# Statement of the Honorable William S. Cohen
# Secretary of Defense
# Before the Senate Armed Services Committee
# Hearing on National Missile Defense
# July 25, 2000

**Introduction**

Chairman Warner, Senator Levin, members of the Committee, I am pleased to have the opportunity to discuss with you the U.S. National Missile Defense (NMD) program. I cannot think of a more important issue to address than protecting the American people from the threat posed by states such as North Korea, Iran and Iraq who are seeking to acquire nuclear, chemical and biological weapons and the long-range missiles to deliver them.

As you and the members of this Committee know, the Department of Defense is developing a national missile defense system, capable of defending all 50 states from limited ballistic missile attack. The President has not made a decision to deploy and I have not made a recommendation. In making that decision, he will consider the threat, affordability, the state of the technology, and the impact on international security, including arms control.

My testimony covers each of those subjects, and addresses the following five areas on which you have asked me to focus: (1) the status of the ballistic missile threat to the United States and its global interests; (2) the NMD development effort, including the flight test program and the deployment readiness review; (3) the Administration's discussions with Russia and our NATO allies regarding the deployment of a limited NMD system; (4) the status of the Department's analysis of the alternatives of sea-based or boost-phase elements to support the NMD system; and (5) the Department's efforts to insure that the

NMD system is being adequately developed and tested to counter realistic counter-measures.

## I. THE THREAT

For the United States and our allies, the threat posed by long-range ballistic missile is growing. North Korea and Iran have active missile development programs, the latter case fueled by foreign assistance, and are developing new capabilities. Short and medium-range ballistic missiles, particularly when armed with WMD, already pose a significant threat overseas to U.S. military forces and allies. Despite our determined nonproliferation efforts, the worldwide spread of missile technology continues.

In North Korea, through diplomacy, this Administration has won a commitment for a moratorium on further flight tests, during the continuation of efforts to improve relations. However test launches are only one part of missile development. Other missile development activities – such as ground testing -- continue in North Korea. North Korea could break its current moratorium and begin flight testing the intercontinental range Taepo-Dong II missile at anytime and begin deploying it in the next few years.

It should also be noted that North Korea's missile work potentially contributes to threats from other nations, because of North Korea's willingness to export missile equipment and technology. In the case of the shorter range NoDong missile, North Korea began exporting it after only one flight test and it is possible that such a pattern could be repeated with the Taepo Dong 2, currently being developed.

Iran's program is also an active one. Just two weeks ago, Iran conducted a test of the Shahab-3, a medium range ballistic missile. The Shahab-3 is essentially a derivative of the North Korean NoDong missile.

If freed from international sanctions, Iraq would almost certainly restart its own long-range missile development program.

Libya has chemical weapons capabilities and has sought longer-range missiles for years.

The Intelligence Community estimates that over the next 15 years the United States most likely will face ICBM threats from North Korea, probably Iran, and possibly Iraq in addition to long-standing missile capabilities of Russia and China.

The arsenals these states are developing will be much smaller, less accurate and less reliable than those of the Russians and Chinese, but they will still pose a significant threat to the United States in the hands of the leaders of those countries. From my perspective, the utility of considering active defenses against missiles from states like North Korea, Iran and Iraq does not depend on a judgment that their leaders are utterly indifferent to the prospect of retaliation. Rather it is based on a recognition that leaders of these isolated states might be prepared to use WMD attacks – and risk retaliation – in circumstances where more traditional, or at least more cautious, leaders would not. Leaders such as Saddam Hussein and Kim Jong-il have established records of indifference to the suffering of their own populations and they value regime survival above all else.

The most troubling scenario would be a miscalculation by states that acquire a missile capable of reaching the United States taking action to start a regional conflict, in the mistaken belief that by threatening strikes at the U.S., their missiles would prevent us from meeting our commitments.

Any nation using weapons of mass destruction against the United States, its forces, or its allies, would face a prompt and overwhelming response. This is a powerful deterrent – and one we will maintain, whatever we do about other defenses. However, far from undermining deterrence, missile defenses complement overall deterrence by enhancing the United States' ability to fulfill its global security commitments to allies and friends. They present a potential aggressor with the prospect that an attack will not only be fatal – because of retaliation – but also futile – because it will be blocked from striking its target.

