



JULY 25, 2012

NUCLEAR WEAPONS STOCKPILE

UNITED STATES SENATE, COMMITTEE ON APPROPRIATIONS

ONE HUNDRED TWELFTH CONGRESS, SECOND SESSION

HEARING CONTENTS:

WITNESSES

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Global Zero US Nuclear Policy Commission

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United States Senate
Senate Appropriations Subcommittee on Energy and Water Development

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The number of US START-accountable strategic nuclear weapons has been reduced by over 80% since the end of the Cold War—from over 10,000 weapons in 1991 to fewer than 1800 today.¹ We clearly have been well past Cold War force levels and strategies for many years. There is an on-going debate regarding the wisdom of reducing US nuclear forces further. Some analyses, such as the Global Nuclear Zero Commission (GNZC) report, recommend further deep reductions; others are skeptical.

The authors of the GNZC report suggest that the skeptics are driven by a continuing commitment to Cold War strategies. In fact, this debate is not between “new think” and “old think.” Skeptics of further deep reductions have moved well beyond Cold War thinking, and I know of no one who considers the prospective employment of nuclear weapons to be anything other than a last resort option in the most extreme circumstances.

Instead, the basis for the differences between those who advocate further deep reductions and those who are skeptical reside in their fundamentally different views of deterrence, the current and future security environments, and the appropriate methods for measuring “how much is enough?” for the US nuclear arsenal. The GNZC report, like similar reports promoting deep reductions, reflects a familiar approach to deterrence force sizing that dates back to the 1960s.

This approach, often called Minimum Deterrence, considers the US nuclear arsenal to be adequate if it essentially is capable of threatening a relatively small number of opponent targets. The types of targets to be threatened can vary, but the fundamental measure of force adequacy is the number of weapons considered necessary to cover targets that are relatively few in number

¹ Department of States, Bureau of Arms Control, Verification and Compliance, *Fact Sheet, New START Treaty Aggregate Numbers of Strategic Arms*, April 6, 2012.

and easy to strike. The force level deemed adequate via this methodology can be manipulated easily by defining and redefining the targets deemed suitable for deterrence. By defining down the number and types of targets considered important for deterrence, the number of US nuclear weapons deemed adequate for deterrence can be reduced to low levels compatible with an aggressive arms control agenda. Opponents and threats may not have eased, but deterrence metrics can be redefined by fiat to be compatible with deep US nuclear reductions. For decades, proposals for Minimum Deterrence and related low force levels typically have defined the requirements for deterrence in this fashion and thereby have created the deterrence policy narrative necessary for deep nuclear reductions.²

In the 1960s, for example, Secretary of Defense McNamara publicly defined threats to specific percentages of Soviet population and industry as the appropriate measure for US deterrence threats. This formulation facilitated relatively low US nuclear force requirements because the Soviet civilian targets declared key for deterrence were relatively few in number and highly vulnerable. According to senior DOD officials at the time, the “primary purpose” of this definition of deterrence adequacy was to have a relatively easy-to-meet measure in hand to answer the question “how much force was enough”.³

This Minimum Deterrence methodology for defining force requirements may be compatible with very low force levels, but is inadequate for six basic reasons.

² Federation of American Scientists, *From Counterforce to Minimal Deterrence: A New Policy Path Toward Eliminating Nuclear Weapons*, Occasional Paper No. 7 (April 2009), available at http://www.fas.org/pubs/_docs/OccasionalPaper7.pdf.

³ “The emphasis in McNamara’s statements on nuclear forces and doctrine shifted after 1963 to that of Assured Destruction. This doctrine held that a nuclear exchange would, with high probability, result in over 100 million fatalities in both the U.S. and the U.S.S.R. and that attempts to limit damage through active and passive defenses could be readily defeated by improvements in offensive forces. The principal test of adequacy of the U.S. strategic force came to be the ability of our programmed force to produce civil damage, even against a greater than expected threat. The damage criterion settled on by McNamara for determining the size of the strategic force was the destruction of 20-25 percent of the Soviet population and 50 percent of its industrial capacity. The programmed forces decided on in the early 1960’s readily met this test. So readily that it seemed evident that our forces were more than adequate. The primary purpose of the Assured Destruction capabilities doctrine was to provide a metric for deciding how much force was enough: it provided a basis for denying service and Congressional claims for more money for strategic forces.” Henry S. Rowen [deputy assistant secretary of defense for international security affairs, 1961-1964], “Formulating Strategic Doctrine,” in *Report of the Commission on the Organization of the Government for the Conduct of Foreign Policy*, Vol. 4, Appendix K: Adequacy of Current Organization: Defense and Arms Control (Washington, D.C.: GPO, June 1975), p. 227 (emphasis in original).

First, calculating the forces adequate for deterrence is not simply a matter of identifying some preferred type of US threat that is compatible with very low force levels. The requirements for the most effective deterrence strategy possible should drive our preferred numbers, not vice versa.

In this regard, Harold Brown, Jimmy Carter's Secretary of Defense, rightly concluded that deterrence should be based on a credible threat to that which the opponent "considers most important." This is an initial starting point for prudently measuring "how much is enough?" Such deterrence threats will vary for different opponents, times and contingencies, and may often be incompatible with the very low, fixed number of US nuclear weapons typically recommended by Minimum Deterrence. For example, if our understanding of opponents and their worldviews suggests that deterring them requires a variety of flexible options and a basic threat to well-protected leaders, military forces and internal security forces, as was widely-thought to be the requirement vis-a-vis the Soviet Union after the 1960s, then a Minimum Deterrence-based force would not be compatible with effective deterrence in plausible scenarios, even if it would be compatible with an aggressive arms control agenda.

The GNZC report, for example, calls for the complete elimination of the ICBM leg of the traditional US Triad of strategic forces (bombers, ICBMs, and sea-based missiles), the elimination of the nuclear B-52 bomber and US tactical nuclear weapons, and deep reductions in sea-based nuclear forces. These recommended reductions would leave a small US Dyad of sea-based missiles and B-2 bombers. Multiple expert assessments of a Dyad consisting of sea-based missiles, B-52 and B-2 bombers have concluded that such a Dyad would reduce the number of US aim points for an opponent targeting of U.S. strategic forces from about 455 to 5.⁴ A study by the Center for Strategic and International Studies concluded that a Dyad of sea-based missiles, B-2 and B-52 bombers, "presents the worst case for survivability of all the options. In a 'bolt from the blue' attack, just five dedicated nuclear strikes could take out all three strategic

⁴ Dana J. Johnson, Christopher J. Bowie, and Robert P. Haffa, "Triad, Dyad, Monad? Shaping U.S. Nuclear Forces for the Future," Presentation to the Air Force Association Mitchell Institute for Airpower Studies, Northrop, 11, available at www.northropgrumman.com/analysis-center/briefings/assets/triad-brief-to-afa-121009.pdf. This discussion is adapted with permission from Mark Schneider, "The Future of the U.S. ICBM Force," *Comparative Strategy*, Vol. 3, No. 2 (Spring 2012), pp. 147-148.

nuclear bomber bases and the two submarine bases,”⁵ leaving the United States with just the SSBNs at sea. The GNZC’s recommended elimination of ICBMs and nuclear B-52 bombers could worsen this situation by further reducing the number of US targets to only three.

