

**STATEMENT OF
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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES
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Thank you, and good afternoon Chairman Langevin, Ranking Member Turner, other distinguished Members of the subcommittee. It is an honor and a pleasure to join Dr. Miller, LTG O'Reilly, and Mr. Rose to discuss the Phased Adaptive Approach for ballistic missile defense.

The concept of a Phased Adaptive Approach to missile defense, or PAA, was the outgrowth of the Ballistic Missile Defense Review, which took a holistic view at the different aspects of our missile defense strategy and its programs, ranging from trends in threat development; US missile defense technology development; operational fielding needs and opportunities; and capability requirements from Combatant Command war plans. The PAA represents a significant change in the U.S. approach to missile defense and is responsive to both Congressional direction and the warfighters' needs to place more emphasis on near-term, shorter range missile threats. The particular focus of PAA is the regional missile threat coming from short-, medium-, and intermediate-range ballistic missiles. But how we implement it has implications for our commitment to maintain over the longer term the currently advantageous Homeland Defense posture vis-à-vis limited ICBM attack. In short, it is a more effective and efficient approach to missile defense. I think it is important to emphasize here that the PAA is not an acquisition program, or a single plan to be applied unchanged across all areas of the globe. It is a conceptual approach to providing ballistic missile defense capability for both the Homeland and our forces, allies and partners in different regions, circumstances and times.

As you know, the recently completed NATO Summit of Heads of State and Governments at Lisbon adopted the new Strategic Concept for NATO, which explicitly affirms that, in the face of "...the proliferation of ballistic missiles, which pose a real and growing threat to the Euro-Atlantic area," the Alliance will "develop the capability to defend our populations and territories against ballistic missile attack as a core element of our collective defence, which contributes to the indivisible security of the Alliance." We view this as a ringing affirmation of the validity and the opportunity provided by the PAA to missile defense for our European NATO Allies.

I would like to point out that although there has been significant focus and discussion on Europe, the PAA is much more than just the defense of Europe. The PAA concept provides the United States with an enhanced capability to respond to regional threats worldwide, no matter where they emerge, and to strengthen defense of the Homeland. It also provides us with the flexibility to tailor the type and size of that response by being able to adapt to the threats, partners capabilities, and geography of each region. The PAA is "phased" to advances in our own technical and operational capabilities for ballistic missile defense, and it is "adaptive" to trends and advances in potential adversarial threats. We speak of four phases in advances of our technical capabilities; however, the same number and timing of individual phases may well not be applied in each Combatant Commander's AOR the same way. We are developing plans for phases for each AOR, with the European PAA currently being the most advanced.

A key enabler for this flexibility is the structured and disciplined approach to development and fielding of the Ballistic Missile Defense System or BMDS. As General O'Reilly discussed, the PAA has not resulted in a wholesale change in what the Department had previously planned to develop, but it does adjust the timing and quantity of some of the systems. The Missile Defense Agency is providing the Department with an impressive array of very capable systems that give us the freedom to maneuver and adapt to different and changing environments and threats. To fully capitalize on this range of

capabilities, the Joint Staff has undertaken a series of analyses to help guide decisions on maximizing Combatant Commander capabilities. These analyses, known generically as Joint Capability Mix studies, provide senior leaders with a risk-relevant assessment based on operational plans. This is a critical effort, particularly in light of the need to maximize every dollar spent. I'll discuss these studies in more detail, but want to now return to the PAA and its operational benefits.

Operational Benefits Of PAA

There has been some confusion over the PAA and what it does. Much of this confusion stems from the near term emphasis on the application of PAA to Europe, and the resultant assumption that European PAA represents the sum total of the approach. General O'Reilly has provided a very thorough review of systems and capabilities over time so I won't repeat that, but I would like to take a few moments to discuss the operational benefits of the broader application of the PAA. It's important to recognize that the PAA did not cancel the fielding of BMD capabilities. Rather, it is a realignment and enhancement of our BMDS plans, not a replacement. The realignment provides us with greater capability through a flexible and adaptable approach which focuses on protecting those most at risk today, while continuing to improve our capability against future threats. As has been noted by Congress in both the 2008 and 2009 National Defense Authorization Acts, the most pressing threat for our deployed forces today is the increasing number of Short Range Ballistic Missiles (SRBMs) and Medium Range Ballistic Missiles (MRBMs). Congress directed that we focus greater emphasis on the threats from short-and medium-range missiles. Without going into classified details, suffice it to say that the sheer number and types of these threats grows daily and the nation needs to find a way to deal with them. The PAA addresses these issues head on. The US cannot afford to build the number of launchers, interceptors, and sensors it would take for each Combatant Commander to have his own dedicated BMDS capability that can address all the potential strikes that could

be launched. What the PAA provides, instead, is a balanced investment that has the capacity to engage the range of threats; can be tailored to the geography, political circumstances, capabilities of regional partners; and has the flexibility to rapidly deploy more assets where and when they are needed.

