

**STATEMENT OF**

**HONORABLE JACQUES S. GANSLER  
UNDER SECRETARY OF DEFENSE  
ACQUISITION AND TECHNOLOGY**

**BEFORE  
SENATE ARMED SERVICES COMMITTEE**

**STRATEGIC SUBCOMMITTEE**

**BALLISTIC MISSILE DEFENSE PROGRAMS AND MANAGEMENT**

**MARCH 11, 1999**

**Good morning, Mr. Chairman, members of the Subcommittee, and staff,**

**It is a privilege to appear before you today to discuss the Administration's strategy to protect our warfighters from the growing threat posed by weapons of mass destruction delivered by ballistic missiles. Lieutenant General Lyles and I will review with you the architecture we envision to provide that protection, and the programs we are currently pursuing within that architecture. We will also review with you the current Ballistic Missile Defense Organization management and structure.**

**As part of the second portion of this morning's proceedings, Lieutenant General Martin, General Marsh, and I will present an overview of the Airborne Laser Program and a status report on the Airborne Laser Independent Assessment Team and the Report to Congress on the Airborne Laser Program, required under Section 217 of the FY 1999 Defense Authorization Act. Although he will not officially be part of this panel, General Lyles will be available in case the Subcommittee wishes to question him about any aspect of this program.**

**I would like to take this opportunity to thank the Committee for the strong support it has given to missile defense, to include the recent authorization and appropriation of additional funds for the program. Your continued support of a strong national defense and adequate funding for our military programs and personnel is appreciated by all Americans and our friends and allies throughout the world.**

**I do not need to remind this Committee that the United States is about to enter the next century with a military force that is second to none and which, thanks to your diligence and hard work, is the primary stabilizing force in a world that is rapidly evolving**

**and uncertain. New forces of terror and instability – economic, social, and political – threaten to erode the peace which we and our allies have so carefully crafted and maintained. We must be prepared for this uncertain future. And our response must be one that enables us both to shape our defense and protect our homeland against most likely threats as well as deter aggression from whatever the source.**

**Let me begin, Mr. Chairman, by describing the nature of that threat.**

## **THE THREAT**

**Our defense strategy for the 21st century seeks to shape the international security environment in ways favorable to U.S. interests, to prepare for an uncertain future, and to respond to the full spectrum of threats--from whatever the source.**

**A series of very dramatic and terrifying world events this past year has made us painfully aware of the vast, complex geopolitical, economic, and technological upheaval that is taking place in the world. We no longer need to be reminded that we face a very real--and present--set of new threats from a variety of asymmetric forces capable of being directed against us from all parts of the world. I need not tell the members of the committee that recent terrorist bombings in Kenya and Tanzania, the conflicts in Bosnia and Kosovo, the North Korean and Iranian ballistic missile launches, the nuclear tests in India and Pakistan, the growing proliferation of low-cost cruise and ballistic missiles, and the sophisticated cyber attacks on the U.S. Department of Defense computer systems have brought home to all of us the very real nature of the present and growing threats to our national security.**

**Today, more than 20 countries possess or are developing weapons of mass destruction, and have the theater ballistic missiles or cruise missiles to deliver them. Some of these countries are developing much longer-range ballistic missiles.**

**Theater-range missiles already in hostile hands pose an immediate and increasing threat to U.S. interests, military forces, and allies. More countries are acquiring ballistic missiles with ranges up to 1,000 km, and more importantly, with ranges between 1,000 km and 3,000 km. Iran's flight test of its Shahab 3 medium-range missile demonstrates that we are no longer dealing with a hypothetical threat. We are dealing with a real threat that is with us now. With a range of 1,300 km, the Shahab 3 significantly alters the military equation in the Middle East by giving Tehran the capability to strike targets in Israel, Saudi Arabia, and most of Turkey. Among those countries seeking longer-range missiles, North Korea is the most advanced: a judgement underscored by the recent launch of the Taepo Dong-1.**

**The U.S. missile defense program underscores the urgency of meeting this immediate threat. A missile defense system reduces the likelihood that a ballistic missile attack could achieve its intended objectives. Equally important, missile defenses contribute to the reduction and prevention of missile proliferation and strengthen regional stability, both critical for shaping the international security environment.**

#### **THE ADMINISTRATION'S STRATEGY**

**Our current missile defense program is affordable and can be successfully executed. It is well matched to the missile threats we will face. As we began our deliberations in support of the FY 2000 President's Budget submission, we were faced with making a number of decisions affecting both the ballistic missile defense mission and other missions**

