Missile Defenses and Nuclear Arms Reductions

Moving Deterrence Forward, or Backward?

Stephen J. Cimbala

The deployment of missile defenses in Europe proposed by the United States and NATO and Russia's reactions to those proposals contributed to a deterioration of US-Russian relations in 2012 and cast a shadow over hopes for progress in 2013.[1] A NATO-Russia Council meeting tentatively scheduled for May 2012 in Chicago was canceled in March, and Russia's defense ministry attributed Russian disinterest to the lack of progress in missile defense talks.[2] In addition, newly inaugurated Russian president Vladimir Putin declined to attend a summit of G8 leaders in Maryland in May, postponing an expected meeting with US president Barack Obama.[3] President Obama reassured outgoing Russian president Dmitri Medvedev in March 2012, in controversial off-mike remarks, that his administration could be more flexible on missile defense after the November presidential elections. On the other hand, newly minted US ambassador to Russia Michael McFaul emphasized in the same month that "we are going to accept no limitations on that [missile defense] whatsoever because the security of our people, of our allies, is the number-one top priority."[4] And NATO's secretary-general, anticipating the alliance's declaration of the start of an "interim capability" for its European missile defense plan, noted at its 20–21 May 2012 summit in Chicago that NATO "will continue to expand the system toward full operational capability."[5] Protests in Russia in the fall of 2011

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and spring of 2012 against the return to Putin-ocracy led to crackdowns on dissidents and more regime nervousness, adding uncertainties to the mix of Russian domestic and security policies.

In the discussion that follows, we first consider some of the political and military background pertinent to the relationship between Russian and US strategic nuclear arms limitations and missile defense. Next, we analyze several cases of candidate "New START–minus" agreements allegedly under study by the Obama administration, including the possible implications of missile defenses for deterrence stability under post–New START reductions. Finally, we draw conclusions about how ambitious the United States and Russia can be in reducing strategic nuclear forces, not only in terms of their own security and defense requirements, but also with respect to the involvement of other nuclear weapons states.

Political Thickets

New START, which came into force in February 2011, requires both states to reduce their nuclear weapons deployed on intercontinental or transoceanic launchers to a maximum of 1,550 warheads and 700 launchers by 2018.[6] The ratification of New START was a contentious issue within the US national security establishment and among members of Congress.[7] Nevertheless, the United States reportedly will seek additional reductions in long-range nuclear forces as part of presidential guidance to the Department of Defense, deemphasizing the role of nuclear weapons in US national security and defense strategies.

US and Russian officials recognized in 2012 that further progress on nuclear arms control was hostage to the agenda-setting mandates of a presidential election year in both countries. Influential Russian academician Sergei Rogov noted that some American election-driven political rhetoric "is increasingly beginning to comply with the propaganda standards of the Cold War," while at the same time, "jingoism is going off the scale in our country too."[8] Therefore, the expectation in both defense establishments was that formal negotiations toward the accomplishment of a post–New START regime would be delayed until 2013. In March 2012, President Medvedev offered carrots and sticks when he stated in the same interview that the "door is not closed for talks on missile defense" and that Russia and NATO "still have time, but it is running out."[9] Vladimir Putin's return to the Russian presidency in May

was greeted by assertive street protests against the United Russia Party "of thieves and scoundrels," against rigged elections, and against the tandem shuffle of offices between Putin and Medvedev.[10]

Despite these uncertainties, President Obama reportedly tasked the Pentagon to develop planning scenarios for further reductions in US strategic nuclear forces. These scenarios include three options for cuts in the number of US operationally deployed long-range nuclear weapons below New START levels: 1,100, 800, or 400 weapons.[11] The more ambitious among these options will require cooperation not only between Russia and the United States, but also among other nuclear weapons states. Whereas one might imagine the United States and Russia reaching agreement on a limit of 1,100 deployed strategic nuclear weapons without third or "nth" party participation, the political baggage for more drastic limitations would be a hard sell within both US and Russian national security establishments—unless, or until, other nuclear weapons states were brought into the consultations. The shift from a two-sided to a multisided negotiating forum for nuclear arms reductions presents both political and military challenges to governments, especially for defense planners and arms control negotiators.

