

The Nuclear Posture Review: Liabilities and Risks

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“Having invented a new Holocaust
And been the first with it to win a
war
How they make haste to cry with
fingers crossed
King’s X — no fair to use it any
more!”

— Robert Frost, 1946

Downplaying the future role of atomic arms, Defense Secretary William A. Perry released the results of the Pentagon’s first post-Cold War nuclear policy review during a press conference in Washington, D.C., on 22 September 1994. In his opening statement, Dr. Perry offered one of those sound bites that can compress momentous events into a ten-second clip on the six o’clock news: “The new posture . . . is no longer based on Mutual Assured Destruction, no longer based on MAD. We have coined a new word for our new posture which we call Mutual Assured Safety, or MAS.”¹ Indeed, times were changing.

In the question and answer session that followed, the assembled Washington press corps was much more interested in ongoing peacekeeping operations in Haiti. Dr. Perry’s surprising observation that the US nuclear arsenal would henceforth be more noted for safety than intimidation did not prompt a single question or even make the evening news. Nor did anyone recall an ominous event that had occurred ten months earlier in Moscow. In November 1993, as the Pentagon kicked off its Nuclear Posture Review (NPR), which greatly reduced both the operational tempo and size of the US nuclear arsenal, Russian President Boris N. Yeltsin rescinded his nation’s “no first use” nuclear weapons policy.²

Yeltsin's announcement erasing Leonard I. Brezhnev's June 1982 pledge before the United Nations General Assembly that "the Union of Soviet Socialist Republics assumes an obligation not to be the first to use nuclear weapons"³ hardly created a ripple. Even Russia's current three-to-one advantage in nuclear firepower⁴ causes little alarm inside the Pentagon. Had such an imbalance occurred during the Cold War, US strategic forces would have dusted off their advanced DEFCON checklists.

Nuclear arms get little respect from official Washington today. Shortly before his retirement in 1994, General Charles A. Horner, commander of US Space Command, told defense reporters, "The nuclear weapon is obsolete. I want to get rid of all of them."⁵ About the same time, Dr. Ashton B. Carter, undersecretary of defense for international security policy, outlined the Clinton Administration's long-term vision for US forces, "Our intention is to have a military that doesn't need to use [nuclear, biological, and chemical] weapons." Carter, who also cochaired the NPR, added, "We can use conventional forces to prevail anywhere in the world."⁶ Going a step further, the Commander-in-Chief relegated the nuclear threat to history's dustbin during a June 1995 speech commemorating the United Nations 50th anniversary in San Francisco: "Today, the threat to our security is not an enemy silo, but in the briefcase or the car bomb of a terrorist."⁷

Arms control treaties, the breakup of the former Soviet Union, and the success of high-technology conventional weapons during the 1991 Persian Gulf War have collectively accelerated efforts to fold this nation's nuclear umbrella. Also fueling the move back to less-menacing armaments is the still-haunting specter of Hiroshima. The *Enola Gay* received more flak this year in the short hop from the Smithsonian's Silver Hill, Maryland, restoration facility to the Air and Space Museum than it did on the long flight from Tinian to Hiroshima in 1945. The Smithsonian's attempt to question the necessity and morality of the atomic bombing of Japan pitted veterans against revisionist historians, resulting in yet another Hiroshima "casualty"—this time museum director Martin Harwit, who resigned when the forces of political correctness suffered a highly publicized defeat.

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Against the backdrop of a supposedly vanquished superfoe, long simmering discomfort with things nuclear, and rapidly declining defense budgets, the stage was set for a reappraisal of nuclear policy. Chilling language of the atomic age—"assured destruction," then "massive retaliation," followed by "flexible response" and its corollary "unacceptable damage," and finally, "mutual assured destruction"⁸—had no place in the post-Persian Gulf War revolution in military affairs. From the Reagan buildup to the fall of the Berlin Wall, US nuclear strategy had come full circle to former Defense Secretary Robert S. McNamara's proposition that "nuclear warheads are not military weapons in the traditional sense and therefore serve no purpose other than to deter one's opponent from their use."⁹

