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U.S. Nuclear Weapons: Changes in Policy and Force Structure

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Summary

The Bush Administration conducted a review of U.S. nuclear weapons force posture during its first year in office. Although the review sought to adjust U.S. nuclear posture to address changes in the international security environment at the start of the new century, it continued many of the policies and programs that had been a part of the U.S. nuclear posture during the previous decade and during the Cold War. This report, which will be updated as needed, provides an overview of the U.S. nuclear posture to highlight areas of change and areas of continuity.

During the Cold War, the United States sought to deter the Soviet Union and its allies from attacking the United States and its allies by convincing the Soviet Union that any level of conflict could escalate into a nuclear exchange and, in that exchange, the United States would plan to destroy the full range of valued targets in the Soviet Union. Other nations were included in U.S. nuclear war plans due to their alliances with the Soviet Union. After the Cold War, the United States maintained a substantial nuclear arsenal to deter potential threats from Russia. It would not forswear the first use of nuclear weapons in conflicts with other nations, such as those armed with chemical or biological weapons, and formed contingency plans for such conflicts. The Bush Administration has emphasized that the United States and Russia are no longer enemies and that the United States will no longer plan or size its nuclear force to deter a “Russian threat.” Instead, the United States will maintain a nuclear arsenal with the capabilities needed to counter capabilities of any potential adversary, focusing on “how we will fight” rather than “who we will fight.” Furthermore, U.S. nuclear weapons will combine with missile defenses, conventional weapons, and a responsive infrastructure in seeking to assure U.S. allies, dissuade U.S. adversaries, deter conflict, and defeat adversaries if conflict should occur.

During the Cold War the United States maintained a “triad” of ICBMs, SLBMs, and heavy bombers in a strategic nuclear arsenal of more than 10,000 warheads. During the 1990s, the United States reduced the size of this arsenal to around 7,000 warheads, but maintained all three legs of the triad. The Bush Administration has announced that the United States will further reduce its arsenal to between 1,700 and 2,200 “operationally deployed” warheads, but that it will not eliminate many delivery vehicles while reducing its force and it will retain many nondeployed warheads in storage as a “responsive force” that could be added to the deployed forces if conditions warranted. The Bush Administration has also announced that it will expand and enhance the infrastructure that supports U.S. nuclear weapons, so that the United States could respond to unexpected changes in the status of its arsenal or the international security environment.

Analysts and observers have identified several issues raised by the Administration’s Nuclear Posture Review. These include the role of nuclear weapons in U.S. national security policy, how to make the U.S. nuclear deterrent “credible,” the relationship between the U.S. nuclear posture and the goal of discouraging nuclear proliferation, plans for strategic nuclear weapons, and the future of non-strategic nuclear weapons.

Contents

Introduction	1
The International Security Environment	3
Threats During the Cold War	3
Evolving Threats During the 1990s	3
Threat Assessment under the Bush Administration	4
Strategy and Doctrine	6
Deterrence During the Cold War	6
Deterrence after the Demise of the Soviet Union	7
Deterrence in the 21 st Century	9
The role of nuclear weapons in deterrence	9
Policy on the possible first use of nuclear weapons	11
Targeting and Employment Planning	12
Targeting During the Cold War	12
Targeting after the Demise of the Soviet Union	13
Prompt Response and Alert Rates	14
Bush Administration Approach	15
Prompt Response and Alert Rates	18
Force Structure	18
Nuclear Forces During the Cold War	18
Strategic Nuclear Forces	19
Ballistic Missile Defenses	19
Force Structure After the Cold War	20
Non-strategic Nuclear Forces	20
Strategic Nuclear Weapons	21
Ballistic Missile Defenses	22
Bush Administration Proposals	22
Non-strategic nuclear weapons	23
Strategic Nuclear Weapons	24
Ballistic Missile Defenses	30
Infrastructure	31
The Nuclear Weapons Complex During the Cold War	31
The Nuclear Complex in the 1990s	32
Infrastructure in the Future	34
Issues Raised by the NPR	37
The Role of Nuclear Weapons in U.S. Defense Policy	37
Credible Deterrence	39
U.S. Nuclear Posture and Nonproliferation Policy	41
Strategic Nuclear Weapons	42
Non-Strategic Nuclear Weapons	44

List of Tables

Table 1: U.S. Strategic Nuclear Forces Under START I and START II	21
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Table 2: Illustrative U.S. Strategic Nuclear Forces Under Bush Administration	
Plan	25

U.S. Nuclear Weapons: Policy and Force Structure

Introduction

During the Cold War, the United States maintained nuclear forces that were sized and structured to deter any attack by the Soviet Union and its Warsaw Pact allies, and if deterrence failed, to defeat the Soviet Union. In the years since the 1989 collapse of the Berlin wall and 1991 demise of the Soviet Union, officials in the U.S. government and analysts outside government have conducted numerous reviews and studies of U.S. nuclear weapons policy and force structure. Although these studies have varied in scope, intent, and outcome, most have sought to describe a new role for U.S. nuclear weapons and to identify the appropriate size and structure of the U.S. nuclear arsenal in the post-Cold War era. In offering their recommendations, these analyses addressed not only the end of the hostile U.S.-Soviet global rivalry, but also the emergence of new threats and regional challenges to U.S. security.

The U.S. Department of Defense conducted several far-reaching reviews, including the 1993 Bottom-up Review, the 1994 Nuclear Posture Review, and the 1997 Quadrennial Defense Review, that contributed to the Clinton Administration's response to changes in the international security environment. These formal reviews, when combined with less prominent internal studies, resulted in numerous changes to the structure of U.S. nuclear forces and policy guiding their potential use. However, many critics of the Clinton Administration argued that, at the end of the 1990s, the U.S. nuclear posture looked much as it had at the beginning of the decade. The number of deployed nuclear weapons had declined as the United States implemented the first Strategic Arms Reduction Treaty (START I) and completed the withdrawal of most of its non-strategic nuclear weapons. But, even though the Soviet Union no longer existed and the threat of global nuclear war had sharply diminished, the United States continued to focus its nuclear planning and size and structure its nuclear forces to deter the potential threat of a Russian attack.

In a speech at the National Press Club in May 2000, then-Governor George W. Bush both echoed the criticism of the Clinton Administration's nuclear policy and outlined an alternative approach that he pledged to adopt if elected.¹ He stated that the "Clinton-Gore Administration" remained "locked in a Cold War mentality" and that the United States needed to "fend against the new threats of the 21st century." He argued that "America should rethink the requirements for nuclear deterrence..." and stated that "the premises of Cold War nuclear targeting should no longer dictate the size of our arsenal." He stated that, if elected, he would ask the Secretary of

¹Federal Document Clearing House. Transcript. Governor George Bush Holds News Conference at National Press Club. May 23, 2000.

Defense “to conduct an assessment of our nuclear force posture.” After DOD completed that assessment, he would reduce U.S. nuclear forces to the “lowest possible number consistent with our national security.” In several speeches and statements during his first year in office, President Bush and his advisers stated that “Russia is no longer our enemy” and they pledged to alter U.S. nuclear weapons policy to reflect this view.

In its debate over the FY2001 Defense Authorization Bill, the Senate passed a provision that called on the next President to conduct a new nuclear posture review during his first year in office. During the last few years of the Clinton Administration, Congress had prevented the President from reducing U.S. strategic nuclear forces below the levels specified in START I until the 1993 START II Treaty entered into force. The Clinton Administration had sought relief from this language because the costs to the services of retaining weapons slated for elimination were growing. But some Members questioned whether the Clinton Administration might reduce U.S. forces too far if Congress lifted the prohibition. Hence, the Senate retained the prohibition in the FY2001 Bill and stated that the next President could only reduce U.S. forces after conducting a new nuclear posture review. Although the House had not included similar language in its bill, the Conference Committee supported the call for a new nuclear posture review.²

These two factors – the Congressional mandate and the Presidential commitment – established the framework for the Bush Administration’s review of U.S. nuclear posture. The Administration completed its review and sent a classified report to Congress at the end of December 2001; it provided the public with a summary of its results in early January 2002. The results of the Administration’s review generated a significant amount of debate in January, and then again in March, when a copy of the classified report leaked to the press. Most analysts focused on areas where the Bush Administration had proposed to change U.S. nuclear posture; some focused on areas where U.S. nuclear policy would remain the same as it had been for years, or even decades.

This report provides a general overview of the past, present, and possible future of U.S. nuclear policy. It begins with a review of the international security environment, highlighting the threats that the United States has sought to deter or respond to with its nuclear forces. It then reviews the strategy and doctrine guiding the U.S. nuclear force posture, targeting and employment policy, the numbers and types of weapons in the nuclear force structure, and the infrastructure that has supported design, development, and testing of U.S. nuclear weapons. In each of these areas, the report summarizes U.S. nuclear policy during the Cold War, identifies changes implemented in the decade after the collapse of the Soviet Union, and details how the Bush Administration proposes to bring continuity and change to U.S. nuclear weapons, policy, and infrastructure. The report concludes with a

²Section 1041 of that legislation (P.L.) called on the Secretary of Defense to conduct a comprehensive review of U.S. nuclear posture to “clarify U.S. nuclear deterrence policy and strategy for the near term.” The final bill did not, however link the completion of this review to an elimination on the restrictions on nuclear reductions. Congress removed this restriction in the Defense Authorization Bill for FY2002.

discussion of several issues and questions that analysts have raised after reviewing the Bush Administration's Nuclear Posture Review. These include the role of nuclear weapons in U.S. national security policy, how to make the U.S. nuclear deterrent "credible," the relationship between U.S. nuclear posture and the goal of discouraging nuclear proliferation, plans for strategic nuclear weapons, and the future of non-strategic nuclear weapons.

The International Security Environment

Threats During the Cold War

During the Cold War, the United States sought to maintain "nuclear and conventional capabilities sufficient to convince any potential aggressor that the costs of aggression would exceed any potential gains that he might achieve."³ In spite of these general statements, however, one nation stood at the top of the list of potential aggressors. The Soviet Union was the only nation with a nuclear arsenal that could threaten the political existence of the United States and the only nation that could pose a global challenge to U.S. allies and interests. Therefore, when detailing threats to U.S. national security, officials concluded that "the most significant threat to U.S. security interests [remained] the global challenge posed by the Soviet Union."⁴

Other nations, such as those in Soviet-dominated Eastern Europe, were included in the U.S. nuclear war plans, but their presence reflected their relationship with the Soviet Union more than any independent threat they might pose to the United States or allies. China could also threaten U.S. interests, and the United States maintained the capability to respond to possible contingencies in Asia. But, because the Soviet threat dominated U.S. defense planning, officials believed that nuclear forces sized and structured to deter the Soviet threat would be sufficient to deter or respond to these "lesser included cases."

Evolving Threats During the 1990s

Most experts agree that the collapse of the Soviet Union at the end of 1991 essentially eliminated the threat of global nuclear war between the superpowers. The Clinton Administration argued that "the dissolution of the Soviet empire had radically transformed the security environment facing the United States and our allies. The primary security imperative of the past half century – containing communist expansion while preventing nuclear war – is gone."⁵ But the Clinton Administration argued that Russia could potentially pose a threat to the United States again in the future. This potential existed "not because its intentions are hostile, but

³U.S. Department of Defense. Annual Report to Congress. Fiscal Year 1985, by Caspar Weinberger, Secretary of Defense. February 1, 1984. Washington, 1984. p. 27.

⁴The White House. National Security Strategy of the United States. January 1988. Washington, 1988. p. 5.

⁵A National Security Strategy of Engagement and Enlargement. The White House, February 1995. Washington, D.C. p. 1.

because it controls the only nuclear arsenal that can physically threaten the survivability of U.S. nuclear forces.”⁶ Furthermore, officials in the Administration argued that “a stable transition in Russia is by no means assured” so the United States “must hedge against the possibility that Russia, which continues to maintain a formidable nuclear arsenal consisting of thousands of deliverable strategic and tactical warheads, could reemerge at some time in the future as a threat to the West.”⁷

At the same time, the Clinton Administration recognized growing threats to the United States from a number of emerging adversaries, particularly if they were armed with weapons of mass destruction. In its National Security Strategy Report for 1998, the Administration noted that “a number of states still have the capabilities and the desire to threaten our vital interests...” and that, “in many cases, these states are also actively improving their offensive capabilities, including efforts to obtain or retain nuclear, biological, or chemical weapons, and, in some cases, long-range delivery systems.” The Clinton Administration also declared that “weapons of mass destruction pose the greatest potential threat to global stability and security. Proliferation of advanced weapons and technologies threatens to provide rogue states, terrorists, and international crime organizations the means to inflict terrible damage on the United States, its allies, and U.S. citizens and troops abroad.”⁸

The Clinton Administration did not consider China to pose a direct threat to the United States. Nevertheless, Administration officials did note that China maintained a formidable nuclear force, even though it was much smaller than Russia’s nuclear force. The Administration also stated that “China continues to make steady efforts to modernize those forces, and that the United States cannot be sure that it will not need nuclear weapons to deter China in the future.”⁹

Threat Assessment under the Bush Administration

The Bush Administration has stated that “nuclear forces continue to play a critical role in the defense of the United States, its allies, and friends. They provide credible capabilities to deter a wide range of threats, including weapons of mass destruction and large-scale conventional military force.”¹⁰ However, in contrast with the Clinton Administration’s view about a potential Russian threat, the Bush Administration has stated, on several occasions, that Russia and the United States are

⁶U.S. Department of Defense. Annual Report to the President and Congress. William S. Cohen, Secretary of Defense. April 1997. Washington, D.C. p. 11.

⁷Statement of the Honorable Edward L. Warner, Assistant Secretary of Defense for Strategy and Threat Reduction, Before the Senate Armed Services Committee Subcommittee on Strategic Forces. April 14, 1999.

⁸A National Security Strategy for a New Century. The White House. October, 1998. Washington, D.C. p. 6.

⁹Statement of the Honorable Edward L. Warner, Assistant Secretary of Defense for Strategy and Threat Reduction, Before the Senate Armed Services Committee Subcommittee on Strategic Forces. April 14, 1999.

¹⁰U.S. Department of Defense. Annual Report to the President and the Congress. Donald H. Rumsfeld, Secretary of Defense. Washington, D.C. 2002. p. 83.

no longer enemies. Even though Russia retains thousands of nuclear warheads, which could reach targets in the United States, the growing cooperation between the two nations has allowed a “new strategic framework” to replace the Cold War’s adversarial relationship and its reliance on “mutual assured destruction.” Consequently, according to the Administration’s public comments on the Nuclear Posture Review, the United States “will no longer plan, size or sustain its nuclear forces as though Russia presented merely a smaller version of the threat posed by the former Soviet Union.”¹¹ The Administration does acknowledge, however, that a “hostile peer competitor” could re-emerge in the future, and this potential contingency did play a role in decisions on the future size and structure of U.S. nuclear forces.¹²

At the same time, the Bush Administration has argued that, in the future, “the United States is likely to be challenged by adversaries who possess a wide range of capabilities, including asymmetric approaches to warfare, particularly weapons of mass destruction.”¹³ According to some in the Administration, these adversaries might threaten U.S. allies and interests, U.S. forces protecting U.S. interests, and U.S. territory in an effort to blackmail the United States to retreat from its commitments around the world. These adversaries could include non-state actors and terrorists, as well as nations such as China¹⁴ and the three nations – Iran, Iraq, and North Korea – named by the President as the “axis of evil” in his State of the Union Address in January 2002. Therefore, when planning its nuclear policy and force structure, the United States now faces threats from “multiple potential opponents, sources of conflict, and unprecedented challenges.”¹⁵

¹¹U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002. See [<http://defenselink.mil/cgi-bin/dlprint.cgi>]

¹²U.S. Department of Defense. Annual Report to the President and the Congress. Donald H. Rumsfeld, Secretary of Defense. Washington, D.C. 2002. p. 89.

