

Part I: Deterrence

The central rationale behind U.S. nuclear weapons policy has been the need to be able to deter attacks against the United States and its vital national interests. The destructive capabilities inherent in nuclear weapons are so substantial that the international behavior of other nations cannot help but be influenced by their existence, as is U.S. behavior by the existence of others' nuclear weapons. This ability to influence the behavior of other countries, and deter attacks on those countries that possess them, is a primary incentive for some nations to seek nuclear weapons capability. Nuclear deterrence may be an elusive concept, but its impact is very real. Despite conflicts and tensions that have witnessed the use of virtually every other type of weapons, 64 years have elapsed since nuclear weapons have been detonated in anger. The blend of these nuclear deterrence needs and the technological capabilities of the United States, tempered by important geopolitical factors, shapes the size of U.S. nuclear forces. Commission experts examined a range of deterrence issues, including force structure considerations, extended deterrence, declaratory policy, and the looming threat of nuclear terrorism.

Throughout the Commission's work, its experts addressed a number of deterrence force posture issues. The end of the Cold War has resulted in a relative de-emphasis of the role of advanced strategic technology, though its reduced role nonetheless remains a prominent one. While often not widely appreciated, the substantial role of extended deterrence in assuring our allies and friends of their place under the U.S. nuclear umbrella has drawn recent renewed recognition—an issue that a number of Commission experts explore below. As many of the experts note, without such security assurances, it is quite possible that many states would attempt to develop their own nuclear weapons. The first several papers in this chapter examine extended deterrence issues and their implications and possible challenges in the future. Elbridge Colby begins the chapter with his paper on the nature and utility of the U.S. alliance structure. Colby illustrates the past, present, and possible future course of our alliances and how extended nuclear deterrence plays an important role in our international relations. Brad Roberts identifies key issues and concerns for the Commission on the role of extended deterrence in the development of the United States' strategic posture. With a more regional focus, Kathleen Bailey examines proliferation and extended deterrence issues in northeast Asia, where the issues have grown in prominence in recent years. As Bailey explains, this region of the world, home to two nuclear

weapons states, deserves considerable attention given the high potential for conflict; Bailey suggests insights into each country's perspective on extended deterrence, which she notes is shaped by history and different modern-day geopolitical pressures.

Considering the changing requirements of the post-Cold War era and the central role that nuclear deterrence requirements play in decisions about force structure and arms control, the experts paid much attention to factors affecting the size and composition of the U.S. nuclear arsenal. In his paper on the role of nuclear weapons, Elbridge Colby recognizes the post-Cold War realities of today and contrasts the role of nuclear weapons in the past with the changing present and future threats and requirements; Colby further emphasizes the need to reconfirm the importance of nuclear weapons. Clark Murdock also addresses this point in his paper on the saliency of nuclear weapons in the views of different segments of the policy community, noting that this community is deeply divided over the relevance and importance of nuclear weapons within national security policy. He suggests that the new administration should focus on deeds, not words, to build support for a series of concrete actions on these topics.

In four subsequent papers, members of the Deterrent Force Posture working group address the difference between Cold War nuclear posture and the forces needed today to address the emerging threats of the 21st century. While not as militarily strong as in years past, Frank Miller states that Russia still remains a credible threat to U.S. security. Miller questions whether a resurgent Russia and an increasingly powerful China will become emboldened and seek to increase the size and capability of their arsenals as the United States draws down its own numbers. In the same vein, Brad Roberts and Barry Blechman examine the case of China: an increasingly powerful nuclear weapons state that could be tempted to "sprint to parity" with the U.S. and Russia in nuclear weapons. As China upgrades and diversifies its nuclear arsenal, Roberts examines the U.S. attitude of "benign neglect" toward China that he concludes is decidedly too ambivalent, and even dangerous, for the future; Roberts identifies key policy issues and questions concerning China for the Commission to ponder, including how the U.S. should respond to Chinese nuclear weapons modernization and maintenance, U.S. missile defense posture toward China, and how to pursue a relationship with China while engaging other nuclear weapons states. In his paper, Blechman raises the questions of what is the most appropriate mix of U.S. offensive nuclear forces and missile defenses—a mix that he argues should neither force China's hand nor render the United States more vulnerable. Dennis Blair continues this discussion of China and expands it to include our ability to deter more unpredictable and "rogue" states such as North Korea and Iran. Based on his experience and analysis, Blair sketches a series of hypothetical confrontations

between the United States and China, North Korea, and Iran to better inform scenario-based strategic thinking about U.S. nuclear forces.

In order to consider any numerical or compositional changes to the arsenal, the Commission needed to delve deeply into the structure of the U.S. nuclear forces. To fully inform commissioners of the implications of force structure changes, Commission experts produced a series of papers to analyze current force composition and provide a framework for alternative postures, force reduction options, and force management suggestions. As a starting point for the Commission, Thomas Scheber begins the discussion by offering a summary of current forces committed to the nuclear mission, including the number of ICBMs, SSBNs, SLBMs, nuclear-capable bombers, nuclear cruise missiles, non-strategic nuclear forces, and nuclear command and control forces. Scheber also addresses the funding issues behind these weapons systems to illustrate sustainability issues to commissioners. Building on this, Clark Murdock proposes a “judgment-centric” methodological framework to take into account modern-day variables that put pressure on force size and structure, including extended deterrence obligations, non-proliferation considerations, other nuclear weapons states’ arsenals, treaty obligations, and domestic attitudes towards nuclear weapons. To further guide the decision-making process, James Miller proposes a set of alternative options for modifying the stockpile size. Each alternative offers the Commission a strategic backdrop to promote a healthy debate and provide scenarios for future wargaming and assessment.

In addition to nuclear arsenal size considerations, the Commission and experts examined compositional and managerial aspects of the arsenal, including the relevance of maintaining the traditional nuclear triad (land, sea, and air nuclear delivery systems) and nuclear and conventional force integration. In acknowledgment of the decades-old trend toward smaller nuclear forces, Thomas Scheber outlines the unique attributes of each leg of the triad while pointing out capabilities that would be lost in the possible elimination of any of these legs. Drawing upon previous American experiences with managing nuclear and conventional forces, Dennis Blair uses historical examples and hypothetical future scenarios to explain the organizational difficulties surrounding dedicated and dual-use nuclear force integration and separation.

The Commission also explored the topic of declaratory policy as it relates to deterrence. Experts provided their input on declaratory policy and more specifically, the possibility of adopting a “No First Use” policy, under which the United States would not use nuclear weapons against another country unless that country had first attacked the United States or its allies with nuclear weapons. This proposal is a contentious one. In his paper to the Commission on declaratory policy, Elbridge Colby considers the spread of

new technologies as a key determinant in formulating appropriate declaratory policy. In his view, Colby maintains that the United States must retain its flexibility to respond “asymmetrically as we deem appropriate” against state and non-state aggressors alike.

On the subject of “No First Use,” other experts encouraged the Commission to explore the nuances and effects of declaratory policy on deterrence, nonproliferation objectives, and other nuclear weapons states’ postures. In his paper on the cost-benefit analysis of a “No First Use” declaratory policy, author Scott Sagan recommends that the Commission carefully weigh the effect of any declaratory policy on our extended deterrence commitments as well as our non-proliferation goals before making a decision. Sagan points out the potential for mimicry of U.S. declaratory policy among other relatively new nuclear weapons states in their “doctrinal development”; Sagan suggests that considering this potential for mimicry, the U.S. adoption of an NFU policy could push other states to adopt it as well.

As powerful a concept as nuclear deterrence has proven to be, most experts worry that nuclear deterrence will be of doubtful effectiveness against the new and growing threat of nuclear terrorism. In the past, nuclear deterrence has been relied upon to influence the strategic posture of other nuclear weapons states. In his paper on nuclear terrorism and deterrence, Scott Sagan points out the new challenge that non-state actors and terrorists pose to the concept of declaratory policy and ponders whether traditional paradigms will be useful in formulating strategy and policy in the future. Sagan proposes to the Commission a range of policy options to deter terrorism: more direct threats toward would-be state sponsors of terrorism, including threats to hold complicit or negligent states accountable; seek cooperation with nuclear weapons states to prevent any security lapses; and initiatives to delegitimize the morality of nuclear weapons use to those that might logistically or otherwise support terrorist attacks or activities.

The Commission created a special group of experts, the Force Structure Tiger Team, to create a framework for examining future U.S. nuclear force structures under alternative arms control and other scenarios. One member of this Tiger Team, Clark Murdock, summarizes the team’s extensive analysis in a short paper that addresses deterrence, including extended deterrence, force structure and disarmament implications, as well as other policy considerations.

To close the section, James Dobbins addresses several broad deterrence issues, including the present geopolitical environment and nuclear deterrence, the continuing importance of extended deterrence, the relationship between congressional funding and nuclear weapons policy, and the

feasibility of prompt global strike. As a summary of critical deterrence issues, Dobbins concludes the section by offering his broad vision of future steps in U.S. nuclear weapons policy.

1

Alliance and U.S. Nuclear Forces

Elbridge Colby

Summary: The future of U.S. nuclear forces is intimately linked with the future of U.S. alliance relationships, extended deterrent commitments, and allocation of responsibilities among partners. Indeed, much of the real debate takes place at these levels, as Homeland deterrence requirements are comparatively straightforward. Yet discussion about the purposes, structure, and posture of U.S. nuclear forces, while subject to vigorous analysis at most levels, seems often to presume a static alliance structure for the United States in the future. Given sharply shifting global power relationships, however, this presumption may lead to suboptimal allocation of U.S. efforts, resources, and commitments. It is therefore worth thinking comprehensively and creatively about what the U.S. alliance structure should look like in light of national strategic requirements, how resources should be allocated and burdens shared among these commitments, and what this entails for our nuclear forces. It should be emphasized that such an analysis may conclude that our current alliance posture is suitable—but it may not. Either way, recommendations for our nuclear force structure should be based upon such an analysis rather than a presumption of continuity.

Text: The United States currently serves as security steward for a wide variety of countries—including most of the advanced nations of the world.¹ These relationships range from the “roughly thirty” countries covered by the U.S. nuclear umbrella, including NATO allies and Japan, through those protected by conventional security commitments, as in the Gulf region and Asia, to those not aligned with the United States but “free riding” on the beneficial “runoff” of its alliances with others, as with Austria, Sweden, and Switzerland in Europe (or France between its withdrawal from NATO and 1989) or the nonaligned countries of Southeast Asia benefiting from

American maintenance of open sea lanes and monitoring of China.² Furthermore, the United States provides numerous security “collective goods” through its command of the “global commons” of sea, air, and space and does so in the service of the free flow of people, goods, and information.³ In brief, enabled by its military supremacy the United States provides enormous benefits to its allies and other free riders through its security commitments abroad, allowing them to maintain much lower military budgets than would be the case in a more uncertain strategic environment, substantially reducing the dangers associated with mistrust among potential rivals (Japan and South Korea being a good example), and generally helping to sustain the liberal market politico-economic system. Though it would probably be impossible to price these services accurately, the comment of one Commission expert-advisor that even a slight change in the U.S. nuclear posture in Europe would be a “disaster” and the testimony of others about Japanese reactions to similar moves in East Asia are illuminating of the value associated with these guarantees. Clearly, decisionmakers in these countries—if not their populaces—understand this.

Of course the United States derives tremendous benefits from this arrangement as well. Like any dominant actor providing collective goods, it too has profited and profits from these goods, even if smaller actors may not contribute to the provision of these collective goods proportionately compared to the benefits they enjoy.⁴ As leader the U.S. enjoys perquisites and privileges attendant to that role, including an outsized influence in the world.⁵ Through these alliances, the United States has successfully helped structure and sustain a “free world” system of generally increasing prosperity, security, and representative liberal government, leading to a more secure environment for itself.

Indeed, this situation has emerged partly through American design. Historically the U.S. seems to have been well aware of—and often even encouraged—“unequal” relationships, preeminently by agreeing to assume security commitments to formerly militarized Europe and Japan and by encouraging them to concentrate on economic and social development.⁶ In large part because of its pronounced supremacy both in the post–World War II years and beginning again with the economic revival and Revolution in Military Affairs of the last quarter of the 20th century, the United States accepted and even encouraged these “unequal” relationships as satisfactory arrangements given the Soviet threat, the comfortable margin of U.S. advantage, the benefits the U.S. derived, and the concern over relapse to pre-1945 habits in Europe and East Asia.

Now running into their seventh decade, these alliances today exhibit both the advantages and disadvantages of lock-in and path dependency. On the plus side of the ledger, Europe and Northeast Asia are calm. Alliance rela-

tionships in these regions are remarkably stable and have helped in addressing significant challenges beyond the Soviet threat, including facilitating cooperation in response to economic crises. Despite post-Cold War concerns about dissolution, NATO, the U.S.-Japan, and the U.S.-ROK alliances are still active. Together, these nations constitute an enormously powerful bloc of states broadly dedicated to the preservation and development of the existing liberal market world order.

But there are disadvantages as well. Over sixty years of the U.S. leading and allies following has entrenched modes of behavior and expectations that may not gel well with a global power structure that is changing—and changing more rapidly, potentially, than had been anticipated even a few years ago. The intensely frustrating difficulties that the United States has faced in spurring European and Asian allies to contribute troops and even resources to the war in Afghanistan is perhaps the most salient example of the disconnect between need and performance. But this represents only one facet of a general aversion to developing, let alone deploying, significant forces for out-of-area operations among both Europeans and Japanese—an aversion midwived and sustained by expectations that the United States would invariably address such problems. Even the war in the former Yugoslavia—near the heart of Europe—had ultimately to be addressed by the United States.

These arrangements might have been satisfactory in the past, but it is increasingly questionable that they will continue to be so. First, the global power structure has changed and will continue to change markedly. The United States is no longer *the* dominant nation that it was in the 1990s, let alone the 1940s and 1950s; though the U.S. will likely remain the greatest world power in absolute terms for much, if not hopefully all, of the coming century, its relative power edge will continue to shrink as China, India, and other powers develop. The economic crisis of this year will likely finally lead to the rectification of massive structural imbalances in the U.S. economic position; this adjustment will likely lead to a more conservative approach to overseas commitments in light of a society-wide belt-tightening. Thus the U.S. may not be in a position to be quite as magnanimous in its burden-sharing with allies.

Second, the areas of strategic focus have shifted to East and South Asia and the Middle East while existing alliance structures were created and developed to meet the threats of the Cold War, principally in Europe. Yet existing alliances are not showing much promise in projecting power to these new areas of concern. Though effectively immovable conscript reserve armies postured for territorial defense may have answered the call for Europe during the Cold War, such forces are of vanishingly little utility in a world in which the strategic challenges are far afield. While strenuous and earnest efforts have been made to reorient our alliances to meet the likely

threats we will face in the future (including the rise of great power rivals, proliferation of massively destructive technology to states of concern, and the dangers posed by non-state actors), the jury is very much out as to whether this effort has been successful. Ultimately alliances probably need to serve a purpose beyond their perpetuation as stabilizing and “locking in” institutions if they are to survive. In this respect, the principle of marginal utility would seem to be superior to path dependency.⁷

These issues raise a host of questions about our alliances, including:

Are our alliances relationships optimally postured for our strategic needs in the coming decades?

Are the allocations of responsibilities among our allies and us optimal for these needs? Can the U.S. responsibly “get more in return” for the services it provides, both to its allies and to free riders? In a more competitive world and with an economy under intense strain, can the U.S. afford to “undercharge” for these services?

Even if our current relationships are not ideal, is it too dangerous or risky to try to alter them? If that is the case, how best can we elicit greater allied cooperation in endeavors such as Afghanistan or a possible security structure for the Middle East Gulf region?

If the U.S. can responsibly push for better structuring and burden-sharing with allies, how best can we leverage our assets to get more in return for what we provide?

Nuclear Implications: Such considerations will have an enormous impact on our nuclear planning, given the central role that nuclear weapons have played and continue to play in U.S. alliance commitments. Because of this, nuclear forces will constitute a principal focus of alliance discussions and will thus be a major source of U.S. leverage, as Commission and expert advisor discussions have already amply illustrated. The United States might then seek to use these nuclear forces as means to pressure allied countries to shoulder more responsibilities in other fields or otherwise meet common needs. Of course such considerations must be balanced by others, such as our non-proliferation goals.

The very low cost of nuclear weapons will also prove salient in light of looming fiscal constraints born of economic conditions and a strategic environment characterized by a broader diffusion of sophisticated conventional military capabilities. The United States can rely on nuclear weapons in order to be more generous in reaffirming or even offering new security commitments if it seems useful to do so. Of course such commitments will have to be considered in light of our interests in preserving our credibility and in maintaining whatever “taboo” on nuclear use may exist (not to mention avoiding unnecessary and costly conflicts). A “no first use” pledge, substantial reductions constraining our ability comfortably to deploy nuclear weapons

in defense of allies or abolition of nuclear weapons entirely would markedly increase the importance of conventional forces in our alliance relationships. This would yield a choice of either fielding substantially greater conventional forces to meet such alliance commitments—presumably including a substantial military build-up by our allies as well—or economizing on our alliance commitments in order to keep military expenditures capped.

These implications raise a number of questions regarding our nuclear forces in relation to our alliance structures, including:

To what extent should U.S. nuclear commitments to its allies be extended, reduced, or maintained? Should the U.S. be prepared, for instance, to extend nuclear guarantees to countries in the Persian Gulf in light of the Iranian threat?

What kinds of capabilities will be necessary to meet these requirements?

To what extent and how should U.S. nuclear commitments be used as leverage to restructure existing and create new alliances?

What are the implications of looming fiscal constraints and swiftly changing global power dynamics on U.S. alliance commitments? How do U.S. nuclear forces factor into addressing these developments?

What are the implications of deep reductions and even abolition of U.S. nuclear weapons on our alliance relations?