## II. THE TECHNOLOGY

### A. The NMD Development Effort

On the basis of a recognition of this potential threat, the Congress and the Administration have for five years now funded an ambitious program to devise a national defense against a limited missile attack.

The program has been based on an objective of doing sufficient development work that a decision on deployment could be made as early as 2000. This is an ambitious program, but it is not excessively so. When I became Secretary of Defense, my hope was to give the President the option to field a missile defense by 2003. In 1998, after carefully reviewing the program it became clear to me that that target was unrealistic. Rather than rush to failure, I extended the target deployment date by two years, to 2005. That was

identified by BMDO as the soonest it would be ready to deploy. We have always said that even this date is ambitious, but the threat is continuing to develop, and so there is a premium on being able to deploy a defense rapidly.

Accordingly, in designing the system, the engineers were given guidelines to develop a system that could be deployed quickly, and that implied using mature technology. The elements of the system therefore include an X-band radar at Shemya, upgrades to the five existing Early Warning Radars, the existing DSP launch detection system to be supplemented by SBIRS-High, and an interception system incorporating a hit-to-kill EKV -- all linked by a command and control system. The key technological advance in this system is the exoatmospheric kill vehicle (EKV). This is the component that destroys the enemy missile in space by a direct collision.

**B. The Test Results to Date**

The program provides for an extensive and graduated set of tests, of increasing complexity, to help provide the basis for decisions on successive stages of development.

Last October, in the first test of the EKV, it successfully discerned the target from a decoy, positioned itself and obliterated the target warhead with a direct hit.

A second test in January failed because of a problem with the cooling system that prevented the EKV's sensor from working properly in the final seconds of the test. Other elements of the system, including the integrated operation of sensors with the interceptor functioned as designed.

As you know, the third test conducted on July 7, also did not succeed in testing the interceptor system, because the EKV did not separate from its final rocket booster stage. As the Committee is well aware, booster failures are a fact of life when you are dealing with missiles; we know how to correct these problems and our R&D program, though ambitions, can accommodate such disappointments.

The 7 July test, while not successful, was not without benefit -- and does not show, as some have claimed, that the system is not technologically feasible. It demonstrated that the sensors and battle management systems could and did work together as an integrated system. Satellite sensors and upgraded early warning radars worked as specified, the X-band radar prototype worked better than anticipated, and the command and control system performed well.

The last point is important because no interceptor could locate and destroy an enemy missile without a sound foundation of effective detection and tracking sensors, battle management, and reliable communications to cue and control system elements in an integrated manner. This was just the third intercept test in a series of 19 before a possible 2005 deployment date. Nevertheless, so far in our overall testing process, we have successfully demonstrated the bulk of the system's critical engagement functions.

**C. The Stages of Decisions To Deployment**

Because of the high risk of the program's compressed schedule, we have phased the major decisions over several years to help spread that risk. Some decisions are schedule-driven so that the initial NMD deployment can be completed by 2005. For example, if we are to have the X-band radar at Shemya in place and operational in time to

support a 2005 IOC, a decision will have to be made by late this year to move forward with construction contracts for preparatory work beginning in the late spring of 2001. The timing on that is driven by the weather conditions on Shemya and the short construction season there.

Further important decisions points on the road to a 2005 IOC would be made in subsequent years, as more milestones are passed. In particular, our current plan calls for making a decision on the final configuration of the ground-based interceptor in 2003, after it has been successfully tested with its new booster and has undergone further flight tests that, among other objectives, will increasingly challenge its ability to discriminate among countermeasures.

In sum, deployment decisions will be made in a sequential process, geared to successful accomplishment of successive stages in the development process and on the basis of adequate data and technological assessment of the test program to determine the feasibility of the system.

At the moment, we are reviewing the recent and earlier test results in detail, and I expect a report will be provided to me within the next several weeks on the feasibility of the NMD system design and the maturity of its engineering. This will be an important input for the Department's Deployment Readiness Review (DRR) in early August, and to me as I prepare my recommendation to the President.