The 2009 Bipartisan Strategic Posture Commission (the Perry-Schlesinger Commission) saw substantial importance in the fact that by sustaining the Triad, including the ICBM force, the US could not be subject to an effective small-scale counterforce attack.⁶ It noted that, “for the foreseeable future, there is no prospect that a significant portion of the ICBM force can be destroyed by a preemptive strike on the United States by small nuclear powers, including China.”⁷

However, at the force levels recommended in the GNZC report and with reported normal US operating practices,⁸ only 3-4 US missile carrying submarines could be expected to survive an attack by a handful of nuclear weapons, leaving 135-180 surviving US warheads. That US retaliatory force could be dangerously inflexible and incapable of covering even the extremely limited target sets outlined in the GNZC report. For over five decades, all Democratic and Republican administrations have sought to avoid such a condition because it could significantly degrade our deterrence strategy and create provocative vulnerabilities. Such recommendations for further US deep reductions are all the more troubling in light of the recently declared Russian intention to deploy a nation-wide, missile defense “umbrella” by 2020.⁹ In light of such

⁵ Owen C. W. Price and Jenifer Mackby, eds., “Debating 21st Century Nuclear Issues,” Washington, DC: Center For Strategic and International Studies, 2007, 23, available at www.northropgrumman.com/analysis-center/other-publications/assets/triad-monograph.pdf. In 1998, the Defense Science Board concluded that, “Without the ICBMs, surprise attacks against a handful of bomber bases and sea-launched ballistic missile facilities, with plausible deniability, could drastically alter the correlation of forces.” See General (ret.) John A. Shaud and Dale L. Hayden, “The Success of our ICBM Force: Capability, Commitment, and Communication,” in *Fiftieth Anniversary of Intercontinental Missile*, Air Force Space Command, High Frontier, February 2009, 8, available at www.afspc.af.mil/shared/media/document/AFD-090224-115.pdf.

⁶ William Perry and James R. Schlesinger, *America’s Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Washington, DC: U.S. Institute of Peace, 2009), pp. 25-26.

⁷ *Ibid.* p. 26.

⁸ See, Schneider, “The Future of the U.S. ICBM Force,” *op. cit.*, p. 148.

⁹ Chief of the Russian General Staff, Gen. Nikolai Makarov, as quoted in Bill Gertz, “Inside the Ring,” *The Washington Times*, January 5, 2011, available at <http://www.washingtontimes.com/news/2011/jan/5/inside-the-ring-442522451/print/>.

considerations, Gen. Cartwright's previous emphasis on the value of the US Triad and the ICBM force is much more prudent.¹⁰

The GNZC report, however, essentially dismisses this concern by asserting that Russia and China are not now opponents and are unlikely ever to be so again: "The risk of nuclear confrontation between the United States and either Russia or China belongs to the past, not the future." Such a prediction fits the narrative for further deep reductions, but it does not appear to fit Russian or Chinese actions and statements concerning their ambitions and nuclear developments. Over the past several years, top Russian leaders have made numerous threats of pre-emptive and preventive nuclear attack against US allies and friends. Most recently, the Chief of the Russian General Staff, Gen. Nikolai Makarov threatened a pre-emptive attack against NATO states, and the threat was implicitly nuclear.¹¹ (Please see the attached compilation of Russian nuclear threats since 2007 by Dr. Mark Schneider).

Such threats challenge Western sensibilities and faith in a powerful, global nuclear "taboo," but they are within the norm of Russian behavior and doctrine regarding nuclear forces. To claim that nuclear weapons will not be salient in contemporary or future US relations with Russia or China is an unwarranted and highly optimistic prediction, not a prudent basis for calculating US deterrence strategies and forces. If wrong, Minimum Deterrence and corresponding low force levels could invite serious risk and provocations.

Second, the question of having an adequate deterrence capability cannot be answered simply by determining if we can threaten some given, contemporary set of targets. Deterrence must work in contemporary and future crises, and we will come to those crises with the forces we have in hand. No one knows with confidence "how much of what force" will be necessary for credible deterrence now, and future requirements are particularly arcane because opponents and threats can shift rapidly in this post-Cold War era and the requirements for deterrence correspondingly can change rapidly. This reality complicates the task of calculating "how much is enough" for

¹⁰ See, US Senate, *Committee on Armed Services, Hearing to Consider the Nominations of General James E. Cartwright, USMC, For reappointment to the Grade of General and Reappointment as the Vice Chairman of the Joint Chiefs of Staff*, July 9, 2009, p. 8.

¹¹ See, "Russia's Top General Says Preemptive Strike Against Missile Shield Possible," VOA News, May 3, 2012.

deterrence. The priority deterrence question now is whether we have sufficient force options and diversity to threaten credibly the wide spectrum of targets that opponents may value over the course of decades. In some plausible scenarios, a small and undiversified US nuclear force may be adequate for deterrence, in other cases, effective deterrence may demand a large and diverse nuclear arsenal with capabilities well beyond those envisaged for Minimum Deterrence. Confident declarations that some fixed Minimum Deterrence force level will prove adequate cannot be based on substance; they reflect only hope and carry considerable risk.

Instead, the flexibility and resilience of our forces to adapt to differing deterrence requirements should be considered a fundamental requirement of US force adequacy, and our standing capabilities must be sufficiently large and diverse to adapt to a variety of shifting deterrence demands. It may be convenient to pick some fixed, low number and claim that 300, 400, or 500 weapons will be adequate for deterrence now and in the future, but no one can possibly know if such statements are true. We do know that the more diverse and flexible our forces, the more likely we are to have the types of capabilities needed for deterrence in a time of shifting and uncertain threats, stakes and opponents. But force diversity and flexibility does not come automatically. It is important that our nuclear force posture and infrastructure incorporate these characteristics and that they are manifest to opponents and allies for deterrence and assurance purposes respectively.

This need for force diversity and flexibility is one of the reasons why the bipartisan Congressional Strategic Posture Commission recommended unanimously to sustain the Triad, as did the 2010 Nuclear Posture Review and the current and recent past Commanders of Strategic Command. The Congressional Strategic Posture Commission reviewed arguments in favor of a Dyad and instead unanimously highlighted the importance of the “resilience and flexibility of the triad,” qualities which have “proven valuable as the number of operationally deployed strategic nuclear weapons has declined” and “promise to become even more important as systems age.”¹²

¹² Perry, Schlesinger, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States*, op. cit., pp. 25-26.

In contrast, moving to a Minimum Deterrence Dyad as recommended in the GNZC report would be the opposite of sustaining a diverse force with flexibility and resilience. Minimum Deterrence force requirements typically are intended to be compatible with deep arms control reductions, as is stated in the GNZC report, but could easily prove to be too narrow and inflexible to provide effective deterrence in a shifting threat environment.

Adm. Rich Mies, a former Commander of Strategic Command, observed recently that “every STRATCOM force structure analysis” in which he was involved yielded two general truths: “Diversity affords a hedge against single-point failures and significantly complicates a potential adversary’s offensive and defensive planning considerations [and] there is tyranny in low platform numbers that greatly restricts the flexibility, survivability and resiliency of the force.”¹³ Indeed, a small, undiversified, Minimum Deterrence force:

- Will offer fewer choices among warheads and delivery modes, thereby limiting US flexibility and the prospective effectiveness of US deterrence strategies;
- Is less likely to compensate for weaknesses in one area of our nuclear force structure by strengths in another area;
- Will, vis-à-vis peer or near peer powers, inevitably move US deterrence strategies toward threats against civilian targets and/or threats against a relatively small set of military targets: the first such threat may well be incredible, and the second inadequate;
- Eases the technical/strategic challenges for opponents who might seek to counter our deterrence strategies, now or in the future;
- Will encourage rather than dissuade some opponents to compete and challenge our deterrence strategies.

What level of US forces is compatible with the requisite US flexibility and resilience? This question rightly elevates the discussion of deterrence requirements beyond a fixed number of warheads to include their diversity, and the number and diversity of their launchers. In 2001, we judged 1700-2200 operationally deployed warheads as sufficient, with no negotiated limits on launchers in the Moscow Treaty.¹⁴ In 2009, Gen. Cartwright stated publicly that he would “be

¹³ See Adm. Richard Mies, USN (ret.), “Strategic Deterrence in the 21st Century,” *Undersea Warfare* (Spring 2012), p. 19.

¹⁴ Secretary of Defense Donald H. Rumsfeld, Annual Report to the President and the Congress (Washington, D.C.: GPO, 2002), pp. 88-89, available at http://history.defense.gov/resources/2002_DoD_AR.pdf.

very concerned if we got down below” 800 launchers,¹⁵ and in 2010, Gen. Kevin Chilton, then-Commander of Strategic Command, stated publicly that the 1550 warhead ceiling of the New START Treaty was the lowest he could endorse given this need for flexibility.¹⁶ In contrast, the GNZC report, as with most proposals for Minimum Deterrence, recommends far lower force levels for weapons and launchers.