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1. The late Lt. Gen. William E. Odom (USA, ret.) described this system expertly in his *America's Inadvertent Empire*. (New Haven: Yale University Press, 2004).
 2. For the “roughly thirty countries” figure, see The Report of the Secretary of Defense’s Task Force on DOD Nuclear Weapons Management, cover letter from Dr. James R. Schlesinger.
 3. For a discussion of this, see Barry Posen, “Command of the Commons: Military Foundations of U.S. Hegemony,” *International Security* 28, 1 (Summer 2003), 5–46.
 4. For a classic analysis of the near-inevitability of this behavior, see Mancur Olson, Jr. and Richard Zeckhauser, “An Economic Theory of Alliances,” *The Review of Economics and Statistics*, 48, 3 (August 1966), 266–279.
 5. Other advantages have included the status as attractive and reliable destination for capital, thus subsidizing a higher American standard of living; the ability to set the agenda for international efforts in ways favorable to U.S. interests; and so forth. See on this point and the broader issue of the interrelationship between strategic position and economic dynamics, Robert Gilpin, *Global Political Economy: Understanding the International Economic Order*. (Princeton: Princeton University Press, 2001).
 6. See, e.g., G. John Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order After Major Wars*. (Princeton: Princeton University Press, 2001).
 7. “Rational alliance building [means] the principle of marginal utility... That is, a state should add allies and increase alliance commitments up to the point at which the ‘last’ unit of commitment to the last-chosen ally yields a marginal value equal to its marginal cost and risk.” Of course, “a fully rational calculation of alliance values must be farsighted [and “wide-angled”]; it must take account of consequences in the distant as well as the immediate future.” Glenn Snyder, *Alliance Politics*. (Ithaca: Cornell University Press, 1997), 45–46.

2

The Evolving Requirements of Extended Deterrence

Bradley H. Roberts

Key Issue

How should the requirements of extended deterrence inform the development of the next U.S. strategic posture?

Background

In the evolving security environment, the requirements of extending nuclear assurance to U.S. allies and friends have received relatively little attention, as U.S. nuclear policy has focused on the U.S.-Russian and U.S.-rogue relationships.

U.S. allies and friends are not of a single mind on this matter.

- Some in Europe see the security environment as having grown more secure and predictable, and prefer the removal of remaining U.S. nuclear weapons, especially if this can secure a draw-down or removal of Russian tactical nuclear weapons.
- Others in Europe (especially among NATO's new members but also along NATO's southeastern flank) see the security environment as having grown more threatening and less predictable, and privately argue that the removal of remaining U.S. nuclear weapons would be the shortest route to their own acquisition of a nuclear deterrent.
- Japan worries about a nuclear security environment evolving in complex new ways and also about whether the U.S. appreciates those changes and knows how to shape the East Asian security environment in ways that serve long-term Japanese interests. Japan has no immedi-

ate interest in nuclear weapons of its own but seeks improved nuclear assurances from the U.S.. Some in the U.S. defense establishment flirt with the notion that a nuclear-armed Japan would be a welcome addition to the club of nuclear democracies containing China, but fail to appreciate that the only plausible path to Japan's acquisition of nuclear weapons would be a Japanese decision to distance itself from dependence on the U.S.

- Elsewhere in East Asia there are concerns about the long-term balance of power with China and the reliability of the U.S. as a security guarantor.
- All U.S. friends and allies also have significant political constituencies favoring nuclear disarmament.

Key issues:

1. How can the U.S. provide the needed assurance?
 - a. Assurance seems not to require much of the U.S. that is new or different. It requires dialogue, formal consultation, and coordinated defense planning. In each of these, the allies/friends look to the U.S. to set the agenda.
 - b. U.S. reputation as a security guarantor is shaped by U.S. global behavior and not just the dynamics of particular bilateral relationships, and the outcome of the wars in Iraq and Afghanistan may yet have a significant impact on the desire of other states to closely align themselves with the U.S.
2. To what extent do U.S. allies perceive gaps in current U.S. strategic capabilities that the next posture review can help fill?
 - a. A few clearly articulate concerns about specific weapon systems (e.g., DCA and TLAM-N). Some have also picked up on U.S. concerns about the viability and credibility of the U.S. deterrent and feed these back.
 - b. On non-nuclear strike, some U.S. allies/friends are seeking new capabilities to complement U.S. capabilities or to enable independent action of their own against regional adversaries.
 - c. More widespread is the perception that missile defense offers an important remedy to U.S. strategic vulnerability (and thus enhances U.S. credibility in the face of de-coupling pressures). How to integrate locally into a global U.S. missile defense is hotly contested by small expert communities.
 - d. The "second to none" assurances of the Bush administration have played an important role in assuring allies. But the role also appears rather modest, as it is not clear how many U.S. allies attach value to the second-to-none criterion higher than the value they attach to con-

- tinued nuclear risk/threat reduction with Russia (and to the health of the nonproliferation regime).
- e. Signaling to allies/friends in time of crisis that the U.S. is committed to their nuclear defense can more easily be done with visibly deployable forces than without them. This is an argument for maintaining dual-capable aircraft and nuclear-armed bombers.
3. How should the U.S. address the potential collapse of the INF regime?
- a. Russia's withdrawal has been threatened periodically over the years, along with a desire to globalize the regime. But the conditions leading to actual withdrawal seem more plausible at this time, not least the failure of a concerted effort to enlist Asian participants in the regime.
 - b. Russia's reconstitution of INF would create military imbalances around its periphery that would trouble U.S. friends and allies and otherwise undermine Asian nuclear stability.
 - i. One of the key Russian arguments against INF withdrawal is that the U.S. would exploit it to deploy INF forces of its own into the new NATO members.

3

Tailoring the U.S. Strategic Nuclear Posture in Northeast Asia

Kathleen C. Bailey

Introduction

The security environment in Northeast Asia is very complex and is likely to become more so over the coming decade. North Korean WMD proliferation (see Appendix A) has defied resolution and the useful bargaining chip these weapons provide to Pyongyang assures that the problem is likely to remain. Chinese military expansion and modernization proceed apace (see Appendix B); the strength of both China's economy and its ambitions fuel the buildup. Japan is jittery about both North Korean and Chinese military intent. U.S. efforts to fulfill its obligations to Taiwan are met with objections by China. There are no signs that efforts to mitigate these tensions will succeed. Thus, while the U.S. can continue to work to resolve the problems, it must also be prepared in the event that these tensions trigger a security crisis.

As the 1998 U.S. Security Report on East Asia detailed, the U.S. applies a range of capabilities to assuring peace and security in the region. Diplomacy, dialog, basing, conventional forces, exercises—all play an essential role in helping to prevent and resolve disputes. Missile defenses also contribute to threat reduction with reference to North Korea, but inadequately address potential threats from China. At the backbone of our strategic posture is an essential element: U.S. nuclear weapons and delivery systems. They are essential, in part, because they: prevent proliferation by providing extended deterrence; provide incentive to resolve conflict and prevent escalation; and, deter and dissuade current nuclear-weapons states.

The remainder of this paper addresses the role of the U.S. strategic nuclear posture in Northeast Asia, with a focus on extended deterrence to Japan and

South Korea, and outlines the key considerations for revising or updating that posture for the coming few decades.

Extended Deterrence: Japan

Background

The U.S. extended nuclear deterrence to Japan in the 1960 Treaty of Mutual Cooperation and Security between Japan and the United States. The treaty states "...an armed attack against either Party in the territories under the administration of Japan would be dangerous to its own peace and safety and declares that it would act to meet the common danger in accordance with its constitutional provisions and processes."

As with other nations under the U.S. nuclear umbrella, the United States has reaffirmed the role of nuclear weapons in fulfilling its security treaty obligations in bilateral meetings over the years. For example, the *U.S.-Japan Alliance: Transformation and Realignment for the Future* (Security Consultative Committee Document, 29 October 2005) states that "U.S. strike capabilities and the nuclear deterrence provided by the U.S. remain an essential complement to Japan's defense capabilities in ensuring the defense of Japan and contribute to peace and security in the region."

Extended deterrence was reaffirmed following the October 2006 North Korean nuclear test. Japan asked for and received high-level assurances that the U.S. nuclear deterrent is in effect. Secretary of State Rice went to Tokyo where she said, "I reaffirmed the President's statement of October 9th that the United States has the will and the capability to meet the full range—and I underscore full range—of its deterrent and security commitments to Japan."

It is imperative that the U.S. continues to assure Japan of the U.S. security commitment. If Japan loses trust that the alliance is capable and effective, it undoubtedly will reconsider its own nuclear weapons options.

Japanese security concerns

The two most fundamental security concerns of Japan are North Korea and China. Although missile defense has somewhat mitigated concerns about North Korea, the Japanese public continues to deeply distrust the DPRK and believe it will not give up its nuclear weapons.¹ There are at least three scenarios that could increase Japan's sense of threat:

- Evidence of substantial nuclear weapons materials production—either new production or discovery of extant, clandestine production—by North Korea beyond what is currently known
- Collapse of North Korea's regime or reunification of the Koreas without elimination of the North's nuclear weapons and infrastructure

- Political use of North Korean or Chinese WMD to coerce Japan in any way

Regarding China, Japan is very concerned about the extensive build-up of China's military power, especially its nuclear weapons, nuclear-weapons delivery systems, and anti-satellite weaponry. And, for the first time in almost 150 years, the balance of power has shifted: where once Japan was on the steady ascendancy and China was not, now their roles are switched. Japan is seen, and sees itself, as static, whereas China continues to grow economically and militarily. If China uses its power in ways that Japan views as inimical to its interests, pressures will increase for Japan to reevaluate its nuclear option not only for security, but perhaps also for status.

Japanese requirements

Japan is currently confident in the U.S. nuclear umbrella, but it has some issues of concern. These fit roughly into three categories.

First, Japan wants assurance that the U.S. nuclear deterrent is credible. It is crucial to Japan that China never have the incentive to seek parity with the U.S. While Japan is not interested in discussing specific weapons systems, it wants the U.S. to craft the deterrent so as to provide an umbrella that will be effective into the future.

Second, while Japan supports disarmament, it is concerned that the U.S. might negotiate or make unilateral nuclear reductions without sufficient regard to Japan's needs and interests. Additionally, Japan advocates disarmament, but caveats that it must be both verifiable and compatible with security interests.

Third, Japan feels that there has been insufficient dialog with the U.S. Specifically, it would like to have a dialog to understand U.S. thinking and plans, and an input to U.S. decision-making on the strategic alliance. Multilaterally, it would like to establish interactions and discussions between itself, the U.S., and China on security affairs.

Extended Deterrence: South Korea

Background

The Mutual Defense Treaty between the Republic of Korea (ROK) and the United States says that an armed attack on either party obligates the other to meet the common danger in accordance with its constitutional processes. This language has been clarified, with specific regard to the role of U.S. nuclear deterrence, in a number of high-level meetings and communiqués since 1978.

In October 2006, also just after the nuclear test by North Korea, then-Secretary of Defense Rumsfeld met with Defense Minister Yoon to clarify

defense commitments under the Mutual Defense Treaty. The communiqué stated, "The United States reaffirms its firm commitment to the Republic of Korea, including continuation of the extended deterrence offered by the U.S. nuclear umbrella ..." In October 2008, Secretary of Defense Gates met with ROK Defense Minister Lee to again clarify U.S. defense commitments. The communiqué stated: "Secretary Gates assured Minister Lee of firm U.S. commitment and immediate support toward the ROK, including continuation of the extended deterrence offered by the U.S. nuclear umbrella, consistent with the ROK-U.S. Mutual Defense Treaty."

South Korean security concerns

South Korea's security concerns are also North Korea and China, but their perspective is different from Japan's. Most South Koreans do not perceive North Korean nuclear weapons as a threat, accepting many U.S. claims that the 2006 nuclear test was largely a failure and that North Korea lacks the technology to mount a nuclear warhead on a ballistic missile. These views allow South Korea to avoid the cost of having to respond to the North Korean nuclear weapon threat. Of greater concern to most South Koreans is the potential for the North's collapse, not only because of the economic and security burdens it would impose on the South, but also because China might intervene.

South Korea also views China's military buildup with some apprehension. However, ROK officials believe that the U.S. nuclear deterrent is much more capable than China's and that the U.S. is committed to continual upkeep of its nuclear capabilities so that China will never catch up. Similarly, most officials believe that the U.S. is prepared for electronic warfare or anti-satellite weapons use by China. South Korea would like to have a stronger expression of the U.S. extended deterrent, perhaps including more military exercises.²

The South Korea Government views the U.S. nuclear deterrent as vital to preventing Japan from going nuclear. It believes any steps to reassure Japan of the umbrella should be taken but with consideration as to the impact of those steps on China. Any further reductions in the U.S. stockpile, in the view of South Korea, should be taken only if the nuclear deterrent the U.S. extends to its allies can be fully maintained.

Although more than 70% of South Koreans³ believe that the U.S. is the most beneficial security partner for the foreseeable future, there is a growing sense of insecurity vis-à-vis the U.S.; many South Koreans, particularly in the military and diplomatic spheres, fear that the U.S. commitment is waning. Concerns have intensified because of the planned 2012 dissolution of the U.S./ROK Combined Forces Command and South Korea's assumption of command of their forces and operations.

South Korean requirements

South Korea has not yet expressed interest, as Japan has, in having more detailed dialog with the U.S. on the extended deterrent. However, South Korea is very interested in more explicit statements that the U.S. will defend South Korea against any attack, including attacks with all forms of WMD. Specifically, South Korea advocates military exercises in addition to high-level reaffirmation of the nuclear umbrella.

South Korea perceives that one of the most dangerous threats to the effectiveness of the U.S. nuclear deterrent are China's anti-satellite capabilities. South Korea attaches great importance to the U.S. being able to withstand such attacks and to being able to neutralize others' electronic communications.

Nuclear arms control is also important to South Korea, but it believes that any further U.S. reductions must be made only if the U.S. is able to maintain its complete and effective extended deterrent to its allies.

Defense of Taiwan

The Taiwan Relations Act states that it is the policy of the United States "... 4) to consider any effort to determine the future of Taiwan by other than peaceful means ... a threat to the peace and security of the Western Pacific area and of grave concern to the United States; ... 6) to maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan."

No specific reference is made to the U.S. nuclear deterrent as a means of defending Taiwan. However, the wording of the Act is ambiguous. It is clear, however, that without a credible nuclear posture, the U.S. ability to fulfill its obligations to Taiwan would be inadequate. The U.S. security assurances to Taiwan have been and will continue to be pivotal to restraining its nuclear proliferation.

Requirements for the U.S. Strategic Nuclear Posture

A key requirement for the U.S. strategic nuclear posture is that it must continue to provide convincing assurance to Japan and South Korea. This is essential to insure their security as our friends and allies and to prevent their proliferation.

Although the U.S. has extended the nuclear umbrella over Japan and South Korea, and has pledged to defend Taiwan, the current U.S. nuclear force posture in East Asia may not be properly tailored to provide effective deterrence and assurance of the defense of these countries. One reason is that the type of planning employed in the NATO context, for example, has not been applied in East Asia.

Another reason that the current strategic posture may not be sufficient or capable to meet the needs of the future is force composition, as well as deployment and delivery options. When the current strategic posture was developed, there was little credibility lent to the idea that nuclear weapons would ever be used in a *limited way*—limited both in terms of numbers of weapons (perhaps only one or two) and yield (subkiloton). That has changed; both Russia and China emphasize “useable” nuclear weapons with, for example, low yield and/or enhanced radiation, and with more accurate delivery systems. The present U.S. nuclear force was tailored to bust hardened Soviet silos and our nuclear delivery systems are inaccurate compared to today’s precision conventional systems.

Before we decide on what our strategic nuclear posture should be, we must decide what it should do. We must understand the perspectives and concerns of key allies in the region, as well as the threats we must deter. To do this, we must be clear in our objectives and plan against specific goals and challenges.

The nuclear capabilities required for an effective U.S. strategic posture in the East Asia region for the near- and mid-term should be determined based on our key objectives as well as the challenges likely to be faced. Our key objectives are:

- Maintain peace and security for our friends and allies in Northeast Asia
- Assure that Japan and South Korea don’t proliferate
- Eliminate North Korean nuclear weapons and nuclear weapons capability
- Assure continued preeminence over China
- Protect Taiwan from coercion through use of force

In terms of future challenges, although there may be unforeseen developments, the present indicates that the strategic nuclear posture should be structured so that it can respond to at least four scenarios:

- Increasing Chinese military expansion and modernization,
- Possible expansion of North Korean WMD beyond “a few,”
- North Korean or Chinese use of WMD to politically coerce Japan or South Korea,
- North Korean reunification before the nuclear weapons roll back.

Conclusions

1. As part of the next NPR, the concerns and requirements of Japan and South Korea must be considered. A formal consultation process prior to completion would be helpful. In the absence of formal consulta-

- tions, the U.S. should not make any significant further reductions in its nuclear force posture.
2. The U.S. has not used a clearly defined set of crisis scenarios to plan for evolution of the strategic nuclear posture in Northeast Asia. The U.S. nuclear umbrella's composition and deployment options should be determined based on such scenarios.
 3. Japan particularly, and South Korea to some degree, have a keen interest in understanding U.S. plans for responding to China's strategic modernization. Government-to-government dialogs on this issue would be constructive. Consideration should be given to a structured security forum.
 4. Japan, South Korea, and the U.S. need to develop a common set of principles, in advance of the next NPT review conference, to explain why maintaining a viable nuclear deterrent contributes to nuclear non-proliferation in Northeast Asia.
 5. Discussions with China about controlling "loose nukes" in the DPRK in event of collapse might be useful.

Appendix A: North Korea's WMD Threat

North Korea currently poses significant threat to U.S. interests and allies due to its bellicose nature, burgeoning military capabilities, and propensity to share technology and weaponry with other states and, potentially, terrorists. It violated and then pulled out of the Nuclear Nonproliferation Treaty. For the last decade, the United States and the international community have negotiated with North Korea and reached multiple agreements, yet Pyongyang has repeatedly reneged on its commitments to roll back its nuclear program.