**D. The Deployment Readiness Review**

The DRR is an important step in a lengthy, staged set of decisions leading to ultimate deployment. This year's DRR will be the culmination of an ongoing multi-tiered

process of evaluation of progress so far, as well as the first of at least three major acquisition decision milestones that will take place over the next five years to determine the system's technological status and operational readiness to move forward toward deployment. Other intermediate decision milestones include a decision in 2001 by the Defense Acquisition Board on initiation of the early warning radar upgrade, building the X-band radar, and integration of the battle management command and control into the Cheyenne Mountain complex. As noted above, another DAB review scheduled for 2003, will make a decision on the final configuration of the interceptor and on proceeding to series production of the interceptors.

Each acquisition decision made will be based on an assessment of the program's progress at that time. The establishment of performance gates for program elements means that the acquisition process as a whole is event-driven based on progress through successive stages on extensive test and development programs.

The DRR event will take place in August at the Defense Acquisition Executive level with full participation from all Department of Defense stakeholders (to include DIA, VCJS, USD(P) and USD (AT&L)). The review will result in a series of findings concerning the NMD system's technological readiness and cost, which then will be forwarded to me for review and evaluation. I will produce my own assessment regarding the technological feasibility and affordability of the NMD system and develop a recommendation to be forwarded to the President through the National Security Council (NSC). The NSC will review my findings and supporting assessments and weigh these

factors along with assessments of the threat and implications of NMD deployment for national security policy. The NSC then will recommend to the President how to proceed with the NMD program.

### E. Alternate NMD Architectures

Turning to alternative NMD architectures, the NMD system that we are planning was chosen based on the assessment of our best technical experts. The technical experts who designed the system were asked to devise a system that could be deployed rapidly, in time to meet the expected threat, which naturally focused the effort on mature technology.

Other systems were considered, including boost-phase interceptors and sea-based systems, but the technological challenges of those alternatives were judged to be greater than those posed by the system we have designed, making timely deployment impossible. In particular, the sea-based theater missile defense systems currently under development are not capable against intercontinental range missiles and would require fundamental – and time consuming – redesign to be effective against long-range threats.

Similarly, the United States remains interested in exploring the boost-phase intercept concept, but it too, like sea-based systems, cannot substitute for the limited NMD now under development, at least if we are to have the option of having an operational system on anything comparable to the 2005 timeline we have established. There are major technical, geographical and political challenges associated with the effort

to intercept a very long-range ballistic missile in the boost phase. No U.S. defense system currently under development has been designed to perform this task. Development of a boost-phase intercept system capable of defeating intercontinental strategic ballistic missiles, therefore, would take many years – well beyond the date by which we expect a strategic ballistic missile threat from North Korea and possibly from Iran will have emerged.

We continue, despite these problems, to study other systems, including sea-based and boost-phase. In response to Congressional guidance,[1] BMDO and the Navy have been conducting an in-depth examination of how naval systems could potentially supplement or complement the land-based NMD system currently in development.

They are completing work on a report that discusses various approaches that employ ship-based radar sensors and interceptor missiles that could contribute to the NMD mission, as well as notional concepts for carrying out these operations and first order costs of these systems. The report is focused heavily on ship-based concepts that -- like the land-based system under development -- intercept strategic missile RVs during the mid course portion of their flight path. These sea-based adjuncts are largely dependent on the space-based and ground-based sensors and command and control systems that would be deployed with the ground-based limited NMD currently under development. The report will also briefly discuss the potential for boost-phase intercept of an adversary long-range missile from Navy ships.

There are both significant potential advantages and disadvantages to a sea-based system. A ship-based radar sensor, if deployed forward, near the missile launch site,

[1] From Senate Fiscal Year 2000 DoD Authorization Bill S. 1059, S. Report. 106-50.

would provide earlier detection, tracking, discrimination and, importantly, longer time for decisions against certain threats. Certainly, additional sea-based interceptors would provide the potential for layered intercepts at different closing angles and speeds, and increase our ability to handle larger attacks, thereby making it an attractive complement to a land-based NMD system.

Some of the disadvantages of a sea-based system include limitations on operational range in some scenarios, and the current lack of any high performance interceptors and interceptor platforms that could be deployed to meet the near-term threat. This would require a significant R&D program. Additionally, any sea-based, mid-course intercept system would require full land-based sensor architecture to work effectively. As made clear in the 1998 report to the Congress, the Navy Theater Wide (NTW) Block II system – a theater missile defense system -- alone would have no useful capability against ICBMs or SLBMs.

