LA-UR- 98-122

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Title: ISSUES IN NATIONAL MISSILE DEFENSE

CONF-980165--

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Submitted to: For presentation at the AFCEA and US Naval Institute Western Conference at the San Diego Convention Center 15 January 1998.

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ISSUES IN NATIONAL MISSILE DEFENSE

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Introduction. Strategic missiles and weapons are proliferating rapidly; thus, the US and its Allies are likely to face both capable bilateral threats and multilateral configurations with complex coalitions for which defenses could be essential for stability. Current hit-to-kill interceptor and radar and infrared detection, track, and discrimination technology should suffice for limited threats, but it is necessary to meet those threats in time while maintaining growth potential for the more sophisticated threats likely to follow.

Recent History and Lessons. For the Sentry-Safeguard ABM system of the 60s, which was based on rockets, radars, and nuclear weapons, the key question was "can you hit a bullet with a bullet?" Ironically, the rockets and nuclear weapons performed more than adequately to perform such an intercept, but the radars could not support them in the disturbed nuclear environments from even modest engagements. McNamara shifted their mission from point defense to a light area defense against a proposed PRC threat, which received only a token deployment. The key "lesson" was that ABM could not be provided with such technologies, which the ABM Treaty attempted to codify in a fixed fortification in defensive technology.

The SDI system of the 80s, which was arguably the first cost-effective missile defense due to its survivable space based interceptor overlay, provided positive lessons in the need for multiple layers for defense of value against significant attacks, but also negative lessons in service rivalries and inadequate emphasis on development and testing. The fall of Soviet Union, Gulf War, change administration in the 90s shifted emphasis from defense to protection in GPALS, but provided no clear distinction between them or joint understanding of the stability implications of a shield used as an adjunct to a sword.

TMD based on ground-based HTK missiles, radars, and space sensors should provide effective defense for troops and allies against current levels of technology. They are unlikely to be effective in the defense of cities or against evolving threats. The performance of Patriot has been politicized, by operational tests within the "sound of guns," but provides some basis for confidence, as does that of PAC III versus SCUDs. THAAD had its proof of principle in HOE. It is now experiencing its growing pains, but they mostly amount to a reminder of the need to test thoroughly.

NMD based on ground-based HTK missiles, radars, and space sensors should also be effective for the limited threats for which they are designed. It is unlikely that they can be effective for significant attacks on cities or against evolving threats. It is not clear that the

technology has growth potential for the former or that the program has enough flexibility to address the latter.

Current issues include the multiplicity of programs for TMD, NMD, layers, services, which are likely to exacerbate old rivalries and lead to cost growths. Moreover, advanced technologies such as the air- and space-borne laser, together with their uncertain science and alternative vulnerability modes threaten to make better the enemy of good, which has delayed development and deployment of any system for decades. Those delays are complicated by the uncertain timelines for TMD, NMD threats, in which overly confident predictions with little historical basis are used to delay initiation of programs until it is too late to execute them in an efficient manner.

The ABM Treaty remains as a reminder of the unresolved question whether even limited missile defenses would fuel an arms race that could thwart needed bilateral offensive arms reductions. The Nitze criteria for cost effectiveness of all but trivial defenses and Russian concerns over the interaction between the sword vs shield will become greater concerns as NMD approaches deployment. There are already constraints on development as the lack of a clear demarcation of the use of space information by the ABM treaty hurts both TMD and NMD.

There is a potential guide in the half-facetious Canavan-Kent theorem, which is that "we can build defenses that are good enough to stop *no* missiles." If it is possible to use arms control to reduce offensive missiles, which would be unstable without defenses, to the levels attainable with the limited missile defenses in development, it could be possible to stabilize the residual, negate 3rd world and advanced threats, and provide a positive incentive for the reduction of offensive missile levels. That would be more likely the more defenses could be joint, which is a radical suggestion, but preferable to the alternative of a multi-sided arms race.

Summary and conclusions. NMD is needed, and limited defenses are possible in the near future based on technology in development. Better defenses will be required in the future. It will be more difficult to provide them technically, programatically, and politically. Early defenses floundered on technical deficiencies of radars. SDI on a lack of agreement that its protection would offset the offensive growth it might stimulate. GPALS on the lack of a clear distinction between defense and protection. NMD faces a confusing array of threats, programs, and alternatives, but the technologies in development are clearly an appropriate first step towards any of them. They are likely to succeed in the near term; the challenge is to retain flexibility to provide needed options in the mid and long terms.

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7 January 1998
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Memo to: PDO
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Please submit the attched sheet as a LA-UR request of the same name to clear the talking points I am to use for

Presentation at the AFCEA and US Naval Institute Western Conference at the San Diego Convention Center 15 january 1998.

Thank you for your assistance.