North Korea tested a nuclear device in October 2006. It has continued to amass fissile materials for weapons, despite international pressures and agreements to stop.

North Korea has Scud B and C short-range missiles as well as the Nodong 1, which can reach 1300 km. It has also tested the Taepodong missile, with a range of 2000 km, and the Taepodong 2, with a range of 5000-6000 km.

In addition to its nuclear capabilities, North Korea has had for many years an extensive stockpile of chemical weapons and trains regularly for operating in a chemical environment. It has also reportedly produced biological weapons, including smallpox.

Appendix B: China's Nuclear Weapons Modernization

China is introducing at least three new modern, mobil ICBMs, each fitted with new nuclear warheads. The 8000 km rang DF-31 is deployed, the 14,000 km

range DF-31A is in the process of being deployed, and the 10000 km range SLBM based on the DF-31, called the JL-2, will be deployed within a couple of years. China may also place multiple warheads on its old CSS-4 ICBMs, the only missile prior to the modernization that could strike U.S. mainland.

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1. In a poll conducted in May 2008 in Japan, 95% of respondents lack confidence that North Korea will give up developing nuclear weapons, no matter what it agrees to in the Six-Party Talks.
 2. In this regard, U.S. officials should be mindful that the events of the late 1960s through the 1970s, during which U.S. statements for rapprochement with China and a decreased military presence in Korea resulted in Seoul's decision to initiate its own nuclear weapons program.
 3. Poll taken April/May 2008.
 4. For example, if Russia were to withdraw from the INF Treaty and deploy intermediate-range missiles in the east, it would seriously affect the security concerns of nations in Northeast Asia.

4

Reemphasizing the Continuing Importance of the Nuclear Force

Elbridge Colby

Summary: Necessary maintenance and modernization of the U.S. nuclear arsenal requires abiding political support undergirded by a belief in the arsenal's necessity and legitimacy. These foundations have eroded over the past two decades, in part as an unintended consequence of welcome developments in the political and arms control fields. Yet the arsenal will require sustained attention and support in the coming decades if it is to continue to serve its vital role. The Commission might therefore consider delivering a firm restatement of the continuing value of a modern and sufficient nuclear arsenal for the foreseeable future. Such a restatement, coming from such a highly-regarded yet politically diverse group, would contribute significantly to shoring up the legitimacy of the U.S. nuclear force.

Text: Despite differences among leaders in the nuclear field about the viability and advisability of the long term goal of a world without nuclear weapons, most agree that the U.S. arsenal continues and will for the foreseeable future continue to provide an indispensable element for our security and for that of our allies. And while there is disagreement about the posture and composition of the force, there is broad agreement that it must be structured to be "second to none" in its effectiveness, reliability, and survivability.

In order to field such a force over the coming decades, the United States will need to modernize key elements of the arsenal, including its warheads, delivery systems, and infrastructure. This significant and long-term program will require sustained political, financial, intellectual, and diplomatic support.

Unfortunately, this is currently lacking. A nuclear peace dividend in the wake of the end of the Cold War, the vastly decreased visibility of nuclear weapons in American security, and traditional discomfort with and outright

opposition to nuclear weapons as such have combined to erode support for maintaining and upgrading the arsenal. Nuclear weapons have come to be “taken for granted,” their valid perils emphasized while their deterring and stabilizing qualities lost sight of, especially to a generation not familiar with the intense and intricate nuclear issues of the Cold War. Most Americans, especially those too young to remember the Fulda Gap, do not realize the central role nuclear weapons played in allowing the United States and its allies to deter aggression at reasonable cost despite significant Warsaw Pact advantages in the conventional military balance. Reared on the RMA-driven wars of the 1990s and 2000s, many Americans see overwhelming conventional military dominance to be the natural state of things. The probability that we and our allies will face formidable challengers—either through symmetric or asymmetric means—that might require our again relying more on nuclear weapons appears a remote prospect. Yet even conservative forecasts of the coming century suggest that we would be extremely ill-advised to assume our current military dominance will persist unchallenged. A strong nuclear posture will provide an unshakable backstop—and perhaps more—against the challenges, both known and unknown, we will face.

Yet U.S. nuclear forces and infrastructure require urgent attention if we are to be able to field a nuclear deterrent prepared for such eventualities over the coming decades. Even medium-term preservation of the arsenal at its current level of reliability will require significant investment. For instance, whether or not one thinks the Reliable Replacement Warhead is the best answer to warhead aging issues, some coherent and sustained approach is needed. But such an approach will not be possible without an understanding by the American people and their representatives of the importance of our nuclear deterrent for the foreseeable future.

The Commission is uniquely suited to addressing this need. Composed of highly-regarded and experienced figures from across the political spectrum, the Commission has the political and intellectual legitimacy to provide a measured but strong restatement of the enduring centrality of a modern, reliable, and survivable nuclear force for our own security, for that of our allies, and, indeed, for the world as a whole (due principally to the U.S. nuclear force’s stabilizing effects and its dampening of proliferation among allies and other “free-riding” beneficiaries).

A reaffirmation of the importance of the U.S. nuclear force would not only encourage congressional and public support for the proper maintenance and updating of warheads, delivery systems, and infrastructure. It would also play an important conceptual role in other respects, chiefly by rebalancing discussions of nuclear weapons to encompass their oft-neglected benefits. For instance, a firm statement of the importance of modern U.S. nuclear weapons to our alliance commitments could help recalibrate proliferation debates to

emphasize accurately the role of the U.S. arsenal in dampening, rather than merely exacerbating, proliferation. More broadly, it could help underline the indispensable role of nuclear weapons in preventing major interstate wars among nuclear or nuclear-related powers, a remarkable phenomenon of the post-1945 Nuclear Era. Such a restatement would help to keep debate honest and accurate as we and our allies debate future military requirements, alliance commitments, burden-sharing, and related issues.

Nor need this restatement be unduly titled towards praising nuclear arms. It might, for example, be linked to calls for continued efforts in the arms control arena and for earnest efforts to handle problems of safety and security, especially among new nuclear powers. And it would not need to address the issue of whether abolition is at some point possible or desirable, but could focus on the role of nuclear arms in the long-term but foreseeable future.

Broadly, the United States in the last two decades has postponed coming to terms with the long-term role of nuclear weapons in its security and in its commitments abroad. The Commission would provide a great service by establishing an orienting point from which discussion of these issues could reasonably and honestly proceed.

5

Little Prospect for a New National Consensus on the Utility of U.S. Nuclear Weapons

Clark Murdock

Summary

This paper describes the different strains of thought concerning the role of U.S. weapons in U.S. security policy, and points out that the fundamental differences make it difficult for the Commission to take advantage of a policy consensus to make specific posture recommendations.

Many, including the U.S. Congress and the Defense Science Board, have called for a national debate on the role of nuclear weapons in U.S. national security and the forging of a new national consensus that would provide a compelling rationale for U.S. nuclear strategy and policy. While the Presidential candidates have devoted relatively little attention to this issue, what they have said is notable for how much they seem to agree with each other:

- Senator Barack Obama (7/16/2008): “It’s time to send a clear message to the world: America seeks a world with no nuclear weapons. As long as nuclear weapons exist, we’ll retain a strong deterrent. But we’ll make the goal of eliminating all nuclear weapons a central element in our nuclear policy. We’ll negotiate with Russia to achieve deep reductions in both our nuclear arsenals and we’ll work with other nuclear powers to reduce global stockpiles dramatically. We’ll seek a verifiable global ban on the production of fissile material for weapons. And we’ll work with the Senate to ratify the Comprehensive Test Ban Treaty and then seek its earliest possible entry into force.”

- Senator John McCain (5/27/2008): “A quarter of a century ago, President Ronald Reagan declared, ‘our dream is to see the day when nuclear weapons will be banished from the face of the Earth.’ That is my dream, too. It is a distant and difficult goal. And we must proceed toward it prudently and pragmatically, and with a focused concern for our security and the security of allies who depend on us. But the Cold War ended almost twenty years ago, and the time has come to take further measures to reduce dramatically the number of nuclear weapons in the world’s arsenals.”

Both candidates endorse the vision of a nuclear-free world and support deep reductions in global nuclear stockpiles, but believe that the U.S. needs a strong nuclear deterrent as long as other nuclear powers exist. Agreement at this broad policy level, however, does not translate easily into specific policy decisions on how aggressively to pursue arms control (e.g., Senator Obama endorses CTBT ratification while Senator McCain says he’ll look at the issue again) or U.S. nuclear modernization (e.g., Senator Obama says he’ll support no new U.S. weapons and Senator McCain opposes RNEP but will support modernization as necessary). Why is this the case?

On the fundamental issue of how important U.S. nuclear weapons are to U.S. security, there is no broad-based consensus. Instead, those within the policy community that follow these issues closely seem to fall into one of four “camps” on the saliency of U.S. nuclear weapons, which tend to lead adherents in each camp to take differing positions on key nuclear issues.

- High Saliency—Adherents of this camp believe that nuclear weapons retain a Cold War-like importance, and that deterrence functions much as it did during that era. For these strict constructionists, new nuclear capabilities (e.g., low yield weapons, earth penetrators, etc) are needed to deter new 21st century adversaries. In addition, this camp’s adherents are dismissive of those concerned that U.S. nuclear modernization undercuts U.S. efforts to prevent further nuclear proliferation.
- Moderate Saliency—This camp believes that U.S. nuclear weapons still play a significant niche role, and that an effective nuclear deterrent requires a safe, secure and reliable stockpile (but not new capabilities). This camp recognizes that U.S. nuclear modernization may affect U.S. standing in international forums, but are willing to pay that price if necessary for a healthy stockpile and infrastructure.
- Low Saliency—This camp acknowledges that U.S. nuclear weapons make residual contributions to U.S. security (largely limited to deterring direct nuclear attacks against the U.S. and its allies) as long as there are other nuclear-armed states. Adherents of this camp would support limited refurbishment of the U.S. stockpile, but not extensive

modernization, because it might reduce domestic and international support for nuclear arms control and non-proliferation policies.

- **Negative Salience**—For this camp, the very existence of nuclear weapons constitutes a threat to humanity and the emphasis should be on the complete elimination of nuclear weapons, not on deterring the use of nuclear weapons or pragmatic steps to reduce the threat from them. These “nuclear abolitionists” are willing to support deep unilateral reductions in the U.S. nuclear arsenal and oppose any nuclear modernization as wrong-headed (because it legitimizes nuclear weapons) and wasteful (since their goal is to eliminate them).

Although the four-camp construct risks pigeon-holing policy advocates (e.g., if she supports X, she must be in the Moderate Salience camp), it does explain why a policy community deeply divided on how salient U.S. nuclear weapons are to U.S. security is unlikely to reach a new consensus on the role of U.S. nuclear weapons. This suggests that the next Administration should focus more on “deeds” and less on “words,” because it is probably easier to build support for a series of concrete actions than for the all-encompassing vision that might animate those actions. Of course, a broad-based consensus behind a compelling rationale for the utility of U.S. nuclear weapons would be desirable, but the nuclear agenda, which includes both nuclear arms control and modernization, is too pressing to be held hostage by the inevitable debates in a deeply-divided policy community.

6

Sizing the U.S. Nuclear Force Relative to Others

Franklin C. Miller

The Bush Administration elected in 2001-2002 to abandon sizing the deployed U.S. strategic nuclear force using a target based metric and decided instead to employ a “capabilities based approach.” (This distinction was made somewhat academic by the fact that the force levels under consideration permitted adequate coverage of all potential targets that had been identified by DoD.) A key element of this approach involved the ramifications of international perceptions of the size of U.S. warhead levels compared to those of other nuclear powers and of potential nuclear powers. It should go without saying that the minimal force levels of rogue states or of potential nuclear powers were so small as to not enter into any serious calculations. The Administration believed, however, that the United States could not possess a smaller deployed strategic force than any other nation, which meant in practice that parity (more or less) with Russia was required. With respect to China, the Administration believed that U.S. deployed warhead levels should be sufficiently high that China could not contemplate achieving parity in deployed strategic nuclear warheads with the United States without undertaking a major and visible build-up, the extent of which would permit the United States to decide whether it needed to increase its own forces in order to frustrate Chinese ambitions.

Some eight years later, the questions remain as to whether allied, Russian, and Chinese behavior will be affected if U.S. deployed strategic warhead levels were to drop significantly below those deployed by Moscow and Beijing. Arguably, three or four years ago, U.S. allies would not have felt that the U.S. nuclear umbrella had contracted or become less credible if an imbalance was allowed to develop between the U.S. and Russia. All of that predated the

highly provocative Russian nuclear saber rattling that has occurred during the second Bush term: resuming penetrations of Western airspace by strategic bombers, and explicit threats to target or attack the Czech Republic, Poland, and Ukraine. These, plus the Russian attack on Georgia in August 2008, have created new fears in NATO, particularly and understandably among the Alliance's new members that U.S. nuclear weapons may well be necessary again to deter Russia. Consequently, any U.S. reductions, either unilateral or negotiated, which resulted in a significant imbalance in U.S. and Russian deployed strategic nuclear warheads, are likely to further unsettle the NATO allies. This would be true even if the U.S. were to state that its deployed nuclear forces were more than capable of covering all of the Russian targets of high value to Moscow.

No U.S. ally is more sensitive to the U.S.-Chinese nuclear relationship than Japan. Even today, when the U.S. maintains a significant numerical superiority over all Chinese deployed nuclear weapons, let alone a massive superiority over Chinese strategic weapons, some highly influential Japanese official evince uneasiness about whether the U.S. would be able to deter effectively (and respond if necessary) to Chinese nuclear blackmail against or strikes on Japan. By extension, any dramatic change in the U.S.-Chinese nuclear "balance" could produce significant reverberations in the relationship between Washington and Tokyo, and indeed in Tokyo's thinking about an independent deterrent.

While the attitude of U.S. allies is fairly easy to predict, it is difficult in the extreme to discern whether Moscow or Beijing would become more emboldened in challenging the U.S. or our allies militarily if the existing nuclear relationships were to be altered in any major way. There appears to be no basis in intelligence to support the view that the current Russian or Chinese leaderships embrace the nuclear warfighting/nuclear superiority policies formerly held by the Soviet leadership in the 1970s and 1980s. Indeed the most worrisome activities by both governments are to be found in the areas of cyber operations, special nuclear effects such as EMP, and, in the case of Russia, using oil and gas as a weapon of coercion. It is likely that we will be unable to answer this question in the near future.

7

The U.S. Strategic Posture and China

Bradley H. Roberts

Key Issue

How should the U.S. posture its strategic forces vis-à-vis China?

Background

Since the end of the Cold War (if not longer), China has been essentially a footnote in U.S. strategic thinking. In the Nuclear Posture Reviews of 1994 and 2001, the focus was on how to create the posture needed to deny rogue states effective deterrence of the U.S. without destabilizing the political relationship with Russia. The U.S. has avoided choosing what offense/defense posture best serves its interests vis-à-vis China and instead has hedged against future competition. The hedging strategy consists so far of not publicly accepting or rejecting a specific strategic posture vis-à-vis China while tolerating some strategic vulnerability to a Chinese first strike.

- The 2001 NPR reflected also the view that dissuasion of a “sprint to parity” by China requires that the U.S. maintain a significant numerical advantage in operationally deployed nuclear weapons.

This “benign neglect” will prove ever less viable as a posture as China modernizes and diversifies its strategic strike posture. China’s leaders assert that this modernization effort aims at ensuring the viability of China’s deterrent in the face of developments in the U.S. strategic posture. Improving U.S. missile defenses impose a burden on China’s forces to be able to penetrate. Improving U.S. non-nuclear strike and ISR impose a burden on China’s forces

to be able to survive a U.S. first strike, either nuclear or non-nuclear. In some respects, proposed improvements to U.S. nuclear forces are the least troubling aspects of the U.S. strategic posture from a Chinese perspective, as they do not add significantly to existing U.S. advantages (although China's nuclear experts see as worrisome U.S. efforts to improve low-yield and high-precision weapons, on the argument that this lowers the nuclear threshold). The deployment of missile defense penetration aids, multiple warheads atop existing delivery systems, new land-based mobile systems, and a revitalized sea-based leg will require that the U.S. address in a focused way the question of what it wants in the U.S.-China strategic military relationship.

The validity of China's assertions is a matter of intense debate. Is China merely seeking to maintain the status quo ante or is its modernization program aimed at gaining new advantages? China's lack of transparency inflames this problem. This debate is not so far informed by any criteria by which the U.S. would distinguish one from the other.

This key policy issue cannot be treated in isolation from other important U.S. interests.

- U.S.-Russia: Russia is eager to avoid new forms of nuclear competition with China and anticipates that more intense U.S.-China strategic military competition would create new requirements for Russian capabilities (especially INF to counter-balance Chinese theater systems). Some Russian hardliners believe that the U.S. is whipping up a China threat in order to create the strategic posture vis-à-vis Russia that the U.S. "really seeks."
- U.S.-Japan: Japan exhibits increasing concern about developments in China's strategic military posture and about the potential decoupling of the U.S. from Japan in a future confrontation over Taiwan. But it is eager also to avoid being drawn into an arms race.

Key issues

1. How should the U.S. respond to China's efforts to sustain a viable deterrent?
 - a. Should it simply acquiesce to these developments and offer assurances that it is not the U.S. intention to deny China a viable deterrent?
 - b. Or should it compete with those developments to prevent China from (re)gaining confidence in its deterrent?
2. How should the U.S. posture missile defense toward China?
 - a. On the one hand, various Bush administration officials have offered assurances that "missile defense is not pointed at China."
 - b. On the other hand, MDA has confirmed that it is developing capabilities against China because "of course it is the prudent thing to

do.” The actual possibility of fielding a defense effective against a PRC 1st strike is hotly contested; the possibility of fielding a defense effective against a PRC 2nd strike is not contested.