Nuclear Arms Reduction and Missile Defenses

Evaluating the political or military value of missile defenses in current and prospective policy terms requires that we acknowledge new possibilities and new dangers. Compared to the Cold War era, the United States and Russia now have fewer deployed long-range nuclear offensive weapons. In addition, missile defense technologies are of interest not only to the United States and potentially Russia, but also to other states that feel threatened by the spread of ballistic missiles outside of Europe. For example, Japan—although its government would prefer neither to join the ranks of nuclear weapons states nor to enter into a regional nuclear arms race—is nevertheless very interested in missile defenses. Japan is already cooperating with the United States in developing and deploying theater missile defenses for its state territory and contiguous waters. This stance is not unreasonable from Japan's perspective, considering its proximity to North Korea, China, and other Asian nuclear powers. Missile defenses might provide an alternative "deterrent by denial" for countries like Japan or South Korea instead of a nuclear deterrent by threat of

unacceptable second-strike retaliation. Such defenses could also serve as an insurance policy against accidental launches or unauthorized rogue attacks.

On the other hand, missile defenses have also complicated the US-Russian relationship with respect to nuclear arms control and disarmament. Pres. George W. Bush's decision to withdraw from the ABM Treaty, announced in 2001, did not at first draw return fire from the government of Pres. Vladimir Putin. To the contrary, in 2002 the United States and Russia concluded the Strategic Offensive Reductions Treaty (SORT) that called for the two states to reduce their operationally deployed intercontinental weapons to within a range of 1,700 to 2,200 each by 2012. SORT was, of course, superseded by New START, but it was an intriguing way station. Unlikely bedfellows from the standpoint of political ideology, Bush and Putin nevertheless accomplished significant nuclear reductions in SORT compared to previous levels. They did so despite Russia's clear policy statements, then and subsequently, that its strategic nuclear deterrent was the military backbone of its international security and great-power status.[12]

By the second terms of Bush and Putin, the political winds had shifted, and Russia engaged in diplomatic demarche over the Bush plan to deploy elements of a US global missile defense system in Poland and the Czech Republic. Russia's objections were as much political as military. Russia disliked the presence of US missile defenses so close to its borders and in former Soviet space which it regarded as part of its sphere of special interest. The years 2007 and 2008 were also times of jockeying for power and position within the Kremlin as the arrangements for succession to Putin after two terms as president were being developed. Putin's administration therefore took a hard line against US missile defenses in Europe until the departure of the Bush administration and arrival of the Obama administration with its "reset" policy.

The Obama reset led to the conclusion of the New START agreement on offensive force reductions and to a temporary thaw in US-Russian and Russian-NATO relations on the issue of missile defenses. But the thaw on missile defenses was temporary, and animosity over this issue returned in 2011–12 as the Obama missile defense plan for Europe became clearer in its implications and as US and Russian presidential elections loomed larger.[13]

Russia maintains that the US-proposed European Phased Adaptive Approach (EPAA) potentially threatens its strategic nuclear deterrent, especially in the latter phases. Therefore, Russia wants either a change in the US plan or a Russian level of involvement and participation in designing the European ballistic missile defense (BMD) system that satisfies its nervous military leaders and politicians as to US and NATO intentions and capabilities. Russian leaders, including then–president Medvedev, have indicated that if Russia is dissatisfied with European missile defenses, it will decline further cooperation in offensive nuclear arms reductions and possibly deploy missiles capable of launching nonstrategic nuclear weapons closer to its borders with NATO.[14]

Some of Russia's angst is posturing and positioning for future arms control negotiations. As Stephen Blank has pointed out, influential Russian policymakers and military analysts regard the US-Russian dialogue on strategic nuclear arms control as a net "positive" for several reasons. First, it helps commit the United States to an arms control paradigm of mutual assured destruction or assured retaliation based on offensive forces. Second, it projects the global impression of US-Russian nuclear strategic parity regardless the ups and downs of Russia's military modernization process. Third, the impression of nuclear strategic parity with the United States has spillover diplomatic benefits that support Russia's self-portrait for international audiences.[15] That portrait emphasizes Russia's status as a major power in the emerging multipolar international system that will eventually displace the unipolar US dominance of the post–Cold War years. Although it might seem contradictory according to some interpretations of international relations theory, in this case the second point supports the third. The appearance of nuclear strategic parity between the United States and Russia supports the latter's perceived quest for a multipolar international system in which (ultimately) the United States is less influential and Russia more so.