¹³U.S. Department of Defense. Quadrennial Defense Review Report. September 30, 2001., p. 3.

¹⁴Rice, Condoleeza. Promoting the National Interest. Foreign Affairs. January/February 2000. v. 79. p. 56.

¹⁵U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. Press reports published after the leak of the classified NPR report indicate that the Review listed these nations, along with Syria and Libya, as potential recipients of a U.S. nuclear attack. However, Secretary of State Powell indicated that the Review did not offer guidance on planning for nuclear attacks against any nation. Instead, he described the review as “prudent military planning” where the planners had to consider “a range of options the President should have available to him to deal with these kinds of threats.” See Savage, David G. Nuclear Plan Meant to Deter. Los Angeles Times, March 11, 2002. P. 1.

Strategy and Doctrine

The United States has maintained its nuclear arsenal to deter attacks or threats of attack from its adversaries. As was noted above, the Soviet Union and Russia have been the primary, but not only, targets of this strategy. The United States has sought to deter attack by maintaining a nuclear force structure and operational plans for those forces that would convince any attacking nation that the costs of its aggression would far outweigh the benefits. The challenge for U.S. nuclear policy has been to make this threat credible. Many analysts have argued that the overwhelming destructive power of nuclear weapons could have undermined the threat to use them – because the Soviet Union and Russia could have responded to a U.S. retaliatory attack with equally destructive attacks against the United States, the United States might not have launched its nuclear forces. Other nations might not be able to threaten the United States with massive destruction, but they also might not believe that the United States would cross the nuclear threshold unless its own survival were at risk. Hence, the United States has sought, on many occasions in the past 50 years, to modify and adjust its forces and targeting strategy so that potential adversaries would believe and heed the U.S. threat to retaliate with nuclear weapons, adding more limited attack options and seeking greater flexibility in the timing and size of potential nuclear attacks.

Deterrence During the Cold War

During the 1950s and 1960s, the United States sought to deter Soviet aggression by threatening “massive retaliation” and “assured destruction.” These strategies envisioned a large-scale U.S. nuclear strike against a wide variety of targets in the Soviet Union, Eastern Europe, and China if the Soviet Union or its allies initiated a nuclear or large-scale conventional attack against the United States or its allies.¹⁶ In threatening such an overwhelming response, the United States sought to convince Soviet leaders that the Soviet Union would cease to exist as a functioning society if it initiated a conflict against the United States and its allies. In the 1970s, the United States adopted a strategy of “flexible response” and, subsequently, a “countervailing strategy.” These policies emphasized retaliatory strikes on Soviet military forces and war-making capabilities, as opposed to attacks on civilian and industrial targets. They also allowed for the possibility of limited, focused attacks on a smaller number of targets. These strategies sought to provide the President with more flexibility, with respect to the timing, scale, and the targets of the attack, than he would have had in earlier years.

The United States sought to deter not only a nuclear attack on U.S. territory, but also nuclear, chemical or conventional attacks and coercion aimed at U.S. allies in

¹⁶For a more detailed discussion of U.S. nuclear strategy and doctrine see Ball, Desmond. *The Development of the SIOP, 1960-1983*, in Desmond Ball and Jeffrey Richelson, *Strategic Nuclear Targeting*, Cornell University Press, 1986. pp. 57-83; and Ball, Desmond and Robert C. Toth. *Revising the SIOP: Taking War-Fighting to Dangerous Extremes*. *International Security*, v. 14. Spring 1990.

Europe and Asia.¹⁷ This “extended deterrent” sought to convince the Soviet Union that any level of aggression against U.S. allies could escalate into a nuclear conflict that might involve attacks on the Soviet Union. The United States and its allies did not insist that they would respond to any level of aggression with nuclear weapons, but they sought to maintain the capability to do so. This posture reflected, in part, the fact that the Soviet Union and Warsaw Pact maintained a clear numerical superiority in conventional forces, and, without the possibility of resort to nuclear weapons, the United States and NATO might face defeat. Consequently, the United States would not rule out the possible *first use* of nuclear weapons in a conflict. However, in the late 1970s, the United States issued a “negative security assurance,” in conjunction with the Nuclear Non-proliferation Treaty (NPT), in which it stated that it would not threaten or attack with nuclear weapons any non-nuclear weapons states that were parties to the NPT, unless these states were allied with a nuclear nation in a conflict with the United States. This last exclusion meant that the statement did not alter U.S. nuclear planning for potential conflicts with the Soviet Union and Warsaw Pact. However, some analysts believed that this commitment would encourage other nations to forswear their own nuclear weapons because they knew they would not need such weapons to deter or respond to nuclear attack from the United States.

Deterrence after the Demise of the Soviet Union

Throughout the 1990s, the Clinton Administration and others argued that nuclear weapons remained important to deter the range of threats faced by the United States. Secretary of Defense Perry outlined this view in his Annual Report for 1995, noting that “recent international upheavals have not changed the calculation that nuclear weapons remain an essential part of American military power. Concepts of deterrence ... continue to be central to the U.S. nuclear posture. Thus, the United States will continue to threaten retaliation, including nuclear retaliation, to deter aggression against the United States, U.S. forces, and allies.”¹⁸ In theory, this deterrent strategy extended beyond Russia – “the United States must continue to maintain a robust triad of strategic forces sufficient to deter any hostile foreign leadership with access to nuclear forces and to convince it that seeking a nuclear advantage would be futile.” Furthermore, according to the Clinton Administration, “nuclear weapons serve as a hedge against an uncertain future, a guarantee of our security commitments to allies and a disincentive to those who would contemplate developing or otherwise acquiring their own nuclear weapons.”¹⁹

The Clinton Administration retained the existing U.S. policy on “first use” – specifically, it did not forswear the first use of nuclear weapons. The Clinton Administration indicated that nations other than Russia might face nuclear retaliation if they attacked the United States with nuclear, chemical or biological weapons.

¹⁷The White House. National Security Strategy of the United States. January 1988. Washington, 1988. p. 13.

¹⁸U.S. Department of Defense. *Annual Report to the President and Congress*, by Secretary of Defense William Perry. Washington D.C., February 1995. p. 84.

¹⁹*A National Security Strategy for a New Century*. The White House, October 1998. Washington, D.C. p. 12.

Although it re-affirmed the U.S. negative security assurance in 1995, Administration officials indicated that the United States would reserve the right to use nuclear weapons first “if a state is not a state in good standing under the Nuclear-Nonproliferation Treaty (NPT) or an equivalent international convention.”²⁰ Furthermore, a nation might forfeit its protections under the negative security assurance if it attacked the United States or U.S. forces with weapons of mass destruction (WMD).²¹

The United States did not, however, directly threaten to use nuclear weapons in retaliation for non-nuclear attacks. Its policy was one of “studied ambiguity.” For example, when discussing how the United States might react if Libya were to develop and use chemical weapons, former Secretary of Defense William Perry stated “if some nation were to attack the United States with chemical weapons, then they would have to fear the consequences of a response from any weapon in our inventory... We could make a devastating response without the use of nuclear weapons, but we would not forswear the possibility.”²² Secretary Perry also noted that, although the United States would not specify how it would respond to WMD use, an aggressor could be certain that the U.S. response would be “both overwhelming and devastating.” Assistant Secretary of Defense Edward Warner testified that “the very existence of U.S. strategic and theater nuclear forces, backed by highly capable conventional forces, should certainly give pause to any rogue leader contemplating the use of WMD (weapons of mass destruction) against the United States, its overseas deployed forces, or its allies.”²³

These statements generally referred to the potential U.S. response to an attack from another nation. Most experts agreed that nuclear weapons could do little to deter an attack from a non-state actor – it might be difficult to identify such an attacker and it could be difficult to identify appropriate targets for a U.S. response. Nonetheless, many experts agreed that U.S. nuclear weapons might play a role in deterring the state sponsors of non-state actors.

During the 1990s, the NATO alliance altered its nuclear strategy to reflect the demise of the Soviet Union and Warsaw Pact, but also did not adopt a “no-first use” policy. Although nuclear weapons play a far smaller role in Alliance strategy than they did during the Cold War, the NATO allies reaffirmed the importance of nuclear weapons for deterrence. The “New Strategic Concept” signed in April 1999 stated that “to protect peace and to prevent war or any kind of coercion, the Alliance will

²⁰Cerniello, Craig. Clinton Issues New Guidelines on U.S. Nuclear Weapons Doctrine. *Arms Control Today*. November/December 1997.

²¹Smith, R. Jeffrey. Clinton Directive Changes Strategy on Nuclear Arms; Centering on Deterrence, Officials Drop Terms for Long Atomic War. *Washington Post*, December 7, 1997. p. A1.

²² This statement is quoted in Pincus, Walter. “Rogue” Nations Policy Builds on Clinton’s Lead. *Washington Post*, March 2, 2002. P. 4.

²³Statement of the Honorable Edward L. Warner, III. Assistant Secretary of Defense for Strategy and Threat Reduction, Before the Senate Armed Services Subcommittee on Strategic Forces. April 14, 1999.

maintain for the foreseeable future an appropriate mix of nuclear and conventional forces. Nuclear weapons make a unique contribution in rendering the risks of aggression against the Alliance incalculable and unacceptable.” Furthermore, nuclear weapons ensure “uncertainty in the mind of any aggressor about the nature of the Allies’ response to military aggression.”²⁴

Deterrence in the 21st Century

The role of nuclear weapons in deterrence. The Bush Administration has emphasized that nuclear weapons “continue to be essential to our security, and that of our friends and allies.”²⁵ Nuclear weapons remain the only weapons in the U.S. arsenal that can hold at risk the full range of targets valued by an adversary. As a result, they continue to play a key role in U.S. deterrent strategy. During the Cold War, and in the past decade, U.S. policy often viewed nuclear weapons apart from the rest of the U.S. military establishment, with nuclear weapons serving to deter a global nuclear conflict with the Soviet Union or Russia.

In contrast with this traditional perspective, the Bush Administration has described a more comprehensive and integrated role for nuclear weapons. In its presentation outlining the results of the Nuclear Posture Review, the Administration argued that nuclear weapons, along with missile defenses and other elements of the U.S. military establishment, not only *deter* adversaries by promising an unacceptable amount of damage in response to an adversary’s attack, they can also *assure* allies and friends of the U.S. commitment to their security by providing an extended deterrent, *dissuade* potential adversaries from challenging the United States with nuclear weapons or other “asymmetrical threats” by convincing them that they can never negate the U.S. nuclear deterrent; and *defeat* enemies by holding at risk those targets that could not be destroyed with other types of weapons.²⁶ According to Undersecretary of Defense Douglas Feith, “linking nuclear forces to multiple defense policy goals, and not simply to deterrence, recognizes that these forces ... perform key missions in peacetime as well as in crisis or conflict.”²⁷

But the idea that nuclear weapons can play a role that goes beyond threatening nuclear retaliation is not new to the Bush Administration. The Clinton Administration also stated that nuclear weapons can serve as “a guarantee of our

²⁴The Alliance’s Strategic Concept, Approved by the Heads of State and Government participating in the meeting of the North Atlantic Council in Washington D.C. on 23rd and 24th April 1999.

²⁵U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

²⁶U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002. See [<http://defenselink.mil/cgi-bin/dlprint.cgi>]. These are the same four defense policy goals outlined in the Quadrennial Defense Review for the whole of the U.S. military. See U.S. Department of Defense. Quadrennial Defense Review Report. September 30, 2001., p. 11

²⁷U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

security commitments to allies and a disincentive to those who would contemplate developing or otherwise acquiring their own nuclear weapons.”²⁸ The key difference between the past and the future may be rhetorical – during the Cold War, the United States emphasized the role that nuclear weapons could play in deterring the Soviet Union before mentioning other possible objectives for U.S. nuclear policy; in the future, with the greatly reduced risk of global nuclear war, the other objectives may become more prominent in discussions of U.S. national security strategy.

In its presentation on the Nuclear Posture Review, the Bush Administration asserted that, in spite of contributing to four distinct policy objectives, nuclear weapons would play a smaller role in U.S. national security strategy in the future than they had during the Cold War. According to the Administration, U.S. deterrent policy has been highly dependent on the threat of offensive nuclear retaliation, with the President having few other options for response if the United States or its allies were attacked. In the coming years, the United States will also seek to deter and defeat adversaries with precision conventional weapons, which may soon be able to destroy some targets that were assigned to nuclear weapons in the past, and ballistic missile defenses, which can deter attack by denying an adversary the ability to threaten U.S. targets with ballistic missiles.²⁹ According to Administration officials, this new combination of weapons will provide the President with a greater number of options and greater flexibility when responding to threats or aggression from U.S. adversaries.

Some have argued that a national security concept that combines nuclear and conventional capabilities will blur the distinction between the two types of weapons and, therefore, increase the likelihood of a nuclear response. The Administration, however, has argued that the presence of nuclear and conventional options would “reduce pressures to resort to nuclear weapons by giving the President non-nuclear options to ensure U.S. security.”³⁰ Furthermore, according to those who support the Administration’s approach, where adversaries might doubt the U.S. willingness to resort to nuclear weapons, these expanded options could enhance the credibility of the U.S. deterrent. Others note, however, that, over the years, the threat of conventional response has not succeeded in deterring potential adversaries, requiring the United States to respond with conventional attack and war. And, in spite of the Administration’s presentation of a “new triad,” U.S. military planning has always presented the President with a range of options. Nuclear options may have dominated possible U.S. responses to Soviet aggression, but the President could always choose conventional options when faced with a crisis or conflict. In fact, throughout the Cold War and the decade since, the United States has always chosen conventional, rather than nuclear, options when responding to aggression.

²⁸A *National Security Strategy for a New Century*. The White House, October 1998. Washington, D.C. p. 12.

²⁹ U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002.

³⁰U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

Policy on the possible first use of nuclear weapons. The United States has never ruled out the possible first use of nuclear weapons. Although it has pledged that it would not attack non-nuclear weapons states with nuclear weapons under most circumstances, it has maintained a policy of “studied ambiguity” about the circumstances under which it would consider nuclear retaliation and the type of response it might use if a nation attacked the United States with WMD.

