Statement of
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before the
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Committee on Armed Services
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Good afternoon. Mr. Chairman and Members of the Committee, it is my pleasure to appear before you today to present the Department of DefenseÕ National Missile Defense program and to address other missile defense issues. I am joined today by Brigadier General Bill Nance, USA. He is the NMD Program Manager and head of our Joint Program Office. I may turn to him during the testimony to answer your specific questions.

The Emerging Ballistic Missile Threat

Last spring, the bipartisan Commission to Assess the Ballistic Missile Threat to the United States, chaired by former Secretary of Defense Donald Rumsfeld, provided a sobering analysis of the nature of the threat and limitations on our ability to predict how rapidly it will change. Their findings on the emerging missile threat to the United States were reinforced last August when North Korea launched its *Taepo Dong-1* missile. North Korea continues to be interested in developing long-range missile capabilities and that it has made considerable progress.

That missile test demonstrated important aspects of intercontinental ballistic missile development, including multiple-stage separation. In addition, it unexpectedly included the use of a third stage. The *Taepo Dong-1* test was another strong indicator that the U.S. will, in fact, face a rogue nation missile threat to our homeland against which we must defend the American people.

While the intelligence community expected a *Taepo Dong-1* launch for some time, it did not anticipate that the missile would have a third stage or that it would be used to attempt to place a satellite in orbit. The intelligence community's current view is that North Korea would need to resolve problems with the third stage prior to being able to use the three-stage configuration as a ballistic missile to deliver small payloads to intercontinental ranges (that is, ranges in excess of 5,500 kilometers). Nonetheless, a three-stage variant of the TD-1, if successfully developed and deployed, could pose a threat to portions of the United States sooner than estimated previously.

The AdministrationÕs Missile Defense Strategy

As the Department began deliberations in support of the PresidentÕs fiscal year 2000 budget submission, we were faced with making a number of decisions affecting both the ballistic missile defense mission and other missions of the Department. Within the ballistic missile defense arena, the Department faced a series of program issues: when to provide the funding to deploy our National Missile Defense program, 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 Department also had to align the Space Based Infrared Satellite (SBIRS) components to make the best use of our existing missile warning assets as well meet the needs of our missile defense mission. This had to take into account both resource and technology constraints and their impact on setting realistic launch dates.

The decisions we made were based on the DepartmentÕs fundamental missile defense program priorities. These priorities have not changed over the past year. First, using a Theater Missile Defense "family of systems" approach, we must defend U.S. troops against the threat posed by theater ballistic missiles and cruise missiles. Within the TMD mission area, we must first field our lower-tier systems to defend against the existing short-to-medium-range missile threats. Next we must proceed at a prudent pace to add upper-tier systems to defend against longer-range theater ballistic missiles as that threat continues to emerge and to provide layered defenses. At the same time, we should continue to develop the Airborne Laser (ABL) to provide boost-phase intercept capability.

Equally important, we must develop a capability to defend against a limited strategic ballistic missile attack by a rogue nation ø via our National Missile Defense (NMD) program.

Finally, we must continue to develop a robust technology base to underlie both the TMD and NMD programs ø in order to allow us to develop and deploy more advanced missile defense systems over time as the missile threat they must counter become more advanced.

In light of these program priorities, I would like to outline how we are structuring our NMD program, to include the planned budget, projected testing, and the NMD concept of operations.

National Missile Defense Program

The fiscal year 2000 budget request submission marks a major change in the Administration's funding of the National Missile Defense program. The addition of $6.6 billion in new funding brings total fiscal year 1999-2005 resources for NMD to $10.5 billion, of which $9.5 billion is allocated in fiscal years 2000-2005. The added funds will protect the option to deploy a national missile defense system. However, no decision for deployment has been made at this time. We intend to base the deployment decision on an assessment of the technology (based on an initial series of rigorous flight-tests) and the proposed systemÕs operational effectiveness. In addition, the President and his senior advisors will need to confirm whether the rogue state ballistic missile threat to the United States has developed as quickly as we now expect, as well as the cost to deploy.