On the other hand, Russia is less amenable to the US view of missile defenses, although Medvedev's statement quoted above notably does not close the door to an agreed resolution of this matter. His references to the United States and NATO as "partners" and his expressed desire for NATO to allow Russia into the tent of missile defense planning suggest a post-election possibility for security cooperation with respect to European missile defenses. A NATO-Russia agreement permitting two fingers on the trigger of NATO's missile defenses is unacceptable to

the alliance. But other options present themselves. NATO and Russia could share early warning information about missile launches for tests or attacks. The two parties could also exchange military personnel at their respective command centers to monitor the launches of any European missile defense system and reassure themselves of launch trajectories and objectives. A third possibility would be a shared functionality in which Russian aerospace defense systems (established as a separate command within the Russian armed forces in 2011) would receive handoff data from the EPAA system to provide for missile intercept over Russian but not NATO territory. Regardless the mechanics of NATO-Russian cooperation on missile defenses, it will require collaboration and sensitivity on both sides.

NATO-Russian cooperation on missile defense is a necessary condition for improved collaboration on nuclear nonproliferation. Although Russian and US perspectives on the prevention of nuclear weapons spread are not identical, they are potentially convergent on some important issues. Russia does not want to encourage nuclear weapons spread in general, but it takes a selective approach to dealing with miscreant potential or actual proliferators. The United States, on the other hand, is more likely to oppose categorically the entry of any new states into the nuclear club and insists (correctly) on reversing the North Korean membership. A second difference between the approaches to nonproliferation is that Russia distrusts the efficacy of economic sanctions and fears their blowback on its interests, as in Iran, more than does the United States. A third difference between Russia and the United States (as well as between Russia and some leading EU and NATO members) is that Russia is more skeptical about the outcomes of multilateral military interventions, whether authorized by the United Nations or (even worse) undertaken by coalitions of the willing, especially if those coalitions are led by the United States and/or its allies. The US and allied intervention in Iraq in 2003 to depose Saddam Hussein was illegitimate from Russia's perspective, as was NATO's air war against Serbia over Kosovo in 1999. The US justification for Operation Iraqi Freedom—that Saddam Hussein had weapons of mass destruction that he might use or pass along to terrorists—was duly noted by Russian leaders, who are in principle wary of abridgments of sovereignty.

These differences in perspective are not necessarily insurmountable obstacles to US-Russian cooperation on nuclear nonproliferation. As

Blank has noted, Russia "evaluates proliferation issues not according to whether the regime is democratic or not, but on the basis of whether a country's nuclearization would seriously threaten Russia and its interests."[16] US-Russian disagreements are therefore likely to be more about tactics than about the seriousness of the threat posed by, say, a nuclear Iran or by other Middle Eastern states reacting to an apparent Iranian nuclear weapons capability. Here the missile defense issue intersects with the nonproliferation concerns of both the United States and Russia. The United States sees the European missile defense system as contributory to nonproliferation by discouraging the spread of nuclear weapons without requiring aggressive counterproliferation measures—such as the bombing of nuclear weapons complexes and nuclear infrastructure, or the imposition of regime change by military intervention. Russia fears that a NATO missile defense system initially "good enough" to deter or deflect an attack from Iran or other regional nuclear powers could grow into a larger and more robust system capable of nullifying Russia's nuclear deterrent.

This three-way entanglement among offensive nuclear arms reductions, missile defenses, and nonproliferation poses challenges to US-Russian and Russian-NATO security cooperation during President Obama's second term. How steep is this mountain? The next section discusses the parameters of alternative post–New START regimes and their implications.

