

# Defending America: A Plan for a Limited National Missile Defense

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## Recommended Citation

James Lindsay and Michael O'Hanlon, "Defending America: A Plan for a Limited National Missile Defense", *nuke policy*, February 28, 2001, <https://nautilus.org/nuke-policy/defending-america-a-plan-for-a-limited-national-missile-defense/>

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Policy Brief #70—February 2001  
by James Lindsay and Michael O'Hanlon

President Bush should seek to defend America against long-range ballistic missile attack. The threat of missile proliferation is real, if still incipient; the technology to provide at least some defensive capability is becoming available; and plausible scenarios in which the United States would benefit from national missile defense (NMD) exist. But defending Americans against attack does not require a large and expensive system, or immediate treaty-busting actions that favor flawed defensive architectures such as that backed by the Clinton administration. President Bush will be able to realize his campaign vision of a world with fewer nuclear weapons, safer from nuclear threat, only if he proceeds carefully in his choices of technology, timing, and diplomacy. He should emphasize boost-phase technologies, work hard to modify the 1972 Anti-Ballistic Missile (ABM) Treaty to permit limited NMD systems, and use the time before construction starts to negotiate basing arrangements for the boost-phase system and convince America's allies of the need for missile defense. Otherwise, building an NMD system could be worse than having no NMD system at all.

The United States should push forward with plans for its first-ever national missile defense against long-range ballistic missiles for several reasons:

Missile technology is spreading to more countries. North Korea, if it so chose, could build missiles that could strike the United States within years, if not months. Iran and Iraq could follow suit within a decade.

Shooting down missiles is no longer the stuff of science fiction, the well-publicized NMD test failures in 2000 notwithstanding. Improved technology should soon make it possible to intercept the long-

range missiles that new ballistic missile powers could plausibly develop in the years ahead.

The intercontinental ballistic missile (ICBM) is nearly the only type of threat against which the United States has absolutely no defense today. Talk of enemies using "suitcase bombs" to circumvent NMD often exaggerates the ease of building small nuclear weapons and smuggling them into this country, ignores the fact that missiles strike with devastating speed, making them especially dangerous during war or crisis, and forgets that the United States already has several, albeit imperfect, lines of defense against suitcase bombs.

Nuclear deterrence might fail in some situations. That fact could weaken American willingness to intervene in crises and cause U.S. allies to doubt that Washington will make good on its security guarantees.

U.S.-Russian relations, though not free of distrust, are no longer fundamentally adversarial, creating an opportunity to rethink the role of missile defense.

But deciding that national missile defense can promote American security does not end the debate—it begins it. Deciding precipitously on deployment, or deploying the wrong kind of defense, could do more harm than good. The danger is not a new arms race, but rather that Russia and China will respond with policies that discourage arms reduction and encourage proliferation. Moscow might suspend collaborative efforts to secure and downsize its frighteningly dilapidated nuclear arsenal. China or Russia might decide to help countries such as North Korea improve their missile forces—for example, by deploying decoys that could probably defeat a missile defense of the type the Clinton administration began to develop. So, it is critical to think hard about what kind of NMD system the United States should build, and when it should do so.

## A LIMITED NMD EMPHASIZING BOOST-PHASE SYSTEMS

The most promising way to maximize United States and allied security is to build a limited, two-tier national missile defense. The total number of defensive interceptors should be limited to 200—the original numerical ceiling in the ABM Treaty. The primary tier would consist of boost-phase interceptors,<sup>1</sup> which would be based on land, at sea, and/or in the air near the threatening country, and would number up to 150 in all. The second tier would be a smaller version of the U.S.-based midcourse interceptor system that the Clinton administration proposed building, but would be based in North Dakota rather than Alaska and use no more than 50 interceptors. The two tiers would offset each other's weaknesses and provide solid defense against the long-range missile threats that countries such as North Korea, Iran, or Iraq could likely pose over the next two decades.