The NMD system under development would have as its primary mission the defense of all 50 states against a small number of intercontinental-range ballistic missiles launched by a rogue nation. Such a system would also provide some residual capability against a small accidental or unauthorized launch of strategic ballistic missiles from China or Russia. It would not be capable of defending against a large-scale, deliberate attack.

Of the $6.6 billion in new funds programmed for NMD, we propose using $600 million from the fiscal year 1999 Emergency Supplemental for Ballistic Missile Defense. These supplementary funds permit additional risk-reduction efforts, as well as activities needed to ensure a smooth transition to deployment, should a decision be made in fiscal year 2000 to begin deploying the system. Previous plans for testing NMD components and the system prior to the deployment decision remain unchanged. This summer, the performance of the exoatmospheric kill vehicle will be demonstrated in the first NMD intercept attempt. Subsequent tests, to be conducted before the June 2000 decision point, will further evaluate the system's performance, culminating in an "end-to-end" systems test in the second quarter of fiscal year 2000.

To maximize the probability of programmatic success and be able to deploy an effective NMD system as quickly as possible, key program decisions will be phased to occur after critical integrated flight tests. As a result, instead of projecting a deployment date of 2003 with exceedingly high risk, the Department now projects a deployment date of 2005 with reduced risk. The funds added to the NMD program in fiscal years 2001-2005 support a deployment in fiscal year 2005. The majority of NMD funding through fiscal year 2000 is in RDT&E; procurement funding will begin in fiscal year 2001. Modest levels of military construction funds are programmed in fiscal year 1999 for design, and construction is funded in fiscal year 2001-2005.

If testing goes flawlessly, and there is a willingness to accept higher program risk because the threat is imminent, we could seek to deploy sooner. But independent analysts have expressed concern that the DepartmentÕs fast-paced schedules for ballistic missile defense programs have sometimes represented a "rush to failure." Given the reality of the threat, the NMD program cannot afford to fail.

NMD Decision Time Line. In order to be able to deploy a ground-based NMD system by 2005, we have developed a detailed plan of program activities to ensure success. The proposed changes to the NMD program I will address today will ensure that we fully develop, test and demonstrate the system elements in an integrated fashion before we begin to deploy. This will significantly reduce the program risk associated with our previous "3 plus 3" program approach.

We plan to conduct a Deployment Readiness Review in June 2000. This review will take place at the defense acquisition executive level ø with full participation from all key Department of Defense stakeholders. It will not constitute the actual decision to deploy the NMD system. It will assess whether or not the technical progress has been made which would allow more senior decision-makers to decide whether or not we should commit to deployment. At this time, the Administration will also assess the threat, the affordability of the system, and the potential impact on treaty and strategic arms reduction negotiations. If a decision is made to deploy, we will seek commitment to several key elements of the program. First, the Department of Defense would seek approval of the recommended NMD site ø either in North Dakota or Alaska. Secondly, we would seek approval to award the construction contract and start construction at the selected NMD site. And finally, we would seek a decision on whether to pursue deployment sooner than the proposed deployment of 2005 if it is both warranted and technologically possible.

In fiscal year 2001, we would conduct a Defense Acquisition Board review to assess the status of the program. Based on program performance, we would seek approval to initiate upgrades to the current early warning radars; begin building the X-band ground-based radar and start integrating the battle management, command, control and communications into the Cheyenne Mountain complex.

In fiscal year 2003, we would conduct a second Defense Acquisition Board review and seek approval to build and deploy the weapon system ø the ground based interceptor. At this point, we would seek authorization to procure 61 GBI missiles ø this would include deployment interceptors, spares and test rounds. Based on this schedule, if the program proceeds as we anticipate, we would deploy in late 2005.

In order to meet this schedule, we plan to conduct a series of 19 flight tests between now and 2005 to demonstrate the technical maturity of the system. As the Committee is aware, in June 1997 and January 1998, we conducted two very successful seeker "fly by" tests. They demonstrated key elements of the kill vehicle ø namely the "eyes" that will allow the weapon to move into the end game, discriminate the warhead from decoys and intercept the target. In the remaining 19 flight tests we will attempt to intercept the target. In addition, we will conduct major ground testing of hardware and demonstrate the integration of system elements. Let me simply outline our test program briefly.