Guidelines for conducting the NPR, stated in Secretary of Defense Les Aspin's September 1993 Bottom-Up Review, were consistent with McNamara's proposition. According to the Bottom-Up Review, the pending review of US nuclear posture would concentrate on the deterrent, not warfighting, capabilities of nuclear weapons. In the post-Cold War world, US nuclear forces had only two missions: to "provide an effective deterrent while remaining within START I/II limits, and to allow for additional forces to be constituted, in the event of a threatening reversal of events."¹⁰ By the time NPR results were released, Dr. Perry had modified his predecessor's charge. According to the Defense Secretary, the NPR dealt with two great issues: "How to achieve proper balance between what I would call leading and hedging," (meaning setting an example by accelerating warhead reductions while, at the same time, retaining a capability to reconstitute nuclear forces should Russian reforms fail) and achieving "benefits of improved safety and security for the residual force of nuclear weapons . . . both in the United States and in Russia."¹¹ The latter refers to operational restrictions such as detargeting ICBMs, adding Permissive Action Links to missile-firing submarines, restricting their patrol areas, and US aid to Russia for deposing nuclear forces.

The NPR was a DOD-wide collaborative effort under the direction of the Office of the Secretary of Defense. Neither the civilian cochairman, Dr. Ashton Carter, nor his military counterpart, Admiral William A. Owens, Vice Chairman of the Joint Chiefs of Staff, are strong advocates of nuclear forces. Dr. Carter has publicly stated a desire to rely on conventional forces for national security, and Admiral Owens is a proponent of placing all nuclear weapons under United Nations control. Other participants included representatives of the joint staff, all four services, CINCs from the operating commands, and defense intelligence, security, and nuclear agencies. Recommendations were divided into six areas: strategic forces; non-strategic nuclear forces; infrastructure; safety, security, and use control; command, control, communications, intelligence, and operations; and threat reduction and proliferation. This article focuses on the first three areas.

Strategic Forces

In the end, the NPR opted to retain a scaled-down version of today's strategic nuclear forces, but only after low-intensity conflict erupted between the operational commands and the panel's civilian cochairman. At issue was the structure of the nuclear triad.¹² Running at flank speed against recommendations of the strategic working group, Dr. Carter introduced a monad concept that would scrap all US ICBMs, mothball all nuclear-capable bombers, and put the entire US deterrent aboard just ten Navy submarines.¹³ At any one time, half would be at sea and half in port, where they would be sitting ducks to even a second-rate nuclear power. Dr. Carter's all-eggs-in-one-basket plan would field only 1550 warheads,¹⁴ well under the NPR-stipulated goal which coincides with the START II limit of 3500 nuclear weapons.

Dr. Carter's monad plan first surfaced in an article he wrote for the Winter 1991 issue of *Daedalus*. Then on Harvard's faculty, Dr. Carter criticized the triad's capability of "assuring hefty retaliation to a first strike."¹⁵ Rather, he favored a "deterrent that could calmly sit out a crisis without taking any actions that might aggravate it, and that could ride out a first strike until the *enemy had done his worst* and then patiently wait for the *president* or his *successors to deliberate*"¹⁶ (italics added). The NPR cochairman could achieve his goal of adding due process to nuclear deterrence only by eliminating bombers and silo-based missiles—most effective when launched minutes after an attack and before the first warheads impact on US soil—and replacing them with more survivable submarines.

This didn't sit well with the military. In an almost unprecedented countermove, deputies for operations of all four uniformed services sent a classified letter to the Director of the Joint Chiefs of Staff, Vice Admiral Richard Macke, alleging Dr. Carter had rejected recommendations of an NPR working group in favor of the monad trial balloon.¹⁷ Despite objections from the senior military officers, apparently Dr. Carter did present the submarine-only proposal, along with at least one option that retained some bombers but eliminated land-based ICBMs, during a 23 April 1994 NPR in-process review to Deputy Defense Secretary John Deutch.