We have also examined concepts for boost-phase intercept NMD systems. An effective boost-phase intercept system would have the advantage of destroying an enemy missile before it could release multiple warheads or countermeasures. This feature makes it a very attractive concept. However, there are several significant challenges associated with this approach. It requires very quick reaction. Long-range missiles are in the boost phase for only a few minutes. This would put significant stress on an NMD system because it would require rapid detection and response. The flight path and speed of a missile during the boost phase are erratic, thus requiring continuous tracking of the missile and relaying that data to the interceptor in flight. In addition, this short time window would also require a highly maneuverable interceptor that could accelerate rapidly to high speed and carry sophisticated sensors able to home in on the missile rather than the hot

exhaust plume. This would also require the interceptor to be deployed down-range from and within a few hundred kilometers from the launch site to reach intercept it in time. Such geographic limitations may make it difficult to find third countries willing to host these interceptors.

The most practical role for a sea-based and/or boost phase NMD systems would be as an adjunct to a land-based system, not as a replacement for it. Additionally, sea-based and boost-phase NMD systems would also require amending the ABM Treaty.

### F. Countermeasures

A number of critics have charged that our current NMD system design, by focusing on the mid-course intercept, when a missile is in space, leaves itself open to defeat by countermeasures. We understand the serious challenge posed by countermeasures. (Countermeasures are not, of course, a problem unique to land-based, mid-course systems: They can be developed for boost-phase systems as well.)

Having the ability to discriminate between reentry vehicles and various types of countermeasures, simple and complex, has been among the highest priority design considerations and tested aspects of the program. Each flight test has had, and will continue to have, decoys present, and their sophistication will be increasing as we test the ability of the evolving system to counter them. In developing the technology, we will walk before we run.

It is important to point out that the US has been working on countermeasure technology for decades, and it is far more difficult to make effective countermeasures than

some critics seem willing to acknowledge, particularly if one takes into account the inherent capacity of the system to be adapted and upgraded against an evolving countermeasure challenge. Our own work also underscores the point that, unless a potential aggressor state tests its countermeasures – and we have seen nothing of that from states of concern so far – those countermeasures may well not work. Without adequate testing, potential aggressors cannot be confident that their missiles or countermeasures would be effective against our advanced discrimination and kill technologies.

Nevertheless, having the ability to overcome an adversary's countermeasures must be taken very seriously, and I would make the following points. First, our steadily improving computing power and sensor capabilities will assist us greatly in dealing with countermeasures. Furthermore, the NMD system that we are developing will be far more robust than many suggest. It will not rely solely on the kill vehicle's infrared and optical sensors. In addition to the EKV's organic sensors, the system will employ an integrated set of multi-spectral sensors, space-based and land-based to track incoming RVs and distinguish them from countermeasures. This allows the sensor complex to view the "threat clusters" speeding through space from different angles over the much longer period of time that mid-course intercept affords, and provides the opportunity to reliably discriminate between RVs and various types of penetration aids. Additionally, multiple shot opportunities built into our limited NMD concept dramatically increase confidence of successful intercepts.

Moreover, our NMD system is not designed to be static, but to incorporate increasingly advanced technologies over time to ensure we are able to deal effectively with more sophisticated threats. We will be adding new, capable software tools and technologies to the system, including the infrared sensor suite on the SBIRS-Low satellites, which will be used to help identify and discriminate between RVs and accompanying countermeasures.

## III. COSTS

My recommendation to the President will also include a current estimate of the cost of the system. Ballistic missile defense is not inexpensive, and we need to be sure every defense dollar is efficiently spent, but the cost of a limited national missile defense is not disproportionate in the context of the overall defense budget over the relevant period. Since 1993, we have spent some $7 billion on national missile defense. The current estimate for the full cost of developing and deploying the initial phase of a limited defense is approximately $18.6 billion. Funds sufficient to support the currently estimated cost of phase one are included in our five-year budget plan. The CBO estimate is slightly higher, $20.9 billion, because they estimate higher construction costs, a need for more test/spare interceptors, and more expensive interceptor production. (Higher estimates based on CBO publications are for the second phase, with additional radars and interceptors, and include the SBIRS-Low satellite sensor system.)