This two-tier system could be deployed by the end of the decade. Moreover, it would not require

President Bush to make any decisions about the ABM Treaty for at least two years, giving his administration time to pursue its missile defense diplomacy.

#### The Main Tier: Boost-Phase Defense on Land, at Sea, or in the Air

Boost-phase defense has two advantages in purely military terms: enemy missiles are easiest to locate when their rocket motors are burning, and there are few countermeasures to foil a boost-phase intercept because it is difficult to hide or mimic a large, burning rocket. By contrast, midcourse defenses like the one the Clinton administration proposed attempt to intercept warheads in space. But the cold vacuum of space makes it extremely difficult, given the foreseeable state of sensor technology, to distinguish between decoys and the real thing.

Earth-based boost-phase defenses do not pose particularly difficult technological obstacles. Some sensor challenges need to be solved and fast-burn rockets would need to be built, but neither task appears daunting. Contrary to the Pentagon's claims, boost-phase interceptors could probably be built by roughly the same date as the much more complex system the Clinton administration proposed building.

Earth-based boost-phase defenses offer two distinct political advantages. First, they should reassure friends and allies worried that an NMD deployment would defend only the United States—thereby making them a more tempting target for attack. Whereas the midcourse system the Clinton administration proposed building would protect only the United States and Canada, boost-phase interceptors would destroy long-range ballistic missiles regardless of whether their ultimate destination was Paris, Prague, or Peoria.

Second, earth-based boost-phase defenses would not threaten the basic viability of either the Russian or the Chinese nuclear deterrents. Regardless of how they were deployed, they could shoot down only missiles launched within a few hundred miles of where they were based. (Missiles based further away would stop burning before the boost-phase interceptors could collide with them). Even if any of Moscow and Beijing's immediate neighbors let Washington build defenses near Russian or Chinese soil, boost-phase interceptors still could not get close enough to threaten nuclear weapons based in their interior regions.

Boost-phase NMD does have limitations. One problem is that a boost-phase interceptor might not destroy a nuclear warhead when it hit the missile carrying the warhead—meaning that the warhead might detonate when it fell back to Earth (and most probably not on the country that had launched it). The warhead could land anywhere along a swath several thousand miles long and several hundred miles wide, so the odds that it would come down near a city would be very small—comparable to the odds that space debris would land in populated regions. But the odds would not be zero, and in the case of a missile launched over Europe, they could be as high as a few percent.

Another problem is finding reliable basing. The North Korean threat is the easiest to handle. Because North Korea sits on a peninsula, its missiles can be defended against using sea-based interceptors alone, though a land base on Russian soil near Vladivostok might be worthwhile if Moscow agreed. It is not physically possible, however, to defend against Mideast missiles from the open oceans alone. And it might not prove politically possible to find bases on land either.

Iraqi missiles could be shot down using interceptors based in eastern Turkey, assuming Ankara agreed. Defending against Iranian missiles would be much tougher, because interceptors would be needed both to its north and south. A base could probably be established in the south. Options range from ships or perhaps even submarines to land bases in friendly Persian Gulf states. But the northern base would be a huge challenge. The options include Kazakhstan, Turkmenistan, Uzbekistan—none of which is a U.S. ally—and the Caspian Sea, which is landlocked. Thus, it may prove impossible to deploy permanent boost-phase defenses against Iranian missiles. The United States might need instead to develop and have ready airborne boost-phase interceptor missiles that it could deploy, along with fighter aircraft to protect them, in the event of war, when missile defenses are most likely to be needed. Such missiles appear technologically within reach.<sup>2</sup> Alternatively, it may be possible to use the airborne laser, presently envisioned as only a theater-missile defense system, for that purpose around 2010.

