegis] interceptors as the number currently planned, just to meet the minimum inventory needs of the combatant commanders to provide protection against existing short-and medium-range missile threats. That minimum number does not include the normally required spare, reserve, and reload missiles." Consideration should be given to funding these adequately.
- Future long-range studies should explore the feasibility and desirability of both space-based and laser-based systems.

CONCLUSION

The scale and success of the national commitment to missile defense is translating into a transformational achievement. But this transformation is not happening fast enough to keep pace with the proliferation of missile technologies among the world's most dangerous states and terrorist organizations. At 1.7 percent of defense spending, funding for missile defense is inadequate for both near-term deployments and long-term development. Both areas of effort need more resources. In addition, we should make a serious effort to explore both the feasibility and desirability of space-based, laser-based, and other missile defense technologies that may one day prove vital for global security.