Senator Strom Thurmond then joined the fray, firing from the high ground of Capitol Hill. In a statement before the Senate Committee on Armed Services, Unified Commanders Strategy and Operational Requirements, the South Carolina lawmaker vigorously opposed the Clinton Administration's position:

For fifty years now we have had a bipartisan national security policy where the very survival of the United States was at issue. Ten administrations agreed . . . we would enforce a policy of deterrence with a surely survivable Triad of nuclear forces. . . . Now, I am afraid . . . that unanimity of policy [will] begin to slip away. . . . [T]he Nuclear Posture Review . . . recommended a force roughly like

we have now, a strong Triad. But the Chairman of the group, Assistant Secretary Carter, is reportedly going to recommend . . . we abandon ICBMs! . . . [I]t appears like this administration is committed to a nuclear policy . . . based on guilt and shame.¹⁸

Four other Republican senators appealed directly to President Clinton, asking him to reject Assistant Secretary Carter's end-run around the NPR. The letter, signed by Senators Conrad Burns, Dick Kempthorne, Alan Simpson, and Malcom Wallop, stated, "We should not even consider the elimination of any leg of the triad. Such an act of unilateral disarmament would not save significant amounts of money, but would . . . be highly destabilizing and imprudent."¹⁹ The senators noted that both Russian and Chinese ICBM forces had the capability to launch a crippling preemptive strike against the US force structure Dr. Carter was pushing.²⁰

During testimony before a 20 April Senate hearing, Admiral Henry Chiles indicated a policy option to ride out nuclear attacks before retaliating was also under review by the NPR. Delayed retaliation was related to the "SLBM-only" force posture, as it was in Dr. Carter's 1991 magazine article. The US Strategic Command CINC cautioned, "It is a step that would have to be taken with the absolute greatest concern about the future because the President, I believe, needs the capability to face down rogue leaders in the world. And part of that, I believe, is having a degree of carefully thought-out or measured ambiguity in the mind of the leader he is trying to deter."²¹

In the end, academic ideology retreated before the combined arms of experienced military professionals and vocal politicians. There would be, at least for the moment, no amputation of the triad. By the time the NPR results were released in September, calm had returned to the seas of civilian-military conflict. During the NPR press conference, a reporter asked Dr. Deutch if all the uniformed services were now in agreement with the civilian side.²² The Deputy Secretary of Defense replied, "There was no serious disagreement. There was no serious disagreement."²³ The triad had proved to be an effective deterrent, even against the post-Cold War revolution in military affairs.

The post-START II force structure recommended by the NPR calls for 14 Trident submarines, 66 B-52 bombers, no more than 20 B-2 stealth bombers, and either 450 or 500 Minuteman III ICBMs downloaded to carry one, rather than three, warheads.²⁴ With no new strategic systems on the drawing board, this force package leaves the United States with an aging fleet of nuclear delivery vehicles through at least 2020. Production of the B-52 ended in 1964 and Minuteman III deployment was completed in 1975, yet these systems will comprise 61 percent of US nuclear delivery vehicles and will carry 42 percent of the warheads allowed under the START II 3500 limit. Two of four modern weapon systems developed during the Reagan strategic modernization do not appear in the NPR lineup. All 50 MX missiles will be

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destroyed in compliance with a START ban on multiple-warhead ICBMs. All B-1B bombers will be converted to a nonnuclear role to comply with another provision of the strategic arms control accords. Of the two remaining modern systems, only Trident subs and their D-5 missiles provide a significant capability. B-2 bomb bays will carry only 12 percent of the US nuclear warhead count. Even if more are built (the original production run was planned at 132 aircraft), the Clinton Administration will limit any additional Spirit bombers to a nonnuclear role.

While Moscow hasn't released a post-START II lineup of strategic nuclear forces, Russia's triad—also constrained by arms control agreements—is expected to be much more modern than its American counterpart. If projections compiled by *The Bulletin of Atomic Scientists* are correct, fully 75 percent of the delivery vehicles postured by Russia after START II will have been produced after 1985.²⁵ The corresponding US figure is 38 percent, with only Trident D-5 SLBMs and B-2 bombers qualifying as post-1985 weapons.²⁶

Admiral Chiles acknowledged potential dangers of an aging triad in a letter to Secretary Perry immediately before the public release of the NPR findings. The commander of US nuclear forces warned, “With no new strategic systems anticipated for the foreseeable future, the challenge is to maintain existing systems in the absence of a supporting production base. Preservation of key strategic industrial-base capabilities is required to attract and retain the experienced personnel that will be needed to resolve inevitable problems with aging systems.”²⁷ Minuteman life-extension programs and funding for enough bombers to meet Bottom-Up Review conventional force requirements and NPR nuclear force levels are not high-priority items with the current Administration.