NMD Flight Testing. The proof of the NMD systemÕs maturity literally will be "put to the test" over the next 18 months in a demanding series of system tests. In the summer of 1999, the performance of the exoatmospheric kill vehicle will be demonstrated for the first time as we attempt to intercept a target. We have a lot to learn from this first intercept test. Later in the fall, we plan to conduct a second intercept flight test. Both flight tests will use the developmental version of the kill vehicle produced by Raytheon. We will fly these interceptors against threat-representative target warheads launched from Vandenberg AFB, California. We will launch the kill vehicle on a booster from the Kwajalein Missile Range in the Pacific Ocean. The actual intercept will take place outside the atmosphere over the Pacific Ocean. We intend to demonstrate the continuing development of our non-nuclear kill vehicle, its sensor, software and discrimination capabilities.

In fiscal year 2000, we plan to conduct two integrated system tests ø one in each of the second and third quarters. This will allow us to conduct four intercept opportunities prior to the Deployment Readiness Review.

Starting in fiscal year 2001, we plan to fly three intercept flight tests each fiscal year through 2005. This will allow us to gradually demonstrate the increasing sophistication of our kill vehicle and ultimately the integrated ground-based interceptor weapon system. Flight test 7, scheduled to take place in fiscal year 2001 after the DRR, will be the first flight test to incorporate both the exoatmospheric kill vehicle and the proposed operational booster. Flight test 13, scheduled for 2003, will fly the production-quality ground-based interceptor ø including both the kill vehicle and booster.

The revised program follows a very specific path to reaching a deployed capability by fiscal year 2005. This path includes two key milestones that, in effect, postpone the need to freeze the interceptor design until the latest possible time dictated by lead time to the 2005 deployment date. The interceptor remains the ***least mature element*** of the NMD architecture. Therefore, by waiting to lock in the interceptor design until after we have tested the production-quality "round," we add confidence to the system we will ultimately deploy.

We have done nothing in the NMD program that would result in a delay of the program as a result of the SecretaryÕs announcement. Between now and the DRR in June 2000, nothing has been slowed down. In fact, we have actually added modeling and simulation, and additional ground test capability efforts in the next two years that will help us develop and demonstrate the system further, as well as reduce flight test risks.

To prove out the systemÕs readiness for deployment, we have chosen 2005 as the deployment date for NMD to avoid rushing to failure. I have testified on several occasions that I felt the NMD program was being executed along a ***very high risk schedule.*** Our recommended approach will reduce schedule risk by taking the time to develop, demonstrate and, ultimately, deploy the system in a more prudent manner. However, the program schedule, albeit less risky, still has significant concurrency. In the meantime, if the testing goes flawlessly, we may be able to deploy a system on an accelerated basis. However, such acceleration would be a ***very high-risk*** approach that we would only pursue if our assessment of the technological maturity, threat, affordability, and potential impact on treaty and arms control negotiations indicate it is warranted.

Given the reality of the threat, the NMD program cannot afford to fail. The funds provided by the Congress in last yearÕs Emergency Supplemental, combined with the programmatic adjustments proposed in our POM budget, will enable us to deliver the defensive protection as soon as practical against the emerging rogue nation limited threat.

Space-based Infrared Satellite System. The U.S. Air ForceÕs Space Based Infrared Satellite (SBIRS) system is an important element of our BMD program and especially our NMD architecture. The fiscal year 2000 PresidentÕs Budget Request restructures both components of the SBIRS program, SBIRS-High and -Low, to make optimum use of available Defense Support Program satellites, yet provide timely support to the ballistic missile defense mission.

The Air Force is rescheduling the SBIRS-High programÕs first launch of its geosynchronous satellite to fiscal year 2004. The Air Force currently has five Defense Support Program satellites awaiting launch, and the Department must make full use of those satellites before launching a replacement system. The new SBIRS-High schedule synchronizes with the new NMD schedule in that the required number of SBIRS-High satellites (two) will have been launched in 2005. It should be noted that, although SBIRS-High will provide improved performance compared to its predecessor in all mission areas, the Defense Support Program is adequate for the strategic warning mission. The Defense Support Program can support the initial deployment of the NMD system, albeit with a reduced confidence level of successful defense.