In its nuclear posture review (NPR), the Bush Administration did not alter the U.S. policy on the first use of nuclear weapons. However, with its emphasis on the emerging threats posed by nations armed with weapons of mass destruction, the Administration did appear to shift towards a somewhat more explicit approach when acknowledging that the United States might use nuclear weapons in response to attacks by nations armed with chemical, biological, and conventional weapons. The Bush Administration has stated that the United States would develop and deploy those nuclear capabilities that it would need to defeat the capabilities of *any* potential adversary whether or not it possessed nuclear weapons. Specifically, in its briefing on the Nuclear Posture Review, the Administration stated that the capabilities needed in the U.S. nuclear force structure “are not country-specific” and that the United States “must maintain capabilities for unexpected and potential risks.” The focus will be “on how we will fight, not who we will fight.”³¹ This does not, by itself, indicate that the United States would plan to use nuclear weapons first in conflicts with non-nuclear nations. However, General Richard B. Myers, the chairman of the Joint Chiefs of Staff stated in an interview that the scope of the destruction, not the weapon used in an attack, would affect a U.S. decision on whether to respond with nuclear weapons. He included high explosives, i.e. conventional weapons, in the list of “weapons of mass destruction” that might bring a nuclear response from the United States.³² Furthermore, press articles that reported on the nuclear posture review stated that the Administration had considered using nuclear weapons in contingencies with nations such as Iran, Iraq, Syria, and Libya.³³ These nations do not, at this time, possess nuclear weapons.

When responding to these press reports, the Bush Administration stated that the NPR had not produced war plans for attacks on non-nuclear nations. Instead, the U.S. nuclear force posture was designed to deter these nations from acquiring or using weapons of mass destruction. According to the President’s national security adviser, Condeleeza Rice, it was supposed “to send a very strong signal to anyone who might try to use weapons of mass destruction against the United States.”³⁴ President Bush also appeared to endorse a policy of more explicit nuclear threats

³¹U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002.

³²General Myers made these comments in an interview on the Late Edition with Wolf Blitzer on CNN. They are quoted in Savage, David G. Nuclear Plan Meant to Deter. *Los Angeles Times*, March 11, 2002. P. 1.

³³Gordon, Michael. U.S. Nuclear Plan Sees New Targets and New Weapons. *New York Times*. March 10, 2002. p. 1.

³⁴Savage, David G. Nuclear Plan Meant to Deter. *Los Angeles Times*, March 11, 2002. P. 1.

during a news conference on March 14, 2002. He stated that “we want to make it very clear to nations that you will not threaten the United States or use weapons of mass destruction against us or our allies... I view our nuclear arsenal as a deterrent, as a way to say to people that would harm America that ... there is a consequence. And the President must have all the options available to make that deterrent have meaning.”³⁵

Some analysts have argued that these statements and possible plans for using nuclear weapons against non-nuclear weapons states are inconsistent with the U.S. negative security assurance offered to the non-nuclear nations under the NPT. Neither the President nor Secretary of State Powell have addressed this issue or announced a withdrawal of the negative security assurance. However, in February, 2002, John Bolton, the Undersecretary of State for Arms Control and International Security stated that he did not think the rhetorical approach used in the negative security assurance “is necessarily the most productive” and “doesn’t seem to me to be terribly helpful in analyzing what our security needs may be in the real world.”³⁶ He argued that the assurances had been offered in “a very different geostrategic context” and stated that the Bush Administration would be reviewing U.S. security assurances to non-nuclear nations “in the context of our preparation for the 2005 review conference” of the Nuclear Nonproliferation Treaty.³⁷

Targeting and Employment Planning

Targeting During the Cold War

During the Cold War, the United States sought to deter the Soviet Union, and defeat it if deterrence failed, by threatening to destroy a wide range of military and industrial targets. The U.S. plan for how to achieve this objective was contained in a document known as the SIOP – the Single Integrated Operational Plan – which is highly classified. According to scholarly reports and articles, the SIOP evolved over the years, in response to changes in the number and capabilities of U.S. nuclear forces and changes in theories of how to deter the Soviet Union. Throughout this time, though, the SIOP reportedly contained a number of attack options for the

³⁵Miller, Greg. Bush Puts Nuclear Use in “Options Available.” Los Angeles Times, March 14, 2002.

³⁶A New Strategic Framework? Detailing the Bush Approach to Nuclear Security. Interview with Undersecretary of State John R. Bolton. Arms Control Today. March 2002. Secretary Bolton also said that the negative security assurances reflected “an unrealistic view of the international situation” and that, in case of an attack, “we would have to do what is appropriate under the circumstances, and the classic formulation of that is, we are not ruling anything in and we are not ruling anything out.” See Nicholas Kravov. U.S. Drops Pledge on Nukes. Washington Times. February 22, 2002. P. 1.

³⁷ When asked about the U.S. policy on negative security assurances, Richard Boucher, the spokesman for the State Department, reaffirmed the existing U.S. policy. He did however, note that the United States did not rule out a possible nuclear response to the use of WMD, even if the attacking nation did not possess nuclear weapons. See U.S. Department of State. Daily Press Briefing. February 22, 2002.

President to choose from. These options varied in terms of the numbers and types of targets to be attacked and varied according to the number and types of U.S. warheads available when the conflict began.³⁸

In 1990, General John Chain, Commander in Chief of the Strategic Command, outlined U.S. targeting strategy in testimony before Congress. He stated that “the task is to be able to deter any possessor of nuclear weapons from attacking the United States by having a postured retaliatory force significant enough to destroy what the attacker holds most dear... Against this macro mission, target categories are designated. Within these target categories, a finite list of targets are designated; and against those targets, weapons are allocated.” These target categories reportedly included Soviet strategic nuclear forces, other military forces, military and political leadership, and industrial facilities.³⁹ These represented mostly “counterforce” and industrial targets. The United States did not seek to destroy Soviet cities, although many likely would have faced attack due to their proximity to military or industrial targets. The United States sought the capability to destroy thousands of sites in these target categories, even if the Soviet Union destroyed many U.S. weapons in a first strike. The need for weapons that could survive a Soviet strike and retaliate against a wide range of Soviet targets created the requirement for large numbers of U.S. strategic nuclear weapons.

Targeting after the Demise of the Soviet Union

After the disintegration of the Warsaw Pact and collapse of the Soviet Union, the Department of Defense conducted several studies to review U.S. nuclear targeting strategy and weapons employment policy. According to published reports, these reviews revised and greatly reduced the length of the target list, but left the basic tenets of the strategy untouched. According to a 1995 article in the Washington Post, “the United States primary nuclear war plan still targets Russia and provides the President an option for counterattack within 30 minutes of confirmed enemy launch.”⁴⁰

In 1997, the Clinton Administration altered the U.S. strategy from seeking to win a *protracted* nuclear war, a strategy identified during the Reagan Administration, to seeking to deter nuclear war. In practice, this probably meant the United States

³⁸See, for example, Ball, Desmond and Jeffrey Richelson, eds. *Strategic Nuclear Targeting*. Cornell University Press. 1986. See also McKinzie, Matthew G. et al. *The U.S. Nuclear War Plan: A Time for Change*. Natural Resources Defense Council. 2001. pp. 5-14.

³⁹Statement by John T. Chain, Jr. Commander in Chief, Strategic Air Command and Director, Strategic Target Planning, before the House Armed Services Committee. March 6, 1990. Prepared Text, p. 5.

⁴⁰“Secretary Cheney and General Powell and their aides threw thousands of targets out of the SIOP (single integrated operational plan), helping to reduce it from its Cold War peak of more than 40,000 to about 10,000 by 1991.” In addition “General Butler reviewed each target one-by-one tossing many out ... one day he eliminated 1,000 targets in newly liberated Eastern Europe...” By 1994, General Butler had helped to pare the SIOP to 2,500 targets. See Ottaway, David B. and Steve Coll. *Trying to Unplug the War Machine*. Washington Post, April 12, 1995. p. A28.

would not seek to cause as much damage against as wide a range of targets as it had planned on attacking in previous war plans. Consequently, the United States would not need to maintain as large an arsenal of nuclear weapons as it had needed during the Cold War.⁴¹ But, these changes did not alter the core objectives of U.S. nuclear policy. The United States would continue “to emphasize the survivability of the nuclear systems and infrastructure necessary to endure a preemptive attack and still respond at overwhelming levels.”⁴² Furthermore, the United States reportedly continued to prepare a range of attack options, from limited attacks involving small numbers of weapons to major attacks involving thousands of warheads, and to plan attacks against military targets, nuclear forces, and civilian leadership sites in Russia.⁴³ The Clinton Administration argued that the flexibility offered by this range of options would enhance deterrence by providing the United States with more credible responses to a range of crises and attack scenarios.

Prompt Response and Alert Rates. The Clinton Administration retained the U.S. policy of maintaining the capability to launch nuclear weapons after receiving indications that an attack on the United States was underway, but before incoming warheads could detonate.⁴⁴ Analysts have criticized this policy, arguing that it leads Russia to maintain its forces at a high state of alert, which could lead to an inadvertent launch of Russia’s nuclear weapons if Russia received false or ambiguous warnings of nuclear attack. Nevertheless, Clinton Administration officials stated that the United States would not rely solely on the ability to launch promptly; it could wait until detonations had occurred, then launch its retaliatory strike at a later time.⁴⁵ Consequently, some of the options available in U.S. war plans included weapons that would be available if the United States launched its forces

⁴¹The first Strategic Arms Reduction Treaty, which the United States and Russia signed in 1991, reduced U.S. and Russian forces to 6,000 accountable warheads on strategic offensive delivery vehicles. Prior to START I, each side had deployed more than 10,000 strategic nuclear weapons. START II, signed by Russia and the United States in 1993, lowered the limit to 3,500 strategic offensive weapons on each side. The targeting reviews completed in the early 1990s had confirmed that the United States could reduce its forces to START I and, after the demise of the Soviet Union, START II levels without undermining its ability to pursue the existing employment policies. The new U.S. employment strategy, and plans to further reduce nuclear weapons to around 2,500 strategic warheads, emerged from additional targeting and force structure reviews in the mid-1990s.

⁴²Ibid. p. 12.

⁴³Smith, R. Jeffrey. Clinton Directive Changes Strategy on Nuclear Arms; Centering on Deterrence, Officials Drop Terms for Long Atomic War. *Washington Post*, December 7, 1997. p. A1.

⁴⁴Smith, R. Jeffrey. Clinton Directive Changes Strategy on Nuclear Arms; Centering on Deterrence, Officials Drop Terms for Long Atomic War. *Washington Post*, December 7, 1997. p. A1.

⁴⁵According to Robert Bell, “we direct our military forces to continue to posture themselves in such a way as to not rely on launch on warning — to be able to absorb a nuclear strike and still have enough force surviving to constitute credible deterrence. Our policy is to confirm that we are under nuclear attack with actual detonations before retaliating.” Cerniello, Craig. Clinton Issues New Guidelines on U.S. Nuclear Weapons Doctrine. *Arms Control Today*. November/December 1997.

before any were destroyed, and some included only those weapons that would survive if the United States absorbed a first strike before initiating its response. The decision on whether to launch U.S. weapons promptly or to wait for detonations on U.S. soil would be left to the national command authority at the time of the crisis.

Bush Administration Approach

During testimony before Congress, Douglas Feith, Undersecretary of Defense for Policy, stated that the “mutual assured destruction” relationship between the United States and Soviet Union was no longer an appropriate basis for calculating our nuclear requirements. Therefore, when determining the size and structure of the U.S. nuclear arsenal, DOD “excluded from our calculation ... the previous, long-standing requirements centered on the Soviet Union, and, more recently, Russia.”⁴⁶

The Bush Administration has referred to this new targeting strategy as a “capabilities-based” strategy, rather than a “threat-based” strategy. During the Cold War, U.S. targeting strategy focused on deterring and, if necessary, defeating the Soviet *threat*. According to the Administration, this gave rise to war plans that allowed for few contingencies and required only a minimum of flexibility and adaptability.⁴⁷ In the future, when planning for the possible use of nuclear weapons, the United States would “look more at a broad range of capabilities and contingencies that the United States may confront” and tailor U.S. military capabilities to address this wide spectrum of possible contingencies.⁴⁸ Specifically, the United States would identify potential future conflicts, review the capabilities of its possible adversaries, identify those capabilities that the United States might need to attack or threaten with nuclear weapons, and develop a force posture and nuclear weapons employment strategy that would allow it to attack those capabilities.

The Bush Administration has not discussed, publicly, how it will identify specific targets or allocate weapons in its “capabilities-based” targeting strategy. It has, however, identified three types of contingencies that it believes the United States must prepare to address with its nuclear employment plans.⁴⁹

- Immediate contingencies include “well-recognized, current dangers.” The Soviet threat was an immediate contingency in the past, current examples include a WMD attack on U.S. forces or allies in the Middle East or Asia.

⁴⁶U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁴⁷U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002.

⁴⁸U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁴⁹The following summarizes the discussion in the Secretary of Defense’s Annual Report. See U.S. Department of Defense. Annual Report to the President and Congress. Donald H. Rumsfeld, Secretary of Defense. Washington, 2002. p. 88.

- Potential contingencies are “plausible, but not immediate dangers.” This might include the emergence of new, adversarial, military coalitions, or the re-emergence of a “hostile peer competitor.” According to the Administration, the United States would probably have sufficient warning of the emergence of these threats to modify or adjust its nuclear posture.
- Unexpected contingencies are “sudden and unpredicted security challenges.” This might include a “sudden regime change” when an existing nuclear arsenal transferred to the control of a hostile leadership or an adversary’s sudden acquisition of WMD.

These three types of contingencies would place different demands on U.S. nuclear war planners. Because the United States can understand and anticipate immediate contingencies, it can size, structure, and plan in advance for the use of its nuclear arsenal to address these contingencies, just as it did when addressing the Soviet threat during the Cold War.⁵⁰ The United States can also plan in advance for the possible use of nuclear weapons in potential contingencies, even if it does not maintain the needed force structure on a day-to-day basis. Hence, the war-planning and targeting process for these contingencies are likely to be similar to the process used during the Cold War, albeit with a wider range of possible plans to address targets among a greater number of countries. And, although the Administration has not addressed this issue, the United States will likely prepare a number of alternative employment plans so that the President will have options to choose from if a conflict occurs. These are likely to include many of the same types of targets as the United States planned to attack during the Cold War because the ability to destroy these types of facilities is likely to remain important to the U.S. ability to defeat an enemy and limit damage to itself during a conflict. These targets could include deployed and non-deployed stocks of weapons of mass destruction (during the Cold War, Soviet nuclear weapons made up the majority of the targets in this category), other military facilities, leadership facilities, and, possibly other economic targets.

The United States cannot, however, prepare pre-planned options for attacks for *unexpected* contingencies because it does not know when or where these threats may emerge. The focus on the “unexpected” has underlined the Administration’s insistence that the United States develop and expand its capabilities for “adaptive planning.”⁵¹ The United States Strategic Command (STRATCOM), which develops the operational plans for U.S. strategic nuclear weapons, already has the ability to do some adaptive planning. It began this effort in 1992, when it sought to develop “a flexible, globally focused, war planning process” along with living SIOP, a nuclear

⁵⁰The Administration has indicated, however, that it will not size the force of “operationally deployed nuclear warheads” to address the potential Russian threat U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News Transcript. January 9, 2002.