3. How should the U.S. posture improving ISR capabilities?
 - a. Close in and continuous
 - b. Remote but rapidly deployable
4. How should the U.S. nuclear force be shaped by the desire to deter, potentially defeat, but also dissuade and even assure China?
 - a. Is a “sprint to parity” plausible?
 - b. Are new strike capabilities necessary because of China-specific requirements?
5. How should Washington engage with Tokyo and Moscow (and Delhi) as it pursues its strategic relationship with Beijing?
6. How should China be discussed in any report?
 - a. China’s officials keenly objected to be characterized as a nuclear threat and an object of U.S. nuclear war planning in the 2001 NPR. They also argued that the NPR messages seemed grossly at odds with the assurances coming from elsewhere in the administration.

8

Relationship of Offensive and Defensive Forces

Barry Blechman

An essential question in determining the U.S. nuclear posture is the relative priority to accord to offensive and defensive forces in seeking to deter nuclear attacks on this nation, its forces overseas, and its allies.

During the Cold War, of course, except for brief flirtations with defenses, the U.S. relied strictly on offensive capabilities, believing that if it maintained the capability to ride out any attack and inflict unacceptable levels of damage on the attacker in retaliation, the adversary would be deterred. As a result, except for bomber defenses in the 1950s and relatively small expenditures for civil defenses and missile defense R&D, the U.S. allocated the vast preponderance of the resources it devoted to strategic forces to offensive capabilities. Indeed, the U.S. ensured that the Soviet Union pursued a similar posture by negotiating the ABM Treaty in 1972 that prohibited all but two sites of 100 interceptors to each for “national missile defenses,” and placed additional limits on ABM radars and R&D.

Given that deterrence is inherently uncertain, depending on the credibility of the threat of mutual suicide and many other psychological and situational factors, including effective communications with the adversary, this offensive posture is not necessarily preferred. If it were possible to have a perfect defense, it would clearly be better than relying on offensive capabilities for deterrence. Dependence on offensive forces during the Cold War was necessitated by two factors: (i) during this period, effective missile defenses seemed technologically impossible, and (ii) the large size of the Soviet Union’s offensive forces magnified the problem enormously.

In the 21st century, with the emergence of new but smaller nuclear threats to the United States, as well as advances in the technologies of defenses,

the Bush Administration determined that the U.S. should change its mix of offensive and defensive forces. While conceding that the U.S. strategic relationship with Russia would have to remain dependent on offensive, deterrent capabilities, the Administration exercised the U.S. right to withdraw from the ABM Treaty and began to develop and deploy defenses to protect the nation against smaller threats. The land-based system now deployed in Alaska and California, combined with space-based and sea-based components, is intended to defend against any North Korean missile threat, while the third site now planned for Eastern Europe is intended to protect the U.S. and its allies against any Iranian missile threat. This change in policy and posture has markedly altered the allocation of resources between offenses and defenses within the DoD strategic budget.

If one accepts that the U.S. should continue to depend on defenses for smaller threats, but on offenses to deter the larger Russian threat, a key question for the Commission is how to configure the U.S. strategic posture with respect to the potential threat from China—a threat which is now small but expected to grow markedly in the future. The Chinese already believe that when U.S. leaders say Pyongyang is the target of the missile defense system they really mean Beijing, but the currently planned system would likely be ineffective against the long-range missile forces China will deploy over the next ten years. Some argue, however, that U.S. capabilities could be beefed up and, combined with preemptive attacks with conventional weapons against China's strategic forces, provide an effective defense of the United States against prospective Chinese capabilities. The pros and cons of the argument are provided below.

Depend on Offenses Only to Deter China

On the positive side, like the Soviet Union, China has a hierarchical leadership that recognizes the realities of military power and typically acts rationally in the country's self-interest. Recognizing that any nuclear attack on the United States would result in vast damage to China in retaliation, Chinese leaders, like Soviet leaders during the Cold War, will likely not only be deterred from attacking but will act to avoid the emergence of crises or conflicts in which the risk of deterrence failing would rise. Moreover, as China continues to develop economically and technologically, it will be able to improve its offensive forces quantitatively and qualitatively to the point where they could overwhelm any plausible expansion of U.S. defensive capabilities.

On the negative side, the Taiwan issue has the potential to precipitate a crisis in U.S.-China relations at any time through no fault of leaders in either Washington or Beijing. In such a situation, if China has the capability to strike the U.S. with nuclear-armed missiles, they may believe that by threat-

ening such an attack, they could deter the U.S. from intervening to protect Taiwan from a Chinese attack and occupation. Such statements were made by at least one Chinese military leader during the 1996 Taiwan crisis. If that belief proves correct, Taiwan would be lost and U.S. security guarantees and alliances around the world would be jeopardized. If it proves incorrect, the two sides might end up exchanging nuclear strikes with devastating consequences for both. Moreover, Japan's restraint in developing nuclear arms depends on the credibility of U.S. security guarantees. Japanese leaders are likely to find such guarantees more credible if the U.S. is able to defend itself from a Chinese attack and not depend solely on deterrence.

Depend on Defenses to Deter China

On the positive side, deterrence through "denial"—a combination of preemptive conventional capabilities and effective defenses—may be more stable than deterrence through offensive capabilities alone, because of the many psychological and situational factors that affect the latter. Moreover, although China is modernizing its long-range nuclear forces, it is starting from such a small base that it may be feasible in both technological and financial terms for the U.S. to maintain an effective capability to defend against any conceivable improvements for many years. Indeed, knowledge of the U.S. ability to maintain its defensive edge might "dissuade" China from attempting to compete and cause it to curtail its nuclear modernization rather than waste resources.

On the negative side, if China did choose to compete, it seems inevitable that eventually its offensive capabilities would overwhelm any conceivable improvements in U.S. defenses, or at least change the cost calculation so that it would be more expensive for the U.S. to maintain a defensive edge than it would be for China to overwhelm it. Another possibility would be that China would find other ways to hold valued U.S. assets at risk, such as cyber or space attacks, diverting the competition to pathways in which the U.S. might have problems competing effectively. More importantly, the offense/defense arms competition envisioned by this posture would likely complicate political relations between the two countries. The overall U.S. goal of building stable, cooperative, and mutually beneficial relations with a China rapidly emerging as a global economic power might be better served by a posture in which both sides retained survivable retaliatory capabilities, rather than engaging in an offense/defense arms race.

9

Nuclear Deterrence and War Plans

Dennis C. Blair

Background

The United States maintains war plans for potential conflict with several nuclear nations. There is the danger of escalation to the use of nuclear weapons. These nations currently include North Korea and China, and could in the near future include Iran. This paper examines the requirements for nuclear weapons to maintain deterrence during a war with a nuclear adversary.

Should any of these wars occur, the objective of the United States would be to win with conventional forces and deter the adversary from using its nuclear weapons. Although regional commands and Strategic Command have done basic planning for the use of nuclear weapons in regional conflicts, the circumstances of a nuclear confrontation during a regional conflict would be unique. The decision to use nuclear weapons—how many and against what targets—would be made by the President. The factors the President would consider would be:

- The type and effect of the adversary's strike—against U.S. forces? Against an ally? Against U.S. territory and Americans?
- Likely and possible escalatory responses by the adversary
- Effect of the use of weapons on the course of the war-enabling U.S. victory in the field or stopping the war
- The effect on allied and adversaries and the global precedent of using nuclear weapons

Conventional war context

For the immediate future, the United States has the capacity to achieve its war aims in conflict with North Korea, China and Iran without the use of

nuclear weapons. The situation is entirely changed from the Cold War when the United States and its allies were generally inferior at the level of conventional conflict. The most likely circumstances of nuclear exchanges in these wars arise from American military superiority at the conventional level of war. With the United States on the way to victory, the governments of North Korea, China or Iran might threaten or actually use nuclear weapons to attempt to stop the war short of complete defeat.

Should one of these three countries threaten to use nuclear weapons unless the United States halted its forces moving deep into adversary territory (North Korea and Iran), or withdraw its support for Taiwan (China), then the U.S. president would have to decide whether to continue non-nuclear combat operations or to negotiate with the adversary.

His decision under these circumstances would be strongly affected by the capability and the likelihood of the adversary to carry out the threat.

Capability

In the cases of North Korea and Iran, U.S. missile defenses will have the capability to intercept a portion of ICBMs launched at the United States, although effectiveness will not be perfect; each of these adversaries could deliver weapons against the U.S. in unconventional ways—by clandestine ship, for example. A U.S. president could have confidence that neither of these countries could devastate the United States, but would have to consider the likelihood of either country being able to detonate several weapons on U.S. allies, deployed forces or even homeland. In the case of China, U.S. missile defenses could intercept only a small portion of an ICBM strike, so China will have the capability to deliver dozens of large nuclear warheads on the United States.

Likelihood

Predicting the mindset of adversary leadership is difficult and conclusions have to be treated with care. However some logical inferences can be made. The likelihood of a country actually carrying out a threat to conduct a nuclear attack on the United States if it is losing at the conventional level of warfare depends on its estimate of the American reaction to its threat.

North Korean and Iranian leaders believe that the United States opposes the very existence of their regimes, and they believe an American president would like to end them by using nuclear weapons, if he had the chance to do so. On the other hand, most authoritarian leaders believe that they are tougher than the United States, more able to endure losses and still survive. They understand that the American nuclear weapons capability is vastly superior to their small stockpiles, only a few of which might be successfully delivered. It is possible that they, like Castro during the Cuban missile crisis of 1962, are so ideologically convinced of the justice of their cause and the in-

evitability of deadly conflict with the United States that they are ready to accept the devastation of an American nuclear strike if they can cause damage with their own weapons. In this case, the American president has only the choices of negotiating, hoping that more rational, less ideological subordinate North Korean or Iranian commanders will not carry out suicidal orders, or riding out whatever strike North Korea or Iran can make that defenses do not intercept and retaliating in a way that reinforces victory at the conventional level. If these leaders are most strongly motivated by regime and personal survival, however, their only hope is to make the American president believe they are more determined to use their weapons than he is to use his, and that they are more willing to risk nuclear devastation to their own countries than he is willing to risk a few weapons detonating on the United States. In this case it is likely that if the United States were to continue its conventional operations after a nuclear threat, then a North Korean or Iranian leader would either give in, choosing suicide or attempt escape to a friendly country, or else would launch a nuclear attack that would be calculated to show their own resolve while not being so damaging to the United States as to justify an overwhelming retaliatory strike. If such a limited strike were launched, then the American president would be faced with the same set of considerations, but now the nuclear threshold would have been crossed.

In the case of China, most Chinese leaders believe that their national interests at stake in a confrontation over Taiwan are more vital than are American national interests. If they threaten to use nuclear weapons against the United States to prevent Chinese defeat, they believe that the United States ought to negotiate an end to the conflict. It is most probable that the United States would enter negotiations in some form with China under these circumstances. If the negotiations were not offering China terms that were acceptable, and if internal Chinese leadership dynamics impelled a hard line, and Chinese leaders actually decided to launch nuclear weapons, it is most likely that they would target American forces at sea or overseas bases such as Guam. The Chinese objective would be to end the conflict. They would have to believe that the American president would most likely retaliate with a commensurate nuclear attack in order not to be disadvantaged in negotiations or in his political standing at home. Although Mao believed that China could survive a nuclear war with either the Soviet Union or the United States, current and future Chinese leadership knows that their leadership would not survive a large-scale nuclear attack by the United States. They would be counting on an acceptable negotiated settlement following an exchange of limited nuclear strikes.

American considerations: Allies, adversaries and precedents

In addition to the considerations specific to the conflict and confrontation in which the United States was involved, there would be an additional set of

considerations that would be important to an American president. These include the effect on allies of either using or refraining from use of nuclear weapons, the effect on other potential adversaries, and the concerns about history's judgment.

"History's judgment" seems theoretical, but the accounts of the Cuban missile crisis are clear that neither President Kennedy nor Premier Khrushchev wanted to be remembered as the world leader who had started a nuclear exchange that devastated his country and another. It is likely that the pressure not to use nuclear weapons would be very strong in the early stages of a nuclear confrontation, before weapons had been used, but when their use had been threatened. An American president would be seeking every possible way to avoid pushing the confrontation to a nuclear exchange. He would be restrained, however, by the consequences of stopping short of achieving war objectives in a conventional conflict that had cost many American lives.

Once an adversary had used a nuclear weapon against American forces, allies or U.S. territory, however, the pressures on a President would shift dramatically. Depending on the severity of losses, there would be strong domestic pressure to avenge American losses, and not to allow an adversary to achieve its objectives against the United States by the use of a nuclear weapon and the danger of escalation. Such an action, it would be argued, would encourage every other regime that feared the United States to develop nuclear weapons.

Reassurance of allies would also be an important factor in a president's decisions in responding to a nuclear threat and to nuclear use. In case of a nuclear threat without use, allies would most probably be urging restraint on a U.S. president, even to the point of a negotiated settlement that did not favor the United States, but ended the fighting. Once a nuclear weapon had been used, however, especially if it had been used against an ally or friend (for example, Iranian use against the American air facilities in Qatar, or North Korean use against the U.S. air base at Osan, or Chinese use against the U.S. air base at Kadena) then there would be heavy pressure on a U.S. president to retaliate to demonstrate that the United States nuclear assurances to allies were credible.

Nuclear force posture to deter North Korea and Iran

Almost any American nuclear force posture will have enough capability for the United States to pose a threat of regime-ending damage to North Korea or Iran. In the case of a war with either country, the United States nuclear position would be improved significantly with a higher confidence missile defense system, and with a high-confidence ability to defeat clandestine attempts to smuggle nuclear weapons into the United States by unconven-

tional means such as shipping. Without such improvements, American success in a nuclear confrontation arising from a war with either country will depend on whether the adversary regime believes that the U.S. President will continue to pursue a victory with conventional forces even though he risks a small nuclear attack on the United States, followed by a devastating American nuclear attack on the adversary homeland.

In retaliating against a limited North Korean, Iranian or Chinese nuclear attack, an American president would be looking for nuclear options that would destroy substantial portions of the adversary's military capability, both nuclear and conventional, in a way that would minimize collateral damage. Current strategic nuclear weapons—SLBMs, ICBMs and ALCMs—have the precision and can be adapted to provide the lower yields to strike these targets. However, specialized new weapons such as the RNEP are more suited to these missions, and would allow the construction of more tailored strike packages, especially against command centers and storage areas that adversaries are digging deep underground to hide and protect.

Nuclear force posture to deter China

Since an effective missile defense against China's modernizing ICBM force is unlikely in the future, a nuclear confrontation with China will be decided by escalation considerations. There will be actual or virtual negotiations without the use of nuclear weapons, or else negotiation while escalating nuclear attacks are taking place.

There have been several careful government-sponsored studies of escalation sequences between the United States and China in the context of a Taiwan Strait conventional conflict. While the details are classified, the overall conclusion is that there is no escalation strategy for either country that gives a decisive advantage at any level of escalation. No nuclear attack sequence by one country places the other country in a position in which its only realistic choice is to concede defeat. The attacked country always has the potential to retaliate with a devastating attack. These results are reached with the expenditure of only a small portion of America's current inventory of strategic nuclear weapons. The conclusion is that both the United States and China have extremely strong incentives not to use nuclear weapons, and an initial nuclear exchange would most likely be followed by negotiations, as neither side has an incentive to escalate.

Conclusion

The only actions that the United States can take to improve its nuclear posture in the case of wars with nuclear adversaries are further improvements in its missile defense systems, and capabilities against unconventional delivery of

nuclear weapons by North Korea and Iran. The development of earth-penetrating, low fallout weapons such as RNEP would provide improved options for retaliatory strikes against North Korea and Iran. However, overall, the current offensive nuclear capabilities of the United States, even if reduced substantially, will be as capable as today's posture for deterring nuclear escalation in case of a conventional war with North Korea, Iran or China.

Elimination of nuclear weapons?

It is instructive to think through these same situations if nuclear weapons were eliminated.

It would be to the advantage of the United States if nuclear weapons could be verifiably eliminated, that is, if China, North Korea and Iran did not have them, and neither did the United States. In this case, American non-nuclear military superiority would be decisive in achieving its war objectives.

However, if the United States eliminated its nuclear weapons, and China, North Korea or Iran maintained a secret supply of a dozen warheads, it would be disastrous for the United States. As the United States was prevailing with non-nuclear weapons, the adversary would demand an end to hostilities and reveal its nuclear weapons capability. At that point the United States' only logical decision would be to enter into peace negotiations. Although the United States would have the capability ultimately to invade and conquer North Korea or Iran despite the losses caused by nuclear attacks, the cost would be in the tens of thousands of troops and their equipment, and in the hundreds of thousands of U.S. citizens or the citizens of our allies. In the case of China, there would be no logical alternative except to negotiate with China, as the United States could not invade and conquer China, and China could use a small number of nuclear weapons to destroy American forward bases and make it impossible for the United States to support Taiwan.

10

Sustaining the Nuclear Force

Thomas Scheber

Summary

This paper summarizes the status of the current nuclear force and identifies when the different types of systems will require further modernization or replacement.

During the Cold War, the U.S. maintained a triad of strategic nuclear forces as well as a diverse collection of nonstrategic nuclear forces (NSNF). Thus far in the post-Cold War environment, the U.S. has modified its nuclear force exclusively by eliminating weapons deemed as excess. The U.S. has not developed any nuclear weapons specifically for the contemporary environment. For some weapons and delivery systems, sustainment and life extension programs have been initiated to sustain capabilities beyond the planned service life of each.

This paper summarizes a briefing on nuclear force sustainment by OSD Program Analysis and Evaluation (PA&E) and presented to a 27 August 2008 meeting of expert working groups of the Commission on the Strategic Force Posture. The paper lists the current status of, and sustainment issues for, existing U.S. nuclear forces (both strategic and nonstrategic) and supporting command and control.

Overall, nuclear forces appear to be supported adequately for the near-term. However, lack of a mid- to long-term investment strategy is evident.