**of the Department, as well as decisions on how to proceed with programs within the theater missile defense arena: how best to field an upper-tier Theater Missile Defense system quickly and affordably, what quantities of our lower-tier systems we should buy, and how quickly to proceed with our Airborne and Space Based Laser efforts.**

**The decisions we made were based on the Department's fundamental priorities concerning our missile defense program. These priorities have not changed over the past year. We must defend U.S. troops against the threat posed by theater ballistic missiles and cruise missiles. Within the Theater Missile Defense (TMD) mission area, we must first field systems to defend against the existing short-to-medium-range missiles--our lower-tier systems. Next we must proceed to add upper-tier systems for defenses over wide areas against longer-range theater ballistic missiles as that threat emerges and as our technology allows. At the same time, we should continue developing the Airborne Laser (and, subsequently, the Space Based Laser) to provide boost-phase intercept capability.**

**Additionally, we must continue to develop a robust technology base to underlie our programs which will allow us to develop and deploy more advanced missile defense systems over time as the threat systems they must counter become more advanced.**

## **THE BALLISTIC MISSILE DEFENSE ARCHITECTURE**

**In light of the widespread deployment of theater ballistic missiles today, the Department's immediate missile defense priority is to develop, procure, and deploy theater defense systems to protect forward-deployed elements of the U.S. armed forces, as well as allies and friends, against cruise and ballistic missiles (as well as aircraft). This plan envisions time-phased acquisition of multi-tier, interoperable missile defense systems that provide defense in-depth against theater ballistic and cruise missiles. The Ballistic Missile**

**Defense Organization (BMDO), the Joint Staff's Joint Theater Air and Missile Defense Organization, and the military Services share the responsibility for developing improved capability to defend against such threats.**

**No one system can meet all of the demanding and complex tasks necessary to satisfy the warfighting commander's theater missile defense requirements. Since the mission cannot be accomplished with just one or two systems, we are developing multiple systems designed to counter the threat during all phases of flight. We call this the Theater Air and Missile Defense Family of Systems. To work effectively, this Family of Systems must be interoperable and capable of sharing and exchanging information, providing a common view of the battlespace.**

**The Department has taken significant steps in the last year towards realizing the interoperable Theater Air and Missile Defense Family of Systems. Of note, the Theater Missile Defense Capstone Requirements Document, which specifies the joint warfighter's overarching requirements, received Joint Requirements Oversight Council validation, thereby providing us, for the first time, a set of formal, overarching, joint missile defense requirements. In short, we are working to define and build the Theater Air and Missile Defense Family of Systems in the same manner that it will be used--jointly.**

## **LOWER-TIER SYSTEMS**

**Lower-tier systems remain the top priority to defeat short-range ballistic missiles. The Patriot Advanced Capability-3 (PAC-3) and the Navy Area Defense systems are the key lower-tier systems for this mission. PAC-3 will provide air defense of ground combat forces and defense of high-value assets against high-performance air-breathing threats and theater ballistic missiles. The FY 2000 budget request calls for procurement of 32 PAC-3**

missiles, with first unit equipped projected for FY 2001. The development of the missile's "seeker" software was more difficult than anticipated and delayed the first attempted intercept last year and, therefore, the program. The first intercept attempt is now back on track for March, and, consistent with Congressional intent, the program will require two successful intercepts before proceeding to low-rate initial production, which we expect later this year.

The Navy Area Defense program will provide a sea-based lower tier capability to U.S. forces, allied forces, and areas of vital national interest at sea and in coastal regions against air-breathing threats and theater ballistic missiles. The FY 2000 budget request calls for 23 SM-2 Block IVA missiles to start off the low-rate initial production buy. Recent delays in the next phase of development of the Aegis weapon system software have impacted the program's schedule. The first unit equipped is projected for FY 2003, and it will require two successful TBM intercepts, as with Patriot's PAC-3, and an additional anti-air warfare intercept, before proceeding to low-rate initial production in late FY 2000.