Methodology

Nuclear arms control is an aspect of military strategy and national security policy, not a thing in itself. US and Russian decisions about nuclear arms reductions also have implications for the other states in the international system—especially for current or aspiring nuclear weapons states. On one hand, the gap between US and Russian capabilities and those of everyone else helps to impose some predictability and discipline on international practices related to arms control and nonproliferation. On the other hand, the continuing reliance by the United States and by Russia on nuclear weapons and nuclear deterrence encourages other nuclear weapons states to move cautiously on disarmament. It also advertises the putative value of nuclear weapons for deterrence, defense, and diplomatic support missions.

Measuring the Problem

Could Russia and the United States, given favorable political conditions permissive of such steps, reduce their numbers of operationally deployed nuclear weapons on intercontinental launchers below New START levels and still fulfill their national security objectives in deterrence, defense, and nuclear arms control and disarmament? The apparently obvious answer to this question is "yes" because of the incredibly destructive power of nuclear weapons. However, the question "how far?" is more complicated. The step from the New START upper limit of 1,550 deployed warheads to 1,100 is an incremental one that would presumably involve no major changes in roles, missions, or force structure. Below that level, to a limit of 800 or 400 deployed weapons, difficult tradeoffs may ensue for military planners and for proponents of further accomplishments in nuclear arms control and disarmament.

The analysis that follows presents the implications of US-Russian strategic nuclear force reductions at various levels.[17] It proposes notional force structures for the period 2018–20 for the two states and subjects them to nuclear force exchange modeling.[18] Each state is assigned a balanced triad of strategic nuclear forces deployed on intercontinental ballistic missiles (ICBM), submarine-launched ballistic missiles (SLBM), and heavy bombers. The analysis of performance for each Russian and US force level of deployment uses four operational conditions: (1) forces are on generated alert and launched on warning of attack (Gen-LOW), (2) forces are on generated alert and ride out the attack before retaliating (Gen-RO), (3) forces are on day-to-day alert and are launched on warning (Day-LOW), and (4) forces are on day-to-day alert and ride out the attack (Day-RO).

For each simulation at maximum deployment levels of 1,100, 800, or 400 strategic nuclear weapons, the modeling incorporates an alternative scenario with missile defenses added into the equation for both states. This step poses considerable challenges to the investigator, since no one really knows how well strategic antimissile weapons will perform against prospective attackers. Therefore, the analysis assigns an arbitrary sliding scale of defense intercept effectiveness relative to second-strike retaliating warheads and establishes four levels of defense competency relative to offenses: missile and air defenses together successfully intercept or otherwise destroy (I) some 20 percent of retaliating warheads, (II) 40 percent, (III) 60 percent, and (IV) 80 percent of retaliating war-

heads, respectively. Estimates of defense effectiveness relative to offenses include both missile and air defenses for the two states, plausible since future missile and air defense technologies may be combined in layered defenses as simulated here.

Data Analysis and Findings

Figures 1–6 summarize the forces in the analysis and the outcomes for each of the nuclear force exchanges. Figure 1 summarizes the number of surviving and retaliating second-strike weapons for each state for a 1,100 prewar deployment limit. Figure 2 displays the impact of defenses at various levels of success (I–IV) on the outcomes shown in figure 1. Figures 3 and 4 provide similar information for the 800 weapon case, and figures 5 and 6 provide data for the 400 deployment limit.

If these are the relevant numbers, what inferences do they suggest? First, both Russia and the United States can fulfill their deterrent and defense missions at deployment levels below New START–agreed figures. Even the 400-limit forces for the two states include a considerable amount of retaliatory destruction, especially if weapons are concentrated against cities or other "soft" targets. Second, as forces descend the ladder from