At least two, and probably three or four, interceptors would be desirable for each enemy missile. Assuming a reasonable worst case scenario of three possible threatening countries, four interceptors per missile, and up to 12 ICBMs per country makes for a total of almost 150 boost-phase interceptors. That is a conservative way of planning, from the viewpoint of the United States. It assumes that Iran, Iraq, and North Korea—the only hostile countries likely to obtain ICBMs in the foreseeable future—could together have twice as many long-range missiles in the near term as China does today (even though China's estimated defense expenditures of some \$40 billion are four times their aggregate total). In practice, the United States probably would not need to deploy, or even to build, that many boost-phase interceptors, but ideally the ABM Treaty should be revised so that the United States would have the option of doing so.

#### The Second Tier: A Small Midcourse System in North Dakota

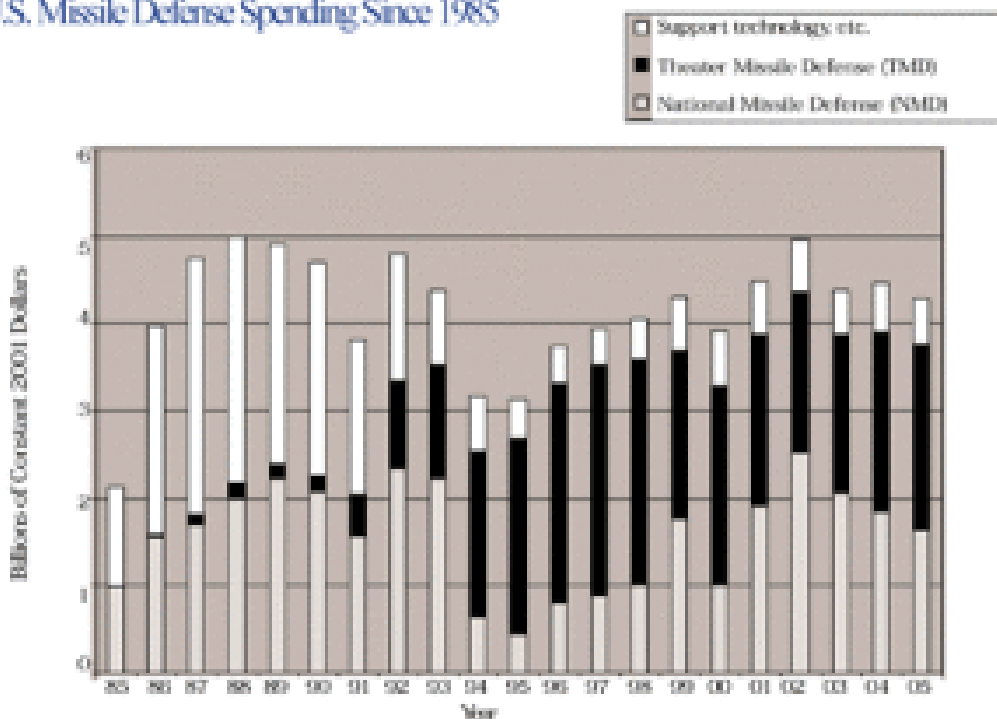
Given the uncertainties about whether a boost-phase defense could be deployed near all threatening states or whether it would be 100 percent effective in practice, it would be prudent to supplement any boost-phase defenses with a midcourse interceptor system based on U.S. territory. NATO allies might also consider deploying such a system in central Europe. The primary task of this second-tier defense would be to destroy warheads that survived the first-tier boost-phase defense. It could also defend against a surprise ICBM launch from another region. Finally, it could defend against unauthorized or accidental launches from Russia or China, provided that the launches were limited in scope and did not involve sophisticated decoys.

Decoys are the obvious Achilles heel of a midcourse NMD system. Still, such a defense makes sense because countries such as North Korea, Iran, or Iraq might not be able to build working countermeasures. All three have limited resources, as well as little diplomatic breathing room, to conduct the kinds of missile flight tests needed to perfect decoys.