#### **UPPER-TIER SYSTEMS**

Our upper-tier systems--the Theater High Altitude Area Defense (THAAD) system and the Navy Theater Wide program--are designed to intercept incoming missiles at high altitudes in order to defend larger areas, defeat medium and long-range theater ballistic missiles, and increase theater commanders' effectiveness against weapons of mass destruction by providing a layered defense. THAAD and Navy Theater Wide will make possible an effective protection of broad areas, dispersed assets, and population centers against missile attack. The Navy Theater Wide system builds upon the existing Aegis weapon system as well as the Navy Area Defense system. Compared to last year's budget

request, we have increased funding for Navy Theater Wide by more than half a billion dollars in FY 1999-2001, including funds added by the Congress last fall, so that we can pursue this program as a major defense acquisition program. Additionally, as part of the program's risk mitigation development efforts, we are looking to cooperative efforts with Japan to evolve the capability of the Block I missile into the Block II variant.

We have established a combined "upper-tier" funding profile in FY 2002-2005. We believe this is the best way to meet our objective to field an upper-tier system capability by 2007. Extensive developmental testing for both THAAD and Navy Theater Wide is planned in 1999 to 2001. In the near term, THAAD will continue flight testing with missiles of the current design; and tests of the Aegis Lightweight Exo-Atmospheric Projectile (LEAP) will demonstrate the Navy Theater Wide system concept. We will examine both programs after initial flight testing to determine system progress. Based on this progress, and an assessment of cost, schedule, technical performance, and program risk, the Department will allocate upper-tier program resources to focus on the most successful program. Depending on the results of the review, the other system might continue to be developed, most likely at a slower pace. We expect to make this decision before submitting the FY 2002 budget request.

#### **AIRBORNE LASER (ABL) SYSTEM**

To defeat theater ballistic missiles during their boost phase, we are developing the Airborne Laser (ABL) system. This adds an important additional layer of defense to the architecture. By terminating powered flight early, ABL thus confronts an adversary with the prospect of having the missile destroyed before it can deploy decoys or multiple warheads, and of having missile payloads fall far short of their targets, perhaps on the



**adversary's own territory. The ABL aircraft will be a modified 747-400 freighter, carrying a megawatt-class laser system, beam control optics to compensate for the atmospheric turbulence between the aircraft and the target, and a battle management C<sup>4</sup>I capability. This capability enables the system to locate and engage targets autonomously, and also provides cueing, launch point location, and tracking data to other missile defense units.**

**The ABL program passed its Milestone I review in November 1996, when it established an acquisition program baseline, and recently passed its Authority-to-Proceed-1 (ATP-1) review in June 1998. Subsequently, the laser system power was demonstrated at 110% of the design specification--a major success story. We are now restructuring the program to accommodate a Congressionally-mandated \$25 million reduction in FY 1999 funding, so these dates are subject to change, but we expect to begin modifying the first demonstrator aircraft in January 2000, and conduct a lethal shoot-down of a realistic target in September 2003.**

**As directed in FY99 legislation, we assessed the Airborne Laser (ABL) program with the aid of an Independent Assessment Team (IAT) of experts from outside the Department. The Department owes its thanks and appreciation to General Robert T. Marsh, USAF (Retired), for serving as Chairman of the IAT. The IAT examined the adequacy of the ABL program's near-term test activities, Milestone II exit criteria, and concept of operations. The Team concurred with the Air Force's plans to modify the first ABL in January 2000, on the condition that the Air Force carry out its plans to perform these near-term test and risk reduction activities in its proposed restructured program:**

- Acceleration of adaptive optics testing at North Oscura Peak, NM**
- A comprehensive data reduction and analysis effort**

- **Additional optical turbulence data collection and analysis using a stellar scintillometer**
- **An aggressive lethality/vulnerability program**
- **A countermeasures test and analysis effort**

**The Department believes the added rigor of these activities will strengthen the program in the near-term and also the long term, support design activities, and provide more insight into key areas of potential risk.**

**The IAT also recommended more testing of the first aircraft before Milestone II (est. FY 2004), which governs entry into the engineering and manufacturing development phase. We plan to review the Air Force's proposed restructured program and set a new Acquisition Program Baseline this Spring, and in the process, augment the existing Milestone II exit criterion calling for one shoot-down of a representative target. We have not reached a consensus on the required number of shoot-downs at this point, and will do that through our Integrated Product Team process, but we certainly believe that one shoot-down will no longer suffice.**

**The IAT considered the maturity of the program's plan to demonstrate all critical manufacturing processes before Milestone II, and found that the program was making satisfactory progress in this area. It raised no major concerns, but emphasized that this area should continue to receive the proper emphasis the Department believes it is getting. Lastly, the IAT examined the ABL's concept of operations, and determined that they were generally adequate at this point in the program. They continue to mature.**