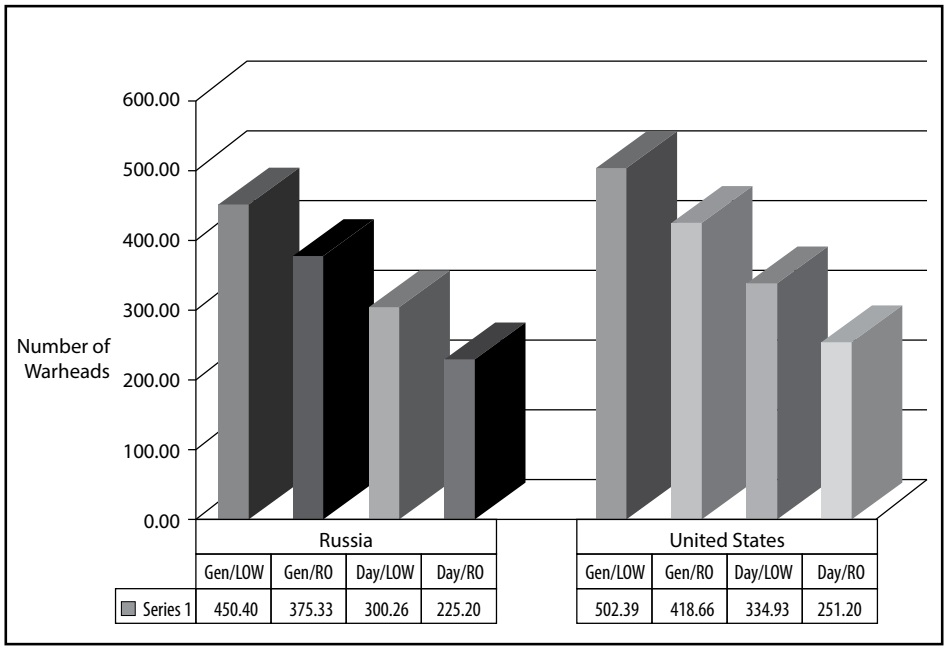

Figure 1. US-Russia surviving and retaliating warheads—1,100 deployment limit

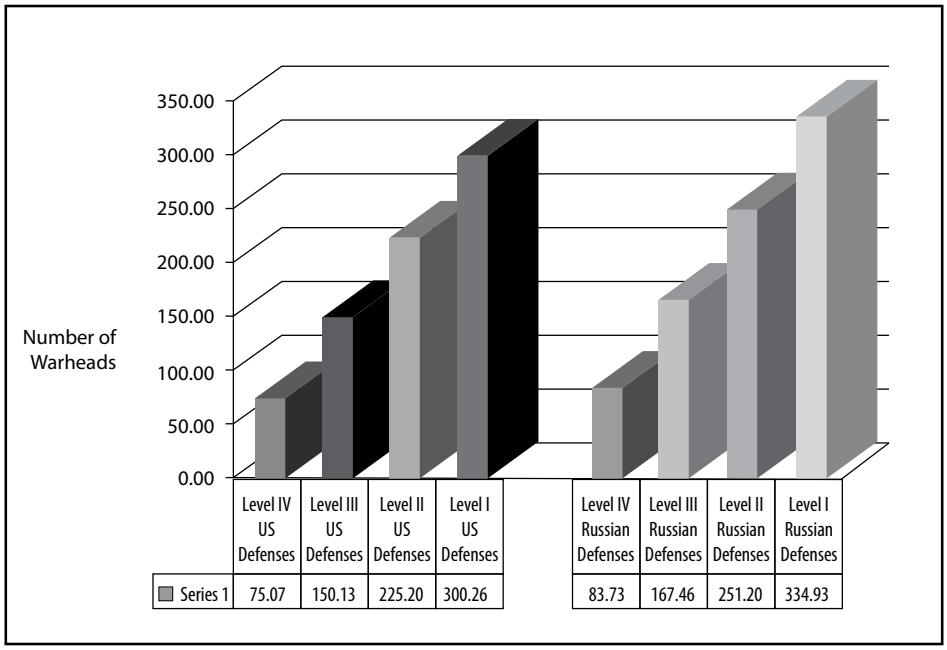

Figure 2. US-Russia surviving and retaliating warheads—1,100 deployment limit (defenses added)

