



## **Missile Defense: Does the Threat Merit the Cost?**

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The U.S. ballistic missile defense system now being developed is intended to tie various components into a sophisticated web of protection against a missile attack.

Having a capability to defeat a missile attack on the U.S. homeland sounds like a wonderful idea to many people, but many others are opposed to missile defense for various reasons. Opponents argue that the technology is not yet ripe, the threat is limited and manageable, and the exorbitant amount of money allocated to develop the system could be better spent elsewhere.

President Bush has pledged \$10 billion a year toward missile defense research and development. The huge price tag associated with missile defense ruffles many a feather.

A 2003 report titled, "The Full Costs of Ballistic Missile Defense," by the Center for Arms Control and Non-Proliferation and Economists Allied for Arms Reduction, estimates the cost to build the envisioned missile defense system will be upward of \$1 trillion. According to the report, government cost-estimates for the proposed layered missile defense system focus on development and acquisition, "neglecting long-term operations and maintenance costs."

"Although the Missile Defense Agency and Congressional Budget Office have released past cost-estimate reports, no publicly available study accounts for the full life-cycle costs of missile defense systems," the report states.

The Defense Department's Missile Defense Agency (MDA) is driving to field a layered missile defense system that integrates land-, sea-, and air-based missile defenses to protect the U.S. homeland, deployed troops, and America's friends and allies against all types of ballistic missiles in all phases of flight, as well as to hedge against an accidental ballistic missile launch.

Basically, that means the United States is working toward the ability to shoot down all types of ballistic missiles whether in their boost phase, mid-course flight – normally outside of the Earth's atmosphere – or as they descend toward their target.

The proposed system will incorporate a global array of sensors and radars, satellite tracking and surveillance, interceptor missiles aboard ships at sea, ground-based interceptors in underground silos, mobile-launch interceptors and powerful lasers fixed to aircraft.

"It's a very daunting challenge, but one that I think the men and women of the Missile Defense Agency, the Army, Navy and Air Force are pulling together and are now achieving," Air Force Lt. Gen. Henry A. (Trey) Obering, director of the Missile Defense Agency, told an audience at the 4th Annual U.S. Missile Defense Conference in Washington, DC, in March.

Currently, the United States has a limited missile defense capability. Multiple sensors and radars are positioned around the world to detect and track enemy missiles, but they do not yet offer global coverage. Some Navy Aegis-class ships are equipped with standard missiles capable of intercepting ballistic missiles. The ground-based interceptor missiles, which are located at Fort Greely, Alaska, and Vandenberg Air Force Base, California, offer a limited defense against long-range ballistic missiles. These interceptors can be brought to alert status in an emergency but do not currently function 24/7.

These anti-ballistic missiles are "hit-to-kill" interceptors that destroy incoming missiles by physically colliding with them. This difficult task has often been likened to hitting a bullet with a bullet.

The Missile Defense Agency has tested its hit-to-kill interceptor technology many times over the past several years. Ten ground-based intercept tests have taken place since 1999, resulting in six successful intercepts.

The most recent test occurred September 1. Defense officials said this test was the most realistic to date, with the interceptor launched from Vandenberg successfully destroying a mock warhead in space. The next ground-based test is scheduled for December.

The ground-based system has been fraught with difficulty and setbacks, including tests where interceptor rockets failed to launch from their silos at the Ronald Reagan Missile Test Site at Kwajalein Atoll in the Pacific Ocean. One test failed when the silo doors malfunctioned and another failed due to a software glitch.

There have also been nine sea-based tests since 2002, eight of which resulted in successful intercepts. Most recently, a U.S. Navy ship shot down a ballistic missile in its final seconds of flight during a test on May 24. It was the first successful ship-launched intercept of a ballistic missile in its terminal or descent phase.

An airborne laser also is being developed and tested. The laser is fitted to a heavily modified Boeing 747. The laser will destroy a missile during its boost phase by heating the missile's metal skin until it cracks.

In addition, a mobile kinetic energy interceptor is being developed to destroy missiles in their boost phase, new types of space sensors are being examined, and the Terminal High Altitude Area Defense, a defense against tactical ballistic missiles, is moving forward.

And there are the Patriot missiles, which have been used against tactical ballistic missiles during the 1991 Gulf War and more recently during Operation Iraqi Freedom.

The Patriot missile was intended as an anti-aircraft weapon when it was designed in the late 1970's, but was subsequently modified to defend against short-range ballistic missiles.

Theodore Postol, an MIT professor of science, technology and national security policy, questioned the Patriot's performance from the outset. In 1992 he testified before Congress saying the Patriot didn't work. "The Patriot's intercept rate during the Gulf War was very low," Postol told a House committee. "The evidence from these preliminary studies indicates that Patriot's intercept rate could be much lower than ten percent, possibly even zero."

Later findings indicate Postol was probably closer to the truth than initial military reports. However, it is important to note that the Patriot system has been vastly improved since 1991, and performed better in Iraq in 2003.

In many government and scientific quarters, there are misgivings about the need for missile defense. One of the biggest knocks against missile defense is that the system doesn't work because of its technological limitations. Critics say the system's tests are rigged because a homing device is placed on the incoming missile to help the interceptor find its target. Criticism about the interceptors inability to distinguish between decoys, debris and the incoming missile without help is widespread and ongoing.

Defense Department officials say past tests were just a starting point, and future tests will become more complex, incorporating decoys and different countermeasures to try to confuse the kill vehicle. "A lot of people wonder if this is going to work, and is it worth the investment," Obering said at the conference in March. "The testing we've conducted ... shows the technology is valid and viable."