The obvious candidate for a second-tier interceptor is the midcourse system that the Clinton administration proposed building. However, that system should probably be modified in two crucial ways. First, the system should be based in North Dakota rather than Alaska. An Alaska system would leave the northeastern portion of the United States poorly protected against a missile attack from the Middle East. It would also require beginning work almost immediately on a radar station on Shemya Island. The inhospitable conditions on this spit of land at the tip of the Aleutians limit the construction season to only three months a year. Because constructing an NMD radar at Shemya would violate the ABM Treaty, the Bush administration would be forced to make premature decisions about withdrawing from the treaty, perhaps as soon as this year. Also, a radar on Shemya may prove rather vulnerable to attack. By contrast, a midcourse interceptor system based in North Dakota—where the United States deployed its lone Safeguard site a quarter century ago before deciding that Safeguard could not even defend the ICBM site it was built to protect—could cover all but the westernmost islands in the Aleutian and Hawaiian island chains. These islands would not be an inviting target for attack because they are sparsely populated, and, in any case, they would have substantial protection due to boost-phase defenses.

Figure 1:

### U.S. Missile Defense Spending Since 1985



Source: Walter Slocombe, Under Secretary of Defense (Policy), paper entitled "U.S. Limited National Missile Defense Program," presented at Harvard-CSIS Ballistic Missile Defense Conference, Cambridge, Mass., May 11, 2000, p. 27.

The more hospitable construction conditions in North Dakota mean that the United States would not

confront the question of whether to withdraw from the ABM Treaty for at least two years, even if it still aspired to have a missile defense in place around 2006. This would give the Bush administration more time to develop NMD technology and pursue NMD diplomacy with Moscow, Beijing, the allies, and other countries.

Second, rather than deploying up to 250 interceptor missiles, as the Clinton administration envisioned, the North Dakota site should have no more than 50 missiles. The number of interceptors should be reduced because the system should be geared to handle the small-scale missile threat that North Korea, Iran, or Iraq could pose over the next two decades. There is no need for 250 interceptors to handle a threat from countries that lack the financial and technological resources needed to build more than a handful of missiles, let alone the nuclear warheads to match. At the same time, limiting the number of U.S.-based interceptors to 50 would be more palatable to Russia and China. These numbers could be revisited in the future if necessary, but a ceiling of 50 U.S.-based interceptors would likely suffice for at least a decade.

#### Modifying the Anti-Ballistic Missile Treaty

Although our proposal is consistent with the ABM Treaty's original numerical limits on interceptors, it would require major changes in the treaty. The treaty's blanket prohibitions on nationwide and mobile defenses would have to be scrapped. So, probably, would its ban on exporting NMD technologies. Its constraints on sensor and battle management technologies would need to be relaxed, though not necessarily eliminated. The ban on testing theater missile defenses against long-range missiles (i.e. in an ABM mode) should be retained, as should the 1997 demarcation agreement between the United States and Russia that defined the distinction between theater missile defense (TMD) and national missile defense.

The Bush administration should try its utmost to convince Moscow to accept the necessary treaty changes, and it should be willing to make deep cuts in United States offensive nuclear forces to win Russian agreement. It should withdraw from the ABM treaty only as a last resort and only if negotiations lead nowhere. If withdrawal does become necessary, Washington should still seek to allay Russian concerns. At a minimum, it should keep Moscow informed of its plans and unilaterally accept intrusive verification procedures. Given China's fierce opposition to NMD, the Bush administration should be equally transparent in its dealings with Beijing.

However, such a policy of transparency could be difficult to maintain. Not only is treaty withdrawal an inauspicious foundation on which to build a new relationship with Moscow, domestic support for what amounts to tacit arms control could prove elusive. Critics will ask why the United States is sharing sensitive information with countries that target American cities and are under no obligation to open up their own nuclear arsenals for inspection. The net result might be no arms control at all. Both Washington and Moscow should keep this in mind as they discuss the future of the ABM Treaty.