⁵¹According to Undersecretary Feith, the United States must have “the flexibility to tailor military capabilities to a wide spectrum of contingencies, to address the unexpected, and to prepare for the uncertainties of deterrence.” See U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

war plan “able to respond almost instantaneously to new requirements.”⁵² At the present time, “STRATCOM is in the process of developing a more flexible and adaptive planning system ... that employs modern computing techniques and streamlined processes to significantly improve our planning capability for rapid, flexible crisis response.”⁵³ A responsive adaptive planning process must also rely on timely and accurate intelligence, so that the planners will be able to identify targets and attack them at their vulnerable points. Therefore, the Administration has called for improvements in U.S. “sensors and technologies so that they can provide more detailed information about an adversary’s plans, force developments, and vulnerabilities.” It has requested additional funding “for the development of advanced sensors and imagery, for improved intelligence and assessment, and for modernization of communications and targeting capabilities in support of evolving strike concepts.”⁵⁴

The Bush Administration has emphasized the increasing importance of adaptive planning, and waning relevance of pre-planned attack options, to highlight the fact that its nuclear doctrine and targeting strategy focus on emerging threats, rather than on a smaller version of the Cold War threat from the Soviet Union. Yet the Administration’s plans probably do not represent a complete break from past practices. First, because the Administration has identified the “re-emergence of a peer competitor” as one of the potential contingencies the United States might need to address, the United States is likely to retain some form of predetermined war plan with options for possible attacks against Russian targets. Second, although the Administration has indicated that it will reduce the number of operationally deployed strategic nuclear warheads (this is discussed in the next section), it will retain enough warheads to threaten many, if not most, of the targets included in options in the current SIOP. It may eliminate some of the existing options, and possibly add options for attacks against other possible adversaries, but it probably will not completely replace pre-planned options with adaptive planning. Instead, U.S. nuclear weapons employment policy is likely to include options for attacks against Russia, contingency plans for attacks against other countries, and adaptive planning capabilities to address unexpected, emerging threats. This would be similar to the employment policy that had emerged by the end of the Clinton Administration. Although the Clinton Administration continued to prepare a SIOP that focused on Russia, press reports indicate it also maintained current intelligence on WMD facilities in countries, such as Iran, Iraq, and North Korea, and that it passed this information to target planners at STRATCOM so that they could prepare contingency plans for attacks with U.S. nuclear weapons. According to one report, STRATCOM could produce target packages for these plans “within hours.”⁵⁵

⁵²Schwartz, Stephen I. Nukes You Can Use. *Bulletin of the Atomic Scientists*. May/June 2002. p. 19.

⁵³U.S. Senate. Committee on Armed Services. Statement of Admiral James O. Ellis, Commander in Chief of Strategic Command. February 14, 2002.

⁵⁴U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁵⁵Pincus, Walter. “Rogue” Nations Policy Builds on Clinton’s Lead. *Washington Post*, (continued...)

Prompt Response and Alert Rates. During the most recent presidential campaign, Governor George W. Bush indicated that, as a part of his nuclear posture review, he would be considering reducing the alert rates of U.S. nuclear weapons. However, when the Administration completed its review, it did not propose any changes to U.S. alert rates. To the contrary, DOD concluded that, even as the Air Force prepared to retire the Peacekeeper ICBMs, it would keep the force on alert to maintain the morale and operational readiness of the units. The Bush Administration also did not announce any changes to the U.S. ability to launch its nuclear weapons promptly, before absorbing an attack, at the start of a conflict, or to use nuclear weapons first in a conflict. To the contrary, with the growing emphasis on the potential use of nuclear weapons in conflicts with nations armed with WMD, the Administration probably would not support a “no first use” policy.

Force Structure

Nuclear Forces During the Cold War

During the Cold War, the U.S. nuclear arsenal contained many types of delivery vehicles for nuclear weapons, including short-range missiles and artillery for use on the battlefield, medium-range missiles and aircraft that could strike targets beyond the theater of battle, short- and medium-range systems based on surface ships, long-range missiles based on U.S. territory and submarines, and heavy bombers that could threaten Soviet targets from their bases in the United States. The long-range missiles and heavy bombers are known as strategic nuclear weapons; the short- and medium-range systems are considered non-strategic nuclear weapons and have been referred to as battlefield, tactical, and theater nuclear weapons.

Non-strategic Nuclear Weapons. Throughout the Cold War, the United States deployed thousands of shorter-range nuclear weapons on land in Europe, Japan, and South Korea and on ships around the world. These weapons were deemed essential to the U.S. strategy of extending nuclear deterrence to its allies. The United States began to reduce these forces in the late 1970s, in part because NATO officials believed they could maintain deterrence with fewer, but more modern, weapons.⁵⁶ These modernization programs continued through the 1980s, particularly through the deployment of ground-launched cruise missiles and intermediate-range ballistic missiles in Europe. However, by the end of that decade, as the Warsaw Pact dissolved, the United States had canceled or scaled back all planned modernization programs. In 1987, it also signed the Intermediate-Range Nuclear Forces (INF)

⁵⁵(...continued)

March 2, 2002. P. 4.

⁵⁶The numbers of operational U.S. non-strategic nuclear warheads declined from more than 7,000 in the mid-1970s to below 6,000 in the 1980s, to fewer than 1,000 by the middle of the 1990s. See *Toward a Nuclear Peace: The Future of Nuclear Weapons in U.S. Foreign and Defense Policy*. Report of the CSIS Nuclear Strategy Study Group, Washington, D.C. Center for Strategic and International Studies, 1993. p. 27.

Treaty, which eliminated all U.S. and Soviet ground-launched shorter and intermediate-range ballistic and cruise missiles.

Strategic Nuclear Forces. Since the early 1960s the United States has maintained a “triad” of strategic nuclear delivery vehicles. These include land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs) and long-range heavy bombers. The United States developed these three different types of nuclear delivery vehicles, in large part, because each of the military services wanted to play a role in the U.S. nuclear arsenal. However, during the 1960s and 1970s, analysts developed a more reasoned rationale for the nuclear “triad.” They argued that these different basing modes would enhance deterrence and discourage a Soviet first strike because they complicated Soviet attack planning and ensured the survivability of a significant portion of the U.S. force in the event of a Soviet first strike.⁵⁷ The different characteristics of each weapon system might also strengthen the credibility of U.S. targeting strategy. For example, ICBMs eventually had the accuracy and prompt responsiveness needed to attack hardened targets such as Soviet command posts and ICBM silos, SLBMs had the survivability needed to complicate Soviet efforts to launch a disarming first strike and to retaliate if such an attack were attempted,⁵⁸ and heavy bombers could be dispersed quickly and launched to enhance their survivability, and they could be recalled to their bases if a crisis did not escalate into conflict.

Modernization programs continued to enhance the capabilities of U.S. strategic nuclear weapons throughout the Cold War era. These programs culminated with the deployment of Peacekeeper (MX) ICBMs and Trident submarines and Trident II (D-5) SLBMs in the mid-1980s and 1990s and with the deployment of the B-2 (Stealth) bomber in the 1990s. The United States also continued to add to the numbers of its deployed strategic nuclear weapons through the end of the 1980s. However, by the early 1990s, the numbers of warheads deployed on U.S. strategic nuclear forces began to decline as the United States and Russia implemented the first Strategic Arms Reduction Treaty (START I).

Ballistic Missile Defenses. The United States has pursued research and development on anti-ballistic missile (ABM) systems since the early 1950s. In the mid-1960s it developed the Sentinel system, which would have used ground-based, nuclear-armed interceptor missiles to protect a number of major U.S. urban centers against Soviet attack. In 1969, the Nixon Administration renamed the system “Safeguard,” and changed its focus to deployment around ICBM fields to ensure that these missiles could survive a first strike and retaliate against the Soviet Union. Congress almost stopped the program in 1969, when the Senate voted 50-50 to approve an amendment halting construction. Safeguard continued, however, when Vice President Spiro Agnew broke the tie with a vote for the program.

⁵⁷U.S. Department of Defense. *Annual Report to Congress, Fiscal Year 1989*, by Frank Carlucci, Secretary of Defense. February 18, 1988. Washington, 1988. p. 54.

⁵⁸In the early 1990s, SLBMs also acquired the accuracy needed to attack many hardened sites in the former Soviet Union.

In 1972, the United States and Soviet Union signed the Anti-Ballistic Missile (ABM) Treaty, which limited each nation to the deployment of two ABM sites, one around its capital and one around an ICBM field.⁵⁹ The United States completed its ABM site around ICBM fields near Grand Forks, North Dakota. It operated for a short time in 1974 and 1975, then was shut down by Congress, largely because the costs of operating the system, even in peacetime, were thought to be high relative to the limited protection it offered. U.S. research and development into ABM systems, especially for ICBM protection, continued, albeit at lower budget levels through the late 1970s, before rising again during the Carter Administration. The Reagan Administration further increased this funding after President Reagan announced an expansive effort, known as the Strategic Defense Initiative (SDI), to develop non-nuclear ballistic missile defenses, based on land, at sea, and in space, that would protect the United States against a full-scale attack from the Soviet Union. As cost estimates and technical challenges increased, the Reagan Administration stated that it would begin with a more limited deployment of land-based and space-based sensors and interceptors that would seek to disrupt and deter an incoming attack, instead of providing complete protection. The first Bush Administration further scaled back the goals for SDI, stating that the United States would seek to deploy a defensive system that could protect against small-scale missile attacks from the Soviet Union or other U.S. adversaries.

Force Structure After the Cold War

During the 1990s, the United States reduced both the numbers and types of weapons in its nuclear arsenal. Some of these changes reflect the imposition of negotiated arms control limits; others, such as the changes in U.S. non-strategic forces, reflect adjustments in U.S. objectives and nuclear force posture.

Non-strategic Nuclear Forces. In September 1991, President George Bush announced that the United States would withdraw all land-based tactical nuclear weapons (those that could travel no more than 300 miles) from overseas bases and all sea-based tactical nuclear weapons from U.S. surface ships, submarines, and naval aircraft.⁶⁰ These initiatives affected more than 2,500 nuclear warheads that had been deployed on shorter range delivery systems.⁶¹ Furthermore, in late 1991, NATO decided to reduce by about half the number of weapons for nuclear-capable aircraft based in Europe, which led to the withdrawal of an additional 700 U.S. air-delivered nuclear weapons. At the end of the 1990s, the United States maintained an estimated

⁵⁹A Protocol signed in 1974 reduced this to one permitted site per side, around either the nation's capital or an ICBM silo field.

⁶⁰These steps were not contingent on reciprocal actions by the Soviet Union, but, on October 5, 1991, Soviet President Gorbachev announced a similar set of initiatives.

⁶¹The United States maintained the capability to return sea-based nuclear weapons to aircraft carriers and submarines. In 1994, the Department of Defense Nuclear Posture Review recommended that the United States no longer maintain that capability on aircraft carriers, although it still could return nuclear-armed cruise missiles to attack submarines.

1,000 warheads for its active stockpile of nonstrategic nuclear weapons.⁶² This number included around 500 air-delivered weapons that may still be stored at bases in Europe. The remainder are air-delivered weapons and around 350 nuclear-armed sea-launched cruise missiles that are stored at facilities in the United States.

Strategic Nuclear Weapons. Throughout the 1990s, the United States continued to maintain a triad of strategic nuclear forces, with warheads deployed on land-based ICBMs, submarine-launched SLBMs, and heavy bombers. According to the Department of Defense, this mix of forces offered the United States a range of capabilities and flexibility in nuclear planning, complicated an adversary's attack planning, and hedged against unexpected problems in any single delivery system. During the past 10 years, while implementing the START I Treaty, the number of warheads deployed on these strategic nuclear forces declined from a Cold War high of around 12,000 warheads to fewer than 7,500 warheads. The remaining warheads are deployed on 18 Trident submarines with 24 missiles on each submarine and either 6 or 8 warheads on each missile; 500 Minuteman III ICBMs, some with one and others with 3 warheads on each missile; 50 Peacekeeper (MX) missiles, with 10 warheads on each missile; 76 B-52H bombers, with up to 20 cruise missiles on each bomber; and 21 B-2 bombers with up to 16 bombs on each aircraft. This force structure is displayed on Table 1, below.

Table 1: U.S. Strategic Nuclear Forces Under START I and START II

System	Deployed under START I		Planned for START II	
	Launchers	Accountable Warheads ^(a)	Launchers	Accountable Warheads
Minuteman III ICBMs	500	1,200	500	500
Peacekeeper ICBMs	50	500	0	0
Trident I Missiles	168	1,008	0	0
Trident II Missiles	264	2,112	336	1,680
B-52 H Bombers (ALCM)	97	970	76	940
B-52 H Bombers (non-ALCM)	47	47	0	0
B-1 Bombers ^(a)	90	90	0	0
B-2 Bombers	20	20	21	336
Total	1,237	5,948	933	3,456

Source: U.S. Department of State, Fact Sheet; CRS Estimates

(a) Under START I, bombers that are not equipped to carry ALCMs count as one warhead, even if they can carry up to 16 nuclear bombs; bombers that are equipped to carry ALCMs count as 10 warheads, even if they can carry up to 20 ALCMs. With these weapons included in the total, U.S. strategic nuclear forces can carry around 7,100 warheads. Under START II, bombers would have counted as the number of weapons they were equipped to carry.

(b) Although they still count under START I, B-1 bombers are no longer equipped for nuclear missions. Furthermore, the Air Force plans to reduce the B-1 fleet to 60 aircraft.

⁶²NRDC Nuclear Notebook. U.S. Nuclear Weapons Stockpile, July 1998. *Bulletin of the Atomic Scientists*, v. 54, July/August 1998. p. 70.

In early 1993, the United States and Russia signed a second Strategic Arms Reduction Treaty. Under this Treaty, the United States and Russia would have each reduced their strategic offensive nuclear weapons to between 3,000 and 3,500 accountable warheads. In 1994, the Department of Defense decided that, to meet this limit, it would deploy a force of 500 Minuteman III ICBMs with one warhead on each missile, 14 Trident submarines with 24 missiles on each submarine and 5 warheads on each missile, 76 B-52 bombers, and 21 B-2 bombers. The Air Force would eliminate 50 Peacekeeper ICBMs and reorient the B-1 bombers to non-nuclear missions. However, this Treaty never entered into force and, as is noted above, Congress prevented the Clinton Administration from reducing U.S. forces unilaterally. Table 1 outlines the forces that the United States had deployed after completing the reductions mandated by START I, and compares them with the forces the Clinton Administration planned to deploy under START II.

Ballistic Missile Defenses. In the wake of the 1991 Persian Gulf War, Congress and the Clinton Administration restructured the BMD programs to emphasize theater missile defense development and deployment efforts, and to focus national missile defense (NMD) efforts on technology development. In 1996, the Administration adopted a new policy that called for the continued development of NMD technologies during the first 3 years (1997-2000), followed by a deployment decision (in 2000) if the system were technologically feasible **and** warranted by prospective threats. Using this approach, the United States would seek to develop an NMD system to defend the United States against attacks from small numbers of long-range ballistic missiles launched by hostile nations, or, perhaps, from an accidental or unauthorized launch of Russian or Chinese missiles. Development and deployment would be conducted within the limits of the ABM Treaty.