Third, deterrence is only one among several goals by which to measure the adequacy of US nuclear forces. It is impossible to measure US force requirements by focusing on deterrence alone. US forces must also contribute to the assurance of our allies and friends. This assurance goal is different from deterrence and has different specific requirements. The US has nuclear assurance commitments to 30 or more allies and the push for Minimum Deterrence undoubtedly threatens our capability to assure allies in some important cases.

Assurance commitments establish diverse quantitative and qualitative requirements not included in Minimum Deterrence calculations. For example, President John Kennedy identified “second-to-none” as the appropriate standard for the purpose of protecting allies and friends; the Nixon Administration identified “essential equivalence” as a necessary measure. And, most recently, some allied leaders have identified specific quantitative and qualitative standards for US nuclear forces to provide assurance.

For example, Japanese Defense Minister Fumio Kyuma explicitly linked quantitative and qualitative standards to the credibility of the US extended nuclear deterrent: he called for “highly accurate nuclear-tipped cruise missiles,” and stated that, “The strongest deterrence would be when the United States explicitly says, ‘If you drop one nuclear bomb on Japan, the United States will retaliate by dropping 10 on you’.”¹⁷ More recently, key allies have argued that the credibility of US extended deterrence commitments depends on specific types of US nuclear

¹⁵ Quoted from, US Senate, *Committee on Armed Services, Hearing to Consider the Nominations of General James E. Cartwright, USMC, For reappointment to the Grade of General and Reappointment as the Vice Chairman of the Joint Chiefs of Staff*, July 9, 2009, p. 22.

¹⁶ Gen. Kevin Chilton, Senate Armed Services Committee, *Hearing to Receive Testimony on the Nuclear Posture Review*, April 22, 2010, pp. 8, 13, 14; and Gen. Kevin Chilton, House Armed Services Committee, *Hearing, U.S. Nuclear Weapons Policy and Force Structure*, April 15, 2010, p. 11.

¹⁷ “North Korea’s Nuclear Threat/Reinforcing Alliance With U.S. Helps Bolster Nuclear Deterrence,” *The Daily Yomiuri*, 23 March, 2007.

capabilities, including low-yield and penetrating nuclear weapons, the US capability to threaten a wide variety of targets, and the capability “to deploy forces in a way that is either visible or stealthy, as circumstances may demand.”¹⁸ Again, it is very convenient to claim that 300, 400, or 500 US weapons will be adequate for assurance, but such a target-based measure may have little or nothing to do with the quantity or types of US nuclear forces needed to assure our allies of the credibility of our extended nuclear deterrent. US *unilateral reductions* to low force levels as recommended by the GNZC report certainly would destroy any remaining US claims of “second to none” or “essential equivalence,” and raise deep concerns among at least some key allies and friends.

Proponents of Minimum Deterrence typically respond to this concern with the assertion—repeated in the GNZC report—that *conventional* forces can provide assurance for allies that is “far more credible” than are US nuclear forces. This narrative fits the policy line for further deep nuclear reductions, but, US movement to advanced conventional strategic forces has been slow and limited, and the actual evidence is that some allies find unique assurance in a credible US *nuclear* guarantee. They now state openly that if US nuclear credibility wanes, they will be compelled to find their own independent deterrence capabilities. Japanese, South Korean and Turkish leaders have openly made this point, as have some friends and allies in the Middle East. This should not be surprising: West Germany was clear that it could agree to the 1969 Nuclear Non-Proliferation Treaty only because of the assurance it found in a credible US *nuclear* umbrella. The same was true for South Korea.¹⁹

This need expressed by some allies for credible US *nuclear* assurance is fully understandable. US advanced conventional forces are very likely to contribute usefully to deterrence in some cases. But, in the context of a conventional conflict involving US “shock and awe,” the threat of

¹⁸ Perry, Schlesinger, *American's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States*, *op. cit.*, pp. 20-21; and, testimony of Dr. Johnny Foster regarding the report of the Congressional Strategic Posture Commission, in, U.S. Senate, Senate Armed Services Committee, *Hearing on the Report of the Congressional Commission on the Strategic Posture of the United States*, May 7, 2009, available at, http://votesmart.org/speech_detail.php?sc_id=458591&keyword=&phrase=&contain=.

¹⁹ See Keith Payne, Thomas Scheber, Kurt Guthe, *U.S. Extended Deterrence and Assurance for Allies in Northeast Asia* (Fairfax, VA: National Institute Press, 2010), pp. 9-10.

“more of the same” may simply be insufficient to deter a committed aggressor.²⁰ In contrast, nuclear weapons pose the threat of escalation to incalculable consequences and thereby appear unique in countering the overly-optimistic expectations or high cost-tolerances that often inspire aggression. This factor may explain why nuclear deterrence appears to have been the reason Saddam Hussein did not employ chemical or biological weapons during the first Gulf War. In addition, given events over the past decade, the US will to engage in another high-cost, large-scale projection of conventional force into a distant theater on behalf of friends and allies may appear insufficiently lethal or credible to assure some vulnerable allies or to deter some determined or eccentric foes. Non-nuclear threats may someday be an adequate substitute for nuclear threats for assurance purposes, but that day has not arrived per the expressed views of some key allies. And, with regard to the U.S. goal of assurance, it is their views of US adequacy that matter.

Fourth, the push for Minimum Deterrence puts at risk the US capability to deter and to assure for the purpose of strengthening global cooperation on nuclear non-proliferation—the rationale repeated in the GNZC report. To be specific, the claim is that further US nuclear reductions would somehow contribute greatly to nuclear non-proliferation. This asserted positive linkage between further US nuclear reductions and more effective non-proliferation efforts is wholly speculative, and I believe mistaken.²¹ Further US nuclear reductions are unlikely to improve the behavior of recalcitrant proliferators or their enablers. And, on the available evidence, it is reasonable to expect that a US transition to Minimum Deterrence would increase the incentives for some US friends and allies who now rely on the US extended nuclear deterrent to develop or acquire their own independent means for nuclear deterrence. Consequently, the net effect of movement toward Minimum Deterrence may well be to increase nuclear proliferation rather than to strengthen non-proliferation. This would be a serious mistake from which we might not easily recover.

²⁰ In 1999, allies saw persistent and concerted NATO conventional air strikes fail to destroy a deep tunnel complex at the Pristina Airport in Kosovo. As a British inspector present at the time reported, “On June 11, hours after NATO halted its bombing and just before the Serb military began withdrawing, 11 Mig-21 fighters emerged from the tunnels and took off for Yugoslavia.” Tim Ripley, “Kosovo: A Bomb Damage Assessment,” *Jane’s Intelligence Review*, Vol. 11, No. 9 (September 1999), p. 11.

²¹ See the pertinent discussion by Chris Ford, “Disarmament Versus Nonproliferation?” posted at the New Paradigms Forum website on October 29, 2010, , available at, <http://www.NewParadigmsForum.com/NPFtestsite/?p=531>.

The GNZC report also asserts that further US unilateral nuclear reductions would encourage Russia and China to consider “comparable unilateral actions.” Perhaps so; but experience suggests not. Harold Brown’s observation about the Soviet Union appears to apply equally to Russia and China today: “When we build, they build; when we cut, they build.”

Fifth, proponents of Minimum Deterrence also claim that further deep force reductions will save scarce US defense dollars. I am dubious of this claim. The US and NATO came to rely on nuclear deterrence in general because it was judged to be a feasible and much cheaper avenue for security than the buildup of conventional forces otherwise necessary. There obviously is a cost to sustaining a flexible and diverse nuclear arsenal, including the nuclear Triad. But, to state that monies would not be needed for this purpose if we abandoned such an arsenal is to state the obvious. The real question in this regard is the net cost of further deep nuclear reductions and Minimum Deterrence given the corresponding, necessary buildup of advanced conventional arms, a buildup acknowledged by the authors of the GNZC report. I certainly support advanced US conventional forces as a complement to US nuclear capabilities. But to claim savings from Minimum Deterrence without also calculating the added cost for the advanced conventional forces that supposedly can substitute for deterrence purposes is a common error. I do not know how comparisons of net costs might appear at this time, but I do know that claiming savings simply from Minimum Deterrence and abandonment of the Triad is at best a half-truth.