Total DoD funding for the Strategic Nuclear Triad

- Currently the annual DoD budget allocates about \$10B (in FY2007 dollars), for the strategic nuclear triad; this accounts for about 2% of the total DoD budget. For comparison, annual funding for strategic

forces during 1962–1993 averaged about \$40B (in FY2007 dollars) and accounted for 10% of the DoD budget.

- Since 1994, strategic force funding has been relatively flat.

Minuteman III ICBMs

- Currently 450 Minuteman III ICBMs are located at 3 bases.
 - The 2006 QDR reported the decision to reduce the ICBM force from 500 to 450.
- There are several programs in progress to replace and upgrade aging components (e.g., for guidance and propulsion).
- Planned end of service life: 2020.
 - Congress has directed, and Air Force officials reportedly have committed, to extend service life through 2030.
 - Extending the life of the ICBM force from 2020 to 2030 requires applying MMIII life extension upgrades (e.g., guidance and propulsion replacement programs) to 50 retired missiles and using these missiles for reliability test flights.
- However, no funding is identified in the DoD budget to extend the ICBM force through 2030.

Ohio Class SSBNs

- There are 14 SSBNs in the current inventory; typically 2 are in overhaul and 12 available for deployment.
- The service life of SSBNs was extended and is now listed as 42-44 years.
- The first SSBN replacement will be needed by 2027 to sustain a force of 12 deployable submarines.
 - A Navy analysis of alternatives for follow-on options is in progress.
 - PA&E estimates that Navy funding for a next generation SSBN needs to begin in FY2010 to meet a 2027 deployment date.
- U.S. SSBN development will be able to leverage a U.K. initiative to develop a next-generation SSBN force with an initial deployment needed about 2022.

Trident II (D5) SLBMs

- Each Ohio Class SSBN is capable of carrying 24 D5 missiles. The Navy is procuring enough D5 missiles to support 12 deployable SSBNs.
- Production of the Trident II (D5) missile is still active with a current production rate of 12 missiles per year.

- Additionally, a Trident II life extension program is being funded by the Navy and has, to date, been supported in Congress. The intent is to ensure reliable performance and a sufficient quantity of D5 missiles for the extended service life of the SSBN force.
- The U.K. expressed its intent to buy Trident II (D5) Life Extension missiles for its next-generation SSBN force. U.K. officials also stated that they will keep open the option of participating in the development and possible acquisition of a U.S. next-generation SLBM.

Bombers

- The current inventory of nuclear-capable bombers consists of 76 B-52s and 20 B-2s.
 - B-52s can carry ALCM-B (air-launched nuclear cruise missiles).
 - The Advanced Cruise Missile (ACM) can also be carried on the B-52; however, the ACM is being retired.
 - B-2s are capable of carrying B61 and B83 nuclear gravity bombs. One version of the B61, the mod 11, is an earth-penetrating weapon.
- Recent upgrades to the B-52 and B-2 bomber force have been driven primarily by conventional weapons delivery considerations.
- End of life of current bombers is estimated to be 2035 to 2045.
- The Air Force also maintains a force of 67 B-1s which formerly had a nuclear weapon delivery capability. Following the 2001 Nuclear Posture Review, DoD eliminated the contingency requirement for the Air Force to be able to return the B-1 to a nuclear role.
- The 2006 QDR stated the intent to procure a next generation bomber by 2018.
 - PA&E reports some funding in the DoD budget to begin developing a new bomber. No decision has been made on whether the new bomber will be nuclear capable. Funding for this program was deleted from the DoD budget for 2010.

Air-Launched Cruise Missile (ALCM-B)

- The ALCM-B entered the force in the early 1980s.
- Currently, the Air Force is completing an ALCM-B service life extension program to sustain this missile through 2030.
- No replacement is currently programmed.

NonStrategic Nuclear Forces (NSNF)

Dual-Capable Aircraft with B61 nuclear gravity bombs

- Current dual-capable tactical aircraft are the F-15 and the F-16.

- A nuclear-capable version of the F-35 Joint Strike Fighter is a programmatic option.
- U.S. DCA are deployed to Europe. The B61 nuclear bombs that are deployed to Europe for NATO incorporate advanced security features.

Tomahawk Land Attack Missile-Nuclear (TLAM/N)

- TLAM/N missiles are currently not deployed, but the Navy maintains the capability to deploy these cruise missiles on some attack submarines.
- The Presidential Nuclear Initiative of 1991 pledged to remove all U.S. sea-based tactical nuclear weapons from routine deployment.
 - 1994 Nuclear Posture Review eliminated the redeployment option aboard surface ships but retained the TLAM/N redeployment option for submarines.
- TLAM/N reaches end of service life about 2013; no follow-on weapon is programmed.

Nuclear Command and Control (C2) forces

- 4 Boeing 747 / E-4B National Airborne Operations Center (NAOC) aircraft
 - The plan is to modernize three and retire one aircraft.
 - Service life estimated through about 2020.
 - Air Force analysis of alternatives is underway to examine options for replacement and life extension.
- 16 Boeing 707 / TACAMO aircraft
 - Adequate funding is reported for modernization and sustainment.
 - Estimated end of life is beyond 2025.
- 1 Mobile Consolidated Command Center (MCCC)
 - The only other MCCC was recently retired.

Sustainment issues

- Sustainment appears adequately funded for:
 - The SSBN force: sustainment is planned through 2027+.
 - Nuclear C2 aircraft: sustainment is planned through 2020.
- Uncertainties:
 - ICBMs: There are conflicting views as to whether or not Air Force plans to, and is able to, support the ICBM force through 2030.
 - Bombers: No commitment exists to develop a next generation, nuclear-capable bomber or nuclear weapons for bomber force. DoD estimates the end of service life of existing bombers to be 2035 to 2045.
- NSNF: With the possible exception of a nuclear-capable F-35, there are programs identified to extend the service lives or to modernize NSNF. TLAM/N service life is projected to end about 2013.

11

Sizing and Shaping U.S. Nuclear Forces for the 21st Century

Clark Murdock

Summary

This paper proposes a judgment-based methodology for determining the size and composition of the U.S. nuclear posture.

Preface

From an analytic perspective, determining how many (sizing) of what types (shaping) of nuclear forces the United States needs for a credible deterrent has always been tough. As Ambassador Linton Brooks recently observed:

Strategic [nuclear] forces pose particular challenges for analysis because there is no agreed way to relate force structure to specific military outcomes. The primary national security output of nuclear forces is deterrence, a widely accepted concept that has never been quantified. We know that doubling the number of infantry divisions increases the amount of terrain that can be defended... But we have no idea whether doubling the number of operationally deployed strategic offensive warheads has the slightest effect on deterrence or on any of the other policy goals often cited for nuclear weapons.

It's no surprise that debates over sizing and shaping U.S. nuclear forces become very political very quickly when it's analytically difficult to determine whether nuclear cruise missiles on forward-deployed naval surface ships have more or less reassurance value to the Japanese than fully-loaded Trident submarines "in the box" somewhere in the Pacific Ocean.

The analytic challenges are compounded in the post-Cold War era because, as argued in a companion 2-pager ("Little Prospect for a New National

Consensus on the Utility of U.S. Nuclear Weapons”), there is no broad-based consensus in the policy community on how important U.S. nuclear weapons are to U.S. security in the post-9/11 era. During the Cold War, few disputed that U.S. nuclear weapons were a core component of U.S. national security; today, however, policy advocates are divided about how salient (High, Moderate, Low or Negative) U.S. nuclear weapons are to U.S. security. Washington used to be consumed by debates over how new U.S. nuclear weapons will be deployed (remember basing modes for the Peacekeeper?); today Washington barely pays attention as a small group of Congressional opponents block the replacement of Cold War-era warheads. Sizing and shaping U.S. nuclear forces for the 21st century in this policy and political environment will not, to say the least, be easy.

A [Modest] Proposal

Target coverage requirements for an ever-changing SIOP used to drive decisions about how many and what types of nuclear weapons the United States needed to counter its superpower rival. Today, target coverage is only one of many considerations as the Bush Administration predicated its 2001 Nuclear Posture Review (NPR) on the assumption that, since “Russia is no longer our enemy,” the Russian target base should no longer be used to justify U.S. nuclear force deployments. Moreover, decisions that the United States makes with respect to its own nuclear stockpile and infrastructure must take into account how those decisions (and perceptions of those decisions) affect U.S. efforts to prevent nuclear proliferation and pursue lower global inventories of nuclear weapons (policy goals that have been embraced by both Presidential candidates). In addition to these interactive effects, those charged with sizing and shaping U.S. nuclear forces must factor in domestic political support, namely, can Congressional support for the way forward be sustained over several administrations?

Analyzing how deterrence might work in a range of scenarios is useful and could yield insights into how 21st century adversaries are likely to react to U.S. deterrent threats. But for the reasons cited above, they will not be much help in determining specifically what “deterrent forces” are needed. Moreover, the scenario-based approach does not capture key factors—such as the international perception of U.S. stockpile modernization or the prospects for sustaining domestic support for stockpile modernization—that should influence the next Administration’s decisions with respect to U.S. nuclear forces. Judgment, not analysis, will drive those decisions, in part because of the diverse nature of the factors—“apples and oranges,” from an analytic perspective—that will influence these decisions. Accordingly, this proposed methodological approach is judgment-centric and, hopefully, quite straightforward:

1. Identify the principal factors (no more than five to nine) that a group of senior decision-makers should consider as they decide how to size and shape U.S. nuclear forces for the 21st century.
2. For each factor, provide a 2–3-paragraph analysis of how that factor should affect U.S. nuclear capabilities (the qualitative variables in the nuclear algorithm) and capacities (the quantitative coefficients).
3. Develop a roster of possible nuclear force structures that includes the “as is” posture projected forward and a reasonable number of distinct alternatives to it.
 - a. One design principle—the list of alternative nuclear force postures should include the likely preferred choice of key stakeholders.
4. Ask the group of senior decision-makers (or their surrogates) to:
 - a. Begin with a “first principles” discussion on the factors themselves with particular attention paid to prioritizing among them;
 - b. Then ask them to “tee up” a decision for the President by identifying the principal 3–5 options (and their principal pros and cons) that the President should consider;
 - c. Ask each senior decision-maker (or his surrogate) to state which option (or options) he or she favors and why (in 3 sentences).
 - d. Provide the decision matrix to the President (or whoever “the decider” is) who, after an in-depth discussion with his key advisers, decides the future size and shape of U.S. nuclear forces.

Analysis, in this approach, is high-level and concerned with identifying logical connections and cause-and-effect relationships. It informs the many judgments that have to be made in the hope (which is often not the case) that an informed judgment is a better one.

An Initial Cut at a List of Factors (without analysis but with my judgments in italics)

Key considerations affecting the size of the stockpile

- Need to continue to reduce the total U.S. stockpile (active and reserve) as part of an effort to re-establish U.S. leadership in nuclear arms control/disarmament (prior to 2010 NPT Rev Con) by demonstrating commitment to lower global nuclear inventories (which also reduces the risk of non-state acquisition of nuclear weapons).
 - *Further U.S. stockpile reductions should not be unilateral but achieved first through agreements with Russia on deployed weapons (and verification protocols for the entire stockpile) and then through global negotiations.*
- Size of U.S. nuclear stockpile should be influenced by the size of the stockpiles of the other major nuclear powers, Russia and China.

- *While exact numerical parity with Russia is probably not required, the United States must avoid the perception, particularly by Moscow, that its nuclear forces are inferior to Russia's.*
- *U.S. forces should remain several times larger than those of China's because Sino-American nuclear parity would likely undermine the credibility of U.S. extended deterrence to Japan (making the latter more likely to join the nuclear club).*
 - *On the other hand, U.S. counterforce (both nuclear and conventional) and missile defense capabilities should not be so robust that they undermine Chinese confidence in their second-strike nuclear deterrent capabilities.*
- If current trends (limited refurbishment of U.S. nuclear warheads and gradual erosion of the nuclear infrastructure) continue, further reductions in the total stockpile, which now serves as the primary hedge against potential systemic failures in specific warheads, could jeopardize the continued reliability of U.S. nuclear weapons.
 - *Both for technical and political reasons, further reductions in the stockpile should be linked to modernization (to include replacement of existing warheads) of the stockpile and of the infrastructure.*

Key factors affecting the composition of the nuclear stockpile

- As currently called for in the 2006 QDR, deterrence must be tailored to address 21st century threats and new nuclear capabilities may be more credible than existing ones (which were developed to deter the Soviet Union over two decades ago) in deterring today's adversaries.
 - *While this is certainly true analytically and may be politically true at some point in the future (if relationships between the major nuclear powers worsen), U.S. efforts to acquire new nuclear capabilities are "dead on arrival" in Congress, in part because of likely international blowback they would spark. Despite the fact that the other nuclear powers are modernizing their nuclear forces (and, in some cases, adding new capabilities), U.S. nuclear modernization, if it is to be sustained politically, must not include new nuclear capabilities.*
- To ensure the continued reliability of U.S. nuclear weapons and to improve their surety (defined as safety, security, and use control), as well as to permit further reduction in the overall size of the stockpile, U.S. nuclear weapons must be refurbished (via incremental and robust life-extension programs or LEPs) and modernized (via replacement) as necessary.
 - *The issue of whether the reliability of an existing warhead can be sustained through incremental or robust (involving the extensive re-use of components) LEP or requires replacement by new-design warhead (the reliable*

replacement warhead or RRW) is a technical matter. Warhead replacement, however, has a far more positive impact on the nuclear infrastructure, particularly with respect to attracting and retaining capable and motivated scientists and engineers, than life-extension programs and, for this reason alone, should be part of U.S. nuclear modernization. A warm and healthy nuclear infrastructure is the best hedge against the pervasive uncertainty characteristic of the 21st century security environment.

- The composition of the stockpile (as well as the size of each of its components) will both be influenced by the number of delivery systems the U.S. maintains (e.g. the existing triad of SLBMs, ICBMs, and air-delivered weapons or some new dyad) and will influence decisions about which delivery systems the U.S. retains (e.g., the W80 warhead and the future of nuclear-capable cruise missiles).

The loss of competence in the Air Force air-delivered leg (particularly in its B-52 forces) raises significant concerns about the sustainability of this leg of the old triad. It also reinforces Admiral Blair's observation that the military services are better able to sustain dedicated nuclear forces than dual-purpose ones (for the nuclear mission). Moreover, if the U.S. were to move to a dyad of SLBMs and ICBMs, sustaining a missile-only force (particularly from a career management perspective) is probably best done by only one service, the Navy. Taking the nuclear role from B-52s would also obviate the need to maintain the W80, since B-2s carry the B61. In the longer run, perhaps, a nuclear-tipped JASSM on the next generation bomber (NGB) is the future of the air-delivered leg of the triad. Finally, although "tactical aircraft" capable of delivering forward-deployed B61s are declining rapidly, U.S. nuclear weapons deployed in Europe play a critical political role in Alliance politics and should be sustained as long as the European allies want them sustained.

12

Conducting an Analysis of Alternative Strategic Force Options

James Miller

This memo attempts to answer the question you posed at the Working Group meeting on 26-7 August: How might the Commission on the Future of the U.S. Strategic Posture, and/or the next Nuclear Posture Review, consider the implications of reductions in strategic forces below SORT levels?

During the Cold War, addressing this question would have involved scenario-based exchange calculations with U.S. and Soviet strategic forces. The scenarios would have included various nuclear postures (e.g., day-to-day and generated alert) and perhaps alternative employment policies (e.g., launch under attack or ride-out an attack). The central question would have been whether the United States could adequately hold at risk a range of targets in the Soviet Union (e.g., leadership, nuclear weapons, non-nuclear military targets, and war-supporting industry). The question of “how much is enough” for deterrence and stability would have been considered by reference to existing or presumed future targeting requirements.¹

The basic approach of considering scenarios is still valid today. And exchange calculations vis-à-vis Russia still matter, because even after the next round of reductions, U.S. and Russian strategic forces will still be the largest in the world. Finally, however remote the possibility of deep crisis or war between Russia and the U.S., the stakes are high enough that bilateral deterrence and crisis stability will still matter.

However, other factors which had little or no weight in the Cold War now carry significant weight. For example:

- ***Nuclear terrorism.*** A regime that controlled or eliminated “tactical” nuclear weapons in Russia, if feasible, could reduce the risk of loose nukes.
- ***Nuclear proliferation.*** Further reductions below SORT levels could in principle raise risks of nuclear proliferation, e.g., by causing U.S. allies to doubt the U.S. nuclear umbrella. On the other hand, reductions could meet Article VI obligations of the NPT and strengthen the regime.
- ***Third-party nuclear forces.*** Reductions well below SORT levels could bring the U.S. and Russia to levels where it is important to consider China and other nuclear powers.
- ***Strategic conventional capabilities.*** Conventional Trident Modification and other long-range strategic strike capabilities could affect the stability of the strategic balance—even if their only effect were to increase Russian worries.
- ***Missile defenses.*** The U.S. withdrawal from the ABM Treaty pursuit of national missile defenses, and continued advances in naval and ground-based defensive capabilities mean that missile defenses can no longer be ignored in considering the strategic balance.
- ***Upload and Non-Deployed Warheads.*** At Cold War levels of nuclear weapons—and overkill—the fact that both sides had non-deployed nuclear weapons that could be added over a period of days/weeks/months was not central. In considering deeper reductions, upload and breakout capabilities are more salient.

Such changes mean that a strategic nuclear assessment today must address a much wider range of variables. It should address the U.S.-Russia balance, but include prompt global strike capabilities, missile defenses, and (perhaps) varying alert levels. It should also consider limits on non-deployed warheads and fissile materials, tactical nuclear weapons, and the nuclear capabilities and postures of other states.