These are obviously large amounts of money, and there are always uncertainties about cost estimates at this stage of a program. As a part of my recommendation, I will advise the President on the impact of proceeding with NMD on our overall defense budget priorities, i.e., on the affordability of the program in the context of our total defense needs.

## IV. IMPACT ON INTERNATIONAL SECURITY, INCLUDING ARMS CONTROL

### A. Commitment to Arms Control

Our work on this subject is not simply a matter of technological development; it takes into account the broader political and strategic context. As I noted earlier, the basic reason for our consideration of this system is strategic -- to supplement diplomacy and deterrence as instruments for preventing potential aggressors from mounting an attack.

However, we recognize that our decisions on an NMD system have potential impacts on other aspects of international security -- our relations with our allies and with Russia and China, and on arms control. We do not want in the course of dealing with these limited, but serious, threats from countries like North Korea or Iran, to create new problems with Russia and other nations that we can reasonably avoid. We also place very

high priority on preserving, and indeed strengthening, arms control limits, as a means both of fostering strategic stability and of resisting proliferation of dangerous military capabilities. For this reason, President Clinton and this Administration are committed both to protecting the American people from limited ballistic missile threats and to maintaining the ABM Treaty as a cornerstone of strategic stability and a key element in our relationship with Russia. Assessment of the impact of our NMD program on these broader national security interests will be a factor in my own recommendations to the President -- and of course of his other key national security advisers.

There is no reason we -- and the world -- should be faced with a choice between defending our population against the emerging threat of attack by limited missile capabilities of rogue states, on the one hand, and preserving arms control on the other. The ABM Treaty expressly provides for revisions to take account of changes in the strategic situation. The purpose of the ABM Treaty is not to ban defenses altogether. It does not do that -- In fact, an ABM system is already deployed to defend Moscow. Rather, the purpose of the Treaty is to ensure that each party's strategic deterrent is not threatened by the missile defenses of the other party. The limited NMD system we are developing would not threaten Russia's strategic deterrent, even at START III warhead levels -- or indeed even well below those levels.

### B. Discussions with Russia

Over the last year, U.S., Russian and NATO officials have held intensive discussions on ballistic missile defense. We have stressed that the system we are considering would not threaten the Russian deterrent and is consistent with the purpose of the ABM Treaty. We have proposed modifications to the ABM Treaty that would permit

the deployment of the initial system I have described. We have also indicated that, to meet the emerging threat we expect from the Middle East, we would need to deploy a larger system, and would expect to begin negotiations on modifications of the Treaty needed to permit such a system early in the next Administration. We have also emphasized that we are prepared to cooperate with Russia on insuring the transparency of our program -- so they will be confident it is no threat to their strategic capabilities.

President Clinton met with President Putin last month and again last week and has had discussions with his counterparts from many of our NATO allies. I covered this topic in considerable detail at the NATO Defense Ministerial in early June and in my Moscow meetings with President Putin and Minister of Defense Marshal Sergeyev.

We seek Russia's agreement to those changes to the ABM Treaty required to permit us to meet our initial goal and defend against these limited threats. An important element of our proposal includes measures of cooperation and transparency that would give Russia confidence that the system was not being expanded beyond its limited scale. We have already made progress on this effort. We have also proposed ways to move ahead to reduce further offensive nuclear weapons under START III.

In June, Presidents Clinton and Putin agreed to establish a joint warning center in Moscow, where Russian and U.S. personnel will monitor global ballistic missile launches. This will reduce the possibility that either side would misinterpret an event as a hostile act.

In Okinawa, the Presidents agreed to move forward with the joint warning center within the year; they also agreed on other concrete measures to cooperate on reducing proliferation threats.

One topic of discussion has been President Putin's recent proposal for cooperation between NATO and Russia in non-strategic (theater) missile defense and indications of Russian interest in the development of missile defense systems that intercept adversary missiles during their initial boost-phase of flight. In my discussions with President Putin and Marshal Sergeyev, I repeatedly stressed that the United States is interested in exploring – first with our NATO Allies and then with Russia – possibilities for cooperation between NATO and Russia on defenses against non-strategic ballistic missiles (missiles with a range less than 3,500 km). I also made clear that defenses against non-strategic ballistic missiles cannot substitute for defenses against the emerging threat of strategic ballistic missiles that could strike the United States.