With the bomber and ICBM legs of the triad subject to aging and funding problems, the United States may be headed toward a blue-water deterrent. “By 1997, the United States will be carrying half its nuclear warheads on submarines, with relatively few on bombers or in missile silos.”²⁸ Dr. Carter may have lost the NPR battle, but his ideas could prevail in a longer struggle to revolutionize the US strategic posture.

Besides the age discrepancy and a consequent growing dependence on submarines, there is another imbalance between the NPR force structure and its opposing armada. Russian forces will hold a significant survivability

advantage. START allows either side to deploy up to 1100 mobile, single-warhead ICBMs. Russia is expected to field at least 600 road-mobile SS-25 Topol missiles, currently being produced at the Votkinsk Machine Building Plant. The Pentagon canceled the small ICBM, or "Midgetman," ground-mobile missile program shortly after Senate confirmation of START I, thus opting out of an arms control provision that would have increased survivability of land-based missiles. The Topol is many times more survivable than US silo-based Minuteman ICBMs. In two wars, superior US technology has yet to claim a single "kill" of a mobile missile. During the Persian Gulf War, coalition air power claimed no confirmed kills of deployed Scuds. In World War II, despite overwhelming air superiority over Europe, Allied forces did not destroy a single mobile V-2 rocket during the Battle of Britain. Conversely, no fixed-based V-2 sites escaped destruction from the air.

Russia also holds a significant advantage in air defenses. At least 64 Galosh anti-ballistic missiles ring Moscow, protecting the capital and approach corridors to rocket force bases from missile attacks. The 1972 Anti-Ballistic Missile Treaty allows both sides to deploy limited missile defenses, but the United States demolished its Safeguard ABM system in 1975. Also, the massive Soviet bomber defenses remain intact, unconstrained by arms control. While the 20 B-2 stealth bombers can avoid radar, the small B-52 fleet's ability to evade overlapping rings of surface-to-air missiles is very much in doubt.

While a professor at Stanford University, and more than a decade before becoming Secretary of Defense, Dr. Perry defined four characteristics of an effective deterrent: lethality, survivability, penetrability, and command and control connectivity.²⁹ The NPR force structure comes up short on Dr. Perry's second and third characteristics when compared to Russian capabilities.

Tactical Nuclear Forces

Military requirements for tactical nuclear weapons date back to the formation of NATO in 1949. At that time, 175 divisions were massed behind the Iron Curtain on Western Europe's eastern flank. At least 96 NATO divisions were required for an effective counterforce. With the Western democracies politically unable to provide either the financial or manpower resources to field so large a force, NATO turned to battlefield nuclear weapons. By 1969, over 7000 small nuclear weapons were deployed in Europe supporting 30, not 96, NATO divisions.³⁰

Deploying battlefield nuclear weapons with conventional forces achieved two goals: a balance of power could be achieved with fewer forces, as was the case in NATO; and routine mixing of conventional and atomic capabilities with land and sea forces increased the credibility of overall nuclear deterrence.³¹ By putting links in the chain reaction of nuclear deterrence, a measure of escalation control, later known as extended deterrence and flexible response,

was established. If the initial use of nuclear weapons could be constrained to a counterforce strike against battlefield military targets, diplomatic initiatives could occur before all-out escalation to population centers. At least this was the theory, and it held until the breakup of the former Soviet Union.