#### OBJECTIONS TO A LIMITED NMD

National missile defense opponents and proponents are likely to view our proposal for a limited, two-tier defense as being either too much or too little for American security. So it is important to discuss why both NMD critics and enthusiasts have it wrong.

#### Objections to a Limited System from NMD Critics

*Deterrence works, making NMD unnecessary.* Deterrence does work, but it is not 100 percent dependable. A North Korean or Iraqi leader on the verge of being overthrown and possibly killed might attack the United States out of spite. Similarly, political control of a missile force could be lost if a government collapsed, allowing subordinates to launch an attack out of confusion or anti-American hatred. In some circumstances, a leader might even decide to launch a missile to avoid defeat in a conventional war. He might use one long-range missile to attack a relatively low-value target in the United States (or perhaps one of its allies) to demonstrate his ability and will to strike. With other missiles in reserve, he could hope to dissuade Washington from marching on his capital. Such a plan would reflect a brutal, evil, and totally self-consistent logic.

*The United States needs a large defense to protect against accidental or unauthorized launch from Russia or China.* Alas, even making the unlikely assumption that such a system could be built, any U.S. capability to blunt a large-scale accidental or unauthorized launch by Russia or China would also give the United States the ability to nullify their second-strike deterrent forces. Moscow and Beijing would surely respond by expanding their missile forces and building decoys that would defeat the U.S. NMD system. NMD might help with a very small accidental or unauthorized launch. But the better way to address concerns over any large-scale launches is to work with Russia and China to cut missile forces and ensure that they are not deployed on hair-trigger alert. That requires cooperation, not confrontation.

*National missile defense will poison relations with Russia and jeopardize arms control.* Moscow denounced the Clinton administration's NMD plans, but Russian opposition to missile defense and ABM Treaty modification probably is not immutable. President Putin has proposed—even if somewhat vaguely—a joint NATO-Russian effort to build defenses against the spread of long-range missile technology. Senior Russian officials have suggested that some defenses may be tolerable if tied to cuts in offensive nuclear weapons. Moscow knows it cannot afford to maintain a large nuclear force, and probably will agree to a deal on missile defense if Washington takes its interests into account.

*National missile defense costs too much.* The United States spends roughly \$1 billion a year on national missile defense, a sum that would rise to between \$2 billion and \$3 billion annually under our proposal. That cost should be put in perspective. The United States spends \$300 billion a year on defense. Adding up to one percent to that price tag to buy catastrophic insurance for the American homeland is a prudent thing to do.

Figure 2:



Source: Carnegie Endowment for International Peace

*An enemy could circumvent national missile defense using suitcase bombs or container ships. Talk of a nuclear suitcase bomb is highly misleading. Any early-generation nuclear weapon would probably weigh a half ton or more and be at least as large as a dishwasher. Such a weapon would not be easy to move or hide, and it certainly could not be hidden in a suitcase. Any group or government trying to sneak a nuclear device into the United States would therefore have to mount a complex covert operation to deliver the weapon without getting caught by U.S. intelligence, customs, and immigration agencies or the Coast Guard. Even if it succeeded in getting one or more nuclear weapons onto American soil, the weapon might not be useful in coercing the United States (as opposed to punishing it) because the attacker would have a difficult time persuading Washington that the threat was real. The United States should improve its defenses against such bombs, and consider building defenses against cruise missiles as well. But it should also build an NMD system.*

Objections to a Limited System from NMD Enthusiasts

*The United States should build robust defenses that can defeat any missile attack, including one from Russia or China. Who would turn down such protection if it could be had at a reasonable cost? The problem is it cannot. First, there is no good technical reason to believe that the United States*



could build a defense capable of blunting a Russian or Chinese attack. Earth-based boost-phase defenses would not work because both countries are too large, and both could deploy decoys that would defeat any midcourse system the United States now has on the drawing boards. Second, Moscow and Beijing would likely retaliate against a decision to build robust defenses in ways that would reduce American security. They could put their missiles on hair-trigger alert, in the case of China, or keep them on high alert as Russia does today, to guard against the possibility of a surprise attack, meaning that the chances of accidental launch would be uncomfortably high. Both might also refuse to cooperate on issues that matter to Washington, such as taking further steps to secure Russia's poorly protected nuclear stockpiles and curbing nuclear and missile proliferation. So the price tag of a robust missile defense could well be a greater nuclear threat to the United States.