Similarly, the Cold War scenario-based analysis of alternative options must be broadened to a more general risk assessment. Computer-based exchange calculations will still play an important role, and can help address the potential impact of defenses and conventional capabilities on the U.S.-Russian strategic balance. Broader analysis and gaming is needed to consider the full range of potential issues, including any impacts on the risks associated with nuclear terrorism, proliferation, and third-party nuclear forces.²

Proposed Approach

The proposed approach is to develop a range of interesting force structure/posture options, and then assess them through analysis and wargaming and compare them according to a common set of metrics. Because subjective

judgments are involved, and because it is unlikely that one option will dominate across all metrics, it must be understood that this is not an “optimization” process, but a process to inform discussion and debate, and ultimately help guide presidential judgment.

Possible options to consider

The first step is to identify possible policy alternatives for the next administration. Options should be winnowed to a tractable number of serious contenders, probably no more than five to seven. Each of the major options might have one or two variants, e.g., larger (or smaller) national ABM deployments. Following are very brief descriptions of possible cases to consider.

- | | |
|------------------------|--|
| <i>Baseline Case:</i> | <i>Extend START and SORT.</i> Under this option, the U.S. and Russia would agree to extend START and SORT, but would go no further. U.S. nuclear doctrine would remain as it is today. |
| <i>Alternative #1:</i> | <i>No follow-on agreement.</i> Under this option (which is not preferred but could occur despite U.S. efforts), START expires at the end of 2009, and no additional protocols to SORT are negotiated. A key question under this alternative is whether (and how) Russia and others would change their postures. |
| <i>Alternative #2:</i> | <i>Keep SORT levels but include tactical nuclear weapons.</i> Under this option, the U.S. would attempt to get counting rules in which all operationally available nuclear weapons are included under the SORT limit of 1700-2200 weapons. This regime could also include separate limits on non-deployed warheads. In order to be palatable to the Russians, it might limit both missile defenses and prompt global strike (e.g., by making ABM interceptors and conventional warheads count under the 1700-2200 limits). |
| <i>Alternative #3:</i> | <i>Reduce to 1500 strategic nuclear weapons.</i> This option would reduce the SORT levels to 1500 per side, and retain verification provisions of the START Treaty. |
| <i>Alternative #4:</i> | <i>Reduce to 1000 strategic nuclear weapons.</i> |
| <i>Alternative #5:</i> | <i>Reduce to 500 strategic nuclear weapons.</i> |

Analysis, wargaming/simulation and assessment

One of the biggest challenges in conducting the needed analysis is that different nuclear doctrines, targeting practices, etc. may need to be created for each option. One way to finesse this issue is:

- Apply today's nuclear doctrine and targeting in analysis and wargaming of the most analogous alternatives (#1 and #2 above), then adjust as appropriate.
- Use the previous doctrine and targeting as the starting point for later options (e.g., #2 above would provide a starting point for #3, #3 for #4, and so on).
- In addition to being tractable, this approach will help explicitly identify the key risks and tradeoffs between options.

A degree of competitive analysis would be very helpful, e.g., two teams might independently develop revised doctrine and targeting for each of the options considered.

The baseline and each alternative option should be evaluated according to a common set of metrics. Cold War metrics are still relevant, e.g., basic deterrence, crisis stability, extended deterrence and assurance, and arms race stability. Other metrics would include impacts on nuclear terrorism, proliferation, etc.

Conducting such an effort would probably take 3–4 months. It would require a core team of several people, participation from DoD, DOE, State and the intelligence community, and modeling and simulation support from STRATCOM and PA&E (and perhaps outside analysts). It would also require a modest commitment of senior leadership time to give guidance, review interim results, and participate in a few several-hour-long high-level war-games.

Such a review could be the centerpiece of the next NPR. Given the range of relevant issues, the next NPR should be a “whole-of-government” effort. As suggested separately by Michèle Flournoy, it could be accomplished as part of, and in parallel with, the first Quadrennial National Security Review.

1. A good example of such work in the unclassified realm is “Strategic Arsenals after START: The Implications of Deep Cuts,” by Michael May, George Bing, and John Steinbrunner (*International Security*, Summer 1988).
2. More broadly, the U.S. government should establish a strategic net assessment process that involves analysis and gaming of major strategic choices for the country, including but not limited to nuclear weapons issues. Such a process—a “whole of government” analogue to the extensive analysis and gaming conducted by the military in the inter-war period, is needed to improve American strategic thinking and adaptability today and over the long term.

13

Whither the Triad: Considerations for a Triad, Dyad or Monad

Thomas Scheber

Summary

This paper describes the unique contributions to deterrence of each leg of the triad, and of NSNF systems, and the actions that could be taken to mitigate the elimination of a leg.

Since the beginning of the Cold War, the U.S. has maintained a triad of strategic nuclear forces as well as a diverse collection of nonstrategic nuclear forces (NSNF). The strategic nuclear triad of ICBMs, SLBMs, and long-range bombers offered a way to manage risk by providing forces with complementary and overlapping capabilities. The thinking was that if any one leg of the triad was rendered ineffective, the remaining two legs would be sufficient to hold at risk Soviet capabilities and therefore, it was asserted, to deter.

Thus far in the post-Cold War environment, the U.S. has modified its nuclear force exclusively by eliminating weapons deemed as excess. The U.S. has not developed and produced any nuclear weapons specifically for the contemporary environment.

If further nuclear reductions are to be made consistent with this trend, could one type of the extant nuclear weapons be eliminated? Would eliminating a complete leg of the nuclear triad or all remaining nonstrategic nuclear weapons be an acceptable option?

This paper focuses on the *capabilities* inherent in each leg of the nuclear force—not on numbers. The paper briefly examines this issue by listing the unique capabilities provided by each leg of the strategic nuclear triad and NSNF, the consequences of complete elimination, and options for “buying back” the lost capabilities using the remaining nuclear forces.

ICBMs

Unique attributes

- During a crisis, most reliable connectivity between decision-makers and forces.
- Highest “alert rate” of nuclear forces; provides prompt response capability.
- Silos and launch control centers are hardened and dispersed. Any nuclear attack intended to destroy these sites would be large-scale and unambiguous.

Consequences of complete elimination

- All remaining strategic nuclear forces located in the U.S. (at total of 5 bases: 2 SSBN bases; 3 strategic bomber bases) could be destroyed or neutralized by a small-scale attack. Only SSBNs at-sea would remain with no support base available.

Options to buy-back lost capability

- To replace lost offensive potential and prompt response, increase number of SSBNs on alert and/or increase warhead loading on SLBMs. May consider additional investment for assured connectivity with sole remaining prompt nuclear response capability (SSBNs).
- To complicate adversary plans to attack and destroy U.S.-based strategic nuclear forces, increase optempo of SSBNs (keep more at sea) and/or disperse bombers among larger number of bases.

SLBMs

Unique attributes

- Survivability. SSBNs at-sea are considered invulnerable. SSBNs can remain at-sea for an extended time. All other nuclear forces are vulnerable to attack to varying degrees.
- Two-ocean SSBN posture provides mobility, complicates enemy planning, and decreases risk from natural disasters (e.g., hurricanes, earthquakes, fires).

Consequences of complete elimination

- Entire strategic nuclear force could be destroyed by nuclear attacks on ICBMs and three bomber bases.
- Takes away President’s option to authorize prompt (ballistic missile) strike against some WMD-armed regional adversaries without overflying Russia.

Options to buy back lost capability

- To reduce vulnerability and provide for a small, survivable nuclear force, mobile ICBMs could be developed and deployed in place of or in addition to silo-based weapons. During periods of heightened tension, bombers could be loaded and placed on strip alert or airborne alert. Alternatively, routinely deploying submarine-launched cruise missiles (e.g., TLAM/N or a follow-on weapon) on general purpose submarines could provide a small, survivable nuclear force.
- To provide an adequate number of operationally deployed nuclear weapons, increase warhead loading on each ICBM and/or bomber.

Bombers

Unique attributes

- Capable of carrying bombs (both B-2 and B-52) and air-launched cruise missiles (B-52 only) with diverse range of yields (low to high).
- Only delivery platform for the B-61 mod11, nuclear earth penetrating weapon.
- Man-in-the-loop capability provides option of launch and recall.
- Ability to “signal” resolve by putting bombers on alert or deploying OCONUS.
- Long-range, ability to route aircraft and cruise missiles and attack from any azimuth complicates adversary planning.
- Could be temporarily forward-deployed (e.g., Guam) as warning to adversary.
- Primary role of bombers is for conventional warfare. Force would not be retired if nuclear role eliminated.

Consequences of complete elimination (of nuclear role)

- Loss of unique hard-target defeat capability. Loss of recall option.
- Loss of low yield options that provide reduced collateral damage. Adversaries would not need to defend against nuclear threat from air-breathing delivery platforms and may elect to concentrate more on ballistic missile defenses

Options to buy back lost capability

- To provide hard target defeat, configure some ballistic missiles to deliver earth penetrating warheads.
- To limit collateral damage, configure some ballistic missiles with lower yield warheads.

- To provide recall option, add command destruct to some or all ballistic missiles (but concern over introducing new vulnerability that could be exploited).
- To complicate enemy defenses, develop and deploy follow-on sea-based nuclear weapons (e.g., cruise missile, hyper-glide vehicles).

NSNF

Unique attributes

- Currently deployed (dual-capable aircraft and B61 gravity bombs) or deployable (TLAM/N) to threatened regions for extended time-frame.
- NSNF can provide overt, local presence to reassure threatened allies.
- Land-based, dual-capable aircraft capable of carrying nuclear gravity bombs are central to “nuclear burden-sharing” for NATO. Can deploy within NATO as needed in response to changes in threat environment.
- Sea-based (TLAM/N on submarines) can be deployed to threatened regions without need for approval from other countries. Can remain deployed for extended time.
- NSNF weapons provide a variety of yields.

Consequences of complete elimination

- All remaining nuclear forces would be based in CONUS. For assurance, allies may question credibility of U.S. extended deterrence guarantees. For deterrence, adversaries may not fear distant U.S. threat as much as closer, deployed nuclear capabilities.

Options to buy back lost capability

- Develop new concepts for *deployable* nuclear weapons.
- For NATO, work with allies to develop alternative deterrence and burden-sharing concept supported by all 26 members of the alliance. (Concept may include advanced conventional strike, ballistic missile defenses, and sea-based forces).

Considerations

As the commission evaluates options to eliminate one or more of the legs of the triad or NSNF, considerations should be given to the following:

- The potential implications of lost capabilities for deterrence, assurance, and dissuasion for specific adversaries and allies and in various contexts.

- The implications of lost capabilities on targeting options available to the president.
- The potential for lost capabilities to be “bought back” through modifications to other weapon systems, and the costs and the effectiveness of each.
- The ability to manage technical risk (e.g., failure of a warhead type) and geopolitical risk (e.g., resurgent Russia) provided by the “excess” capacity of residual force structure.
- The potential challenge an adversary would face in trying to counter or defeat a less diverse portfolio of U.S. nuclear capabilities.

14

Integration and Separation of Nuclear and Non-nuclear Planning and Forces

Dennis C. Blair

Summary

Based on previous American experience, this paper argues that nuclear weapons should be separated from conventional weapons, both in planning and in organization. The only exception is conventional missile defense.

Concepts, Systems, Plans and Wargames

Nuclear weapons have sometimes been considered and planned as a part of overall non-nuclear campaigns, and sometimes been considered and planned as an entirely separate phase of a conflict.

During the Cold War the dominant conceptual and planning construct was that once nuclear weapons had been used in a conflict, it would be fought to its conclusion as a predominately nuclear war. The U.S. objective in these nuclear exchanges was to end the war on conditions favorable to American interests short of mutual destruction. At a disadvantage in conventional military capabilities, NATO planned to use nuclear weapons to stop Warsaw Pact mechanized forces, hoping that the Soviet Union would agree to halt its advance and stop the fighting after at worst a limited exchange of nuclear attacks.

There were concepts, plans and deployed tactical nuclear weapons to be used together with non-nuclear weapons to achieve tactical or operational successes on the battlefield.

At sea, tactical nuclear anti-submarine depth charges had much greater lethality than non-nuclear anti-submarine torpedos, and NATO naval com-

manders in theory could request permission to use nuclear depth charges to deal with large numbers of Warsaw Pact submarines threatening NATO's sea lines of communications. In war games, however, NATO naval commanders generally considered it to their disadvantage to use tactical nuclear weapons. They calculated that the Soviets would use nuclear anti-ship missiles and torpedoes that would do as much or more damage to NATO surface battlegroups than would be done to the Soviet submarine fleet by NATO nuclear weapons. In addition, although in theory nuclear war at sea did not have the escalatory implications of war on land, NATO naval commanders and appointed officials were deeply worried that use of nuclear weapons at sea would lead to an unstoppable spiral of nuclear escalation leading to strategic exchanges.

On land, NATO tactical nuclear weapons were justified, deployed and planned to offset Warsaw Pact superior numbers of mechanized forces. NATO had a full arsenal of nuclear landmines, artillery shells, short range missiles and aircraft-delivered nuclear bombs, and there were procedures for tactical level commanders to request their release when they were losing on the battlefield at the conventional level. However in most wargames in which these scenarios were examined, NATO commanders considered that their use of tactical nuclear weapons would quickly be answered by Warsaw Pact use of similar weapons, either bringing major combat operations to a halt, or leading to escalation to higher level exchanges of nuclear strikes.

In the early years after the Cold War, when the United States had strong conventional force superiority over potential adversaries, concepts for the use of nuclear weapons became separated from the use of conventional weapons. The trend was to raise the nuclear threshold very high. In fact, in planning for conflict with Korea, the combined conventional force superiority of South Korea and the United States was so great that there were plans to fight through limited North Korean use of chemical weapons of mass destruction without necessarily retaliating with nuclear weapons.¹

Prior to the Nuclear Posture Review at the beginning of the Bush Administration, the only circumstance in which nuclear weapons were considered for use in a generally non-nuclear campaign was to destroy very valuable deeply buried military facilities that could not be neutralized by non-nuclear weapons. However even in these cases, there was a strong preference for using non-nuclear weapons against the supporting systems for these facilities—entrances, power and air supplies, etc., and considerable resources were spent on analysis and weapons development of non-nuclear systems to attack them.

The Bush Administration's nuclear posture review of 2001 attempted to break down some of the conceptual isolation of nuclear weapons from non-nuclear weapons, creating a "new triad" that included precision non-nuclear

strike and defensive systems along with offensive nuclear weapons. However there is little evidence that this new concept has resulted in actual plans that combine the use of nuclear and non-nuclear weapons to achieve operational level campaign objectives against either nuclear or non-nuclear potential adversaries of the United States such as North Korea or China.

There is one campaign in which nuclear and non-nuclear weapons are integrated—ballistic missile offense and defense. The United States has built a non-nuclear missile defense system to intercept ballistic missiles, including nuclear-armed ballistic missiles. In theory, it would seem logical to arm a system to defend against nuclear ballistic missiles with nuclear warheads. By definition, the opponent has crossed the nuclear threshold, and nuclear warheads would be much more lethal than conventional warheads. However there are at least three reasons the United States has not done so: First, the United States has signed an international treaty that forbids the use of nuclear weapons in space; second, it is impossible to distinguish a nuclear ballistic missile from an identical missile with a non-nuclear warhead, and so the United States could not be sure it was under nuclear attack, and, third, the effects of detonating a defensive nuclear weapon in space could adversely effect American satellites, long-distance communications, and other electronic equipment in the region. For all of these reasons, both the Clinton and Bush administrations have chosen to develop non-nuclear missile defense systems designed to shoot down North Korean nuclear missiles.

Organizing Nuclear and Non-nuclear forces

At the organizational level, there have been two different categories of nuclear forces in the past—dedicated and dual purpose.

During the Cold War there were dedicated forces for nuclear missions. In the Navy it has been the strategic ballistic missile submarine force, and in the Air Force it has been the intercontinental ballistic missile force, and a segregated portion of the long-range bomber force. The Army also for a time had dedicated nuclear units—Ground-Launched Cruise Missile (GLCM) and Pershing II units.

All the services maintained dual-purpose units that in addition to their primary non-nuclear missions had tactical nuclear roles. The nuclear missions were supported by additional training, personnel and administrative requirements and inspections. Sometimes these dual purpose units carried nuclear weapons on board along with non-nuclear weapons, and other times the units maintained the capability to employ weapons that were stored separately.

Dual purpose units during the Cold War took their nuclear missions seriously—safety procedures were inspected rigorously, and it was a career-

killer for the commander of a unit to fail a DNSI or NTPI inspection. While often doubting the tactical effectiveness of their systems, crews nonetheless took their duties seriously, since war with the Warsaw Pact was the primary mission for all services, and nuclear escalation was a distinct possibility.

Current dedicated forces are the Trident SSBN force armed with submarine-launched ballistic missiles and the Minuteman III force. These units are organized up through the squadron level (for the Tridents) and wing level (for the MM III) entirely for the nuclear mission. All their personnel and administrative programs are subject to the extra requirements of the nuclear program—Personnel Reliability Program, two-person control, safety inspection regimes, etc. All their training and exercises activity is based on nuclear scenarios. These units actually have possession of nuclear warheads, uploaded on missiles. They are entirely focused on the nuclear mission.

Dual purpose forces include B-52s (no longer are separate squadrons dedicated to nuclear missions) and B-2s, nuclear attack submarines that are certified for launching the nuclear Tomahawk Land Attack Cruise Missiles (TLAM-N), and fighter aircraft of NATO allies that are certified for carrying American nuclear gravity bombs. These units are primarily trained and administered for their non-nuclear missions, but in addition devote some of their exercise time to training for nuclear missions, maintain separate personnel and administrative systems for the nuclear missions and weapons, and receive separate inspections of their nuclear readiness. Generally these units do not have possession of nuclear weapons. They conduct weapons handling training with inert replicas of the actual nuclear weapons. In general, under today's conditions, with the possibility of nuclear war remote, these crews give more attention to their more likely non-nuclear missions, and attempt to minimize the administrative and time burdens of their nuclear capability.

The Future

An important principle to establish for future nuclear posture planning is the extent to which the United States should integrate nuclear and non-nuclear weapons planning and organizations.