PAA Phase 1

PAA Phase 1 is focused on the near term essentials to go squarely against the SRBM and MRBM threats. We are already giving the overseas Combatant Commanders more of what we already have by increasing the number of Patriot interceptors to complement the existing inventory of Patriot and Aegis with Standard Missile 3 (SM-3). The European PAA Phase 1 will also add SM-3 Block IA. This is a simple and direct operational counter. As the number of threats grow, we increase the number of our defensive interceptors. This is workable to a point, but as I mentioned earlier, it rapidly becomes unaffordable as the threats continue to grow in numbers over time.

To break out of the spiral of trying to match the threat missile-for-missile, the European PAA Phase 1 also begins the introduction of operational leverage by placing a forward-based AN/TPY-2 radar in Southern Europe. The addition of this AN/TPY-2 radar will allow the Combatant Commander to use Aegis to launch interceptors against ballistic missiles tracked by either the ship itself or the AN/TPY-2 radar. This significantly increases the size of the area that can be defended. Coincident with this is the C2BMC upgrade to the air operations center at Ramstein Air Base, Germany. C2BMC both controls the AN/TPY-2, and it also ties it and any Aegis ships into our command and control structure in Europe.

When plans with the Alliance are completed, the C2BMC will also serve as the link between the US elements of the PAA in Europe, and the NATO command and control structure in the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD), which, as General O'Reilly noted, has begun to be demonstrated.

This phase also continues to enhance our capability for Homeland defense with early warning radar upgrades, adding more ground based interceptors (GBIs) in Alaska, and developing improved GBIs. C2BMC is a major operational leverage point for PAA because it provides the pathway for data exchange throughout a theater and from a theater to the Homeland. In the instance of the European PAA the radar tracks from the AN/TPY-2 in Southern Europe will be provided to NATO for defense of the European members of the Alliance, and will be used by the US to provide early tracking information to enhance our Homeland defense assets. This linkage enables very efficient management of radar data and missile engagements. The number and mix of US and allied systems coming on line makes it critical that we have the capability to manage them as an integrated force. C2BMC will ensure threats are detected, tracked, and engaged, and at the same time prevent inadvertent “over engagement” where too many shots are taken at an incoming threat, or worse no shots are taken, because each shooter is operating independently and makes assumptions about what others are doing. The operational bottom line on Phase 1 is that it gets us greater ability to engage the SRBM and MRBM threats, and just as important, it begins fielding a netted sensor and weapons infrastructure.

PAA Phase 2

Phase 2 of the PAA truly embodies operational innovation. From a developmental point of view, the introduction of Aegis with SM-3 IB and AN/TPY-2 radars and missiles gives us expanded capability against MRBMs. We also significantly increase the size of area that can be defended. The true operational innovation in this phase comes from the increasing use of integrated and networked systems and the concept of land-based SM-3.

Operational leverage gained from the improvements in the SM-3 Block IB interceptor is anticipated to be dramatic. The SM-3 IB seeker’s discrimination capability improves its performance during intercepts but its other value added is it enables Aegis to capitalize on networks. The SM-3 IB will be deployed on

Aegis on land and Aegis at sea. Because the missile seeker has been improved, both Aegis at sea and on land will be able to launch on remote sensor data (for example, using data from one of the land based radars). The operational impact of this concept is not obvious until you understand that the SM-3 missile has a fly-out range that goes well beyond where the Aegis radar can see. The establishment of networks combined with the ability to use remote sensor data enables a Combatant Commander to take full advantage of the SM-3 range and reach out to extremely long ranges to engage targets. Operationally, this equates to a much larger defended area and a greater number of defended assets with the same force structure. This is the true definition of operational leverage.

The other key development in this phase is land-based SM-3. Land-based SM-3 is a shift away from forward based GBIs in fixed launch sites, to a relocatable land-based Aegis radar with land-based SM-3 IB. Land-based SM-3 provides all the engagement range and capability of an Aegis ship but without the requirement to keep a ship in a fixed location for extended periods of time, nor the cost of maintaining the rest of the multi-mission capability of an Aegis warship. Operationally this allows a Combatant Commander to provide long-term coverage for his assets or allies, establish a presence, and have a visible deterrent in theater. Similarly, a land-based SM-3 system can be augmented with Aegis warships and other BMDS assets to provide a very robust defense if the situation warrants. This is a very operationally responsive concept for the Combatant Commanders.