*The United States should move quickly to a large national missile defense system, perhaps using Aegis-class Navy ships.* The threat facing the United States hardly justifies rapid deployment of an NMD system, especially one that will not work while leaving U.S.-Russian security cooperation in tatters. North Korea has halted its missile test flights, and the U.S. intelligence community estimates that Iran and Iraq are a decade or more away from acquiring long-range missiles. Even if a rapid deployment were essential, the Heritage Foundation's proposal to use the Navy's Aegis-equipped surface ships in an NMD role would not provide much protection. This would simply be a midcourse system using technology designed for shooting down shorter-range theater missiles. Even if the shorter-range defenses could be adapted to an NMD role, they would be highly vulnerable to the countermeasures that Russia and China can surely build. Making matters worse, adapting theater missile defenses to an NMD role would quickly destroy any hope of keeping national missile defenses limited—and with it the hope of minimizing tensions with Moscow and Beijing.

The United States should build space-based defenses using lasers and other futuristic technologies. The Pentagon does not expect to be able to deploy space-based lasers before 2020, and that target date is not likely to move much even with higher research and development expenditures. The United States might be able to put ordinary interceptor missiles in space sooner—but it is doubtful that they could be deployed within the next ten years.

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Figure 3:

## Excerpts from the 1972 Anti-Ballistic Missile Treaty

The ABM Treaty, signed by the United States and the Soviet Union in 1972, was amended in 1974 with both parties agreeing to limit themselves to one missile site and one hundred interceptor missiles. A national missile defense, then, is illegal under the treaty; which must be modified before one is built. Following are portions of the 1972 treaty:

### Article I

- Each Party undertakes not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense, and not to deploy ABM systems for defense of an individual region except as provided for in Article III of this Treaty.

### Article VI

- Each Party undertakes:
  - (a) not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode; and
  - (b) not to deploy in the future radars for early warning of strategic ballistic missile attack except at locations along the periphery of its national territory and oriented outward.

### Article IX

- To assure the viability and effectiveness of this Treaty, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, ABM systems or their components limited by this Treaty.

### Article XIV

- Each Party may propose amendments to this Treaty. Agreed amendments shall enter into force in accordance with the procedures governing the entry into force of this Treaty.

### Article XV

1. This Treaty shall be of unlimited duration.
2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

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*The ABM Treaty is a relic of the Cold War that the United States should abandon.* The ABM Treaty is still relevant not because it is sacred but because a formal agreement on defenses serves American interests. It would reassure Moscow about American intentions. That would: greatly increase the odds that Russia will both make deep cuts in its offensive nuclear weapons and continue collaborative efforts to secure its nuclear materials; substantially reduce the diplomatic costs of an NMD deployment, both with potential adversaries such as China and with U.S. allies; and reduce the chances that Russia and China would seek to undermine the United States NMD system by selling missile and countermeasure technology to others. The worst possible move would be to declare the ABM Treaty null and void on the grounds that the Soviet Union no longer exists, as some NMD enthusiasts argue. Not only would Moscow then be free to abandon other Soviet-era treaties it finds inconvenient, but Russia would consider itself betrayed-and quite possibly threatened.

## Notes

1. See Richard L. Garwin, "A Defense That Will Not Defend," [pdf] *Washington Quarterly*, vol. 23 (Summer 2000), pp. 114-22. 2. See Dean A. Wilkening, "Ballistic-Missile Defence and Strategic

Stability," International Institute for Strategic Studies Adelphi Paper 334 (London: Oxford University Press, 2000), pp. 60-70.

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