Sixth, and finally, the GNZC report, like others, justifies the push for Minimum Deterrence as a necessary step en route to global nuclear zero—one of the Obama Administration’s stated priority goals. It should be recalled, however, that the bipartisan Congressional Strategic Posture Commission concluded unanimously that: “The conditions that might make the elimination of nuclear weapons possible are not present today and establishing such conditions would require a fundamental transformation of the world political order.” The establishment of a powerful and reliable global collective security system for the first time in history would be such a fundamental global transformation; further US reductions would not. Winston Churchill noted along these lines: “Be careful above all things not to let go of the atomic weapon until you are sure and more than sure that other means of preserving peace are in your hands.” There is no

evidence at this point of movement toward a serious, reliable global collective security system; much less do we have it in hand.

Consequently, before the pursuit of nuclear zero puts at risk US capabilities to deter and to assure credibly, and also threatens to increase nuclear proliferation, it is important to recall that over the course of centuries we have learned, unfortunately, that conventional deterrence periodically fails catastrophically. During the final five *non-nuclear* decades of the last century, the world suffered approximately 110 million casualties in just 10 years of warfare. The subsequent almost seven decades of nuclear deterrence have been much more benign by comparison (see the attached pertinent graphic by Adm. Richard Mies, used here with permission). Humankind was at the nuclear zero “mountaintop” from the beginning of history until 1945, and that condition often was ugly and brutal on a scale not repeated since 1945, thanks at least in part to nuclear deterrence. Simple prudence suggests that we not put US strategies for nuclear deterrence at risk in a quest to go back to that mountaintop we so desperately sought previously to leave.

In summary, I am skeptical of the GNZC report and further US deep nuclear reductions at this point not for reasons of “old think,” but because the supposed benefits are dubious or manifestly illusory and the effects may be to undermine deterrence and assurance, and to increase nuclear proliferation. Gen. Larry Welsh, a former Commander of the Strategic Air Command and Air Force Chief of Staff, recently observed, “The only basis for the idea that drastically reducing the number of nukes we have would magically make us safer and help eliminate other nuclear dangers is hope. But hope is not a plan, and hope is not a basis for security. Hope does not defend us.” And, I will add, the unwarranted hopes reflected in the GNZC’s most recent proposal for Minimum Deterrence should not be the basis for our calculations of “how much is enough?”

Russian Threats of Nuclear Targeting, Including First or Preemptive Uses of Nuclear Forces

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Then-Defense Minister, Sergei Ivanov, February 2007:

“As regard to [the] use of nuclear weapons in case of aggression, of course [it will use them in this case]. What else were they built for?”¹

Statements by Colonel General Nikolay Solovtsov, then commander of the Strategic Missile Troops 2007-2008.

“[Correspondent] Russia has reacted sharply to the statement by the prime ministers of Poland and the Czech Republic. The commander of Strategic Missile Troops [SMT], Nikolay Solovtsov, said that if need be, our missiles would be targeted on the new ABM facilities, if they are built.”²

“We have to take measures that will prevent the devaluation of the Russian nuclear deterrence potential. I do not rule out that our political and military administration may target some of our intercontinental ballistic missiles at the aforesaid missile defense facilities in Poland and the Czech Republic.”³

“I cannot exclude that, in the event that the country's highest military-political leadership will make the appropriate decision, the indicated missile defense facilities in Poland and the Czech Republic and also other similar facilities in the future could be selected as targets for our intercontinental ballistic missiles”, the general stated. “The RVSN is compelled to take steps, which will not permit the devaluation of the Russian nuclear deterrence potential under any conditions”.⁴

Statements by General Yury Baluyevskiy, then Chief of the General Staff, 2007-2008:

“If we see that these facilities pose a threat to Russia, these targets will be included in the lists of our planners—strategic, nuclear or others. The latter is a technicality.”⁵

“We do not intend to attack anyone. But all our partners must realize that for the protection of Russia and its allies, if necessary, the Armed Forces will be used, including preventively and with the use of nuclear weapons.”⁶

Colonel General Anatoly Nogovitsyn, Defense Ministry Spokesman, August 2008:

“Poland is making itself a target. This is 100 percent” certain, Russia’s Interfax news agency quoted General Anatoly Nogovitsyn as saying.

‘It becomes a target for attack. Such targets are destroyed as a first priority,’ Gen Nogovitsyn was quoted as saying.

He added that Russia’s military doctrine sanctions the use of nuclear weapons ‘against the allies of countries having nuclear weapons if they in some way help them,’ Interfax said.”⁷

Nikolay Patrushev, the Secretary of the Russian Security Council October 2009:

“We have corrected the conditions for use of nuclear weapons to resist aggression with conventional forces not only in large-scale wars, but also in regional or even a local one....There is also a multiple-options provision for use of nuclear weapons depending on the situation and intentions of the potential enemy. ‘In a situation critical for national security, we don’t exclude a preventive nuclear strike at the aggressor’.”⁸

Lt. General Andrey Shvaychenko, then Commander of the Strategic Missile Troops, December 2009.

“In Shvaychenko's opinion, ‘this defines a key role played by the RVSN [the Strategic Missile Forces] and the strategic nuclear forces as a whole in ensuring Russia's security’. ‘In peacetime, they are intended to ensure deterrence of large-scale non-nuclear or nuclear aggression against Russia and its allies. In a conventional war, they ensure that the opponent is forced to cease hostilities, on advantageous conditions for Russia, by means of single or multiple preventive strikes against the aggressors' most important facilities. In a nuclear war, they ensure the destruction of facilities of the opponent's military and economic potential by means of an initial massive nuclear missile strike and subsequent multiple and single nuclear missile strikes,” the commander explained’.”⁹

Lt-Gen Vladimir Gagarin, then-Deputy Commander of Russia's Strategic Missile Troops, December 2009:

“So, the situation is then analysed and orders are issued - either, maybe, to launch a massive nuclear strike with the use of everything involved in that initial massive nuclear strike; or it could be group strikes, that is to say with part [of the forces] used; or it could be single strikes, one or two launch systems. Once again, the authorization for the launch to be executed, to be carried out, is issued by the Russian Federation president, by our supreme commander-in-chief.”¹⁰

Lt.-General Sergei Karakayev, Commander of the Strategic Missile Troops, December 2011:

From a technical viewpoint, there are no restrictions on the possibility of the use of missiles by RVSN. It does not take a long time to select a target and enter it in the flight duty of an intercontinental ballistic missile,” Karakayev said in response to a question as to whether changes may be made to the plans of RVSN combat use due to the creation of objects of the U.S. missile defense systems in Europe and the lack of progress in the negotiations between Russia and the U.S. on the matter.

Statements by President Putin, 2007-2008:

Just before a summit with President Bush he stated, “I draw your attention and that of your readers to the fact that, for the first time in history -- and I want to emphasize this -- there are elements of the U.S. nuclear capability [missile defense interceptors] on the European continent....If the American nuclear potential grows in European territory, we have to give ourselves new targets in Europe.”

“We will have to target our missiles at sites which, in our opinion, may threaten our national security.”;

3) In a press conference with the President of Poland he stated, "If such systems are deployed on the territory of Poland, which we believe will be used to attempt or to neutralize our nuclear missile potential, leading to total disruption of the strategic balance in the world and will threaten our national security, then what should we do? We will have to take some retaliatory measures, which may include retargeting some of our strike missile systems onto those facilities, which in our opinion will be a threat to us. We would not like to do this."

At a press conference President Putin said, "Our General Staff and experts believe that this system [the proposed deployment of a missile defense site in Poland] threatens our national security, and if it does appear, we will be forced to respond in an appropriate manner. We will then probably be forced to retarget some of our missile systems at these systems, which threaten us."¹¹

General Nikolai Makarov, Chief of the General Staff, 2011-2012:

*"The possibility of local armed conflicts virtually along the entire perimeter of the border has grown dramatically," Makarov said. "I cannot rule out that, in certain circumstances, local and regional armed conflicts could grow into a large-scale war, possibly even with nuclear weapons."*¹²

"Asked about whether there existed a risk of local conflicts near Russian borders developing into a full-scale war General Makarov said, "I do not rule out such a possibility."¹³

"Taking into account a missile defense system's destabilizing nature, that is, the creation of an illusion that a disarming strike can be launched with impunity, a decision on preemptive employment of the attack weapons available could be made when the situation worsens," Makarov said at an international conference on Missile Defense Factor in Establishing New Security Environment in Moscow on Thursday.