Opponents of missile defense also question the severity of the ballistic missile threat. A missile attack on the United States is unlikely, they say, because the U.S. would know where the missile originated, resulting in a massive retaliation. The use of satellite imagery also opens up the possibility of spotting an enemy missile on its launch pad or in its silo, allowing the U.S. to preempt a launch by destroying the missile as it sits on the ground.

To missile defense advocates, however, the threat is all too real. North Korea and Iran offer up the most tangible threats to the U.S. and its allies.

Iran has successfully flight-tested its medium-range Shahab-3 missile and is believed to be developing nuclear capabilities.

In August 1998, North Korea caused a stir when it fired its Taepo Dong-1 missile over Japan. This was especially troubling because the North Koreans demonstrated important capabilities associated with intercontinental ballistic missiles, including staging and the use of a third stage on the missile, according to MDA's web site. A three-stage North Korean intercontinental ballistic missile (ICBM) could reach Alaska, Hawaii, and the U.S. west coast. Furthermore, in defiance of international wishes, the communist country test-fired seven ballistic missiles this past July and announced it successfully conducted a nuclear weapons test on October 9.

The rudimentary missile defense system now in place is progressing through “spiral development,” where it evolves and gains capability over time. This is important because the threat might be evolving and growing as well.

Today, there are about 30 countries with ballistic missiles with ranges varying from short to long-range. Many of these countries are hostile to the United States. In 1990 only 16 countries possessed ballistic missiles. Countries with missiles capable of hitting the U.S. homeland or its allies have grown from five to nine, government officials say.

Aside from rogue states, U.S. government officials have also stressed that the United States must be prepared to deal with asymmetric threats from terrorist networks, emerging state powers, and a plethora of unknown scenarios. Because U.S. enemies cannot defeat America and its allies on a traditional battlefield they will look for other ways to inflict harm, such as a missile attack. In addition, government officials are concerned that the threat of weapons of mass destruction married to missiles could be used to blackmail the United States.

Nicholas Eberstadt, Henry Wendt chair in political economy at the American Enterprise Institute in Washington, DC, said if U.S. policymakers didn’t have to fear a missile attack on the homeland or against U.S. allies they might more readily take action in the crisis in the Korean Peninsula.

Opponents argue terrorists don’t have the means to fire a ballistic missile. They say this complicated task probably requires state participation. But General Obering said dangerous threat scenarios are virtually endless. For instance, Pakistan, a key U.S. ally today, could have a fundamentalist Islamic government controlling their nuclear-tipped missiles tomorrow.

Defense officials also point out that since America’s nuclear arsenal is not a deterrent to Islamic extremists, a defense is needed to underpin U.S. offensive capabilities.

It is also worth mentioning that America is not the only country with missile defense aspirations. Japan, Australia, Israel, Germany, Italy and the United Kingdom, as well as other U.S. allies, are actively cooperating in missile defense with the United States. Japan is by far the biggest partner, contributing about \$1 billion annually to research and development.

“A missile defense approach would also reinforce the credibility of the U.S. alliance with Japan,” Eberstadt said.

The road to building a missile defense shield has been long and arduous. Its history can generally be divided into two eras. The first was a three-decade period from the end of World War II to 1976, when the United States briefly instituted the Safeguard missile defense system armed with nuclear-tipped interceptor missiles, as opposed to the hit-to-kill kind.

The Safeguard complex in North Dakota was an operational anti-ballistic missile system that defended American intercontinental ballistic missile silos. It did not defend American cities. The complex was deactivated in 1976 after being operational for less than four months.

Congress shut it down due to technical limitations and the restrictions on missile defenses contained in the Anti-Ballistic Missile (ABM) Treaty.

The ABM Treaty was a bilateral treaty that sprung out of the Strategic Arms Limitation Talks between the United States and the Soviet Union begun in the 1960s. The treaty was signed in 1972, and it limited certain types of technological advances and testing, among other things.

The second era of missile defense began on March 23, 1983, when President Reagan gave a landmark speech in which he proposed the Strategic Defense Initiative (SDI) with the intent of making nuclear missiles “impotent and obsolete.” The media famously dubbed Reagan's initiative "Star Wars."

The SDI goal was to develop non-nuclear missile defenses to neutralize Soviet missiles. The U.S. was concerned that the Soviets had developed a first-strike capability, which would allow them to launch a knockout blow against U.S. interceptor missiles and then destroy the United States with a second volley of ICBMs.

On a personal level, Reagan hated the concept of mutually assured destruction, which was a cornerstone of U.S.-Soviet relations at the time. “It is better to save lives than avenge them,” he said.

A paradigm shift has taken place since the end of the Cold War and the terrorist attacks of September 11, 2001. With this shift in mind, President Bush withdrew the United States from the ABM Treaty in 2002, freeing the U.S. from its restraints.

“The circumstances affecting U.S. national security have changed fundamentally since the signing of the ABM Treaty in 1972,” a White House press release stated. “The attacks against the U.S. homeland on Sept. 11 vividly demonstrate that the threats we face today are far different from those of the Cold War.”

This is not exactly a compelling argument for missile defense since the terrorists did not attack the United States with missiles. However, the missile threat posed by rogue nations and the possibility of nuclear and ballistic missile proliferation among non-states actors, such as Islamic terrorists, are legitimate concerns for the U.S.

If missile defense technology is fully realized and the system defeats an actual attack, a trillion dollars will seem like money well spent. If missile defense technology fails to mature to overcome obstacles like decoys, or the threat is truly manageable through other means, such as deterrence by threat of massive retaliation, preemption or policing, missile defense will be viewed as a meaningless and foolhardily expensive endeavor.

It is also foolhardy to let conjecture and history sort it out. A proactive approach seems like the only reasonable path to follow.