**We concur with the IAT's report, and plan to ensure that we incorporate the IAT's advice and findings in the restructured ABL program. As directed, we will be delivering**

**the Department's report on the technical and operational aspects of the ABL program, and our plans to respond to the IAT's recommendations, or (or about) March 15th.**

## **CRUISE MISSILE DEFENSE**

**Many of the capabilities needed for effective cruise missile defense are either evolving from existing systems or are in development. For example, an interoperability Advanced Concept Technology Demonstration will network, under the Cooperative Engagement Capability, selected ballistic missile defense sensors; battle management/command, control, and communications; and weapons (including the PAC-3 and Navy Area Defense lower-tier systems) to provide capabilities against cruise missiles. A key objective of cruise missile defense efforts is to leverage the synergy between ballistic missile, cruise missile, and air defense, and to integrate various systems that contribute to cruise missile defense into a comprehensive architecture.**

**Additionally, advanced technology programs for cruise missile defense focus on shooting down land-attack cruise missiles at extended ranges, possibly over an adversary's territory--adding depth to existing capability. To ensure the Department is positioned to capitalize on all of these developments, the Commanders-in-Chief, the Services, the Ballistic Missile Defense Organization, and the Joint Theater Air and Missile Defense Organization are developing joint employment concepts and an investment plan for Theater Air and Missile Defense.**

## **INTERNATIONAL COOPERATION PROGRAMS**

**The increased likelihood of committing forces to coalition operations makes the case for greater armaments cooperation with friends and allies. The Department's approach to**

**international participation in the development and deployment of theater missile defense systems continues to build upon consultations with our allies and the establishment of bilateral and multilateral research and development programs.**

**The Medium Extended Air Defense System (MEADS) is a cooperative development program between the U.S., Germany, and Italy to develop a mobile cruise and ballistic missile defense system. Recently, the Department decided that the planned MEADS system was unaffordable as structured. Therefore, we are redirecting MEADS towards the development of evolving technologies that will be lower risk and more affordable, and yet allow us to meet the requirement for a highly mobile, rapidly deployable system for defense of our maneuver forces. The FY 2000 budget provides about \$150 million over the next three years for technology development, focusing on a 360° fire control radar and a mobile launcher, and utilizing the PAC-3 missile as the MEADS interceptor. The Department has kept its international partners apprised of the proposal to restructure MEADS and hopes they will join in this new approach.**

**The Arrow Continuation Experiments program, a cooperative program with Israel, concluded with the successful Arrow II flight test in September 1998. Given the success of this program, Israel committed to the near-term deployment of an active theater missile defense system. In 1998, amendments to the Arrow Deployability Program agreement provide for the integration, test, and evaluation of the Arrow Weapon System, namely, the jointly developed Arrow interceptor and Israeli-developed ground equipment, focused on enhancing the system's interoperability with U.S. theater missile defense systems. It also gives Israel the option of acquiring an additional surveillance/fire control radar for an eventual third Arrow battery. The FY 2000 budget provides nearly \$120 million over the**

next three years for the deployability program, a hardware simulation testbed, and an architecture analysis study. We are currently developing interface requirements (hardware, software, and procedures) to establish some level of interoperability between Arrow and the Patriot systems.

The Russian-American Observational System (RAMOS) program was initiated in 1992 to engage the Russian Federation in cooperative early warning and theater missile defense research with the primary goal to build confidence through cooperation. The technical goals were defined to answer questions concerning risk areas for future early warning space programs. In the past two years, we have developed Russian and American sensors and jointly tested them aboard a U.S. aircraft, demonstrating significant technical cooperation, and we have taken the first joint images from space. We strongly wish to continue our cooperative efforts involving early warning satellite technologies. We have recently identified two potential future research projects that are consistent with the original objectives for RAMOS. They are: 1) to continue aircraft experiments and simulations to study mid and long wave infrared background clutter as it applies to theater missile tracking, and 2) to fund Russian early warning prototype sensor development for future space flight. We will spend \$8 million in FY 2000, and \$13 million between FY 2001-2002 on this effort, and provide about half of this funding for the Russian research efforts. We will also fund Russian research on early warning--providing almost \$8 million in FY 2000 and \$20 million between FY 2001-2002. We expect to have discussions with the Russians next month on continuing this important series of experiments.