In January 1999, the Clinton Administration added funding to the future-years defense budget for NMD so that it would be able to pursue the deployment option in the event a deployment decision was made. The Administration emphasized, however, that an NMD deployment decision still would not be made until June 2000. In addition, the Administration announced that it had restructured the NMD program for a possible deployment date of 2005, rather than 2003. This change was made, according to the Pentagon, to reduce the amount of risk in the program and to maximize its success. The Administration also acknowledged that it would have to approach the Russians with proposals for amendments to the ABM Treaty that would permit the deployment of an effective, although limited, NMD system. However, after a test failure in July 2000, President Clinton announced, on September 1, 2000, that he would not authorize the deployment of an NMD system and would, instead, leave the decision to his successor.

Bush Administration Proposals

The Bush Administration has described a “new triad” of weapons systems and capabilities that will contribute to nuclear deterrence and U.S. national security in the coming years.⁶³ In this “new triad,” nuclear weapons and precision-guided

⁶³U.S. Department of Defense. Special Briefing on the Nuclear Posture Review. News (continued...)

conventional weapons combine as “offensive strike” forces. According to the Administration, this combined strike force will reduce the U.S. reliance on nuclear weapons and provide the President with a greater number of options when responding to an attack. Missile defenses make up the second leg of the triad. The Bush Administration has stated that defenses will contribute to deterrence by complicating attack planning and undermining confidence for an adversary planning an attack with ballistic missiles and by giving the United States an option, besides “shooting back” if attacked with ballistic missiles. The third leg of the new triad is a “responsive infrastructure” that would allow the United States to maintain and, if necessary, expand its nuclear arsenal in response to emerging threats. These three legs are joined together by “command and control, intelligence, and planning capabilities.” These will provide the United States the ability to identify targets and plan nuclear or conventional attacks on short notice, in response to unexpected threats. The Administration argues that “the new triad will provide ... the flexibility in planning necessary to address the new range of contingencies, including the unexpected and undeterrable.”⁶⁴

The following sections summarize the Bush Administration’s plans for non-strategic and strategic nuclear weapons, missile defenses, and infrastructure. The report does not address the plans for precision-guided conventional weapons, as these are beyond the scope of the paper. It also does not provide any details on the Administration’s plans for intelligence and command and control systems, as this information remains classified.

Non-strategic nuclear weapons. When announcing the results of the nuclear posture review, the Bush Administration did not outline any changes to the current deployments of non-strategic nuclear weapons. Administration officials have indicated that further adjustments in NATO’s nuclear posture are an issue to be addressed by the alliance, so it did not propose any additions for or withdrawals from the remaining U.S. nuclear forces deployed in Europe. However, press reports indicate that the Bush Administration does plan to retain the capability to launch non-strategic air-delivered nuclear weapons on U.S. fighter aircraft.⁶⁵

Although the reports on the NPR did not discuss many details for U.S. non-strategic nuclear weapons, the Bush Administration could support the continued, and possibly expanded, deployment of these systems. The Administration’s strategy outlines the need to react quickly to new intelligence and promptly target and deliver

⁶³(...continued)

Transcript. January 9, 2002.

⁶⁴U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁶⁵According to press reports, the United States could extend the service life of F-15 and F-16 fighters, which can carry nuclear or conventional weapons. And, although the new Joint Strike Fighter (JSF) is not planned to be and not likely to become nuclear-capable when it enters the force in 2012, the Air Force could add nuclear capability in later upgrades. If it adds this capability, the Air Force could then retire the F-16 aircraft. See Hebert, Adam. Pentagon Already at Work on Nuclear Systems Needed after 2020. Inside the Pentagon. March 21, 2002. pp. 6-9.

nuclear weapons to emerging targets. Non-strategic nuclear weapons deployed at bases overseas may be closer to the battlefield than strategic weapons based in the continental United States, and, therefore, may be able to respond more quickly. They also may carry fewer and smaller warheads than U.S. strategic nuclear weapons, which would make them better suited to discrete, precise attacks.

Strategic Nuclear Weapons. The Bush Administration has announced that the United States will reduce its strategic nuclear forces to 1,700-2,200 “operationally deployed warheads” over the next decade.⁶⁶ According to the Administration, operationally deployed warheads are those deployed on missiles and stored near bombers on a day-to-day basis. They are the warheads that would be available immediately, or in a matter of days, to meet “immediate and unexpected contingencies.”⁶⁷ The Administration claims that the size of this force is not determined by a need to counter a “Russian threat” and that these contingencies could involve a number of potential adversaries. However, the Administration did consider Russia’s remaining nuclear capabilities when developing the U.S. nuclear force posture; a conflict with Russia is considered to be a “potential contingency” that could arise if the U.S. relationship with Russia were to deteriorate significantly. The forces needed to address potential contingencies are included in the “responsive force” not in the “operationally deployed force” of 2,200 warheads.

The Bush Administration has indicated that the United States will retain a triad of ICBMs, SLBMs, and heavy bombers for the foreseeable future. It has not offered a rationale for the retention of this traditional “triad,” although the points raised in the past about the differing and complementary capabilities of the systems probably still pertain. Moreover, the Administration also plans to retain most of the delivery vehicles in the current strategic force structure as it reduces from the current level of around 7,000 warheads⁶⁸ to a force of around 2,200 operationally deployed warheads. It will eliminate 50 Peacekeeper ICBMs, which carry 500 warheads, and convert four Trident submarines, which count as carrying 576 warheads, to non-nuclear missions. The United States will also exclude from its accounting those warheads that could be deployed on weapons systems in overhaul – this would generally apply to two Trident submarines at any given time. These submarines would have counted as 384 warheads under the START Treaties, but will not count against the new total of 2,200 warheads. The changes will eliminate around 1,400 warheads, leaving a total of

⁶⁶President Bush announced the U.S. intention to reduce its forces on November 13, 2001, during a summit with Russia’s President Vladimir Putin. The United States and Russia codified these reductions in a Treaty signed in late May 2002. See CRS Report RL31448, *Nuclear Arms Control: The Strategic Offensive Reductions Treaty*, by Amy F. Woolf. June 10, 2002.

⁶⁷U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁶⁸At the end of 2001, according to the data released after the United States and Russia completed the implementation of the START I Treaty, the United States had more than 7,000 warheads on its ICBMs, SLBMs, and heavy bombers. START II, which never entered into force, would have reduced this number to 3,500 warheads, and a prospective START III Treaty, outlined by Presidents Clinton and Yeltsin in 1997, would have limited each side to 2,500 warheads.

5,600. To reach the level of 2,200 the Administration will remove more warheads from deployed missiles and count only those bomber weapons deployed at bomber bases, not the total number of weapons that could be carried on all U.S. bombers. Table II, below outlines a force structure that is consistent with the plans announced by the Administration.

Table 2: Illustrative U.S. Strategic Nuclear Forces Under Bush Administration Plan

System	Launchers	Accountable Warheads
Minuteman III ICBMs	500	500
Trident II Missiles ^(a)	336	864
B-52H Bombers ^(b)	76	500
B-2 Bombers	21	336
Total ^(c)	933	2,200

Source: CRS Estimates

(a) The launcher total for Trident submarines counts all 14 vessels. The warhead total, however, excludes warheads that would be carried on two submarines in overhaul and assumes that each deployed missile would carry only 3 warheads. If all 14 submarines counted, as they would have under START II, and each carried only 3 warheads per missile, the total would be 1,008 warheads. If START II rules limited the number of warheads removed from each missile, so that each counted as 4 warheads, this total would be 1,344 warheads.

(b) If B-52 bombers counted as the number of weapons they were equipped to carry, this force might total almost 1,000 warheads. The Administration has said, however, that it will only count weapons stored at bomber bases against its limit of 2,200 warheads. This table assumes that number will be around 500 weapons.

(c) If START rules were applied to this force, it would total between 2,700 and 3,000 warheads.

The Administration has also indicated that approximately 3,800 warheads will be deactivated during the coming year, and many of these warheads will be placed in an active reserve. According to the Administration, these stored warheads constitute a “responsive force” because the warheads could be restored to deployment in weeks or months, in response to potential contingencies, which are “more severe dangers that could emerge over a longer period of time.” Secretary of Defense Rumsfeld has also noted that the United States must retain many retired warheads because it currently has no warhead production capacity; if problems came up that disabled a type of warhead, the United States could only maintain its forces by deploying the stored warheads.⁶⁹

Critics argue that this reconstitution force makes a mockery of the U.S. plans to reduce its offensive nuclear forces. The Administration, however, has claimed that the ability to reconstitute forces, if necessary, allows for deep reductions in operationally deployed forces. The Administration has also stated that the responsive force represents the force that the United States will need to meet the “four goals of

⁶⁹Rumsfeld: Fate of Deactivated Nuclear Warheads Still Undetermined. InsideDefense.com. May 21, 2002.

dissuading potential adversaries, assuring allies, deterring aggression, and defeating enemies.”⁷⁰

The following provides a more detailed summary of the Bush Administration’s plans for each leg of triad of strategic offensive forces.

ICBMs. At the present time, the U.S. ICBM force contains 50 Peacekeeper missiles, each deployed with 10 warheads, and 500 Minuteman III missiles. Each Minuteman III missile could carry 3 warheads, but, when reducing to START I force levels, the United States “downloaded” 150 Minuteman III missiles so that each now carries only one warhead. The other 350 missiles still carry 3 warheads each. This ICBM force carries a total of 1,700 warheads.

The Bush Administration plans to deactivate and retire all 50 Peacekeeper ICBMs. DOD first announced this decision, and the Air Force began to budget for the process, in 1994. The 1993 START II Treaty would have banned multiple warhead ICBMs, so the United States would have had to eliminate these missiles while implementing the Treaty. However, beginning in FY1998, Congress prohibited the Clinton Administration from spending any money on the deactivation or retirement of these missiles until START II entered into force, an event that never occurred. The Bush Administration requested \$14 million in FY2002 to begin the missiles’ retirement; Congress lifted the restriction and authorized the funding.

The Bush Administration plans to begin deactivating the Peacekeeper missile in October 2002 and to complete the retirement process in 3 years.⁷¹ Some analysts have called on the Administration to remove the missiles from alert, in anticipation of their retirement, but the Administration has indicated that the missiles will remain on alert and fully mission capable during this time. Some in the Administration have noted that the missile operators’ morale and readiness could suffer if the missiles were not on alert. Others, however, have argued that the early deactivation of these missiles would not only demonstrate good faith to Russia about U.S. intentions, but also reduce the instabilities they believe exist because of the high levels of alert in the U.S. and Russian nuclear forces. Under START II, the United States would have had to destroy the silos that house the Peacekeeper missiles to ensure that the missiles could not be deployed again in the future. The Bush Administration plans to retain the empty silos, and save the expense of excavating or exploding them. It also plans to retain the missile stages for possible use as space launch vehicles or target vehicles for missile defense tests. Finally, it plans to retain the warheads removed from the missiles and deploy some of them on Minuteman III missiles.⁷²

The Bush Administration plans to retain all 500 Minuteman III missiles, and to download them so each missile carries only one warhead. It plans to modernize these missiles, to improve their accuracy and reliability and to extend their service lives

⁷⁰Ibid.

⁷¹U.S. Nuclear Forces, 2002. NRDC Nuclear Notebook. Bulletin of the Atomic Scientists. May/June 2002. p. 70.

⁷²Ibid.

beyond 2020. At the present time, this modernization program is expected to cost around \$5.5 billion.⁷³ Of this amount, \$55 million will be used to upgrade the command consoles in missile alert facilities to allow for more rapid retargeting – a capability identified in the NPR as essential to the future nuclear force. The Air Force is also conducting an ongoing \$1.9 billion program to replace the guidance system on the Minuteman missile to increase its accuracy and extend its service life. The Air Force had hoped that the new guidance system would make the Minuteman missile as accurate as the Peacekeeper missiles, but press reports indicate that the system has shown some problems during its testing program.⁷⁴ The Air Force also plans to repour the fuel in the first and second stages of the Minuteman missiles and to completely remanufacture the third stage. This program is currently underway and will continue through 2004, at least. The Air Force will also eventually extend the life of the missiles' fourth stage, the one that carries the reentry vehicle. Finally, under the Safety Enhanced Reentry Vehicle program, the Air Force will replace the existing warheads on around 200 Minuteman missiles with the W87 warheads removed from Peacekeeper missiles.⁷⁵

The Air Force has also taken initial steps to develop and produce a new ICBM, to replace the Minuteman III. It has reportedly produced a “mission needs statement” and will conduct studies during FY2004 and FY2005, with a plan to bring the new missile into service by 2018. Reports indicate that it will seek a new missile with an extended range, the ability to fly along “shaped” trajectories, and the ability to attack relocatable and deeply buried targets.⁷⁶

SLBMs. The U.S. SLBM force currently consists of 18 Trident submarines. Seven of these submarines, which are based at Bangor, Washington, carry the older Trident I (C-4) missile. The eighth submarine based at Bangor has just completed its conversion to carry the newer Trident II (D-5) missile. The remaining 10 submarines, which are based at Kings Bay, Georgia, all carry the Trident II missile. Each of these missiles can be equipped to carry up to 8 warheads. However, when reducing its forces to comply with the START I Treaty, the Navy removed warheads from the missiles on the 8 Tridents in the Pacific fleet, and each now carries no more than 6 warheads.

The Bush Administration plans to retain 14 Trident submarines in the U.S. strategic nuclear force. All will be equipped to carry the Trident II missile. This is the same plan that the Clinton Administration announced in 1994 for the U.S. force under START II. However, the Clinton Administration had planned to retire the four oldest Trident submarines so that the missiles that could be deployed on them would not count under the limits in the START II Treaty. The Bush Administration

⁷³Ibid.

⁷⁴Donnelly, John M. Air Force Defends Spending Half A Billion on Iffy ICBMs. Defense Week. September 10, 2001. p. 1.

⁷⁵U.S. Nuclear Forces, 2002. NRDC Nuclear Notebook. Bulletin of the Atomic Scientists. May/June 2002. p. 70-71.

⁷⁶Hebert, Adam. Pentagon Already at Work on Nuclear Systems Needed after 2020. Inside the Pentagon. March 21, 2002. pp. 6-9.

has, instead, announced that the Navy will convert these vessels to carry conventional cruise missiles or other non-nuclear weapons. It has included \$1 billion in the FY2003 budget to begin this conversion process. Because these submarines will still have launch tubes for ballistic missiles, they will still count under the START I Treaty, but they will not count under the Administration's calculation of "operationally deployed warheads."

The retirement of four Trident submarines will eliminate 576 operationally deployed warheads (4 submarines, with 24 missiles and 6 warheads on each missile.) To further reduce the number of "operationally deployed" warheads, the Navy may remove additional warheads from Trident missiles. Each missile probably would have carried 5 warheads under START II; they are likely to carry as few as 3 warheads in the future. In addition, the Navy will have two Trident submarines in overhaul at any given time. The warheads that could be carried on missiles on these submarines will count under START I and would have counted under START II. However, the Bush Administration will not count these warheads in its total of 2,200 "operationally deployed warheads."