Integrated vs. separated concepts for the use of nuclear weapons

With the single exception of planning and developing non-nuclear missile defense systems against nuclear ballistic missiles, past attempts to plan the use of nuclear and non-nuclear weapons in an integrated campaign plan have not persisted. In nuclear wargames over the years, for both military commanders and appointed officials, once nuclear weapons were introduced into a campaign, nuclear escalation considerations dominated the conflict, rather than questions of the effective use of tactical nuclear weapons within an

otherwise non-nuclear campaign that had not escalated. This syndrome has even been true for the use of nuclear weapons at sea, where collateral damage considerations are far less than they are on land. In wargames and planning, even when an adversary like North Korea resorts to the use of chemical weapons (like nuclear weapons, a weapon of mass destruction) commanders and officials have shown a preference for refraining from retaliatory use of nuclear weapons if the United States and the Republic of Korea can fight through the chemical weapons with non-nuclear forces and prevail.

The weight of observation over the years is that American leaders strongly prefer not to consider the use of nuclear weapons to achieve overall campaign goals in predominately non-nuclear conflict. This trend has generally been strengthened since the end of the Cold War. If U.S. forces are superior to their adversaries in non-nuclear capability they prefer to win without the use of nuclear weapons even if the adversary has used weapons of mass destruction against them. If the adversary uses nuclear weapons to the extent that it would affect the outcome of the war, they prefer to retaliate with nuclear weapons sufficient to end the war, but not in such great numbers that they cause escalation to major strategic exchanges.

Dedicated vs. dual-purpose forces

The experience of the armed forces over the years is that both efficiency and safety are better with dedicated than with dual-purpose nuclear forces. Dedicated nuclear forces devote all their training, personnel and administrative energies to their nuclear missions, and are accustomed to the more detailed administrative requirements, higher personnel standards and more rigorous inspections. It is their way of life. Dual-purpose forces can maintain high separate standards for their nuclear missions, but these missions are inevitably considered by the officers and enlisted personnel to be a burdensome nuisance detracting from their non-nuclear missions which seem more important, because they are more likely to be executed.

Conclusion and Recommendation

In conclusion, although they are not the only considerations, the history of integrated vs. separated nuclear concepts and planning, and of dedicated vs. dual-purpose forces argue for the United States to support only dedicated nuclear forces in the future, and with the exception of non-nuclear missile defense systems, to plan for the use of nuclear forces only to deter the use of nuclear weapons by an adversary, and to end conflict quickly on favorable terms should deterrence fail.

1. Not all members of the deterrence expert working group concur with this assertion—if the Commission is interested in discussing this point, a classified meeting should be arranged.

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Nuclear Weapons and Expanded Deterrence Against Catastrophic Attacks

Elbridge Colby

Summary: The United States and its allies will face increasingly sophisticated and dangerous weapons of catastrophic destruction due to the accelerating advance and dissemination of technology. Nuclear weapons will play a key role in deterring the use of these weapons by state or non-state opponents as long as the United States continues credibly to threaten retaliation, to include nuclear usage, in response to catastrophic strikes. A “no first use” posture would be incompatible with an effective deterrent of this kind, and the Commission should consider stating so. Nuclear weapons will not, however, be sufficient to deter catastrophic attacks. Instead, the Commission should consider voicing support for the Administration’s commendable but poorly implemented policy of expanding deterrent threats to include those who enable or support catastrophic attacks against us or our allies.

Text: Accelerating advances across science and technology, to include in computing, nanotechnology, biotechnology, as well as in the more mature nuclear field, combined with our staggering advantages in conventional warfare, make it a near certainty that the United States will in the coming decades face increasingly powerful, sophisticated, and dangerous weapons, tools, and systems. Though traditional state rivals will likely be the principal wielders of these new technologies, their dissemination outwards to marginal states and downwards to non-state actors means that the U.S. will confront threats from a variety of types and groupings of actors. While the parameters of these new technologies are uncertain, we can be confident that they will be not only tremendously powerful, disruptive, and damaging,

but also supremely elusive and cost-efficient. Non- and counter-proliferation efforts will be a critical mitigant of these deleterious trends, but, given that they are the necessary obverse of the benefits of new innovation and that challenger powers will so clearly benefit from them, they cannot be halted. They instead must be managed.

U.S. nuclear weapons should play a partial but central role in dealing with the rise of these threats. Our nuclear arsenal will do so because, so long as it is maintained at a sufficient level of quality and quantity and appropriately postured, it constitutes a decisive asymmetric retaliatory capability that ipso facto makes the use of any weapon of catastrophic consequence, however novel, against us or our allies more costly than beneficial. Further, by ensuring this decisive asymmetry they allow us and our allies the freedom not to have to match (either with similar weapons or defensively) every advance in weapons technology our opponents and rivals may make (though maintenance of an edge in some fields is advisable and even necessary). As with the NATO allies' effective decision not to match Warsaw Pact capabilities after the failure of the Lisbon Treaty commitments and the formal decision to forswear chemical and biological weapons in the face of massive Soviet superiority (the latter clandestine) in those fields, the U.S. and its allies in the 21st century can reliably invest in maintaining an assured nuclear deterrent to render catastrophic acts of destruction irrational as such rather than seeking symmetry in armaments.

This logic would counsel continuing to resist adopting a "no first use" doctrine and perhaps even considering, as our opponents and rivals begin to field disruptive new technologies, reminding them of our willingness to respond to catastrophic aggression of any kind with the tools most suited to our purposes. This would point towards restraining and perhaps walking back what has, in light of overwhelming conventional U.S. military superiority over the last two decades and an unusually calm international scene, become an informal "no first use" policy. More broadly, it would counsel shoring up the credibility of our threats to respond asymmetrically as we deem appropriate, whether with nuclear weapons or otherwise. This approach would have both direct deterrent as well as dissuasive benefits. Opponents facing the real prospect of firm and potentially severe retaliation by the U.S. will price the reality of this American commitment into their strategic calculations, thus rendering arms competitions less likely.

But while nuclear weapons will play a vital cornerstone role in our security against these threats, our deterrent against catastrophic attacks (however conducted) must be both more flexible in its ability to respond as well as expansive in its understanding of responsibility and accountability. The U.S. cannot contemplate the real prospect of catastrophic attack with the

sanguine comfort that we can respond only as we have been prepared to in the preceding two decades. Instead, in concert with an integrated strategy employing defensive, diplomatic, intelligence, consequence management, and other tools, the U.S. should adopt and publicize broadly its intent to use an expanded but more realistic standard of accountability with respect to such strikes. Those targeted (with appropriately varying degrees of severity) would include not only those actively involved, but also those who materially supported, cooperated in, were complicit with, or were grossly negligent in catastrophic attacks.

The logic of deterrence is very strong and its effectiveness is manifest in, for instance, the success of the U.S. and its allies in the Cold War. But it must be properly postured to speak to the threatened parties. Following the lead set in areas as diverse as Israel's approach to terrorism and modern Western tort law, the U.S. should expand the scope of responsibility for preventing such attacks in order to enlist the assistance of those who have the power, as well as the obligation, to frustrate them. Our nuclear forces will play a critical role in this policy both directly as a backstop and ultimate resort as well as an indirect indicator of the seriousness of U.S. retaliatory threats. But they will only be an element, as the U.S. will need to be able to respond flexibly in order to threaten different targets with appropriately (though ambiguously) differing degrees of retaliation.

The Commission has the opportunity to help push the United States in this direction before we suffer a catastrophic strike. (A frequent criticism of the policy is that it is not credible before a strike occurs and the U.S. retaliates.) The U.S. Government has begun rolling out a commendable policy to emphasize the determination of the U.S. to strike back overwhelmingly at those who "enable" or "support" a WMD attack against ourselves or our allies. But the policy has, frustratingly, been poorly publicized (its rollout was a speech by National Security Advisor Stephen Hadley at a closed door meeting at Stanford) and thus little noted beyond professional security circles. The Commission could help shape the policy and jumpstart its implementation with a firm statement of support for the approach.

16

The Costs and Benefits of a No-First Use Declaratory Policy

Scott D. Sagan

Throughout the Cold War, the United States maintained a declaratory policy emphasizing our commitment to use nuclear weapons first, if necessary, as part of our extended deterrent commitment to key alliance partners. This declaratory policy was repeated in the 2001 Nuclear Posture Review, which also added a more explicit option to respond with nuclear weapons to a chemical and biological weapons attack. This paper reexamines the role of nuclear weapons in extended deterrence and deterrence of chemical and biological weapons use, and also broadens the analysis by including the impact of U.S. declaratory policy on efforts to reduce the dangers of nuclear proliferation and nuclear terrorism. It seeks to outline the costs and benefits if the United States adopted a No-First Use (NFU) declaratory policy, stating that “the role of U.S. nuclear weapons is to deter nuclear weapons use by other nuclear weapons states, or terrorist groups supported by a nuclear weapons state, against the United States, U.S. allies, or forces deployed overseas.”

Extended Deterrence, Reassurance, and the Nuclear Umbrella: U.S. nuclear “extended deterrence” commitments to key allies—especially in East Asia and NATO—is the most often cited reason to maintain current declaratory policy. Yet, most discussions of the “nuclear umbrella” fail to differentiate between U.S. commitments to use nuclear weapons first, if necessary, to defend an ally if it is attacked by overwhelming conventional force or nuclear weapons (the Cold War policy) and the more tailored guarantee to use U.S. nuclear weapons in retaliation against a nuclear attack, but only a nuclear attack, on U.S. allies. This second kind of a U.S. nuclear guarantee need not undermine the security of key U.S. allies who do not fear conventional aggression;

indeed, it would likely be welcomed by those allies who continue to value more credible conventional military commitments, but feel that first use nuclear threats encourage proliferation elsewhere.¹ Serious consultation with other allies, especially Turkey and new members of NATO, would be required, however, to reassure them of the continued U.S. commitment to use nuclear weapons in response to nuclear aggression against them and to maintain the credibility of conventional defense options within the alliance.

The Special Case of CBW Deterrence: Both the Bush and the Clinton Administration embraced “calculated ambiguity” regarding the role of nuclear weapons in deterring chemical and biological attacks. Advocates maintain that such threats enhance deterrence, because they raise the potential costs that any government would face if it considered using chemical or biological weapons. Critics stress that such threats are contrary to the U.S. negative security assurances—promises that the U.S. would not use nuclear weapons against a non-nuclear weapons state, in compliance with the NPT and not aligned with a nuclear state—and that they can encourage further nuclear proliferation, by leading governments of non-nuclear states to believe that they may need nuclear weapons to deter such WMD threats as well. Both arguments may be right. Such verbal declarations do add credibility to the U.S. threat to respond with nuclear weapons, not just by creating uncertainty about the likely U.S. response (uncertainty which can never be entirely eliminated anyway), but also by creating a “commitment trap”: if deterrence fails despite such threats, a president will feel increased pressure to use U.S. nuclear weapons to maintain the U.S. international reputation for honoring commitments. In short, such threats do not just signal commitment; they create commitment. Thus, calculated ambiguity statements enhance the credibility of deterrent threats, but only by increasing the likelihood that the U.S. will use nuclear weapons if deterrence fails. So unless one believes that such threats will work one hundred percent of the time, the calculated ambiguity doctrine increases the likelihood that the U.S. will use nuclear weapons first in response to a perceived imminent or actual chemical or biological attack. A balanced assessment of U.S. nuclear weapons doctrine should therefore include an assessment of the consequences of both kinds of deterrence failure: the immediate consequences of a chemical or biological attack by an adversary, and the long term consequences of potential U.S. nuclear retaliation in the event that deterrence fails.

Detering Terrorists’ Use of Nuclear Weapons: A new strategy to deter nuclear terrorism indirectly was outlined in February 2008 by then NSC advisor Stephen Hadley: “Many terrorists value the perception of popular or theological legitimacy for their actions. By encouraging debate about the moral legitimacy of using weapons of mass destruction, we can try to affect the strategic calculus of the terrorists. And finally, deterrence policy targeted

at those states, organizations, or individuals who might enable or facilitate terrorists in obtaining or using weapons of mass destruction, can help prevent the terrorists from ever gaining these weapons in the first place.” It is difficult, however, to encourage a debate about the moral legitimacy of using weapons of mass destruction if the U.S. insists that it has the right to use nuclear weapons first. A new NFU declaratory policy would make U.S. engagement in such a global debate about the moral legitimacy of nuclear weapons and other WMD appear more credible and thus potentially more effective. The threat to retaliate against a foreign government that has deliberately passed on nuclear weapons to a terrorist organization, however, would not be constrained by a U.S. NFU doctrine since that government would be responsible for the first nuclear use by its terrorist proxy.

Declaratory Policy and Non-Proliferation: As part of the effort to discourage nuclear proliferation, previous U.S. administrations have declared at NPT review conferences that they would not threaten or use nuclear weapons against non-nuclear weapons states, who are members in good standing of the NPT, unless such states attack the United States or U.S. allies in conjunction with an attack by a nuclear weapons state. The perceived credibility of the U.S. commitment to honor such “negative security assurances,” however, was significantly reduced when portions of the 2001 NPR—which listed Syria and Libya as potential nuclear targets—were leaked to the press. A U.S. NFU declaration would enhance the credibility of future negative security assurances, especially if they could be coupled with similar assurances from other nuclear weapons states. With respect to the 2010 NPT Review conference, U.S. nuclear declaratory policy is unlikely to be the most important factor determining whether or not the NNWS are satisfied at the 2010 NPT Review Conference that the nuclear weapons states have honored their Article VI commitment to work in good faith to eliminate nuclear weapons. (Progress towards the ratification and coming into force of the CTBT is likely to be more critical.) Nevertheless, it is worth remembering that the NNWS included a statement in the final consensus document at the 2000 NPT Review Conference calling for “a diminishing role for nuclear weapons in security policies to minimize the risk that these weapons ever be used and to facilitate the process of their total elimination.” A declaratory policy that reduced the role for U.S. nuclear weapons would therefore help address that stated concern at the next NPT Review Conference.

Mimicry Effects of U.S. Declaratory Policy: U.S. declaratory policy also influences the doctrines of other nuclear weapons states, especially new nuclear powers at early stages of doctrinal development. The best example of this is India’s movement away from a strict NFU doctrine. In 2003, the New Delhi government adopted a new doctrine including the explicit threat of Indian nuclear first-use in response to biological or chemical weapons use, a change

that was the result of copying the United States and other nuclear states.² India's new doctrine should alarm American policy makers for it makes it more likely that India would use nuclear weapons in a future conflict with Pakistan and increases the pressures inside India to develop a larger and more diverse nuclear weapons arsenal. The signaling and legitimizing effects of U.S. nuclear doctrine are by no means the only factors leading to such negative trends in India, or in potential other cases in the future, but they should not be minimized. A U.S. NFU declaratory policy would similarly have some positive influence in pushing India and other new nuclear states in the opposite direction in the future.

Conclusions: A central message of this paper is that the next Nuclear Posture Review needs to focus on both potential effects of declaratory policy on the multiple dimensions of extended deterrence and on its effects on non-proliferation policy. All too often, nuclear doctrine and declaratory policy are analyzed only with respect to "requirements" of deterrence, without taking into account the diversity of views in different allied nations and the potential negative effects of U.S. declaratory policy on our ability to achieve other critical non-proliferation objectives. Trade-offs often exist between different goals in this arena and reasonable people may well therefore disagree over the value they place on various costs and benefits of different declaratory policy statements. Serious diplomatic issues still remain to be addressed—concerning how best to consult with allies and how to encourage other nuclear powers, especially the Russians, to reduce their reliance on nuclear weapons—but I hope the arguments and evidence presented in this paper will spark more thorough and broader analysis to take place inside the U.S. government about the costs and benefits of a No-First Use declaration in the next Nuclear Posture Review.

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1. For example, four former German leaders have recently called for "a general non-first-use treaty between the nuclear-weapons states." Helmut Schmidt, Richard von Weizacker, Egon Bahr, and Hans-Dietrich Genscher, "Toward a Nuclear Free World," *International Herald Tribune*, January 9, 2009.
 2. An unidentified member of India's National Security Advisory Board stated that "all five nuclear weapon states...reserve the right to launch nuclear weapons first. Then why should India not do so?" Elizabeth Roche, "India Evaluating, Fine-Tuning Nuclear Doctrine" *Hong Kong AFP*, January 14, 2003.

17

The Role of U.S. Strategic Posture in Deterring and Preventing Nuclear Terrorism

Scott D. Sagan

Description of the Problem

It is widely recognized that al Qaeda has a strong interest in acquiring nuclear weapons. Osama Bin Laden issued a statement justifying the use of nuclear weapons against the United States prior to the 9/11 attacks, and after 9/11, crude drawings of nuclear weapons designs were found in caves in Afghanistan and retired Pakistani scientists from the Khan Research Laboratory were discovered to have established ties to al Qaeda. Earlier cases of terrorist interest in nuclear weapons, however, are less well known. The Baader-Meinhof gang attacked a U.S. Army base in West Germany in the 1970s seeking to steal the nuclear weapons there; the Red Army in Italy kidnapped U.S. Brigadier General James Dozier in 1981 and questioned him about locations of NATO nuclear weapons storage sites; the Aum Shinrkyo sought uranium in Australia and penetrated the Russian military seeking weapons and expertise, prior to settling for the use of chemical weapons (sarin gas) in Tokyo in 1995. Al Qaeda was not the first terrorist group to seek nuclear weapons; nor is it likely to be the last.