The deployment of new attack weapons in the south and northwest of Russia to strike missile defense sites, including the deployment of the Iskander missile systems in the Kaliningrad region, is among the possible options for destroying missile defense infrastructure in Europe."¹⁴

Statements by President Medvedev, 2008-2011:

*"During televised remarks President Medvedev said, "I would add something about what we have had to face in recent years: what is it? It is the construction of a global missile defense system, the installation of military bases around Russia, the unbridled expansion of NATO and other similar 'presents' for Russia we therefore have every reason to believe that they are simply testing our strength. Of course we will not let ourselves be dragged into an arms race. But we must take this into account in defense expenditures. And we will continue to reliably protect the safety of the citizens of Russia. Therefore I will now announce some of the measures that will be taken. In particular measures to effectively counter the persistent and consistent attempts of the current American administration to install new elements of a global missile defense system in Europe. For example, we had planned to decommission three missile regiments of a missile division deployed in Kozelsk from combat readiness and to disband the division by 2010. I have decided to abstain from these plans. Nothing will disband. Moreover, we will deploy the Iskander missile system in the Kaliningrad Region to be able, if necessary, to neutralize the missile defense system. Naturally, we envisage using the resources of the Russian Navy for these purposes as well."*¹⁵

“Second, protective cover of Russia’s strategic nuclear weapons will be reinforced as a priority measure under the programme to develop our air and space defences.

Third, the new strategic ballistic missiles commissioned by the Strategic Missile Forces and the Navy will be equipped with advanced missile defence penetration systems and new highly-effective warheads.

Fourth, I have instructed the Armed Forces to draw up measures for disabling missile defence system data and guidance systems if need be. These measures will be adequate, effective, and low-cost.

Fifth, if the above measures prove insufficient, the Russian Federation will deploy modern offensive weapon systems in the west and south of the country, ensuring our ability to take out any part of the US missile defence system in Europe. One step in this process will be to deploy Iskander missiles in Kaliningrad Region.”¹⁶

Statement by Defense Anatoliy Serdyukov February 2010:

“If additional threats emerge in Europe, the Iskander will be deployed (in Kaliningrad Region).”¹⁷

¹ “Russia Reserves Right to Preemptive Strikes,” Moscow *Agentstvo Voyennykh Nosostey*, February 7, 2007. Transcribed in Open Source Center, Doc. ID: CEP200707950213.

² “General says Russia may target missile defence sites in Eastern Europe,” Moscow *Channel One Television*, February 19, 2007. Translated in Open Source Center, Doc. ID: CEP20070219950390.

³ “Solovtsov: Russian Missiles May Be Targeted At US ABM Sites in Europe,” Moscow, *Agentstvo Voyennykh Novostey*, December 17, 2007. Transcribed by Open Source Center Doc. ID: CEP20071217950364.

⁴ Yuriy Gavrillov, “The Nuclear Reaction: Strategic Missile Complexes Could Be Retargeted at Poland and the Czech Republic,” Moscow *Rossiyskaya Gazeta*, September 11, 2008. Translated by Open Source Center Doc. ID: CEP20080911358018.

⁵ Baluyevskiy Says US European Missile Defense Poses Threat to Russia,” *InternetWebDigest*.

RU, May 3, 2007. Translated in Open Source Center, Doc. ID: CEP20070504358001CEP2007054358001.

⁶ “Russia will use nuclear weapons if necessary - chief of staff,” Moscow *ITAR-TASS*, January 19, 2008. Transcribed in Open Source Center, Doc. ID: CEP20080119950015.

⁷ Damien McElroy, “Russian general says Poland a nuclear 'target',” August 15, 2008, available at: <http://www.telegraph.co.uk/news/worldnews/europe/georgia/2564639/Russian-general-says-Poland-a-nuclear-target-as-Condoleezza-Rice-arrives-in-Georgia.html>>.

⁸ “Russia to broaden nuclear strike options,” *Russia Today*, October 14, 2009, available at: <<http://rt.com/news/russia-broaden-nuclear-strike/>>.

⁹ “Russia may face large-scale military attack, says Strategic Missile Troops chief,” Moscow *ITAR-TASS*, December 11, 2009. Translated by Open Source Center Doc. ID: CEP20091216950151.

¹⁰ “Russian Strategic Missile Troops general details re-armament, structure – more,” Moscow *Ekho Moskvyy Radio*, September 5, 2009. Translated by Open Source Center Doc. ID: CEP20090911950207.

¹¹ “Russian President Putin’s uncensored and amazing Interview with G8 Newspaper Journalists,” June 9, 2007, available at: <<http://engforum.pravda.ru/index.php?/topic/124795-russian-president-putins-uncensored-and-amazing-interview-with-g8-journalists/>>. “Russia may target missiles at Ukraine in case of security threat – Putin,” *Interfax*, February 14, 2008, available at: <<http://en.trend.az/news/cis/russia/1135177>>. “Putin presser: Russia may have to retarget missiles at Poland,” Moscow *Vesti TV*, February 14, 2008. Translated by Open Source Center Doc. ID: CEP20080214950197.; “Highlights from Putin’s 14 Feb News Conference,” *OSC Feature - Vesti TV*, February 14, 2008. Translated by Open Source Center Doc. ID: FEA20080215541987.

¹² Robert Bridge, “Border Alert: Nuke war risk rising, Russia warns,” November 17, 2011, available at: <<http://rt.com/politics/makarov-nuclear-russia-nato-575/>>.

¹³ “No understanding between Russia, West on missile defense – General Staff,” *ITAR-TASS*, December 7, 2011, available at: <<http://www.itar-tass.com/en/c154/291946.html>>.

¹⁴ “Russia Might Strike European Missile Defense Sites Preemptively - Military Official (Part 2),” *Interfax*, May 3, 2012, available at: <<http://www.interfax.co.uk/russia-cis-general-news-bulletins-in-english/russia-might-strike-european-missile-defense-sites-preemptively-military-official-part-2-2/>>.

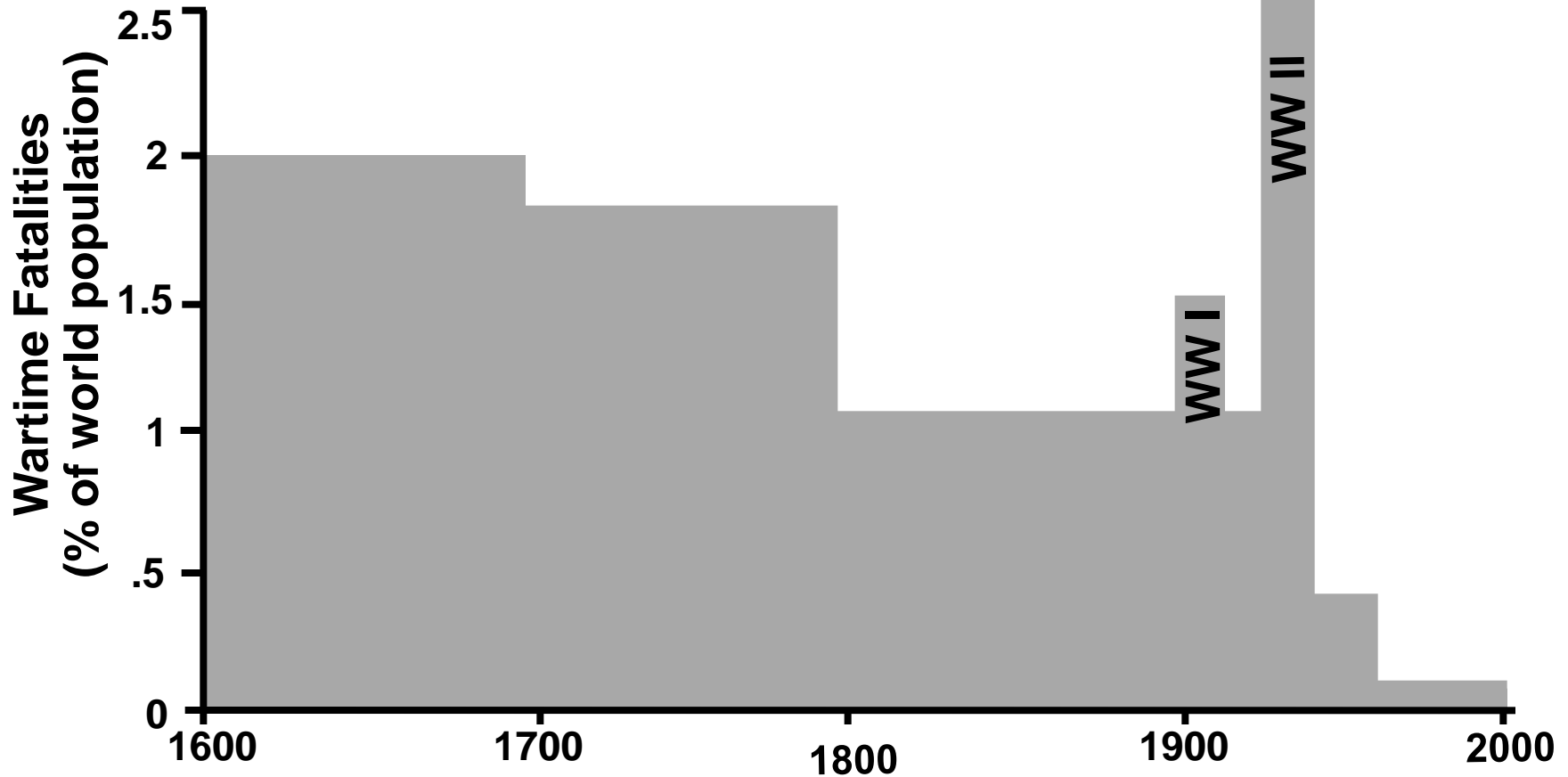
¹⁵ “Medvedev Russia will deploy Iskander in Kaliningrad to neutralize U.s. missile threats,” available at: <<http://mishasrussiablog.blogspot.com/2008/11/medev-russia-will-deploy-iskanders-in.html>>.