Even before the NPR, the linkage between US strategic and tactical forces was eroding. On the eve of his retirement in 1993, JCS Chairman General Colin Powell noted, "The Navy, the Marine Corps, and the Army now totally rely on the Air Force for any potential nuclear weapons they need on the battlefield."³² The NPR endorsed General Powell's initiative by eliminating the capability to deploy tactical nuclear weapons on Navy surface ships (Tomahawk cruise missiles aboard submarines retain a latent capability to carry small nuclear warheads), and reducing NATO's tactical nuclear stockpile from 10,500 to 1500 weapons.³³

During the NPR press conference, then-Deputy Secretary of Defense John Deutch noted Russian reluctance to match US efforts to retire tactical weapons. Dr. Deutch said,

One of the most important parts of the Nuclear Posture Review is to notice that this decline, which we anticipate will take place in non-strategic nuclear forces, has not happened. Currently, Russia has between [6000] and 13,000 nonstrategic nuclear weapons, while we have a much reduced number from that. We are anticipating going significantly lower . . . and you have to encourage the Russians [to do the same]. There are no treaties requiring them to reduce non-strategic nuclear forces.³⁴

Drastic reductions in tactical nuclear weapons would be consistent with Dr. Carter's objective to "use conventional forces to prevail anywhere in the world." Administration plans to counter proliferation with conventional forces remain a currently unattainable goal. But, according to the Chairman of the Joint Chiefs of Staff, General John M. Shalikashvili, the United States is "behind the power curve. . . . [W]e need to have more tools in our toolbox to deal with weapons of mass destruction."³⁵ A RAND Corporation study estimated it would take between \$50 and \$100 billion for a force posture to fight effectively against a dispersed arsenal of up to 20 nuclear weapons.³⁶

The Pentagon seems to have forgotten an early Cold War lesson: an effective mix of battlefield and strategic nuclear weapons is a force and dollar multiplier in deterring either nuclear or conventional war.

Infrastructure

In three short years between 1942 and 1945, the Manhattan Project built a formidable array of factories and laboratories—as large as the entire automobile industry of the United States at that time—to develop the atomic bomb.³⁷ Through neglect, budget-cutting, and application of environmental restrictions, that infrastructure is in precipitous decline. The last new warheads came off the Pantex production line near Amarillo, Texas, five years ago,³⁸ and tritium has

not been produced in the United States since 1988.³⁹ Without a steady resupply of this radioactive hydrogen isotope, whose half-life is only 12.3 years,⁴⁰ US nuclear weapons will gradually lose their punch. Currently, stockpile requirements are met by recovering and then purifying tritium gas from retired weapons, but a new source will be required by 2011.⁴¹ Under the current Administration, the Energy Department has taken a strong anti-nuclear-weapons stance, and is hesitant in taking the first steps to restart tritium production, a process expected to take 10 to 15 years at a cost of several billion dollars.⁴²

Meanwhile, Russia continues to manufacture new nuclear weapons and weapon-related materials, including highly enriched uranium, plutonium, and tritium.⁴³ China, which during the Cold War built the long-range DF-6 missile to attack the Panama Canal, thus keeping the United States from reinforcing its Pacific fleet in wartime,⁴⁴ is currently conducting nuclear weapon tests. China is apparently perfecting high-yield warheads for employment on three new ICBMs currently in development.

Because of a self-imposed, open-ended moratorium on even underground nuclear tests, the United States is launching a Stockpile Stewardship and Management Program, founded on a science-based approach as opposed to traditional test-based methods, for assessing the viability of its aging nuclear arsenal. In testimony before the Senate Armed Services Committee in May, the Energy Department's assistant secretary for defense programs said, "Science-based stewardship and management of the US stockpile has never been done before. Meeting the challenge will be neither inexpensive or without risk."⁴⁵ The director of Los Alamos National Laboratory, and one of only 40 nuclear weapon designers still employed by the Energy Department, added another cautionary note: "Weapons out there now are deviating from design. The parameters of the original design change with age. Understanding the performance of an aging weapon is much harder than designing a brand new weapon. And it's not understood."⁴⁶

In his NPR press briefing, Deputy Secretary Deutch offered an observation apparently contradictory to the Administration's decision to constrain nuclear production, testing, and stockpile maintenance capabilities. Dr. Deutch said, "Let me remind you that Russia has little prospect of returning to the kind of conventional force structure they had at the height of the Cold War, given the collapse of their economy and change in political system. It is a less expensive and less demanding matter for them to return to a much more aggressive nuclear posture. So if something does go wrong in Russia, it is likely that it is in the nuclear forces area that we will face the first challenge."⁴⁷ If that happens, it may well take another effort of the magnitude of the Manhattan Project to restore a matching US nuclear capability—assuming the time, resolve, and dollars are available to rebuild what is being scrapped in the afterglow of the Cold War.