It is also widely recognized that no known terrorist organization is likely to have the resources or expertise to produce fissile material on its own. The risk of nuclear terrorism is therefore directly related to the risk that a government, or individuals working within a government, could deliberately or inadvertently provide nuclear materials or actual weapons to a terrorist group. There are, however, many different scenarios through which terrorists could gain access to a nuclear weapon or weapons usable

material (HEU) with which they could construct their own gun-type device like the one used at Hiroshima. Terrorists could be given or sold a weapon or weapons usable material by a sympathetic government, an insider, or a group of insiders in a government's weapons program; terrorists could steal a weapon or weapons usable material; terrorists could acquire nuclear weapons or materials in the chaos if a nuclear weapons state (Pakistan, North Korea, Iran) collapsed into civil war or became a failed state. In many of these scenarios, the U.S. government may not know whether the weapons were acquired because of the complicity of the central government, or because of its negligence to maintain adequate physical security, or some mixture of negligence and complicity, or whether the terrorist group somehow overcame what could be considered a strong physical security protection system.

Finally, it is widely recognized a deterrent threat is unlikely to be effective in preventing a terrorist leader with nuclear weapons from using those weapons, and therefore more attention has focused on preventing terrorists from getting access to nuclear weapons or materials and on detecting and interdicting any weapons or materials that might be acquired despite such prevention efforts. This does not mean, however, that deterrence and the U.S. strategic posture have no possible role to play in deterring and preventing nuclear terrorism. Indeed, U.S. government's current strategic posture and declaratory policy currently seeks to deter and prevent nuclear terrorism through three distinct strategies. This paper will describe and analyze those current policies, describe some additional indirect ways in which U.S. strategic policies might influence the likelihood of nuclear terrorism, and provide a set of alternative policy options for the Commission to consider to address these challenges in the future.

Description of Current "Deterring Nuclear Terrorism" Policies

The first policy pronouncement in this regard was limited to a single government, in President Bush's declaration after the October 2006 North Korean nuclear test that "the transfer of nuclear weapons or material by North Korea to states or non-state entities would be considered a grave threat to the United States, and we would hold North Korea fully accountable of the consequences of such action." The second policy pronouncement was the direct and more expansive declaratory statement made by National Security Advisor Stephen Hadley in February 2008: "The United States has made it clear for many years that it reserves the right to respond with overwhelming force to any use of weapons of mass destruction...The United States will hold any state, terrorist group, or other non-state actor fully accountable for supporting or enabling

terrorist efforts to obtain or use weapons of mass destruction.” This Hadley statement was more direct, by threatening response with “overwhelming force” and more expansive both in terms of applying the doctrine to any state, not just North Korea, and by broadening the set of actors whom the U.S. would hold accountable after an attack. The third policy by which the current government seeks to deter terrorist use of nuclear weapons is an indirect one, by trying to delegitimize the use of nuclear weapons in the eyes of supporters of specific terrorist organizations. This was also announced by Hadley in his February 2008 speech: “Many terrorists value the perception of popular or theological legitimacy for their actions. By encouraging debate about the moral legitimacy of using weapons of mass destruction, we can try to affect the strategic calculus of the terrorists.”

It is worth noting that these policy statements did not differentiate between deliberate transfers or assistance and those that derived from lapses regarding nuclear materials or weapons security. Senator Joseph Biden, however, did draw a connection between the intent and responsibility for nuclear terrorism and the potential U.S. responses when he stated in May 2007 that “we must make clear in advance that we will hold accountable any country that contributes to a terrorist nuclear attack, whether by directly aiding would-be terrorists or willfully neglecting its responsibility to secure the nuclear weapons or weapons-usable material within its borders.” It is also worth noting that this more nuanced statement by Senator Biden did not include the possibility that terrorists might successfully seize or acquire nuclear weapons or weapons-usable material despite sincere and serious efforts on the part of the government involved to provide adequate security. It also did not address the difficulty that the U.S. could have in determining both the source of the materials or weapon used in a terrorist attack and the manner in which the terrorist organization acquired the materials or weapon.

Analysis of Deterrence Dilemmas

Attempts to deter the nuclear terrorism through threats of retaliation face both technical and political problems. Deterrence, it is often noted, requires both a perception that attribution of identity (where did the weapon come from) is likely and a return address (against whom will retaliation be targeted). Both confident attribution and appropriate retaliation may be problematic in many nuclear terrorism scenarios. There is much that needs to be done both in terms of technology development and international cooperation to improve overall U.S. nuclear forensics capabilities, as noted, most recently, in the 2008 American Physical Society report. Currently, attribution capabilities are generally considered to be better regarding the DPRK (because

of past IAEA access to the Yongbyon facility) than regarding Pakistan (where access has not existed). Confidence in our ability to attribute whether materials or a weapon came from Russian sources is likely to be somewhere in between the DPRK and Pakistani cases.

As difficult as it may be to determine the *source* of a terrorist nuclear weapon in many scenarios, understanding the *cause* of the terrorist acquisition of nuclear materials or a weapon could prove even more difficult. Was the government that produced the materials or weapons in question complicit in the terrorist attack? This is commonly assumed to be the case in what is called state sponsored terrorism. But it could also be the case that only “rogue” lower level officials were involved in helping a terrorist organization get nuclear materials or a weapon, which could be called “insider supported terrorism.” A government that was complicit in supporting an attack could, in fact, find it convenient if caught to claim that the terrorists were supported only by a rogue scientist or military officer. Furthermore, it could be exceedingly difficult to determine whether a government was truly complicit or merely negligent in maintaining security and management over nuclear materials or weapons. Efforts to provide assistance to the government in question ahead of time could be helpful in evaluating the effectiveness of their physical security systems as well as evaluating whether government officials are being negligent in their responsibilities. Finally, it is worth noting that intelligence and good local and international police work after a terrorist attack could be as important, if not more important, in determining the sources and causes of terrorist acquisition of a weapon than even the most advanced nuclear forensics program.

An additional challenge has been identified in a number of studies that focus on the desire for cooperation, if possible, with the government from which weapons or materials came in order to assist in their efforts to determine the cause of the breach in physical protection systems and to help secure the remaining weapons or materials in the country. Making deterrent threats ahead of time, however, could both increase and reduce the incentives for a government to accept assistance from the United States in securing its materials and weapons. It might heighten the incentives for governments to improve physical security at nuclear sites, through what has been called “deterrence of negligence.” But it might also reduce incentives to cooperate ahead of time by increasing fears that the U.S. would use any information gained through cooperation for intelligence and targeting purposes. Deterrent threats would also create political difficulties for foreign government officials whom otherwise might want to provide and accept security and intelligence cooperation from the United States. Such officials could be criticized by others inside foreign governments as cooperating under pressure or coercion. Finally, U.S. deterrent threats could compound nuclear physical

security dangers in a target state if the government chose to alert its nuclear forces or deploy them to forward positions, instead of locking them down even more effectively, fearing an American response in the event of a nuclear terrorist incident.

A related dilemma is that U.S. strategic doctrine and declaratory policy can influence the likelihood of nuclear terrorism indirectly and inadvertently by influencing the doctrine and declaratory policies of other states, which in turn more directly influence the likelihood of nuclear terrorism. A case in point is the 2003 Indian government declaration that it had modified its traditional strict no-first-use doctrine to include the threat to use nuclear weapons first in the event of a biological or chemical attack ("calculated ambiguity") and statements by some New Delhi officials that the government was considering preemptive nuclear or conventional attacks against Pakistani nuclear sites ("anticipatory self-defense") as being legitimate options in the future. Both of these changes in Indian doctrine were strongly influenced by New Delhi officials' perceptions of existing U.S. nuclear doctrine and discussions of preemption in Washington policy documents. This change in India's policy, however, creates "a vulnerability/invulnerability paradox" in Pakistan. Pakistani military leaders have increased incentives, in a crisis, to take Pakistani weapons out of their storage sites inside secure military bases where they are vulnerable to an Indian attack and to place the arsenal on alert and deploy the weapons to hidden field positions outside the main bases. Such a deployment, however, would make Pakistani nuclear weapons more vulnerable to a terrorist seizure, either through a direct attack at a less secure site or through assistance from an insider from the Pakistani military.

The logic behind the "deligitimizing nuclear use" strategy outlined by Steven Hadley in 2008 is clear: some financial supporters or logistical helpers of a terrorist organization might be persuaded not to help in efforts to acquire or use nuclear weapons if stronger moral norms against nuclear use are expressed and accepted. One could imagine an assistant in the logistics change of a terrorist operation, for example, refusing to participate in nuclear terrorism even if he or she supported the organization more generally. In addition, if popular support for a terrorist organization or insurgency was based on a perception that it fought for a just cause with just means, nuclear weapons use against civilian targets might be seen to reduce the support base for the organization. What is not clear, however, is whether there is any firm evidence that such a "deligitimizing strategy" has been effective in the past or in recent years. For example, while it is true that some Islamic theologians have issued fatwas opposing Osama Bin Laden's call, on moral grounds, for nuclear attacks on the U.S., I know of no study of how such fatwas have influenced either popular opinion or individual beliefs among potential al Qaeda supporters.

Deterrence Policy Options

The options outlined below are not exclusive, that is, the United States could adopt one or more of them. Some of the options counter the effectiveness of others; but some are synergistic. It will thus be important to recognize both when trade-offs have to be made and when policy options could be mutually reinforcing. It is also important to note that the U.S. has many other arrows in its quiver to prevent nuclear terrorism, including non-proliferation strategies, efforts to secure nuclear facilities around the world, the Proliferation Security Initiative, nuclear detection and incident mitigation programs, and initiatives to reduce use of HEU in research reactors. The points below represent a range of options to deter and prevent nuclear terrorism through U.S. strategic posture and declaratory policy as a supplement to other U.S. strategies.

- **More Direct Nuclear Threats:** The U.S. could adopt a declaratory policy similar to that announced by French President Chirac in January 2006: “The leaders of states who would use terrorist means against us, as well as those who would envision using . . . weapons of mass destruction, must understand that they would lay themselves open to a firm and fitting response on our part...This response could be a conventional one. It could also be of a different kind.”
- **“Hold Accountable” Threats:** The U.S. could continue to state that it would hold accountable any state or non-state actor that provided assistance leading to an act of nuclear terrorism.
- **Parsing between Failure, Negligence and Complicity:** The U.S. could seek signal cooperation with governments that have failed to protect nuclear materials or weapons, while simultaneously threatening to hold accountable any government that is complicit in attacks or is willfully negligent in physical security measures. The statement would be something like: “The U.S. stands ready to provide assistance in securing nuclear materials to cooperative governments after a nuclear terrorism incident anywhere in the world. But we will hold accountable any government or individual whose complicity or willful negligence has contributed to such a tragic event.”
- **Continue to Support “Deligitimizing” Declarations:** Encouraging debates about the morality of using nuclear threats or nuclear weapons attacks could produce some loss of support for nuclear terrorism among terrorist sympathizers or logistic supporters.

18

Proposed Strategy for Designing the 21st Century U.S. Nuclear Posture

Clark Murdock

Tasking

- At 24 Feb 09 SPRC meeting, Force Structure Tiger Team was asked to develop a strategy for the future U.S. nuclear posture, drawing on the charts on General Principles and External Factors.

Ends (of the Strategy)

- Recognizing that nuclear terrorism and nuclear proliferation are the primary nuclear dangers in the post-9/11 era, the U.S. still needs a strong and credible nuclear deterrent for as long as nuclear weapons exist.
- In order to be credible, the U.S. nuclear deterrent must be safe, secure and reliable, as well as visible to potential adversaries and allies:
 - Deterring use of nuclear weapons and other weapons of mass destruction (WMDs)¹ against the U.S. and its allies.
 - The strength and credibility of U.S. assurances to its allies critical in the 21st century security environment, both as an end itself (that is, extended deterrence) and as a means to prevent nuclear proliferation (by reducing the incentive to acquire nuclear weapons).

1. In keeping with U.S. declaratory policy of “strategic ambiguity” (which should continue), the U.S. should not specify what it includes in non-nuclear WMD attacks that could trigger a U.S. nuclear response. Certainly includes high-casualty BW and CW attacks, but may not include low-casualty CW ones. Could include massively-disruptive (with attendant high casualties) cyber attacks.

- Ensuring crisis stability between the U.S. and potential nuclear-armed adversaries to minimize the risk of a nuclear exchange:
 - Minimize the possible gains opponents might find in initiating nuclear use—whether intentional, accidental, unauthorized or due to miscalculation—especially in crisis situations.
- In achieving the ends listed above, the U.S. should strive to:
 - Avoid provoking Russia and China into changing their nuclear postures that are damaging to U.S. interests and those of its allies and friends.
 - Negate the potential strategic leverage of proliferators.

Operational Implications for the U.S. Nuclear Posture

- Deployed U.S. nuclear forces must be survivable under all scenarios in sufficient numbers to respond overwhelmingly (taking adversary defenses into account).
- Sustain current power relationships with key strategic powers:
 - “Essential equivalence” with Russia.
 - Suggested definition includes: (1) numerical parity in ODNW; (2) acceptable (to each side) infrastructure hedges; and (3) “tacticals” sufficient for the needs of U.S. alliances.
 - U.S. and Russia will not have mirror-image postures.
 - Greater U.S. reliance on SLBMs; greater Russian reliance on ICBMs
 - Maintain sufficient nuclear capability in comparison to China so Beijing lacks incentives to seek parity with U.S. (and Russia).
 - “Distance” between U.S./Russia and China likely to decrease from current 10:1 ratio, but unknown how “small” the disparity has to become (e.g., 2:1 ratio) for China to be tempted.
- As U.S. stockpile goes lower (in tandem with Russians), the importance of the following increases:
 - High confidence in the reliability of the stockpile and in the expertise and experience of the scientists, engineers, and production workers required to sustain it (*Interim Report*).
 - Assumes sufficient investment in the physical infrastructure (as a means) to both sustain confidence in stockpile and maintain the necessary human infrastructure (the essential ends).
 - Also assumes the infrastructure is exercised periodically.
- Even at very low numbers, U.S. maintains not just an SSBN force but a full triad:
 - Single-RV ICBMs both stabilizing in a crisis and hedge against SLBM vulnerability.
 - Bombers both visible for signaling purposes and flexible.

- Reducing the number of non-deployed weapons and upload capacity (in comparison to the deployed force) to limit rapid breakout capability, thus ensuring greater crisis stability at lower stockpile levels.
- Need for increased and unprecedented levels of transparency on national nuclear inventories:
 - Campaign to secure all loose nuclear material around the world in four years (as promised by the Obama administration) could begin with a U.S. decision to fully reveal the details of its total inventory of nuclear weapons (active and reserve, and awaiting dismantlement) and national supplies of SNM.
- Accounting for the asymmetries in the force postures of the key players in terms of their emphasis, for example, on ICBMs, SLBMs, “tacticals,” non-nuclear strategic strike, etc.
- Impact of missile defenses on each nation’s calculus of how much nuclear capability is enough increases as global stockpiles go lower.

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Reflections

James Dobbins

One may wish to begin by considering how the threat has changed. To do so one might rate the likelihood of nuclear attack from a) an existing nuclear power, b) a new nuclear power, or c) a non-state. During the Cold War, these would have been rated, on a 1-10 scale, as perhaps 3-0-0. Today the risks may be closer to 1-2-3. This suggests that it may be prudent to accept some additional risk in deterring existing nuclear powers if it helps reduce the risk from new or non-state nuclear actors. This is the underlying logic of current policy, the question being whether it has been taken far enough.

During the Cold War nuclear weapons were thought to be a necessary hedge against conventional defeat. Given America's crushing conventional superiority, this danger no longer exists. This change suggests that the U.S. could prudently make a no-first use pledge if that advanced other agendas. It also suggests that the United States would be safer in a world without nuclear weapons, assuming such a condition could be reliably achieved and maintained. This is the logic behind the Four Horsemen's proposal.

On the other hand, the current environment presents an increasing threat to U.S. allies from new nuclear powers. In the near term future, therefore, a main driver for the size of the U.S. arsenal will be the needs of extended deterrence designed to dissuade friendly countries from following hostile ones down the nuclear path. This requirement has long been established with respect to Europe, has become an issue with Japan, and is likely, in some form, to come into play in the Middle East in response to an Iranian bomb.

There appears to be a negative relationship between how expansively an Administration defines its nuclear employment doctrine and the level of funding it can get from Congress to maintain the arsenal. The more expansive the employment doctrine, the more leery will Congress be about funding improvements in weapons and infrastructure. This might change

if Russia becomes much more menacing. In the absence of such a development, a restrictive doctrine, which limits nuclear use to a response to nuclear attack, may improve the prospects for Congressional funding of the RRW and modernization of the nuclear infrastructure. The promise of a renewed effort to ratify the CTBT might also help persuade skeptical members of Congress to vote for these programs.

As regards arms control, some movement toward a nuclear free world will need to be registered if one is to strengthen the NPT and the larger counter-proliferation regime. I would advocate a three-stage process, only two of which could be initiated in the short to medium term. The first would be a new round of U.S.-Russian negotiations, leading to some further reduction in arsenals. The second phase would be a dialogue among the established nuclear powers, by which I mean the P-5, in which the others were asked to agree to freeze while the U.S. and Russians come down, against an eventual time when all five could go further down together. There may also be confidence building measures all five powers can be asked to sign onto, e.g. detargeting. The third stage, which would be referred to but not launched until that (distant) future date when all the established nuclear powers begin to reduce together, would consist of a stated intention to then seek the participation of India, Pakistan and Israel.

As regards Prompt Global Strike, like Congress, I would be reluctant to fund a limited capability unless I was convinced that a larger one was desirable. I could be so convinced in the context of an arms control regime that clearly and unambiguously distinguished conventionally armed systems from nuclear. I am also somewhat skeptical that the increase in timeliness represented by using ballistic instead of cruise missiles (from a few hours to half an hour) can justify the added costs of deploying such an expensive way of delivering a conventional weapon. If it is found to be cost effective to deploy a completely distinct conventional intercontinental ballistic missile system, however, we should go ahead. If not, then we should not deploy conventional warheads on missiles that are counted and regarded as nuclear.

So, in sum, I would recommend further U.S. and Russian reductions, the elaboration of a path toward a nuclear free world, and the embrace of no-first use and ratification of the CTBT in order to strengthen the counter-proliferation regime, and secondarily, to improve prospects for modernizing our existing arsenal and infrastructure.