The NATO-Russia Permanent Joint Council held its first discussion of possible NATO-Russia TMD cooperation in late June, but it will take some time for Russia and NATO to develop specific proposals in this area.

President Putin, Marshal Sergeyev and I also discussed at some length the possibility for boost-phase intercept of ballistic missiles during my visit to Moscow in mid-June. We agreed that U.S. and Russian experts would consider the concept at the U.S.-Russian Defense Consultative Group meetings in late June. At that meeting U.S. experts laid out the various technical and political challenges associated with boost phase intercepts of long range missiles. The Russian side asked a few questions but indicated that it was not yet ready to discuss these matters in any detail.

We will continue to explore this idea further in future meetings with the Russians. I would note, in this general context that, any system capable of defending against strategic

ballistic missiles at any point in their flight would, by definition, be a strategic ballistic missile defense system falling within the limits of the ABM Treaty. Thus, development and deployment of boost-phase intercept systems for national missile defense would not obviate the need to amend the ABM Treaty.

**C. Discussions with China.**

We have had extensive discussions of NMD with the government of China. Indeed, NMD was one of the chief topics of my recent meetings with the Chinese leadership in Beijing. The whole issue of missile defense, in all its aspects, is an issue between the US and China. The Chinese, as you know, oppose our NMD program, as they do our R&D cooperation on TMD with Japan. They are also strongly opposed to any sale of TMD capability to Taiwan. We have explained the reasons for our consideration of NMD, and made the point that neither the NMD system we have under consideration nor our TMD cooperation with Japan is designed against China, and that, in any event, we do not expect our relations with China to be such that the question of China using its nuclear capability against the US -- or indeed Japan or any other US ally -- would arise.

The question of the impact of NMD as such on our relations with China needs to be considered in light of the fact that China has, for some years, been pursuing development of a more modern, more survivable, and more capable long-range missile capability.

**D. Discussion with Allies**

We have had extensive discussions about our NMD proposal with NATO allies and we will weigh allied views, and impact on alliance relationships in our decisions. It is important to do this because we want the NATO alliance to continue to be a strong and effective instrument of Atlantic security in the conditions we will face in the coming years, and that requires a high degree allied understanding of our major defense policies. Beyond that, two of the radars in our NMD proposal are located in NATO countries, and so their consent will be needed for us to use them.

Our basic message to our allies has been that the missile threat from states like North Korea and Iran is growing and presents a potentially significant problem. We have explained the strategic rationale for defenses, and why they would re-enforce, not undermine, deterrence. And we have explained that we are committed to seeking to preserve the ABM Treaty as a foundation of strategic stability and why the ABM Treaty can readily be modified to permit defenses against limited ballistic missile attacks while continuing to foster strategic stability.

As to the allied reaction, I think it fair to say that the allies broadly accept our analysis of the threat and the strategic problem it poses. While they increasingly understand our reasons for considering deploying a defense, they are also very concerned about the Russian (and to some degree, the Chinese) reaction, and are eager to see the ABM Treaty preserved.

None of our allies have formally asked to be included in our NMD system, but many recognize that the same missile programs that threaten us would also be a danger to them. Should any of our allies be interested in cooperating with us to build a defense for themselves against long-range missiles, the President has said we are open to working with

them. We have informed the Russians that such measures of cooperation would have to be addressed in the context of further modifications of the Treaty to permit deployments beyond the initial phase.

**Conclusion**

In summary, the mission of our NMD program is clear: to develop and test in a timely manner a missile defense system that will be able to protect our nation from either the threat or limited use of ICBMs, and be able to deploy that system following a decision by the President. The technical challenges and technology development tasks involved in this mission are daunting. We are, however, in the process of meeting those challenges, and working hard -- and carefully -- to achieve the incremental success needed to produce a strong and effective NMD system.

Thank you Mr. Chairman, for the opportunity to discuss this important issue and for the support that you have provided to me and the Department over the past four years.