For Want of a Threat . . .

US efforts to downgrade and deemphasize its nuclear capability are based on the premise that there is, currently, no significant threat to national security posed by hostile nuclear forces.⁴⁸ Funding and force structures are being tailored to fit arms control agreements, political expectations, and dogma, rather than pure defense needs. Reluctant to match US rates in retiring strategic and tactical nuclear weapons, Moscow continues massive training exercises replicating Pearl Harbor-like nuclear attacks against the United States,⁴⁹ and a steady modernization of China's nuclear triad is greeted with yawns inside the Beltway. While Defense Secretary William Perry talks about a new era of Mutual Assured Safety, Russia continues to operate a "Doomsday machine" capable of unleashing a nuclear strike based on electronic pulses rather than human decision.⁵⁰ Chinese missile scientist Hua Di notes, "We don't need a lot of sophisticated controls over our weapons. The briefcase carried by the man behind your President—we don't have that."⁵¹

Historian Donald Kagan, in his book *On the Origins of War and the Preservation of Peace*, concludes a case-study analysis of the underlying causes of the Peloponnesian War, the second Punic War, World Wars I and II, and the Cuban missile crisis with this observation:

A persistent and repeated error through the ages has been the failure to understand that the preservation of peace requires active effort, planning, the expenditure of resources, and sacrifice, just as war does. In the modern world, especially, the sense that peace is natural and war an aberration has led to a failure in peacetime to consider the possibility of another war, which, in turn, has prevented efforts needed to preserve peace. Perceiving the source of a new war in a time of peace is, to be sure, a difficult task.⁵²

Kagan cites both ancient and modern examples of how policies of minimal deterrence increased, rather than diminished, the likelihood of war. Deterrence, Kagan notes, requires the creation of fear. That's precisely why Mutual Assured Destruction worked and Mutual Assured Safety won't. Today's answer lies somewhere between these two extremes. Proliferation, Russia's certain dependence on nuclear weapons to retain status as a world power, and the growing rift with China dictate a robust US strategic nuclear capability backed by sufficient tactical nuclear firepower to shield conventional forces from numerically superior adversaries armed with weapons of mass destruction.

Racked by dissension between civilian and military officials, caught in a crossfire of political and military viewpoints, constrained by budget decisions favoring conventional forces, and blinded by unbending trust in arms control agreements, the Nuclear Posture Review fell short of completing an objective analysis of US national security needs. That failure may come at a

terrible price. The status of the United States as the world's only remaining superpower cannot rest on superior technology and smart weapons alone in a world likely to see more, not fewer, nuclear-armed states.

NOTES

1. Dr. William A. Perry, from transcript of Defense Department Briefing, *Nuclear Posture Review*, 22 September 1994, p. 1

2. Sonni Effron, "Russia Discards Soviet Legacy of No First Use of A-Weapons," *Los Angeles Times*, 4 November 1993, p. A1.

3. *Ibid.*, p. A17.

4. Estimate by the author using information from various sources including queries to the Office of the Assistant to the Secretary of Defense, Public Affairs, reports from the "Nuclear Notebook," recurring column of *The Bulletin of the Atomic Scientists*, public statements of defense officials, and reading of *The ICBM Ear*, an informal newsletter published by defense contractors supporting ICBM operations and development programs. From this data Russia is believed to have as many as 13,500 tactical nuclear weapons and slightly fewer than 8000 deployed strategic warheads. US officials have acknowledged that US strategic warhead counts have dropped below the START I ceiling of 6000 weapons, and the tactical nuclear weapon count is approximately 1500. The estimated three-to-one advantage for Russia is based on this data: approximately 23,500 postured Russian nuclear weapons compared to a US total of 7500 nuclear weapons available for military operations.