Furthermore, as the Navy retires four submarines based at Bangor, Washington, it will move 3 submarines from Kings Bay, Georgia to Bangor, leaving seven submarines at each of the two bases. This move will occur between FY2003 and FY2006, and will also coincide with the retirement of the Peacekeeper missiles. This change will not only "balance the force" to maintain an equivalent workload at each base, it may also allow the United States to continue to "cover" targets in the Soviet far east that may have been allocated to the older Trident missiles or Peacekeeper ICBMs. The Navy also plans to continue producing D-5 missiles at a rate of 12 per year, for a total of 425 missiles to equip the 14 remaining submarines.⁷⁷

The Navy has indicated that the Trident submarines can remain in service for 44 years, which means that the first retirements will begin in 2029. The Navy has initiated studies into options for a replacement for the Trident – one would be a new, dedicated ballistic missile submarine and another would be a variant of the Virginia class attack submarine. It would have to begin work on a new submarine by 2016 so that it could begin to enter the fleet as the Tridents begin to retire.⁷⁸ The Trident II missiles will reach the end of their service lives sooner than the submarines, and they will begin to retire in 2019. The Navy plans to conduct a modification program to extend the missiles' life; funding will begin in FY2005 and missile production is scheduled to begin in FY2015. The Navy plans to purchase 300 missiles, enough to equip 10 Trident submarines. The Navy is also planning to refurbish the W76 warheads on the Trident missiles, starting in 2007, so they can remain in service until 2040.⁷⁹

⁷⁷U.S. Nuclear Forces, 2002. NRDC Nuclear Notebook. Bulletin of the Atomic Scientists. May/June 2002. p. 71.

⁷⁸Hebert, Adam. Pentagon Already at Work on Nuclear Systems Needed after 2020. Inside the Pentagon. March 21, 2002. pp. 6-9.

⁷⁹U.S. Nuclear Forces, 2002. NRDC Nuclear Notebook. Bulletin of the Atomic Scientists. May/June 2002. p. 72-73.

Press reports indicate that the Navy is studying whether it might use conventionally-armed Trident missiles to attack mobile or deeply buried, hardened targets. This responds to a recommendation in the NPR that DOD study the feasibility of modifying a ballistic missile system to carry a non-nuclear payload.⁸⁰ To perform this type of mission, the missile's accuracy would have to be improved. Consequently, DOD has requested \$30 million to begin a "three year effective enhancement" effort to "demonstrate the near-term capability to steer a sea-launched ballistic missile warhead to GPS-like accuracy."⁸¹

Bombers. At the present time, the U.S. Air Force has 94 B-52 bombers and 21 B-2 bombers that are equipped to carry nuclear weapons. The Air Force also has 92 B-1 bombers that were deployed as nuclear-armed aircraft in the 1980s and 1990s. The United States reoriented the B-1 bombers to conventional missions, and removed them from the nuclear war plans in the late 1990s. Under the START II Treaty, the United States could have restored them to a nuclear role, even though it had no plans to do so. The Bush Administration has indicated that it will no longer maintain the capability to exercise this option.⁸² The Bush Administration has also indicated that it will reduce the size of the B-1 force, retiring 32 bombers assigned to the Air National Guard and providing upgrades to the conventional weapons systems on the remaining 60 aircraft.⁸³

The Bush Administration has not outlined any changes to the current size of the B-52 or B-2 fleets.⁸⁴ The B-52 bomber, which first entered service in 1961, is equipped to carry nuclear or conventional air-launched cruise missiles and nuclear-armed advanced cruise missiles. The B-52 bombers can also deliver a wide-range of conventional arms. With upgrades, the Administration expects these cruise missiles to remain in the fleet until 2030 and the aircraft to remain in service until around 2044. The B-2 "Stealth" bomber first entered service in late 1993. It is equipped to carry nuclear gravity bombs, such as the B-61 and the B-83, and conventional bombs. The Bush Administration believes this aircraft will remain in the force until 2040.

Under the START II Treaty, the United States would have had to count the total number of nuclear weapons these aircraft were equipped to carry under its allocation of permitted warheads. These warheads would have counted even if the bombers were equipped to perform conventional missions, unless the bombers were altered

⁸⁰U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁸¹Grossman, Elaine M. Pentagon Eyes Bunker-Busting Conventional Ballistic Missile for Submarines. Inside the Pentagon, June 27, 2002. P. 1.

⁸²U.S. Nuclear Forces, 2002. NRDC Nuclear Notebook. Bulletin of the Atomic Scientists. May/June 2002. p. 73.

⁸³For B-1 Bomber Fleet, Air Force Determines Less is More. InsideDefense.com, June 27, 2001. See also, CRS Report RL31544, *Long-Range Bombers: Background and Issues for Congress*, by Pierre Bernasconi and Christopher Bolcom. August 22, 2002.

⁸⁴The Clinton Administration had planned to reduce the B-52 fleet to 76 aircraft, but Congress has blocked any planned retirements.

so that they could no longer carry nuclear weapons. The Bush Administration has stated, however, that it will not count the weapons that could be carried on bombers under its total of 2,200 “operationally deployed” warheads. It will only count as “operationally deployed” those nuclear weapons stored at bomber bases, excluding a small number of spare warheads. It does not intend to alter any bombers so that they cannot carry nuclear weapons. It plans to maintain nuclear capability, without distinction, on all B-52 and B-2 bombers. Consequently, the number of bomber weapons could decrease in the future, even without changes to the numbers of deployed bombers, as the United States converts some of its nuclear-armed ALCMs to carry conventional warheads (under the counting rules in START, these cruise missiles would have continued to “count” as nuclear weapons, even if they were modified to carry conventional warheads.)

Ballistic Missile Defenses. In several speeches given during the campaign and his early months in office, President Bush indicated that he would pursue a more robust missile defense program than the one he inherited from the Clinton Administration. The President stated that the world had changed, that the United States faced new threats, and that it could no longer rely on the Cold War-era doctrine of nuclear deterrence to safeguard its national security. He stated that he would pursue the development of missile defense technologies that could be deployed on land, at sea, and in space, and that would protect the United States, its allies, and its forces overseas from ballistic missile attacks from rogue nations. The President recognized that his planned missile defense system would not be consistent with the limits in the ABM Treaty. He sought to convince Russia to withdraw from the Treaty together with the United States. When that approach failed he announced, on December 13, 2001, that the United States had given its six months’ notice; the United States withdrew from the Treaty on June 13, 2002.

The Administration began to outline its plans for missile defense in July 2001.⁸⁵ Initially, the Administration planned to continue all the ongoing theater missile defense (those that would attempt to shoot down shorter-range missiles) and national missile defense (those that would attempt to shoot down longer-range missiles) programs pursued by the Clinton Administration. However, it did propose sharp increases in funding, adding \$3.1 billion to the Clinton Administration’s planned budget of \$5.2 billion for missile defense in FY2002. The Bush Administration also eliminated the distinction between theater and national missile defense, dividing the programs, instead, into boost-phase, mid-course, and terminal phase.⁸⁶ The Bush Administration has not identified an eventual architecture for its ballistic missile system. It has stated that it does not know what types of technologies or how many sensors and interceptors it will eventually deploy, or when these systems will be available. Instead, it has pursued a “robust research and development program” to identify promising technologies and systems. It has indicated that it may begin deploying technologies in the next few years, as they begin to show promise, then upgrade them over time as the technologies mature. This process, often referred to

⁸⁵For details see CRS Report RL31111, *Missile Defense: The Current Debate*, coordinated by Steven A. Hildreth and Amy F. Woolf.

⁸⁶These refer to the portion of a ballistic missile’s flight trajectory, during which an interceptor missile would attempt to shoot it down.

as spiral development, differs significantly from most other military acquisition programs because military officials have not established performance criteria or milestones that the systems must achieve before they can proceed to production and deployment. In addition, because the Administration has not identified the eventual size or structure of its completed program, it cannot identify either the annual or total costs for the program.

The Administration and others who support this acquisition approach argue that it will allow the United States to field missile defense technologies quickly, even if they are not perfect and require later modifications. They argue that this is necessary because the United States faces a growing threat from nations armed with ballistic missiles and weapons of mass destruction. Furthermore, as was noted above, missile defenses form one of the legs in the Administration's new "triad" of capabilities identified in the nuclear posture review. The Administration argues that missile defenses can enhance deterrence by complicating an adversary's attack planning, dissuade an adversary from acquiring ballistic missiles by undermining the value of those weapons, assure allies of the U.S. ability to contribute to their defense, and limit damage to the United States, its friends, and forces if deterrence fails.⁸⁷

Infrastructure

The U.S. Department of Energy's (DOE) nuclear weapons complex provides warheads required by the Department of Defense for its strategic and non-strategic nuclear weapons. The complex is an integrated network of facilities that conduct research and development; produce nuclear and other materials; produce, maintain and test nuclear weapons; and dismantle retired warheads. During the Cold War, the facilities in the complex expanded their capacity and capability to meet the needs of a large nuclear arsenal of increasing technical sophistication. In the last decade, as is described in more detail below, the number of facilities in the complex declined and the focus of its efforts shifted. The Bush Administration plans to adjust the complex further, restoring some of the capabilities lost in the last decade and enhancing the U.S. capability to produce and maintain nuclear weapons.

The Nuclear Weapons Complex During the Cold War

By the middle of the 1980s, the U.S. nuclear weapons complex consisted of 14 major facilities, and a number of smaller facilities, located in 12 states.⁸⁸ Three laboratories – Lawrence Livermore National Laboratory in Livermore, CA; Los Alamos National Laboratory in Los Alamos, NM; and the Sandia National

⁸⁷U.S. Senate. Committee on Armed Services. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense For Policy. February 14, 2002.

⁸⁸For a detailed description of these facilities see the National Research Council. Committee to Provide Interim Oversight of the DOE Nuclear Weapons Complex, Commission on Physical Sciences, Mathematics, and Resources. *The Nuclear Weapons Complex: Management for Health, Safety, and the Environment. Appendix B: The DOE Nuclear Weapons Complex: A Descriptive Overview*. National Academy Press. Washington, 1989. pp. 102-112.

Laboratories in Albuquerque, NM – conducted research and development and designed new nuclear weapons. The complex also included four facilities that could produce nuclear or other materials used in nuclear weapons and naval nuclear reactors. These facilities, which were operated by a number of industrial contractors, included the Hanford site near Richland, WA; the Savannah River Site, near Aiken, SC; the Idaho National Engineering Laboratory, near Idaho Falls, ID; and the Feed Material Production Center at Fernald, OH.

The nuclear weapons complex also included six major nuclear weapons production facilities. These included the Rocky Flats Plant, outside Denver, CO; the Kansas City Plant, near Kansas City, MO; the Mound Plant, near Dayton OH; the Pinellas Plant, in Clearwater, FL; and the Pantex Plant near Amarillo, TX. These facilities were also operated by industrial contractors. Finally, the complex included the Nevada Test Site, about 65 miles from Las Vegas, which conducted explosive tests of U.S. and British nuclear warheads. These tests were used to confirm the reliability of existing weapons, test the effects of nuclear weapons, and help in the development of new nuclear warheads.

Many of the facilities in the nuclear weapons complex were constructed in the 1940s and 1950s, so they were deteriorating significantly during the 1980s. In 1988, DOE closed the nuclear reactors at Hanford and Savannah River, in response to safety concerns. The Rocky Flats Plant, which produced the nuclear triggers, or “pits,” for nuclear weapons closed in 1989, in response to safety and environmental concerns. At the time, DOE expected to reopen at least some of these facilities. In the late 1980s, it also developed a plan to modernize and replace many of its facilities, on the assumption that the United States would need to continue to design, produce, test, maintain, and dismantle large numbers of nuclear weapons for the foreseeable future.⁸⁹ However, the demise of the Soviet Union and the end of the Cold War led many to question and reconsider assumptions about the future of the U.S. nuclear weapons complex.

The Nuclear Complex in the 1990s

During the 1990s, the focus of efforts in the U.S. nuclear weapons complex changed. Instead of concentrating on developing, testing, and producing new nuclear weapons, the United States turned its efforts to maintaining the existing stockpile and ensuring its safety and reliability in the absence of underground nuclear testing. DOE also reduced the size of the existing infrastructure, from 14 to 8 facilities, and began to modernize the remaining facilities.⁹⁰ The facilities at Hanford, Pinellas, Mound, and Rocky Flats all ceased work on nuclear weapons. The remaining facilities included the 3 nuclear weapons laboratories – Livermore, Los Alamos, and Sandia; four production facilities – the Kansas City Plant, the Y-12 Plant in Tennessee, the Savannah River Site, and the Pantex Plant; and the Nevada Test Site. The number of people employed by the nuclear weapons complex, which had reached a peak of

⁸⁹See U.S. Department of Energy. Nuclear Weapons Complex Reconfiguration Study. DOE/DP-0083. Washington, D.C. January 1991.

⁹⁰For details, see CRS Report 97-945, *Nuclear Weapons Production Capabilities Issues: Summary of Findings, and Choices*, by Jonathan Medalia. Updated June 24, 1998. pp. 6-8.

nearly 58,000 people in 1990, had fallen below 24,000 people by the end of the decade.

Operations at all eight of the remaining facilities changed in response to changing demands for nuclear weapons work and changes in the U.S. nuclear force posture. For example, the Savannah River site, which had produced plutonium and tritium in its now-closed reactors, focused, instead, on efforts to purify existing tritium.⁹¹ In addition, the Pantex Plant, which had focused mostly on the final assembly of nuclear weapons, began to shift its workload towards the dismantlement of retired weapons. DOE is also establishing a facility at Los Alamos Laboratory that can make pits for nuclear weapons, which had been produced at the Rocky Flats Plant during the Cold War. The Los Alamos facility will not have nearly the capacity of Rocky Flats, but its supporters argue that it will help fill a gap in the U.S. ability to maintain its nuclear weapons and certify the reliability of its pits.

Perhaps the most significant change in the U.S. nuclear weapons complex was the cessation of nuclear testing. The United States adopted a moratorium on nuclear testing in 1992 and signed the Comprehensive Test Ban Treaty in 1996.⁹² Although the Senate refused to consent to the ratification of the Treaty in October 1999, the United States has continued to observe a moratorium. In the absence of nuclear testing, DOE developed the Stockpile Stewardship Program to maintain U.S. nuclear weapons. This program, which will use existing computing and analysis capabilities along with several new, large experimental facilities at the nuclear weapons laboratories, includes surveillance efforts that are designed to predict and detect problems in nuclear warheads; assessment and certification efforts that analyze and evaluate the effects of changes on warheads safety and performance; and design and manufacturing efforts which are intended to refurbish stockpile warheads and certify new parts, materials, and processes.⁹³ Congress first authorized this program in 1993 and elements of it have been underway since that time.⁹⁴

Infrastructure in the Future

The Bush Administration has called the nuclear weapons infrastructure one of the three legs of its “new triad.” According to Administration officials, the U.S. ability to maintain its existing nuclear weapons “lends credibility to the arsenal and assurance to allies.” An infrastructure “focused on sustainment and sized to meet

⁹¹Tritium, a radioactive isotope of hydrogen, is needed to boost the yield of nuclear weapons. The United States has not produced any tritium since the reactors at Savannah River shut down in 1988. Tritium decays at a rate of 5.5% per year. To maintain a significant stock, DOE must purify existing tritium and, eventually, produce new tritium.