The Air Force also is restructuring the SBIRS-Low component, resulting in a planned first launch in fiscal year 2006. As part of the SBIRS-Low restructure, the Air Force has cancelled the two flight demonstration experiments that were part of the risk reduction effort. Much has already been learned and significant risk has been mitigated through the design, fabrication, assembly, and integration accomplished to date. The Air Force has assessed that continuation of the flight experiments is not critical to SBIRS-Low, and the remaining program risk is best addressed in the robust Program Definition studies that will constitute the next phase of the SBIRS-Low acquisition. The Air Force intends to pursue the SBIRS-Low program in a manner consistent with program risk and the need to support our BMD programs.

SBIRS will provide the nation with new and improved warning and sensing capabilities for the next century, allowing the accomplishment of a greater number of missions from space. This system comprises a modernization effort to provide greatly improved Tactical Warning and Attack Assessment capabilities to replace those provided by DSP since the early 1970Õs, and adds new capabilities for Technical Intelligence and Battlespace Characterization. As the Department initiates SBIRS deployments, the DSP program, which currently has 5 replacement satellites awaiting launch, will be sustained to allow continuous global surveillance during this transition period.

The completed SBIRS will consist of constellations of geosynchronous earth orbit (GEO), highly elliptical orbit (HEO), and low earth orbit (LEO) spacecraft as well as a supporting ground infrastructure. SBIRS-High will be composed of 4 GEO spacecraft to provide hemispherical coverage and 2 HEO sensors to provide polar coverage. SBIRS-Low will be composed of approximately 24 LEO satellites, with the actual number to be determined during the program definition phase. The SBIRS ground segment consists of a consolidated ground station, overseas-based Relay Ground Stations, and Mobile Multi-Mission Processors.

In support of NMD, SBIRS will provide BMC3 with initial launch detection and missile trajectory information. The global coverage of SBIRS-High, with improved sensitivity and revisit rates over DSP, will allow better launch point determination and impact point prediction. SBIRS-Low will support NMD by providing critical mid-course track and discrimination data to the Battle Manager to allow accurate targeting and engagement of hostile threats.

The Air Force recently announced a restructuring of the SBIRS program. This restructuring was only implemented after careful consideration to mission risk and our overall BMD efforts.

SBIRS-High first GEO launch was recently delayed by 2 years until fiscal year 2004. In the short term, this slip freed up much needed fiscal year 2000 funds for higher priority Air Force programs and readiness. Supporting this decision was the longer than expected availability of DSP. The Air Force projects supporting the NMD schedule with a SBIRS-High initial operational capability in fiscal year 2006.

The Air Force recently delayed the SBIRS-Low first launch by 2 years to fiscal year 2006. I understand this decision was driven by technical and schedule challenges. Updated Air Force assessments concluded that a fiscal year 2004 launch was extremely risky and impractical. A SBIRS-Low launch in fiscal year 2006 will ultimately support the NMD system in fiscal year 2010.

The Air Force decision to also eliminate two on-orbit demonstrations from the SBIRS-Low program was driven by rapidly diminishing returns on investment. Significant risk reductions have been achieved by these efforts to date. However, continued cost growth was consuming program funds at a rate that made the demonstration program unexecutable. The Air Force developed an alternative strategy to ensure SBIRS-Low remained executable and on schedule for a fiscal year 2006 launch. By terminating the two demonstrations, the Air Force was able to redirect funds toward a more timely risk reduction focused directly on the objective SBIRS-Low design. Meanwhile, other on-orbit demonstrations have demonstrated much of the technology critical to SBIRS. These demonstrations were on-orbit experimental packages, not prototype SBIRS satellites. An expanded PDRR focuses more resources on the objective system and should result in a more mature system design when the EMD phase of the program is competed.