5. John Diamond, "I want to go to zero," *Santa Maria Times*, 16 July 1994, p. A1.

6. Jim Mann, "New US Nuclear Policy to Focus on 'Rogue' Regimes," *Los Angeles Times*, 9 May 1994, p. A8.

7. John M. Broder, "Clinton Says U.N. Bloated, Needs Reform," *Los Angeles Times*, 27 June 1995, p. A12.

8. "Assured destruction" was coined in the early 1950s when US forces were virtually unchallenged by the Russians. At the time, Strategic Air Command's second CINC, General Curtis E. LeMay, boasted that his forces "could have destroyed all of Russia without losing a man to their defenses." In 1956, NATO adopted a policy of "massive retaliation" to discourage superior Soviet ground forces from attacking Western Europe with conventional weapons. As the Warsaw Pact and the Soviet Union developed a credible nuclear capability, Robert S. McNamara introduced the term "flexible response" in 1962. If conventional war broke out in Europe, NATO could slow the Russian advance with limited use of theater nuclear weapons, backed up by US-based strategic forces capable of inflicting "unacceptable damage." The idea was "nuke a little, talk a little," until rationality dictated the end of hostilities before escalating to an all-out nuclear exchange. "Mutual Assured Destruction" reflected the delicate balance of equivalent nuclear forces guaranteed by the 1972 Strategic Arms Limitation Treaty (SALT I). Together with the Anti-Ballistic Missile Treaty (also signed in 1972) that virtually eliminated effective defenses against a massive attack, both superpowers maintained the capability to annihilate each other until the end of the Cold War.

9. Robert S. McNamara, *Blundering Into Disaster: Surviving the First Century of the Nuclear Age* (New York: Pantheon Books, 1986), p. 16.

10. Les Aspin, Secretary of Defense publication, *The Bottom-Up Review: Forces For A New Era*, 1 September 1993, p. 16.

11. Dr. Perry from transcript of 22 September 1994 NPR press conference, p. 2.

12. The triad concept dates to 1960 when the Eisenhower Administration adopted the first Single Integrated Operations Plan (SIOP) identifying targets for nuclear forces. To assure effective retaliation, US forces were parceled into three equally capable elements: land-based ICBMs, long-range bombers, and sea-launched ballistic missiles. Each, after surviving a first strike, was required to maintain a capability to destroy 50 percent of the military and industrial targets in the SIOP data base. This assured overkill accomplished two key deterrent goals: even in a worst-case scenario, the United States maintained enough firepower to retain a secure reserve force, after a nuclear exchange with the Soviet Union, capable of countering other potential belligerents such as China; and, it permitted a hedge against any technological breakthrough that might negate one leg of the triad (such as the capability to "see through water" thus exposing all SLBMs to interdiction).

13. Elaine M. Grossman, "Carter Presents Option To Put All Nukes On Subs, Creating 'Monad,'" *Inside the Air Force*, 6 May 1994, p. 4.

14. Elaine M. Grossman, "DoD Eyes Reducing to 1,500 Nuclear Weapons Under Alternative Force Posture," *Inside the Air Force*, 20 May 1994, p. 1.

15. Ashton B. Carter, "Emerging Themes in Nuclear Arms," *Daedalus*, 120 (Winter 1991), 235.

16. *Ibid.*, pp. 236-37.

17. Elaine M. Grossman, "Four Services Sign Letter to Block Carter's Nuclear Posture Briefing," *Inside the Air Force*, 28 April 1994, p.1.