¹⁶ “Statement in connection with the situation concerning the NATO countries’ missile defence system in Europe,” Office of the President of the Russian Federation, November 23, 2011, available at: <<http://eng.kremlin.ru/news/3115able> and constructive approach from our Western partners>.

¹⁷ “Russian defence minister explains missile deployment statement,” *Interfax*, February 19, 2010, available at: <<http://www.http://wnc.dialog.com/>>.

STRATEGIC DETERRENCE

A PARADIGM SHIFT?



“Better a world with nuclear weapons but no major war, than one with major war but no nuclear weapons.” Sir Michael Quinlan

GLOBAL ZERO

U.S. NUCLEAR POLICY COMMISSION

MODERNIZING U.S. NUCLEAR STRATEGY, FORCES AND
POSTURE FOR THE 21ST CENTURY

GENERAL (RET.) JAMES E. CARTWRIGHT
AMBASSADOR THOMAS R. PICKERING

TESTIMONY TO THE UNITED STATES SENATE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

JULY 25, 2012



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A WORLD WITHOUT
NUCLEAR WEAPONS

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Introduction

Senators Inouye, Feinstein, Alexander, and other distinguished members, it's an honor and a pleasure for us to present testimony before this august committee. Thank you for inviting us and for taking an interest in the findings and proposals of the Global Zero U.S. Nuclear Policy Commission on which we served. We hope our commission report (*Modernizing U.S. Nuclear Strategy, Force Structure and Posture*, May 2012) and remarks here contribute to your vitally important work in protecting America's national security. Our written joint testimony highlights some of the commission's key conclusions and recommendations as well as answers some of the critical questions raised by readers after the report was released to the public.

The Global Zero Commission Aims and Purposes

The goal of the commission was simple: conceive and articulate a nuclear strategy, force structure and posture that best address the national security challenges our country faces in the 21st century. We first considered present and future threats across the spectrum of possibilities, ranging from deliberate or accidental nuclear attack by a nation state to terrorist nuclear attack – and everything in between. Then we assessed the role of U.S. nuclear weapons in diminishing these dangers through deterrence or war-fighting, and also weighed the potential for missile defenses, conventional forces, alliance cooperation and diplomacy to offer non-nuclear tools to our kitbag for dealing with these threats. Next we performed a net assessment of both the benefits and risks of further nuclear arms reductions and lowered launch readiness (“de-alerting”). Finally, we formulated a new construct for a 21st century nuclear strategy.

Of special interest to the commission was the paramount goal of broadening the scope of nuclear arms reductions to include all countries and all types of weapons in their possession. The nearly half-century of arms negotiations with the Russians has been an exclusively two-sided affair that has excluded some important players. These negotiations need to be extended to China and other nations that maintain existing or planned nuclear arsenals. The major risks of nuclear weapons use, proliferation and arms race instability in fact mostly lie outside the U.S.-Russian arena, particularly in Northeast and South Asia and in the Middle East. It is essential to begin a multilateral process that brings the rest of the nuclear-armed world to the negotiating table to begin to cap, freeze, reduce and otherwise constrain these third-country nuclear arms programs. We estimate that U.S. and Russian arsenals would need to be downsized substantially – 900 or fewer total weapons on each side – in order to draw these third-countries into the process.

A 2022 U.S. Nuclear Force

Our net assessment concluded that the current U.S. nuclear force remains sized and organized operationally for fighting the “last war” – the Cold War – even though threats from that era posed by the Soviet Union and China have greatly diminished or disappeared. Russian and China are not mortal enemies of the United States. Our geopolitical relations with our former Cold War adversaries have fundamentally changed for the better.

The U.S. (and Russian) arsenal is thus over-stocked. Ample latitude exists for further nuclear cuts. The extent of such cuts, the composition of the reduced arsenals, and the number of weapons held in reserve as a geopolitical hedge against a downturn in relations are matters worthy of public debate, and of

congressional hearings. There are a number of alternative force structures that would well serve to maintain a credible U.S. nuclear deterrent and advance other national security interests.

In the commission's view, one such illustrative nuclear force would be composed of 900 total strategic weapons – total deployed and reserve – on a dyad of ballistic missile submarines and strategic bombers. This would represent a steep (80 percent) reduction from the current U.S. arsenal, but it would not be a small force, nor a humble force designed for minimal deterrence. It would not entail a radical shift in targeting philosophy away from military targets to population centers. It is not a city-busting strategy. On the contrary, it would hold at risk all the major categories of facilities in all the countries of interest – a diverse set of nuclear/WMD forces and facilities, top military and political leadership, and war-supporting industry. It would fulfill reasonable requirements of deterrence vis-à-vis every country considered to pose a potential WMD threat to the United States.

Strengthening Universal Nuclear Disarmament and Non-Proliferation

At the same time, an arsenal shrunk to 900 total U.S. weapons, matched by comparable Russian reductions, would represent a dramatic cut that should work to draw the other nuclear countries into a multilateral process culminating in formal arms reduction negotiations among all nations with nuclear arms.

It should also demonstrate a serious U.S. and Russian commitment to fulfilling their disarmament obligations under Article 6 of the Non-Proliferation Treaty, and thereby help rally the anti-proliferation community to greater efforts to thwart would-be proliferators. The idea is not that virtuous U.S. and Russian behavior in the form of steep nuclear arms reductions will inspire aspiring proliferators to abandon their quests. We do not subscribe to this naïve notion. Rather, there are reasons to believe that such behavior could inspire our anti-proliferation partners to get tougher with recalcitrant states seeking the bomb.

Reducing U.S.-Russia Nuclear Arms Through Negotiations

The commissioners agreed that cuts to 900 total nuclear weapons in the U.S. and Russian arsenals should be the aim of the next round of bilateral New START follow-on negotiations. We call upon them to reach a comprehensive, verifiable agreement that provides for equal reductions by both sides down to a total force of 900 weapons that counts all types of strategic and non-strategic weapons – with “freedom to mix” on both sides – and that counts every individual warhead or bomb whether deployed or held in reserve.