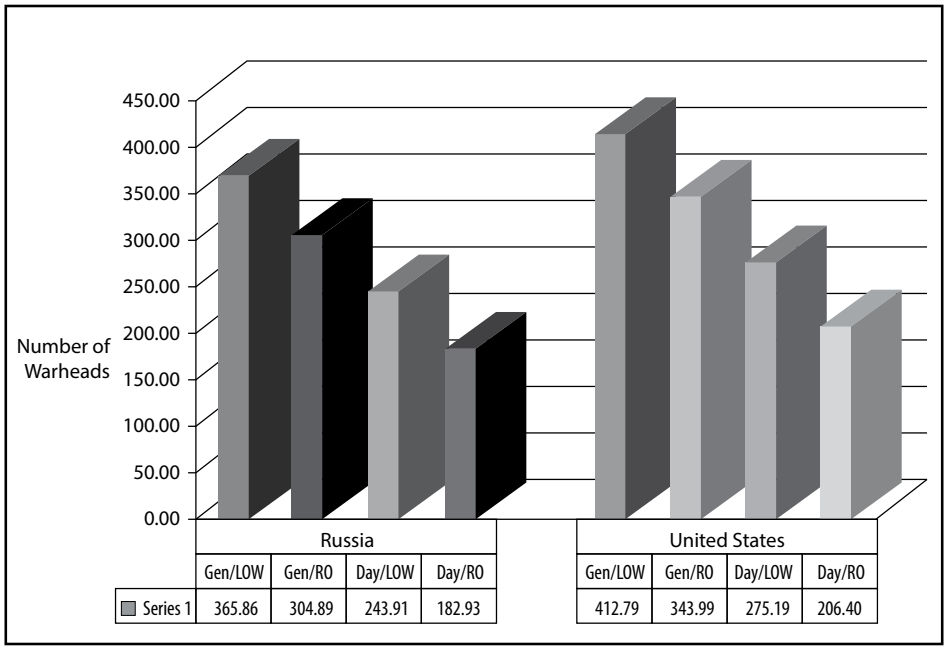

Figure 3. US-Russia surviving and retaliating warheads—800 deployment limit

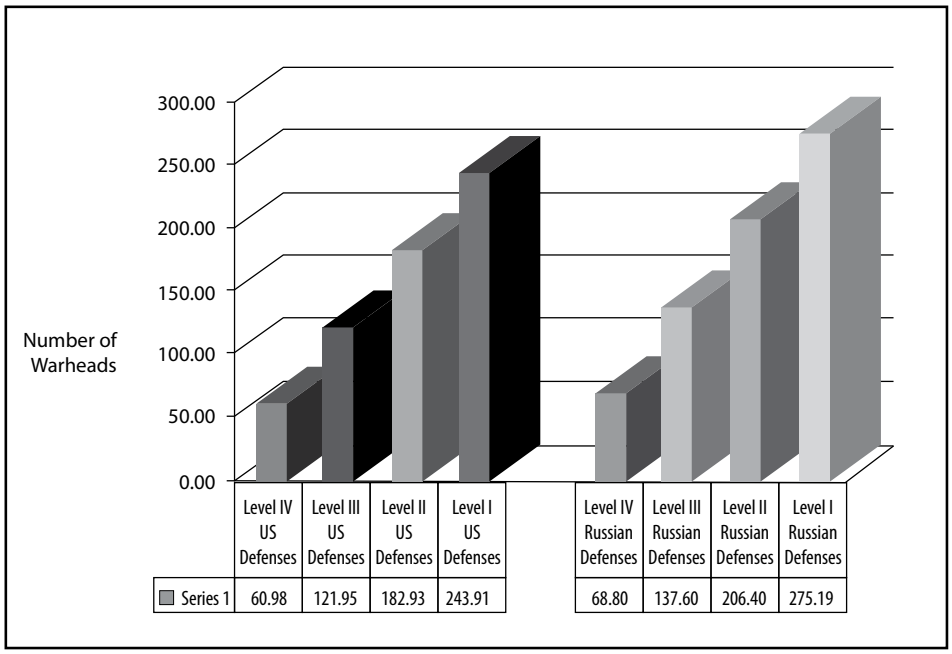

Figure 4. US-Russia surviving and retaliating warheads—800 deployment limit (defenses added)