18. Statement of Senator Strom Thurmond before the Committee on Armed Services, Unified Commanders Strategy and Operational Requirements, Defense Authorization Bill for FY 1995, Hearing, 20 April 1994, pp. 1-3.
19. "Senate Republicans Appeal to Clinton Not to Eliminate ICBM Force," *Inside the Pentagon*, 29 April 1994, p. 9.
20. Ibid.
21. Grossman, "Four Services Sign Letter to Block Carter's Nuclear Posture Briefing," p. 10.
22. Transcript, "Nuclear Posture Review Defense Briefing," p. 16.
23. Ibid.
24. "Nuclear Posture Review" slide briefing (Press/Public Version), slide 17.
25. William M. Arkin and Robert S. Norris, "Russian (C.I.S.) Strategic Nuclear Forces—End of 1994," *The Bulletin of the Atomic Scientists* (March-April 1995), pp. 78-79.
26. *The Bulletin of the Atomic Scientists* projected Russia would field 1223 strategic delivery vehicles after START II is fully implemented in 2003 (same reference year used by the NPR for US projections). Russian systems manufactured after 1985 or later (my definition for "modern" production) include: 695 SS-25 ICBMs; 120 SS-N-20 and 112 SS-N-23 SLBMs; 25 supersonic Tu-160 Blackjack bombers, and 50 Tu-95 Bear H6 and H16 bombers. The prop-jet Bears have been around as long as US B-52 bombers, but the H6 and H16 versions were manufactured late in the production cycle that ended in 1992. Boeing ended production of the B-52 in 1964. The only projected Russian post-START II systems dating to before 1985 are 105 SS-19 ICBMs (deployed between 1972 and 1984), and 176 SS-N-18 SLBMs first deployed in 1979.
27. Letter from Admiral H. G. Chiles, Jr., Commander in Chief, US Strategic Command, to the Honorable William J. Perry, Secretary of Defense, 12 September 1994.
28. Art Pine, "US Ponders What to Do With Its Nuclear Arsenal," *Los Angeles Times*, 10 May 1994, p. A16.
29. Barry M. Blechman, ed., *Rethinking Strategic Policy* (Cambridge, Mass: Ballinger, 1982), p. 129.
30. McNamara, pp. 21-23.
31. Blechman, p. 21.
32. "Draft RAND Study: Adequate Missile Defense Requires Major USAF Sacrifice," *Inside The Air Force*, 21 April 1995, p. 11.
33. "Nuclear Posture Review" slide briefing, (Press/Public Version), slides 21 and 36.
34. Transcript, Nuclear Posture Review briefing, p. 6.
35. Mann.
36. "Draft RAND Study: Adequate Missile Defense Requires Major USAF Sacrifice."
37. Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon & Schuster, 1988), p. 605.
38. William M. Arkin and Robert Norris, "US Nuclear Weapons Stockpile, July 1995," *The Bulletin of the Atomic Scientists* (July-August 1995), p. 78.
39. William B. Scott, "Aging Arsenal Poses Dilemma," *Aviation Week & Space Technology*, 17 July 1995, p. 26.
40. Samuel Glasstone and Philip J. Dolan, comp. and ed., *The Effects of Nuclear Weapons* (Washington: US Department of Defense and the US Department of Energy, 1977), p. 608.
41. Scott.
42. Bill Gertz, "The New Nuclear Policy: Lead but Hedge," *Air Force Magazine*, January 1995, p. 37.
43. Frank J. Gaffney, Jr, "Wrong Way to Face the Future Nuclear Threat," *The Wall Street Journal*, 3 November 1993, p. A14.
44. Hua Di (Center for International Studies and Arms Control fellow), quoted from a Stanford University noontime seminar "Conversion of China's ICBM's from East Wind to Long March," 13 December 1993.
45. Scott, p. 24.
46. Ibid.
47. John Deutch, quoted from NPR press conference transcript, p. 7.
48. Of the acknowledged nuclear weapon states, Russia currently retains approximately 29,000 nuclear weapons (about 23,500 deployed; remainder in reserve); France between 500 and 550; China, between 350 and 450; and Britain, between 200 and 250. Weapon counts for the three de facto nuclear capable states are: Israel, up to 200 warheads; India, around 20, and Pakistan, about 10. South Africa built six nuclear weapons but later destroyed them. (Compiled from multiple sources).
49. The START accords require advance notice of strategic forces exercises. On 22 June 1994, Russian forces test-launched an SS-25 ICBM, an air-launched cruise missile, and an SLBM in a mock attack on the United States. A similar exercise was conducted in 1993. Neither was reported to the US State Department.
50. Gaffney.
51. Patrick E. Taylor, "China Upgrades Nuclear Arsenal as it Re-Examines Guns vs. Butter," *The New York Times*, 26 October 1994, p. A4.
52. Donald Kagan, *On the Origins of War and the Preservation of Peace* (New York: Doubleday, 1995), p. 567.