We wish to emphasize that the commission does not call for unilateral cuts by the United States. Our view is that the only valid and useful approach should be to negotiate an agreement with the Russians. However, there may well be other ways to advance the goal of further reductions. Some unilateral steps, or parallel reciprocal steps along the lines of the 1991 Presidential Nuclear Initiatives, could facilitate the effort. For instance, Russia has already dropped below its allowed ceiling of 1,550 deployed strategic forces stipulated by the New START agreement. It may behoove the United States to follow in Russia's footsteps and take advantage of Russia's unilateral reductions to reduce U.S. forces below the allowed level as an approach designed to remove the incentive for Russia to build its forces back up and take advantage of the benefits, set out further in this presentation, of additional reductions.

This would serve to lower the ceiling on deployments and maintain momentum for further reductions. It would match U.S. and Russian forces, take advantage of Russian unilateral needs to restrict its force size, maintain stability and serve as a further reinforcement of the process of mutual reductions. There is no reason why the present verification systems could not be used or adapted for use for these kinds of steps. In short, there is some scope for parallel reciprocal steps to advance the cause of bilateral arms cuts, but we would certainly pursue the cuts through direct negotiations with the Russians, and then would seek to add the other nuclear weapons countries to this formal process.

We envision each side enjoying substantial latitude to choose the composition of their own forces according to their perceived security needs as long as they do not exceed the 900-warhead ceiling. This potential variation in the composition of forces is another reason why we characterize our proposed U.S. force structure as “illustrative.” Our commission strongly supports an open debate on the appropriate make-up of U.S. nuclear forces, and acknowledges that honest differences of opinion exist. Experts differ on the relative merits of bombers, submarines and land-based missiles, for instance, and also debate whether it is necessary to maintain three different types of delivery vehicles in the U.S. arsenal.

From TRIAD to DYAD: Eliminating the Land-Based Missile Component

After evaluating the vulnerability, flexibility and other key characteristics of the different delivery systems, our commission concluded that a dyad of sea- and air-based strategic weapons would meet the post-Cold War requirements of deterring a WMD attack on the United States. The Minuteman land-based intercontinental ballistic missile (ICBM) would be eliminated in this scheme.

The elimination of Minuteman and consequently of the TRIAD of delivery vehicles in favor of a dyad stemmed from the fact that Minuteman is vulnerable and inflexible from a targeting standpoint.

Minuteman is vulnerable to sudden decimation unless it is launched promptly on tactical warning of an incoming Russian missile strike. The ability to launch promptly the Minuteman force (within a few minutes) is often touted as a virtue, but in reality it is a liability. In the (admittedly extremely improbable) event of a large-scale Russian nuclear missile strike against the three U.S. Minuteman fields, enormous pressure would be exerted upon the National Command Authority rapidly to authorize the immediate firing of the force en masse – the deadline for a presidential (or successor) execution decision would be 12 minutes at most. Moreover, the unleashing of Minuteman forces would necessitate unleashing other strategic missiles – notably Trident submarine missiles, because of the integrated operational nature of major attack options to assure full coverage of all intended targets.

The second severe deficiency of Minuteman is its targeting inflexibility. It is suitable for the most unlikely scenario – large-scale nuclear war with Russia – but is unsuitable for nuclear conflict with North Korea or Iran because it would have to fly over both Russia and China to reach either of them. In the very unlikely event of a U.S.-China nuclear conflict, Minuteman missiles would have to fly over Russia to reach China.

Put differently, the Minuteman force is suitable only for Russia contingencies, our least likely adversary in nuclear conflict. The other legs of the commission’s proposed dyad offer means of dealing with almost any scenario involving a WMD threat to America from a nation-state adversary. Neither U.S. strategic submarine missiles nor strategic bombers are constrained by rigid flight trajectories. These are

versatile platforms that offer highly flexible angles of attack against practically any target on the globe. Although a prompt global strike by Minuteman could be carried out with a single warhead, a Trident missile could perform the same mission (if a small number would be downloaded to carry a single warhead instead of the multiple warheads now carried) without risk of causing Russia to think it is under nuclear missile attack and ordering a nuclear “counter-strike” in retaliation. Moreover, ballistic missile submarines on alert patrol can be fired almost as quickly as Minuteman missiles if so desired (15 minutes versus 2 minutes), although the commission did not identify scenarios in which the prompt launch of sea-based ballistic missiles armed with nuclear warheads fulfilled any evident national security requirement.

One critic of the proposal to eliminate Minuteman (and cancel any follow-on nuclear ICBM program), the Chief of Staff of the Air Force, recently asserted that a critical virtue of this force is that it forces an enemy bent on attacking the United States to strike the American homeland. Gen. Norton Schwartz said, “Why do we have a land-based deterrent force? It’s so that an adversary has to strike the homeland.” In the commission’s view, the optimal U.S. nuclear deterrent would ensure that the U.S. homeland is never struck with nuclear weapons in the event of war while preserving the full elements of deterrence currently available to the President.

De-Alerting Strategic Forces

The commission viewed unfavorably the continuing practice of keeping Minuteman and strategic submarines on launch-ready alert, and especially of gearing the nuclear command-control-communications and warning system from the President on down to the individual launch commanders for rapidly executing the forces in the opening phase of a nuclear conflict. (The Russia system is similarly organized.) The short-fused Minuteman and strategic submarine alert forces, together with the supporting rapid reaction command system, impose a severe constraint on presidential deliberation and choice during a crisis or conflict. Public reports of past experience with short time lines for decision making have shown that the process is flawed and that near cataclysmic errors have been narrowly avoided but made more likely by the rushed nature of the process. The president and his top advisors should have many more tools at their disposal, including non-nuclear options, and be afforded the time to deliberate and exercise these tools, which include diplomacy.

The day-to-day high alert posture of the United States today also represents a threat to Russia that has untoward unanticipated consequences for the United States. By dint of possessing the ability to fire U.S. strategic missiles promptly on warning (“launch-under-attack” in the operating vernacular), the United States concurrently possesses the ability to initiate a sudden massive strike against Russia (or any other country). This surprise attack option technically threatens the survival of almost all Russian nuclear forces in their day-to-day configuration unless, like the United States, Russia launches these forces out from under the attack, on warning. If coupled with U.S. missile defenses designed against Russia’s strategic retaliatory forces – a current Russian fear despite American assurances that Russia is not a target of such defenses – the U.S. first-strike threat puts Russia on even greater vigilance and launch readiness.

The upshot is that both U.S. and Russian forces are kept on quick-launch alert because the other side does the same. This entwines the two countries in a proverbial “hair-trigger” dynamic that increases the risks of accidental, mistaken, inadvertent, misinformed or unauthorized launch with devastating consequences. Launch on false warning is doubly worrisome in light of the chronic deficiencies in Russian early warning that are not going away anytime soon. This is a serious risk not to be undertaken without the greatest care to avoid it and we believe that can be done with our proposals while still protecting the essential security interests of the nation.

These postures also set a terrible example for the other nuclear armed nations, who for various reasons have not yet adopted launch-ready postures for their own forces. As a rule, their warheads and bombs are kept separate from their means of delivery, a safe practice that greatly reduces the danger of an unintended nuclear exchange. We can imagine a multitude of grave dangers that would emerge if this practice is abandoned in favor of increasing the launch readiness of nuclear forces. Acute instability would arise if Pakistan, India, China and North Korea adopted a quick-launch posture requiring execution decisions to be made within minutes and seconds on the basis of attack early warning indications from satellite infrared or ground radar sensors. The risks of unauthorized launch, or the terrorist capture of dispersed assembled weapons, would also grow significantly.

In short, the current launch-ready postures of the United States and Russia are major sources of instability. They not only would generate pressure on leaders to make a premature decision on the use of nuclear weapons in a crisis, but they also run a risk of unintentional strikes. The postures pose an existential threat to the very survival of the United States, and Russia perceives no less cause for concern.

The commission therefore recommended the de-alerting of U.S. strategic forces in tandem with Russian de-alerting. A negotiated agreement that cuts the Gordian knot and allows both sides to stand down their forces would well serve their vital security and safety interests. In a similar vein, we also proposed that the United States deploy only 270 U.S. sea-based strategic warheads on day-to-day patrol, a number that is below the approximate threshold of 300 warheads that constitute a first-strike decapitation threat to Russia. This reduced deployment level would further allay Russian concern over its vulnerability and encourage it to get off of its dangerous “hair-trigger” launch posture.