In Phase 2 Combatant Commanders will also be able to leverage sensors and weapons across the network to launch missiles earlier; take multiple shots if necessary; and provide data to our allies. Operationally, this enables commanders to provide defense across more areas, with fewer systems, or to mass fire power to a specific area through remote engagements. This is the phase of PAA where we loosen the classic geographic bonds on our weapon systems and begin to use them to their full capability. It is also the phase where we leverage networking to increase survivability. The ability to use

multiple weapons systems, and particularly systems that are not in the immediate area, does several things. First, it prevents an enemy from being able to tell which assets are being defended. Second, it makes it impossible to determine ahead of time which defensive systems have a shot at an incoming missile. Lastly, it prevents an adversary from being able to take down our defenses by targeting a single node. I would summarize Phase 2 as the transition phase where we move from classic concepts of single asset employment to a modern networked concept.

PAA Phases 3 and 4

PAA Phases 3 and 4 add significant operational capability and continue to leverage and build on the netted infrastructure of the earlier phases. The key capability in Phase 3 is the addition of the SM-3 IIA which further greatly expands the defended area against MRBMs and Intermediate Range Ballistic Missiles (IRBMs). SM-3 IIA will be fielded with both Aegis ships and land-based SM-3 systems. Phase 4 adds SM-3 IIB which is capable of engaging potential future ICBMs from today's regional ballistic missile threats. This is the first capability beyond GBIs, and provides enhanced defense of the Homeland. The SM3 IIB adds the ability to intercept MRBMs and IRBMs early in their flights which allows the warfighter to thin out large raid sizes early and suppress the use of countermeasures by engaging a missile before they are deployed. It also has the engagement range to enable a Shoot-Look-Shoot firing doctrine.

Phases 3 and 4 will both continue the use of netted employment and its inherent advantages. At the completion of Phase 4, Combatant Commanders will have obtained multiple defensive capabilities across the entire ballistic missile threat regime from SRBMs to ICBMs. It's worthwhile at this point to contrast the Europe PAA with the previous approach for defense of Europe to further illustrate the operational impact. Under the previous GBI approach we could defend portions of Europe, but the primary benefit was defense of the US Homeland. Under PAA we defend increasing areas of Europe, enhance that of the Homeland, and develop capabilities that can be deployed worldwide. So

operationally, PAA does much more than support a specific Combatant Commander, it provides capabilities that can be employed by every Combatant Commander. This is major step forward in protection for the US and its allies.

A key concern the warfighters had going into the BMDR was what the impact might be on timely delivery of capability. The PAA is very closely aligned with MDA's BMDS plans and in many cases draws from mature technology (such as Aegis and Standard Missile). I would also like to point out that MDA's Integrated Master Test Plan encompasses the PAA phases and their development approach includes warfighters operating the new hardware under simulated war scenarios. The Department is very confident that we can maintain schedule and get capability to the Combatant Commands.

Before I leave the operational discussion of the PAA Phases, I wanted to reinforce the point that missile defense is not an isolated mission but part of a larger campaign against an adversary. While missile defenses, of themselves, do enhance our deterrent against potential adversaries, should an attack occur they are not meant to be the sole means of response. Rather, missile defenses prevent an adversary from winning the fight with the first wave of their attack, and provide time for our offensive response capabilities to be brought to bear.

Analysis Supporting PAA Development

Building a missile defense is a blend of determining what the right technology is and how many of each system is acquired. In operational terms this gets shortened to "how much PAA do we need?" A simple phrase, but a very complex problem. Further, this has to be answered in the context of our overall capabilities requirements in different Areas of Responsibility (AORs) and under various planning scenarios.

I referred earlier in my statement to the Joint Capability Mix (JCM) studies as the method the Department has adopted to address this problem. We previously conducted JCM I in 2005-2006 and JCM II in 2007-2008; the latter was briefed to this sub-committee in September 2008. The final report on the current assessment, JCM III, which focuses on the force requirements

for the PAA, will not be completed until March of 2011, so I do not have any results I can discuss today. However, I think it is important to understand what this study is, how it's being executed, and the kind of results that will be produced.

JCM III is examining our missile defense strategy in the PAA to inform decisions on the number and types of sensors, launchers, and interceptors we require. In order to determine force needs at this level of granularity we have to take into account how the Combatant Commands intend to employ them, what the threats are, and generally how the threat will be expected to be employed. Historically, a lot of these types of studies make assumptions about all these factors based on what other studies have used. We chose not to do this. Instead, we went to the experts. For operational employment information, like asset laydowns and shot doctrine we went to each of the Combatant Commands. We are using how they will conduct BMD operations within their Area Of Responsibility (AOR). For system performance, we went to the experts at the Missile Defense Agency (MDA). In order to keep it all in perspective we set up a joint analysis and review process.