NMD Concept of Operations. I would like to take a moment to explain how we envision the individual NMD system elements will operate when combined as a fully operational and integrated system. A hostile launch from a rogue state begins the engagement process. Space-based sensors make the initial detection and report of a threat launch. DSP, and ultimately SBIRS-High, will alert the entire system of a potential ballistic missile attack; cue the radars to erect "search fences" to detect the incoming missile and start the battle management centers to evaluate engagement options. SBIRS-Low will provide critical midcourse track and discrimination data to the battle manager. When the threat missile crosses into the range of ground-based early warning radars, these radars confirm flight and tracking information on the target missile. Upon data confirmation, the battle management, command and control center directs the launch of a ground-based interceptor. A ground-based X-band radar will provide high resolution target tracking data to the interceptor in flight through an In-Flight Interceptor Communications System ø IFICS. This data will be used by the interceptor to maneuver close enough to the target missile for the on-board kill vehicle sensor to discriminate the warheads from decoys. Sensors on the kill vehicle provide final, precise course corrections to enable the kill vehicle to destroy the target with a direct hit ø or "kinetic kill."

We have already made progress in demonstrating some elements of the system. For instance, some hardware and software upgrades to the upgraded early warning radars have been incorporated into an existing radar and are being tested. A prototype X-band tracking radar has been built at the Kwajalein Missile Range and has successfully tracked test launch vehicles out of Vandenberg AFB, California, including the most recent Air Force operational test on February 10, 1999. Both the upgraded early warning radar and prototype X-band radar will support the intercept flight tests this year.

The ground-based interceptor (GBI) weapon is the least mature element of the system and entails the highest technological development risks. The GBI consists of the exoatmospheric kill vehicle (EKV) launched by commercial-off-the-shelf boosters. As I noted earlier, we have already flown two successful EKV sensor flight tests. Our next 19 flight tests will build upon these two sensor tests and demonstrate our kill vehicleÕs capabilities.

The battle management, command, control and communications system links the NMD system elements to the warfighter. The BMC3 development is a continuous effort. Our capability will be increased on an incremental basis as we progress toward system deployment.

While we have been developing and testing the system elements, we have also been proceeding vigorously on deployment planning activities. We have conducted fact-finding and siting studies in two potential site locations ø North Dakota and Alaska. We have also initiated site designs for the X-band radar and weapon sites. We will start the design of the BMC3 facilities later this year. On November 17, 1998, we published in the Federal Register a Notice of Intent, announcing the beginning of the NMD ProgramÕs Deployment Environmental Impact Analysis process. We held public scoping meetings in North Dakota and Alaska in which over 650 people attended. We are in the process of preparing an Environmental Impact Statement. We plan to return to North Dakota and Alaska this Fall to conduct public hearings on the draft

Environmental Impact Statement. As required by law, the results of the EIS will represent one of many inputs into the deployment decision process.

I believe that we have structured a prudent NMD program and we are moving out smartly to execute it. We have made important technical progress to date. While we have important challenges still ahead of us, I believe we can meet those challenges and field an NMD system in a timely manner.

Potential Future NMD System Capabilities

In addition to addressing the NMD program, the Committee requested that I also discuss how other technologies or systems could help augment the ground-based NMD system should the threat warrant. Two key defensive architectures have been discussed in Congress: use of naval platforms to perform the NMD mission and development and deployment of Space-Based Lasers to provide a global defense.

Part of the BMDO charter is to explore joint missile defense architectures that afford us the most effective missile defense systems. In order to do this, we continually conduct architectural and engineering analyses, perform system trades, and assess the optimal systems-level solution to the missile defense challenge. I have a specific part of my organization focused on doing these architectural assessments and trades.

Last year the Under Secretary of Defense for Acquisition and Technology Dr. Gansler and the Under Secretary of Defense for Policy Dr. Walt Slocomb directed BMDO to examine the full range of fixed land-based architectures, including single- and multiple-site, in determining cost-effective development options to meet the userÕs requirements. In addition, we were asked to evaluate a broad range of potential **joint NMD architectures** to better understand the contributions, both in cost and capability, to the NMD program from a fully joint architecture. Based on this guidance, we have conducted studies on the potential contributions of a **sea-based NMD system** and future space-based laser systems.