If the U.S. strategic arsenal required 24 to 72 hours to generate the ability to fire and the Russians followed suit, the world would be far safer and a norm would be forged to encourage other countries to maintain their current practice of keeping weapons separated from their bombers, submarines and land-based rockets. Again, as we make clear, this is not a unilateral step but a reciprocal one with Russia to begin with and others to follow. It would be insured by the levels of reliability we have achieved and can achieve through further work on the verification systems and procedures that we have already engaged in our nuclear arrangements with Russia.

Prompt Launch Constrains Presidential Decision-Making

While some observers may view this 24-72 hour generation requirement as a constraint that would hobble a U.S. president in a crisis, our commission found that the current posture, which exerts pressure on the president to make a nuclear choice rapidly, is a far greater constraint. Launch-under-attack pressure severely hobbles presidential decision-making. It deprives our leaders of the time necessary for deliberation and of the tools needed to direct U.S. power to coherent national purpose.

New Strategy and Tools to Support Presidential Conflict Deliberation and Choice

This commission recommendation therefore undertakes the responsibility of suggesting a strategy that would relieve the pressure on our leaders and reduce our reliance on nuclear weapons as a primary or unique choice in the face of aggression. Our report lays out the elements of this strategy, which features a growing role for missile defenses and conventional forces including a new ICBM (HTV-2) with a

conventional warhead and sufficient range to reach practically any target in the world from home bases on U.S. soil without traversing Russian territory during flight. Its range and accuracy would provide an unprecedented tool for destroying critical targets globally within one hour. At present, the only tool available to the president for such a global quick strike is a nuclear warhead atop a land- or sea-based missile.

Missile defenses and conventional offensive forces as well as other kinetic and non-kinetic (cyber) tools of warfare, and various “soft power” tools would be designed to buy time for a day or two and exert non-nuclear leverage to resolve a dispute before it could escalate to nuclear dimensions. This strategy would empower a president, not hobble him. It would extend the deadline for a nuclear decision. It would help stabilize a crisis. Again, it is the paucity of non-nuclear options and the time pressure to resort to nuclear options that represents the fundamental problem for presidential choice.

Downsizing the Nuclear Complex; Risks and Cost Savings

Under the commission’s plan, the number of different types of nuclear weapons in the U.S. active inventory would decrease from seven types today to four by 2022. The need to re-furbish weapons remaining in the stockpile would greatly diminish – almost all of weapons previously requiring it would be eliminated from the active inventory. This drastic curtailing of the life-extension program for thousands of weapons currently in the pipeline would save at least \$10 billion.

The existing plutonium pit facility at Los Alamos could readily service the regular pit manufacturing demands of a 900-warhead arsenal. Assuming a 50-year pit shelf life, only 2 percent of the active stockpile, or 18 warheads, would need to be remanufactured each year. The facility has a normal throughput capacity of about 20 per year with the option to add extra staff shifts in order to raise capacity to 40 pits per year. With the addition of extra equipment (5-6 years to install), the capacity could be increased to perhaps as high as 80 per year.

This number would grow higher still if old pits could be re-used and if pits with sensitive, conventional high explosives could be re-fitted with insensitive high explosives to improve safety. Current studies underway at the U.S. national laboratories to be completed within the next couple of years should determine the feasibility of these options. Preliminary analyses suggest that upwards of 50 percent of plutonium pits in the stockpile could be swapped out in these processes, allowing for a much faster rate of pit replacement.

In an emergency in which a systemic defect in one of the four warhead types warranted a crash effort to replace those warheads, it appears feasible that upwards of 120 defective weapons per year could be remedied through a combination of pit manufacturing and pit re-use. Such a systemic defect is a low-probability event, but assuming 225 defective warheads (notionally one-fourth of the 900-warhead total) needed to be repaired, it would take approximately two years of full-capacity work to finish the job.

In short, the current plutonium facility with some new equipment working overtime with other partners such as the Pantex facility could probably handle an unusual emergency to replace a big chunk of the arsenal. Our commission viewed this capability of the existing facilities as obviating the need to build the multi-billion dollar new facility now in early construction stage at Los Alamos. However, some small additional risk of reduced stockpile reliability must be acknowledged if we shrink the variety of warhead types from seven to four, and the margin of comfort for replacing an entire category of weapons in the event of a systemic defect is not large. On balance, our commission deemed these risks to be quite low,

and acceptable, but we strongly recommend a full-scope survey by the pertinent agencies (National Nuclear Security Administration – NNSA, the national laboratories, and Strategic Command) to determine an optimal infrastructure in support of the 900-warhead arsenal outlined in the commission report.

Downsizing the Nuclear Force Structure; Risks and Cost Savings

Unforeseen Nuclear Challenges?

Some readers of our report have raised the question whether our illustrative force would be stretched thin and fall short if an unanticipated threat of major proportions emerged from an unexpected source – perhaps an unfriendly state that unexpectedly breaks out a substantial nuclear arsenal, or an existing state such as China that greatly expands its nuclear arsenal. (In China’s case, its recent nuclear modernization created an infrastructure capable of substantially increasing its existing small arsenal if it chose to do so.)

The answer to this question has three parts. First, this is an intelligence challenge that warrants an intelligence estimate as to the likelihood of such break-out or rapid expansion scenarios over the next 10 years. Our commission found no grounds to believe that the intelligence community places any credence in them. A Chinese surge is unlikely to yield an arsenal much larger than 250-300 warheads. A Russian surge appears both financially and technically implausible. Although Russia has begun a strategic modernization program with upwards of \$70 billion earmarked for this purpose over the next ten years (an amount far less than the planned U.S. strategic modernization budget over the same period), the ability of its military-industrial infrastructure to deliver the goods has proven to be quite impaired. Pakistan, currently an unfriendly ally of the United States, is rapidly growing its arsenal but its focus is India. Other candidates for such a surge are unclear to us. In short, while we do not claim clairvoyance, the prospect that any aspiring proliferator or existing nuclear-armed nation will undertake a crash build-up on a large scale is remote.

Second, it is highly doubtful that any of the hypothetical possibilities could unfold without being detected. Since the beginning of the nuclear age, no nation has ever produced enough nuclear weapons material to build a bomb without first being detected by foreign intelligence. (This applies even to the super-secret U.S. Manhattan project in the mid-1940s, before the advent of satellite surveillance or on-site inspections.) It strains credulity to project a breakout of such a magnitude over the next ten years that the United States would wake up one morning and find itself “out-gunned.”

Third, in any case the proposed U.S. arsenal is sufficient to project a draconian threat of retaliation against any and all possible nuclear newcomers or late-bloomers over the next decade and beyond. It is sufficient to deter reliably any conceivable threat on the horizon.

Cost Savings

A significant cost savings would accrue if our illustrative force structure is implemented. An 80 percent force reduction that includes the elimination of all Minuteman missiles (and cancellation of its replacement), all B-52 bombers and all tactical nuclear forces in the U.S. inventory, combined with a scaling back of future strategic submarine construction from 12 to 10 boats and of the strategic bomber replacement aircraft to a minimum number of nuclear-capable aircraft (e.g., 30), would save an estimated

\$100 billion over the next 15 years. As noted earlier, the illustrative force would also impose lighter demands on the nuclear complex, saving an additional (est.) \$20 billion during this period. The total savings for our proposed nuclear architecture is roughly estimated to be \$120 billion over the next 15 years.

Conclusion

The nuclear strategy, force structure and posture proposed by our diverse commission of generals, diplomats, strategic arms negotiators and policymakers are not necessarily the Holy Grail for the next phase of our nation's pursuit of security in the 21st century. We believe, however, that our recommendations promise to more squarely and effectively address the real threats that our nation will be facing over the next decade than current U.S. nuclear policy promises. A fundamental transformation of our nuclear architecture and policy is needed to maintain a credible U.S. deterrent against classical risks of nuclear aggression by other nations while preserving strategic stability and protecting the nation against nuclear proliferation, terrorism, cyber warfare, failed states, organized crime, regional conflict and other threats the 21st century has wrought. We appreciate the opportunity to present our findings and join the debate.