The analysis is executed by the Joint Integrated Air and Missile Defense Organization (JIAMDO) in conjunction with representatives from CENTCOM, EUCOM, PACOM, STRATCOM, NORTHCOM, MDA, the Services, and OSD Cost Assessment and Program Evaluation (CAPE). Officers at the O-6 level from all of these organizations have meetings/video teleconferences every two weeks to review planning, analysis, and results. Every six to eight weeks, a Senior Review Group consisting of myself, the Vice Commander USSTRATCOM, and the Deputy Director, MDA review results and status. Finally, the Vice Chairman of the Joint Chiefs of Staff and the Director, Cost Assessment and Program Evaluation receive quarterly updates. At the completion of the study, the results will be briefed to the JROC, the Missile Defense Executive Board, and finally to the Deputy Secretary of Defense's Advisory Working Group for approval.

Although this appears to be a rather laborious structure, in reality it works quite smoothly and we have found that it is very effective in getting Combatant Commands, Services, and systems developer input, to keep our efforts coherent and complete as we work through all the factors. The results of this effort are what matters. I felt it was important that you are aware of the significant level of warfighter and developer involvement in the process in order to understand why we have such a high level of confidence in the results.

I would also like to spend a couple of minutes discussing the study methodology. To begin, each of the Combatant Commands has given us a detailed list of assets which need to be protected in his AOR. That was followed by a Combatant Command laydown of missile defense systems required to defend these assets. At this point, various threat vignettes are run to determine which mix of shooters and sensors provide an acceptable level of defense. The metric I want to key in on here is that we are not shooting for perfect defense. First, we expect that each Combatant Command will have some capability to degrade an adversary's ballistic missile launch capability, lessening the load on missile defense assets. The Combatant Commands have given us their inputs on that capability. Secondly, we realize there are no absolutes in the real world so the product of the analysis is what we refer to as a relative risk curve, rather than an absolute statement of how many missiles or radars to buy. That means we will show various combinations of shooters and sensors versus Combatant Command threats with a key measure being the number of enemy missiles that leaked through and struck their targets. We have found that these curves provide significant insight into the force laydowns and where there is a diminishing return on investment. Let me give you one example. Without going into classified details, we have found instances where adding dozens of interceptors had no appreciable effect on the number of leakers (decreased the leakers by only one or two in a much larger raid sizes). This is a counter-intuitive result until it is presented in the context of an operational scenario where there are real world limits on where and when

defensive systems can shoot. These types of force mix curves will be presented to senior leaders for decisions on force acquisition and allocation.

To prepare for employment of these highly complex systems, the Geographic Combatant Commanders are working closely with US Strategic Command, the Missile Defense Agency and the Services to develop operational concepts and contingency plans. This is especially important work in the areas where threat missiles will cross regional boundaries. In these situations, the Commands must pre-coordinate data sharing and responses to ensure that targets are accounted for and that the system operates as efficiently as possible. In addition, these plans will provide guidance on logistics, command and control of the deployed forces.

PAA and NATO

As I mentioned earlier, NATO has just taken the decision that ballistic missile defense is "...a core element of our collective defence." In both my role as the Director of JIAMDOD, and as the US head of delegation to the NATO Air Defense Committee, I have spent a significant amount of time discussing the PAA with various Allies and friends throughout Europe. What resonates with our Allies is the fact that the US is not building a missile defense system in isolation. Our Allies are appreciative of our efforts to include them in our discussions and explain our missile defense concepts and approaches. The PAA concept and implementation provides the opportunity for Allies and partners across the globe to participate with and alongside US systems. Not only is this the right thing to do, it is a very effective and efficient approach to missile defense that allows both all participants to leverage the investment the other nations are making. The recent MDA demonstration of C2BMC with NATO's ALTBMD is a premier example of the right approach to follow.

Now that NATO has made the decision, the US BMDS capabilities of the European PAA will constitute our national contribution to this mission. We will work closely within the Alliance to craft the appropriate command and control structure to provide for the effective defense of ourselves and our

partners from ballistic missile threats in the region. Additionally, we are working with the Russian Federation both bilaterally and through the NATO-Russia Council to ensure transparency in our planning and deployment of missile defenses and to find ways to engage the Russians as partners in missile defense.

Summary

The Department is investing a significant portion of its budget in missile defense and the PAA is providing the necessary framework to ensure it is invested effectively and wisely. The PAA is shaping the integration and networking of our systems across the Services, Combatant Commands, and allies which is the correct path to successful and effective missile defense. We have established a solid process and analytic approach to monitor and guide the implementation of the PAA and expect to develop and field the phases in the most cost efficient manner possible.

Thank you for the opportunity to testify. I look forward to answering your questions.