Utility of Sea-based Assets to National Missile Defense. I will defer to Rear Admiral Rempt to discuss how the Navy envisions the potential use of sea-based assets to supplement the planned NMD architecture. However, I would like to spend a few minutes outlining the findings of a study BMDO conducted last year.

On June 28, 1998, we submitted a classified report on the utility of sea-based assets to National Missile Defense. Subsequently, the Congress directed that we prepare an unclassified version of that report. I believe the report will make a positive contribution to the debate about sea-based NMD capabilities. I anticipate that the unclassified version of the report will be provided in the next few weeks. In the meantime, I would like to summarize the key assumptions and caveat of the report and then finally its findings.

The report focused on if and how sea-based elements could be integrated into the land-based NMD system currently being pursued by the Department. Therefore, we adopted the same missile threats and scenarios we use for the NMD program I outlined earlier. Another key assumption centered on the sea-based system. The Navy Theater Wide system continues to undergo revision and refinements as its development proceeds. As the Committee is aware, the Department has just recently added about $900 million to the NTW program through fiscal year 2005 in order to establish it as an acquisition program. For the purposes of the report, the NTW Standard Missile-3 Block II was used as the baseline for analysis. However, the Standard Missile-3 Block II is not currently part of the baseline NTW program.

The study was conducted without consideration of, and without prejudice to, the terms and requirements of the ABM Treaty. The AdministrationÕs policy is the development and testing of a land-based NMD system that will comply with the ABM Treaty, while deployment may require modifications to the treaty. However, the ABM Treaty specifically prohibits use of sea-based systems.

By necessity, the cost results presented in the report are rough estimates. In the time available, it was not feasible to evaluate the candidate system concepts with detailed engineering analyses of the type required to support concrete cost estimates. The report produced the following fundamental conclusions about the potential utility of sea-based assets in defense of the United States against long-range ballistic missiles:

- Without upgrades, the Navy Theater Wide Block II system would have no useful capability against intercontinental ballistic missiles or submarine launched ballistic missiles. However, the unmodified NTW Block II system could have a capability against shorter-range threats attacking U.S. coastal targets. Consistent with its planned TMD mission, the NTW Block II system could have the capability to defend against tactical and intermediate range ballistic missile threats. However, this is provided that the NTW-capable ships are given sufficient warning of the impending attack to deploy within a few hundred kilometers of the threat launch location or of the specific area to be defended.
- The most practical and effective role for sea-based systems would be to supplement land-based NMD systems. Such an architecture could provide more operational flexibility and robustness than NMD architectures that relied solely on sea-based interceptors or a single land-based interceptor site. However, deployment of such a sea-plus-land-based architecture is not feasible within the land-based NMD program schedule and would require additional RDT&E and procurement funding.
- Deployment of a partial NMD-capable sea-based capability is technically feasible, but constrained by funding and programmatic factors. Even though the Department has recently increased funding for the Navy Theater Wide program and embarked on a competitive upper-tier TMD strategy, the Block II system is not completely defined or fully funded. To achieve the most expeditious sea-based NMD capability, the NTW Block II must be completely defined and additional funds programmed. Given these two conditions, it could be reasonably expected that the deployment of Block II would be at least four years after the Block I first unit equipped date.
- A stand-alone sea-based NMD architecture that could protect all 50 states is estimated to cost $16 billion to $19 billion. This is rough cost estimate included the cost of three AEGIS-type vessels to account for ships dedicated for NMD duty and the necessary ship rotation. Also, because of ship rotation, the estimate included significantly more sea-based interceptors than the land-based NMD architecture. The stand-alone, sea-based architecture would require the same sensor suite, BM/C3 and exoatmospheric kill vehicle currently under development in the land-based NMD system.

- The use of Navy Theater Wide in support of an NMD system would raise significant ABM Treaty issues. The Department has not assessed the compliance of this type of a system.

When the report is finally printed, I will make sure that each Member of the Committee is provided a copy. The bottom line message of the report is that a sea-based NMD system capability is ***technically feasible.*** We envision that the most practical and effective role for sea-based systems would be to supplement land-based NMD systems. Such a joint architecture could provide more operational flexibility and robustness than NMD architectures that relied solely on sea-based interceptors or a single land-based interceptor site.