## **ADVANCED TECHNOLOGY DEVELOPMENT**

**Activities in the missile defense technology base are key to countering future, more difficult threats. The technology base program underpins the theater ballistic missile defense, cruise missile defense, and Space Based Laser programs. It will enable the Department to provide block upgrades to baseline systems, perform technology demonstrations, reduce program risk, accelerate the insertion of new technologies, and develop advanced technologies to provide a hedge against future surprises. Advanced technologies are also being exploited to reduce the cost of future missile defense systems.**

**In the past, BMDO explored many potential solutions to ballistic missile defense, including exotic or leap-ahead technologies (X-ray lasers, neutral particle beams, Brilliant Pebbles). Today's thrust is to provide research and development in technical areas that directly support our missile defense programs. Three programs in particular illustrate BMDO's current thinking: 1) the Atmospheric Interceptor Technology program, which develops advanced missile technologies for PAC-3, THAAD, and Navy Theater Wide to address advanced threats and reduce costs, 2) the Exoatmospheric Interceptor Technology program, which is developing and demonstrating advanced seeker concepts, as well as advanced materials, to provide upgrades to TMD interceptors, to counter the evolving threat, and to reduce costs, and 3) the Advanced Radar Technology program which improves signal processing capabilities and reduces key component costs. We expect these programs to provide useful hardware and data to the TMD programs.**

**Recently, BMDO and the Air Force had an Independent Review Team of laser, operational, and programmatic experts examine the Space Based Laser program. They proposed that any orbital flight experiment be preceded by extensive integrated ground**

demonstrations of key technologies and flight system elements. The subsequent orbital spacecraft experiment they envision would demonstrate large, lightweight deployable optics, a new concept in very large mirrors that could enable dramatic savings in vehicle weight and attendant cost.

We have developed a laser technology program that balances long-term research and development goals with a nearer-term goal to demonstrate the basic feasibility of a system. The total outlay for the program will be \$139 million in FY 1999 and \$139 million per year through FY 2000-2005. The technology program, jointly funded by BMDO and the Air Force, will fund a ground demonstration and permit a subsequent decision to increase funding enroute to orbiting a spacecraft. System affordability--both of a demonstration flight and of an eventual operational system--is a key concern on which we intend to focus.

#### **BALLISTIC MISSILE DEFENSE MANAGEMENT**

The ballistic missile defense program we have developed is a sound approach for dealing with the emerging missile threat; and we will take all the necessary steps to ensure we proceed on a solid path towards its deployment. The Department has excellent leadership in the form of Lieutenant General Lyles and the Ballistic Missile Defense Organization. BMDO is playing a critical role by centrally managing this joint mission area we call missile defense. It is an effort that includes all of the Military Services and directly supports the joint warfighting CINCs. The Director of BMDO represents the central point of contact for the Department and the Congress on missile defense issues and can be counted upon to provide truly “purple” advice and recommendations.

In his capacity as Director of BMDO, Lieutenant General Lyles is the Acquisition Executive for ballistic missile defense, and reports directly to me, and is, in essence

although not in title, my Deputy Under Secretary for BMD. In fact, with the exception of my Principal Deputy, I meet with Lieutenant General Lyles more than any other person who reports to me. This is a clear indication of two things: the importance of this joint mission area to the Department, and the complexity of the issues we are facing in executing these important programs.

Our requirements for a comprehensive and confident theater and national missile defense involve the integration and oversight of countless processes and systems, each uniquely complex, yet each essential to our success. Among those areas are

- ◆ the combined architecture of our systems,
- ◆ proven “Systems of Systems” effectiveness within that architecture,
- ◆ resource allocation between those programs, and
- ◆ test and evaluation to assure their combat effectiveness.

Equally important areas of concentration are interoperability, participation in coalition activities, and the systems evolution of those missile defense programs.

BMDO, therefore, allows us to monitor and manage a wide spectrum of activities and to do so while maintaining our commitment to address both the existing and emerging missile threat. The complexity of the issues involved, the seriousness of our ballistic missile defense mission, and the teams, technologies, systems and strategies we must bring together to accomplish our goals make BMDO’s management role an added requirement for overall theater and national missile defense.

## CONCLUSION

The Department’s priorities take into account the most immediate threats--those posed by theater ballistic missiles--and are consistent with the priorities of the Joint Chiefs



**of Staff and the warfighters. Under BMDO's leadership, we continue to review our theater missile defense programs to ensure we have the most effective overall architecture and one that is both affordable and executable. The Department has worked closely with the Committee over the years to ensure that the United States possesses the necessary means to defend its forces. Again, I want to thank you for your support and continued confidence, and I look forward to continuing our work together.**