⁹²Congress passed the moratorium over the objections of the Bush Administration. See P.L. 102-377, sec 507, FY1993 Energy and Water Development Appropriations Act. See also, CRS Issue Brief IB92099, *Nuclear Weapons: Comprehensive Test Ban Treaty*, by Jonathan Medalia.

⁹³U.S. Department of Energy. Office of Defense Programs. Stockpile Stewardship Program: Overview and Progress. October 1997. p. 4.

⁹⁴See P.L 103-160, FY1994 National Defense Authorization Act, Sec. 3138.

the needs of a smaller nuclear deterrent” would provide the United States with the capabilities to “respond to future strategic challenges.” In addition, the “ability to innovate and produce small builds of special purpose weapons would convince an adversary that it could not expect to negate U.S. nuclear weapons capabilities.” Hence, according to the Administration, an infrastructure that allows the United States to sustain its forces and adapt them to meet emerging needs would “provide the United States with the means to respond to new, unexpected, or emerging threats in a timely manner.”⁹⁵ This characterization of the nuclear weapons infrastructure, and its integration into the new model of deterrence, does not alter its central functions, but it does raise the profile of the facilities and underline the Administration’s commitment to modernize and expand the complex.⁹⁶

When announcing the results of the Nuclear Posture Review, the Bush Administration indicated that the United States would continue to observe a moratorium on nuclear testing, in spite of the President’s opposition to the Comprehensive Test Ban Treaty. The Administration has stated that the United States will continue to pursue the stockpile stewardship programs to assure the safety, reliability and performance of the nuclear weapons stockpile. According to Administration officials, DOE will strengthen the weapons assessment process and seek improvements in understanding the of physics of nuclear explosions through new and expanded simulation capabilities.⁹⁷ The ongoing program will include aggressive surveillance and the planned refurbishment of existing warheads, to “anticipate stockpile problems and fix them before they arise.”

The Bush Administration confirmed that the Stockpile Stewardship Program has permitted DOE to certify the safety and reliability of the U.S. nuclear arsenal up till now, but it contends the United States may not be able to continue to do so in the future, as the nuclear stockpile ages. Furthermore, DOE currently has no capacity for “advanced warhead concept development and cannot build and certify pits or certain secondary components, much less complete warheads.” As was noted above, many existing facilities, and the workforce, are aging. Therefore, the Administration has outlined a more comprehensive program to rebuild the nuclear weapons complex and its workforce to ensure that the United States can respond to emerging problems in the nuclear weapons arsenal or emerging threats in the international environment.

The Administration has argued that a “responsive” nuclear weapons infrastructure must incorporate several capabilities that include and go beyond the 1990s focus on stockpile surveillance and management. For example, the

⁹⁵U.S. Senate Committee on Armed Services. Statement of John A. Gordon, Undersecretary of Energy for Nuclear Security and Administrator, National Nuclear Security Administration. February 14, 2002.

⁹⁶Funding to rebuild the nuclear weapons production complex increased from \$9 million in FY2001 to \$197 million in FY2002. The Bush Administration requested \$243 million for FY2003. See Weisman, Jonathan. Nuclear Arms Scientists May Lack “Sense of Mission”. USA Today. March 18, 2002. P. 6

⁹⁷U.S. Senate Committee on Armed Services. Statement of John A. Gordon, Undersecretary of Energy for Nuclear Security and Administrator, National Nuclear Security Administration. February 14, 2002.

infrastructure must be able to respond to surprises in the status of the stockpile, such as age-related defects that appear suddenly, or changes in international security environments. The Administration has also argued that the United States should be able to anticipate innovations in weapons design and countermeasures pursued by an adversary and counter them before they arise. The infrastructure must also have a sufficient reserve or surge capacity for research, development, and production; a sufficient stock of assets, such as tritium, to support the deployed and responsive force of nuclear warheads; and the capacity to maintain the readiness of sufficient numbers and types of weapons. Specifically, the NPR recommends that the infrastructure have the capacity to identify and repair emerging problems in existing warheads in three to four years and to allow for the design, development, and production of new types of warheads within five years of a decision to enter full scale development.⁹⁸

The Administration has identified a number of specific tasks that the infrastructure must accomplish over the next decade. At the top of the list is the refurbishment of several existing warheads, including the W87, B61-7/11, W80, and W76. It plans to retain these aging warheads for the foreseeable future. This refurbishment effort will take place at the Pantex Plant, and will use most of the existing capacity at that facility. In addition, the NPR has indicated that the United States should be able to produce new warheads if the international security environment dictates. Therefore, the NPR reportedly indicates that Pantex will need to expand its capacity, from the current level of around 350 warheads per year to 600 warheads per year,⁹⁹ so that it could assemble sufficient quantities of new warheads without interfering with the planned refurbishment program. In the past decade Pantex has concentrated on dismantling warheads removed from service; in the future, DOE will schedule warhead dismantlement at Pantex when there is time between refurbishment and other production efforts. DOE also plans to expand the capacity at the Y-12 Plant in Oak Ridge, Tennessee, so that it can meet the expected workload for replacing uranium components in the existing U.S. nuclear arsenal.¹⁰⁰

The Administration has also announced that it will re-establish small “advanced warhead concepts teams” at each of the national labs and at the DOE headquarters in Washington. These teams had existed during the Cold War, but they were disbanded during the 1990s after the United States instituted a moratorium on nuclear testing and ceased efforts to design and develop new types of nuclear warheads. The new teams will evaluate evolving military requirements and assess options for new or modified warheads that might meet these requirements. They will focus on both theoretical work and engineering design work and could perform tests and simulations using weapons components and subassemblies.¹⁰¹ The Administration

⁹⁸Ibid.

⁹⁹Pincus, Walter. Nuclear Plans Go Beyond Cuts. Washington Post. February 19, 2002.

¹⁰⁰Faking Nuclear Restraint: The Bush Administration’s Secret Plan for Strengthening U.S. Nuclear Forces. Natural Resources Defense Council. February 13, 2002.

¹⁰¹U.S. Senate Committee on Armed Services. Statement of John A. Gordon, Undersecretary of Energy for Nuclear Security and Administrator, National Nuclear (continued...)

notes that this effort will not only prepare the United States to respond to emerging threats, but will also help train the next generation of weapons scientists.

The press has reported widely on the Administration's plans to explore one specific modified nuclear warhead – the “robust earth penetrator.” This type of warhead would be designed to penetrate below the ground before exploding, so that it could increase the probability of destroying hardened and deeply buried targets. These types of targets might include command and control facilities, storage depots for weapons of mass destruction, or other military assets. The United States currently has one type of nuclear weapon – the B-61 mod 11 bomb – that is designed to penetrate before detonating. But this weapon can only penetrate about 10 meters and may not survive penetration in many types of terrain.¹⁰² Consequently, DOE has initiated a research project on a new earth penetrating weapon; this study may cost \$10 million in FY2003 and \$40-\$50 million over three years.¹⁰³

The NPR also recommended that the United States reduce the amount of time that it would take to resume nuclear explosive testing at the Nevada Test Site. The Administration claims that this “enhanced test readiness” is “prudent as a hedge for the possibility that a future safety or reliability problem could not be fixed without testing.”¹⁰⁴ If a problem came up in these processes, it would take 24-36 months for DOE to prepare for and conduct an underground nuclear test. Furthermore, the Administration has noted that this time might lengthen in the future, as remaining personnel with nuclear testing skills and expertise retire. Consequently, the Administration included \$15 million in the FY2003 DOE budget to begin to reduce the time needed to prepare for nuclear testing. These funds would be used to augment key personnel and increase their proficiency, begin training the next generation of personnel, conduct additional subcritical tests, replace key components, modernize certain test diagnostic capabilities, and decrease time to show regulatory compliance.¹⁰⁵

The Administration also plans to begin construction on a new facility that would be able to produce the “pits” for nuclear weapons. DOE will continue to use the interim pit facility at Los Alamos National Laboratory, but this facility would only

¹⁰¹(...continued)

Security Administration. February 14, 2002.

¹⁰²Tyson, Anne Scott. New Push for Bunker-Buster Nuke. *Christian Science Monitor*. May 9, 2002. P. 1.

¹⁰³Weisman, Jonathan. Nuclear Arsenal Upgrade Planned. *USA Today*. March 18, 2002. p. 1. See also Pincus, Walter, Nuclear Warhead Study Aims at Buried Targets. *Washington Post*, March 15, 2002, p. 16. According to Spencer Abraham, Secretary of Energy, the study will focus on whether an existing warhead can be modified for use as an earth penetrating weapon. Because it will not seek to develop a new warhead, the study will not violate a 1994 congressional ban on the design and development of new nuclear weapons.

¹⁰⁴U.S. Senate Committee on Armed Services. Statement of John A. Gordon, Undersecretary of Energy for Nuclear Security and Administrator, National Nuclear Security Administration. February 14, 2002.

¹⁰⁵*Ibid.*

be able to produce 20-50 pits per year and would not be able to manufacture all the types of pits currently in the U.S. stockpile. According to the Administration, this facility may not be sufficient if the United States must replace large numbers of aging pits in the future. Therefore, it plans to bring a new facility on line by 2020.¹⁰⁶ It will size this facility with the capacity to support the planned workload for maintaining and replacing existing pits and to address “surprise” requirements and the need for potential new warhead production.¹⁰⁷

Issues Raised by the NPR

The Role of Nuclear Weapons in U.S. Defense Policy

As was noted above, the Clinton Administration retained much of the existing U.S. nuclear weapons policy and force posture in the decade after the demise of the Soviet Union. Nevertheless, in official documents, the Administration stated that nuclear weapons were playing a smaller role in U.S. defense strategy than they had during the Cold War, and it stated that these weapons existed primarily to serve as a deterrent for adversaries who were armed with their own nuclear weapons. The Clinton Administration, and the Bush Administration before it, also eliminated many specific targets from the U.S. war plan, and began to reduce the size of the U.S. nuclear arsenal, in response to the demise of the Warsaw Pact and Soviet Union. But the central tenets of the U.S. deterrence strategy and nuclear employment plans remained essentially unchanged. Furthermore, during the 1990s, the Clinton Administration began to develop targeting options for the use of nuclear weapons in response to chemical or biological attack from nations other than Russia, and, in its declaratory policy, the Administration would not rule out the possible first use of nuclear weapons in these circumstances.

At the same time, many participants in the public debate over nuclear weapons policy argued that the United States should alter sharply its nuclear weapons strategy and force posture. They claimed that, in the absence of the global threat from the Soviet Union, the United States could maintain its deterrent posture with a far smaller number of nuclear weapons; many proposed reductions to levels of around 1,000 warheads. Some also argued that, with its overwhelming superiority in conventional weapons, the United States could defeat almost any potential adversary without threatening to resort to nuclear weapons. Several studies concluded that a policy of “nuclear abolition” could be a practical, albeit long term, goal for the United States and other nations with nuclear weapons. In the meantime, they argued that the United States should use its nuclear weapons only to deter the potential use

¹⁰⁶Costa, Keith, NNSA To Begin Work on New Plutonium Pit Production Plant. Inside the Pentagon. June 6, 2002. p . 14.

¹⁰⁷U.S. Senate Committee on Armed Services. Statement of John A. Gordon, Undersecretary of Energy for Nuclear Security and Administrator, National Nuclear Security Administration. February 14, 2002

of nuclear weapons by other nations. In this framework, the United States could consider its nuclear weapons to be “weapons of last resort.”¹⁰⁸

The Bush Administration’s description of the role of nuclear weapons differs sharply from the views advocated by many analysts over the last decade, but it is more consistent with official policies and posture adopted by the Clinton Administration. The Bush Administration assumes that nuclear weapons will be a part of U.S. security strategy for at least the next 50 years. Given this time frame, the NPR recommends that the United States begin now to develop weapons systems that will enter the force in the years between 2020 and 2040. Therefore the Administration clearly does not assume that the current systems in the U.S. nuclear arsenal will be the last. The Administration also has a role for nuclear weapons that goes well beyond a “weapon of last resort” designed to deter only nuclear attack. The Administration not only argues that nuclear weapons can deter chemical, biological, and conventional attack, it believes they can do more than just deter attack. It has argued that they can also be used to assure allies of U.S. commitments, dissuade adversaries from acquiring weapons of mass destruction or threatening the United States, and defeat adversaries by destroying critical targets if deterrence fails. This last objective has contributed to the Administration’s interest in developing new types of nuclear weapons that can threaten hardened and deeply buried targets.

The Administration has argued, however, that this expanded role for nuclear weapons does not mean that the United States is increasing its reliance on nuclear weapons. It has noted that the addition of missile defenses and precision-guided conventional weapons to U.S. deterrent forces will give the President a greater number of options in a crisis and actually reduce the likelihood of nuclear use. Critics, however, question this logic, arguing that the Administration’s approach will blur the distinction between nuclear and conventional weapons and increase the likelihood of nuclear use. According to one analyst, the Administration has outlined a role for nuclear weapons that emphasizes war-fighting over deterrence. He has argued that “if military planners are now to consider the nuclear option any time they confront a surprising military development, the distinction between nuclear and nonnuclear options fades away.”¹⁰⁹ Others have also concluded that the Administration’s plan will increase U.S. reliance on nuclear weapons. Former Senator Sam Nunn, former Secretary of Defense William Perry, and retired General Eugene Habiger wrote that the Administration’s policy is “expanding options for nuclear attacks, widening the number of targeted nations and developing new nuclear weapons variants.” They note that “each of these ideas may have a plausible military rationale,” but “their collective effect is to suggest that the nation with the world’s

¹⁰⁸ “... as the Cold War waned, so did the notion that nuclear weapons could be used to fight a war. While Washington did not give up its option to make the first use of nuclear weapons against a Warsaw Pact attack, it cast the use of such weapons as a last resort. With the end of the Cold War, the need for nuclear weapons seemed to fade further.” Gordon, Michael R. *Nuclear Arms For Deterrence or Fighting?* New York Times, March 11, 2002. p. 1.

¹⁰⁹ Comments attributed to Ivo Daalder, of the Brookings Institution. See Dao, James. *Pentagon Study Urges Arms Shift, For Nuclear to High Tech.* New York Times. January 9, 2002.

most powerful conventional forces is actually increasing its reliance on nuclear forces.”¹¹⁰

Some critics of the Administration’s policy continue to argue for a far more limited role for nuclear weapons in U.S. defense and security policy. They question whether threats to use nuclear weapons in response to anything other than a nuclear attack would be either necessary or credible. Therefore, according to one analyst, “the U.S. would be far better served by adopting a genuinely new nuclear posture, one that maintains nuclear weapons only to deter nuclear attack. Given the awesome power of U.S. conventional forces, we do not need nuclear weapons for any other purpose, even to deter a chemical or biological attack.”¹¹¹ Furthermore, given the long-standing “taboo” against the use of nuclear weapons, some argue that the United States would enhance its standing in the international community if it sought to reduce, rather than expand, the role of nuclear weapons in international affairs.