Space-based Laser Program. The key focus of our Advanced Technology directed energy program remains the chemical Space-Based Laser (SBL). It could provide the National Command Authorities with a highly reliable missile defense and space superiority weapon. If deployed, SBL will be a significant capability affording the nation continuous global presence and precision engagement at the speed of light. In the future, SBL could provide the boost-phase layer of a robust NMD architecture, should the threat warrant deployment. Working with ground-, sea- and air-based missile defenses, the SBLÕs boost-phase intercepts could "thin out" missile attacks and reduce the burden on mid-course and terminal phase defenses. The SBL will be instrumental in protecting airfields and ports in the early stages of the conflict. Additionally, because of its global presence, SBL will be available to protect U.S. Allies and coalitions that may be threatened by inter-theater ballistic missiles. Boost phase intercept tremendously deters the use of chemical, biological, and nuclear warheads through the ominous threat of debris falling on the launcherÕs territory.

The SBL program is managed by BMDO and executed by the U.S. Air Force on our behalf. Both BMDO and the Air Force are requesting funds in the fiscal year 2000 budget for the SBL program. We are working jointly on this very important program, pooling resources and ensuring the program is following a clear direction. The BMDO budget contains $75 million and the Air Force budget has $63.8 million, for a combined request of $138.8 million. This level of funding on an annual basis will allow us to work on the program at a moderate pace while focusing our efforts on reducing the programÕs technical and engineering challenges.

In the near term, the SBL program will focus on ground-based testing to develop and demonstrate component and subsystem technologies required for an operational space-based laser system. These near-term efforts will lead to the design and development of an Integrated Flight Experiment (IFX) vehicle to be tested in space. To this end, the Air Force recently announced the award of $125 million "community team" contract for the Space-based Laser IFX. The Boeing Company, Lockheed Martin Corporation and TRW, Incorporated lead the industry team receiving the award. The SBL IFX program will include ABM Treaty compliant ground, flight and space experiments that will verify technologies at the component, subsystem and system levels. This program strategy will allow us to resolve the integration challenges inherent in combining precision optics and high energy lasers into a lightweight spacecraft. I anticipate that we will conduct a thorough series of ground tests of the vehicle prior to its flight in order to develop a database to analyze on-orbit performance. Following the IFX effort, we will then assess the cost and utility of an operational system. This assessment will form the basis for a recommendation on whether or not to develop, produce and deploy an operational space-based laser as part of a future missile defense architecture. I believe this approach is a prudent, moderate-risk development program.

BMDO recently sponsored the third Independent Review Team (IRT-3), 29-30 Dec 98, as part of the ongoing assessment of technological readiness, role, and content for a meaningful Integrated Flight Experiment. General Welch, USAF (Retired) will provide the Committee with a detailed overview of his teamÕs findings. Let me simply note that the IRT concluded that achieving an SBL operational capability is dependent upon a commitment to deployment.

Closure

Mr. Chairman, I believe the NMD program we have developed is a sound approach for dealing with the emerging missile threat. The Department has allocated the resources necessary to develop and deploy the system by 2005. We will take all the necessary steps to ensure we demonstrate the technical maturity of the integrated system. We have excellent leadership in the form of Brigadier General Nance and the Joint Program Office. They are spearheading the effort with BMDO, Army and Air Force participation. We have a strong industry partner in the form of the Boeing Lead System Integrator contractor and its subcontractors. They have built a strong team with the right technical skills to accomplish this challenging mission.

We are working diligently to conduct the remaining ground and flight tests, as well as other development work on all the system elements. At the same time, we are pressing forward on all those key actions, such as environmental analyses, basing studies and all the required preparatory work necessary to ensure we can deploy the system as quickly as possible. As I noted earlier, we have made important technical progress to date. While we have important challenges still ahead of us, I believe we can meet those challenges and field an NMD system in a timely manner.

Mr. Chairman, I would be delighted to answer the Committee’s questions.