Credible Deterrence

In many ways, the debate over the role of nuclear weapons in U.S. defense policy follows from a more fundamental debate over how to make deterrence credible. This debate surfaced frequently during the Cold War, when the United States sought to develop a mixture of strategy, doctrine, and force posture that would deter not only a Soviet nuclear attack on the United States but also a conventional attack by the Soviet Union or its allies against U.S. allies. For example, some analysts questioned whether the Soviet Union would believe U.S. threats to launch a massive retaliatory strike in response to an attack in Europe, when the Soviet Union could respond by devastating U.S. cities. Concerns about the credibility of the U.S. deterrent underlined many of the U.S. efforts to develop smaller, more accurate nuclear weapons and war plans that contained options allowing attacks against a range of targets. Analysts hypothesized that, if the Soviet Union knew that the United States could launch an attack more tailored to the provocation, and more directed against Soviet nuclear forces, then U.S. threats might seem more credible to the Soviet leadership. In other words, the more prepared the United States appeared to fight and win a nuclear war, the more likely it would be for the Soviet Union to refrain from aggression and for deterrence to succeed. Others argued, however, that such large force structures and elaborate plans were simply overkill, that the threat of nuclear destruction with as few as 100 warheads, known as a minimum deterrent, could be enough to deter any rational leader from challenging the United States.

In the years after the end of the Cold War, debates over the credibility of nuclear deterrence often focused on whether nations armed with chemical or biological weapons might believe U.S. threats to retaliate with nuclear weapons if attacked with chemicals or biological agents. Some argued that the potential loss of life from a biological attack would be so severe that nuclear deterrent threats would be both appropriate and credible. Others argued that nations simply would not believe that

¹¹⁰Nunn, Sam, William Perry, and Eugene Habiger. Still Missing: A Nuclear Strategy. Washington Post. May 21, 2002. p. 17.

¹¹¹Scoblic, J. Peter. Think Anew About U.S. Nukes. Christian Science Monitor. March 19, 2002.

the United States would cross the nuclear threshold in response to anything less than a nuclear attack, so nuclear threats would not be a credible deterrent for chemical or biological weapons. Furthermore, some argued that if a nation *did* use chemical or biological weapons, and the United States *did not* retaliate with nuclear weapons, the United States would be caught in a bluff and the credibility of its nuclear deterrent would be further damaged. These views contributed to the theory that the United States should threaten to use nuclear weapons only as a “last resort.”

The Bush Administration has outlined plans to develop a more focused nuclear war-fighting capability for the United States. The emphasis on the development of penetrating nuclear weapons that can destroy hardened and deeply buried targets, along with the “capabilities” based approach that states the United States will seek the ability to destroy threatening capabilities possessed by any potential adversary, are a part of this new strategy. As was noted above, critics have argued that these changes in the U.S. nuclear posture make it more likely that the United States will use nuclear weapons in a future crisis. The Bush Administration has argued, however that U.S. plans and capabilities to use nuclear weapons against smaller countries would make nuclear use *less likely* because it would make the U.S. deterrent more credible and robust.¹¹² Analysts who support the Bush Administration’s approach have noted that “leaders of rogue states may not take seriously a U.S. threat to launch massive nuclear strikes on leadership and weapons sites.... Thus, having the capability to destroy such targets with smaller and less destructive weapons would strengthen, rather than erode deterrence.”¹¹³

In addition to altering the U.S. force posture and war plans, the Bush Administration has been somewhat more explicit in threatening the use of nuclear weapons in retaliation for chemical or biological attacks. As was noted above, U.S. policy, both during the Cold War and in the decade since its end, has been one of “studied ambiguity” about the circumstances under which it would retaliate with nuclear weapons for a chemical, biological, or even conventional attack. It never openly declared that it would use nuclear weapons (and therefore, never would have been caught in a “bluff” if it did not retaliate with nuclear weapons), but it also would not forswear the first use of nuclear weapons. President Bush has not altered this policy, but he has stated that “we want to make it very clear to nations that you will not threaten the United States or use weapons of mass destruction against us or our allies.” He said that “I view our nuclear arsenal as a deterrent, as a way to say to people that would harm America that ... there is a consequence.”¹¹⁴

¹¹²McManus, Doyle. Nuclear Use as “Option” Clouds Issue. Los Angeles Times. March 12, 2002. p. 1.

¹¹³Sokolsky, Richard D. and Eugene B. Rumer. Nuclear Alarmists. Washington Post. March 15, 2002. p. 23.

¹¹⁴Miller, Greg. Bush Puts Nuclear Use in “Options Available.” Los Angeles Times, March 14, 2002.

U.S. Nuclear Posture and Nonproliferation Policy

In its report on the National Security Strategy of the United States, released in September 2002, the Bush Administration stated that the United States would “deter and defend against the threat [of nuclear, biological, and chemical weapons] before it is unleashed.” But the report also stated that the United States would seek to “strengthen nonproliferation efforts to prevent rogue states and terrorists from acquiring the materials, technologies, and expertise necessary for weapons of mass destruction.” The report says that the United States will “enhance diplomacy, arms control, multilateral export controls, and threat reduction assistance that impede states and terrorists seeking WMD...”¹¹⁵

According to the Administration, the development of new types of nuclear weapons that can defeat hardened and deeply buried targets, along with the potential use of nuclear weapons in retaliation for non-nuclear attacks, are a part of the U.S. effort to dissuade other nations from acquiring and threatening to use chemical, biological, or nuclear weapons. But many critics of the Administration’s approach argue that this policy is likely to undermine U.S. diplomatic efforts to discourage nuclear proliferation. According to one analyst, “by emphasizing the important role of nuclear weapons, the Pentagon is encouraging other nations to think it is important to have them as well.”¹¹⁶ Senator John Kerry expressed a similar view when he stated that the NPR would undermine U.S. credibility when it sought to convince other nations to forego nuclear weapons, noting that “it reduces all our bona fides on the proliferation issue.”¹¹⁷

Critics of the Administration’s policy point specifically to the implications its views on the U.S. negative security assurance might have for U.S. nonproliferation efforts. Many note that, through the negative security assurance, the United States sought to convince other nations that they would not need their own nuclear weapons to deter a nuclear threat from the United States. But, there would be “no reason for other countries to refrain from acquiring nuclear weapons” if the United States abandoned that policy.¹¹⁸ Not only would these nations receive no security benefit from the absence of nuclear weapons in their arsenals, they might also conclude that they could only deter a U.S. attack if they were to acquire their own nuclear weapons.

Others, however, have argued that the negative security assurance has done little to stem proliferation or enhance U.S. security because other nations do not consider the U.S. nuclear posture or declaratory policy when making their decisions about the acquisition of nuclear weapons. Even if the United States did not have any nuclear weapons, some nations would seek them for themselves to counter their neighbors or offset the U.S. advantage in conventional weapons. Furthermore, some analysts

¹¹⁵White House. National Security Strategy of the United States. September 2002. p. 14.

¹¹⁶Comments of Stan Norris in Gordon, Michael R. Nuclear Arms For Deterrence or Fighting? New York Times, March 11, 2002. p. 1

¹¹⁷Miller, Greg. Democrats divide over Nuclear Plan. Los Angeles Times, March 13, 2002.

¹¹⁸Comments of Joseph Cirincione in McManus, Doyle. Nuclear Use as “Option” Clouds Issue. Los Angeles Times. March 12, 2002. p. 1.

consider the negative security assurance, and its specific focus on nuclear weapons, as an “outdated policy that effectively gives non-nuclear countries a safe haven for developing chemical and biological weapons.”¹¹⁹

Nevertheless, many critics of the Administration’s policy have questioned the wisdom of an approach that might undermine U.S. nuclear nonproliferation objectives, even in the interest of providing new tools to address chemical and biological weapons. They note that the United States currently possesses conventional forces that are far superior to those of any other country. If, however, potential adversaries were to acquire nuclear weapons, they might present the United States with an “asymmetrical threat” that could offset U.S. conventional superiority. Therefore, these critics argue, the United States should seek to “marginalize as much as possible the role that nuclear weapons play in U.S. defense and foreign policy.” Nations can only negate the overwhelming U.S. conventional superiority with nuclear weapons, so “it is in U.S. interest to keep the firewall between nuclear and conventional high and strong.”¹²⁰

Strategic Nuclear Weapons

As was noted above, the Bush Administration’s plans for the U.S. arsenal of strategic nuclear weapons contain a number of key components:

- Reductions in the number of “operationally deployed” strategic nuclear warheads to between 2,200 and 1,700 warheads;
- Retention of most deployed delivery vehicles (ICBMs, SLBMs, and bombers), with reductions in the number of warheads carried by and counted on these vehicles;
- Storage of many warheads removed from deployment;
- The ability to restore stored warheads to deployed delivery vehicles in days, weeks, or months – a capability known as the “responsive force.”

The Administration argues that this combination of features will allow the United States to reduce its deployed forces while retaining the flexibility it needs to respond to unexpected or potential contingencies that might come up in the future. When combined with the plans to rebuild a robust infrastructure, these plans indicate that the United States will maintain the ability to enhance both the size and the capabilities of its strategic nuclear forces.

Analysts have raised numerous questions about the Administration’s plans. First, they question why, if Russia and the United States are no longer enemies, does the United States need to maintain 2,200 warheads in its deployed forces. They argue that Russia is the only potential adversary that has enough nuclear, leadership, and military targets to justify such a large U.S. force, and, by insisting on retaining this many weapons, the United States must still be developing war plans that contemplate

¹¹⁹Sokolsky, Richard D. and Eugene B. Rumer. Nuclear Alarmists. Washington Post. March 15, 2002. p. 23.

¹²⁰Daalder, Ivo and James M. Lindsay. A New Agenda for Nuclear Weapons. The Brookings Institution. Policy Brief No. 94. February 2002. p. 6.

wide-spread attacks on Russian targets. The Administration disputes this claim, noting that the United States has other potential adversaries, and, even if these nations do not possess thousands of nuclear warheads, some may expand their nuclear forces or chemical and biological capabilities in the future.

Analysts have also noted that the Administration's claims of deep reductions in offensive nuclear weapons are undermined by its plans to retain thousands of warheads in storage for a "responsive force." They note that, if these warheads were deployed on existing delivery vehicles, the United States could have a deployed force of nearly 4,000 warheads in a relatively short amount of time. They also argue that, if Russia adopts a similar posture, the threat of nuclear terrorism could increase because Russia's stored warheads might be vulnerable to theft or sale to nations seeking their own nuclear weapons.

The Administration has countered by noting that the United States has never destroyed warheads removed from delivery vehicles under past arms control agreements; it has always retained an active stockpile of warheads for spares and testing purposes. On the other hand, under arms control agreements, the United States did have to destroy delivery vehicles so that their warheads would no longer count in the total of deployed warheads. The Bush Administration does not plan to destroy either the silos for the Peacekeeper missiles or the Trident submarines that will be removed from the strategic force. It also plans to retain the same number of delivery vehicles that the United States would have retained, and counted as 3,500 warheads, under the START II Treaty. Hence, even if the United States deploys only 2,200 warheads on a day-to-day basis, it could expand its forces relatively rapidly.

Many of the questions raised by the Administration's critics reflect their views on the role of nuclear weapons in U.S. national security and their views on what is needed to maintain a credible deterrent. Generally, they believe that the United States should adopt a posture where nuclear weapons are weapons of "last resort," used only to deter or respond to nuclear attack on the United States. They conclude that the United States could maintain a credible deterrent with a far smaller number of nuclear weapons, perhaps 1,000 or fewer, and without significant investments in new infrastructure or new nuclear weapons capabilities. The Administration, on the other hand, has outlined a posture that reflects the view that nuclear weapons should play a broader role in U.S. national security strategy than just the deterrence of nuclear attack, that a credible deterrent requires the capability to effectively threaten and destroy a range of critical targets, and that the United States may need different numbers of nuclear weapons and different types of nuclear weapons to address threats that emerge in the future. Under this formula, the flexibility to restore nuclear warheads quickly, expand the number of deployed warheads over time, and develop new weapons with new capabilities makes it possible for the United States to reduce its deployed weapons in the near term without creating potential risks to its security in the future.

Non-Strategic Nuclear Weapons

As was noted above, the United States withdrew from deployment most its nonstrategic nuclear weapons during the early 1990s, leaving a few hundred air-delivered bombs deployed at bases in Europe. Although some analysts question the

need for these weapons, and their relevance to NATO's strategy in the absence of the Soviet Union and Warsaw Pact, most concerns about nonstrategic nuclear weapons focus on the potential for the loss or theft of Russia's weapons. Unclassified reports estimate that Russia may still have 12,000 nonstrategic nuclear weapons at storage areas around the country, and that these storage areas might be poorly guarded and the weapons may be vulnerable to theft. One Member of Congress, Curt Weldon, has referred to the issue of Russia's tactical nuclear weapons as "severe" and "critical."¹²¹

Many analysts believe that, to address concerns about Russia's nonstrategic nuclear weapons, the United States must propose unilateral or negotiated reductions in these forces. Others argue that negotiations are not an option because, with just a few hundred weapons deployed, the United States would have little leverage to convince Russia to reduce its stocks of nonstrategic nuclear weapons. Many contend that the United States should focus, instead, on measures to improve security at Russia's nuclear weapons storage facilities and to enhance transparency and openness so that both sides can remain confident in the safety and security of Russia's stockpile. Efforts in these areas are funded by DOD's Nunn-Lugar Cooperative Threat Reduction Program.

The Bush Administration did not address questions about U.S. or Russian nonstrategic nuclear weapons in the NPR or in the testimony and briefings that accompanied its release. However, in the months following the release of the NPR, and particularly after the United States and Russia signed the Strategic Offensive Reductions Treaty in May 2002, the Administration began to recognize that nonstrategic nuclear weapons should be on the agenda for discussions between the United States and Russia. Press reports indicated that this issue would be on the agenda during the May summit when Presidents Bush and Putin signed the Treaty.¹²² This did not occur, and Secretary of Defense Rumsfeld noted, at the time, that the issue on nonstrategic nuclear weapons was one that "keeps getting set aside."¹²³ However, during hearings on the Treaty before the Senate Foreign Relations Committee in July 2002, Secretary of Defense Rumsfeld and Secretary of State Powell both acknowledged that the two sides did need to address the issue. Both indicated that nonstrategic nuclear weapons would be on the agenda for the new Consultative Group for Strategic Stability, which was announced in the Joint Declaration released after the May 2002 summit in Moscow. This group, which is chaired by the U.S. Secretaries of Defense and State and Russia's Ministers of Defense and Foreign Affairs, held its first meeting in September 2002. Although their efforts are still in the earliest stages, many analysts believe that this group should place its highest priority on addressing the risks posed by Russia's arsenal of nonstrategic nuclear weapons.

¹²¹Roosevelt, Ann. Weldon: Time to Discuss Tactical Nuclear Weapons Cuts

¹²²Raum, Tom. Tactical Weapons Next Topic. Moscow Times. May 20, 2002. p. 5.

¹²³Rumsfeld: Fate of Deactivated Nuclear Warheads Still Undetermined. InsideDefense.com. May 21, 2002.