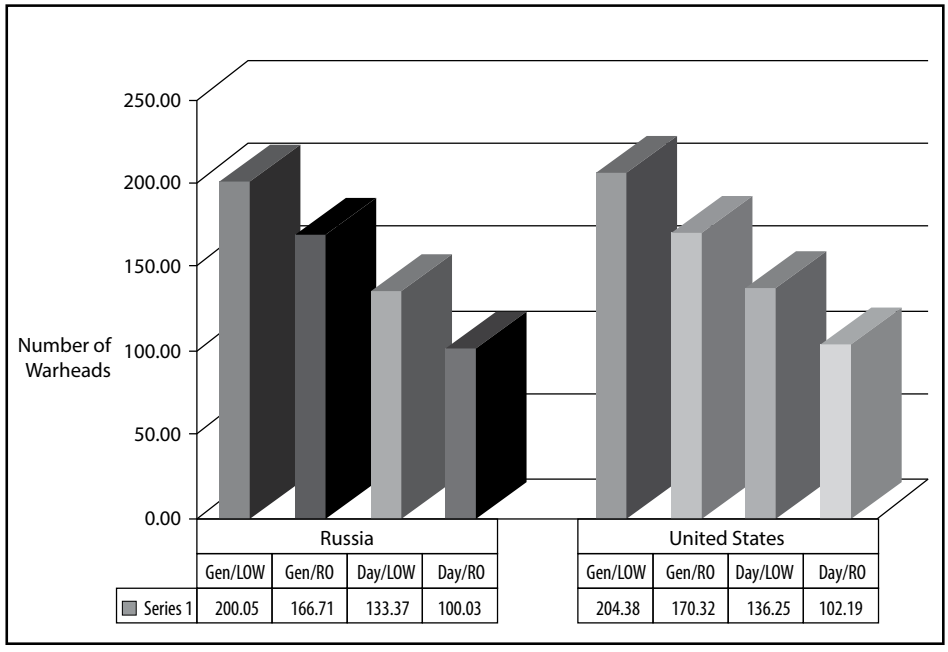

Figure 5. US-Russia surviving and retaliating warheads—400 deployment limit

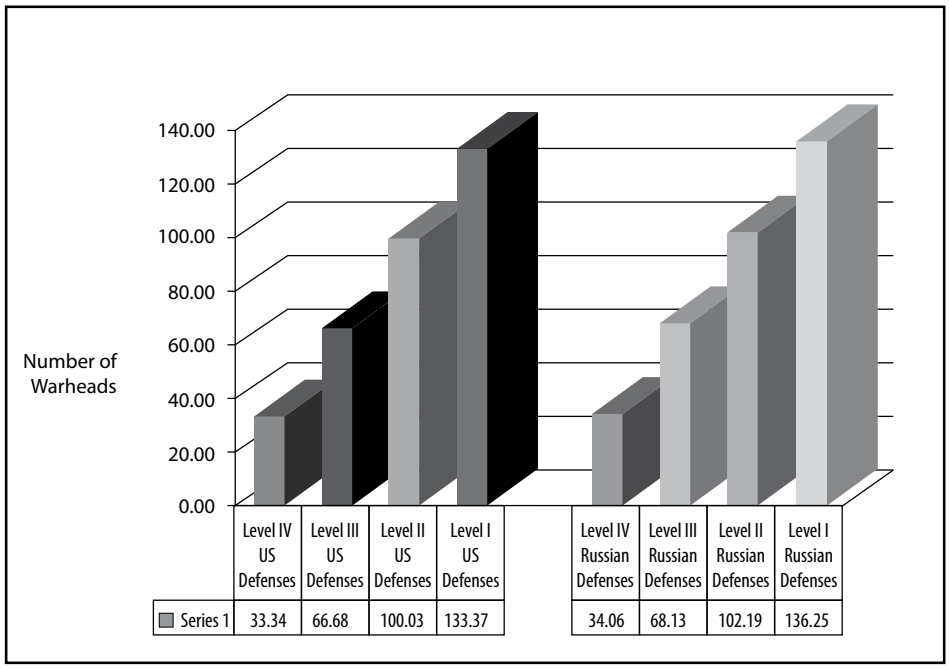

Figure 6. US-Russia surviving and retaliating warheads—400 deployment limit (defenses added)

1,550 to 400 operationally deployed weapons, the options for nuclear target planners will be progressively more restricted. A deployed force at or below 400 weapons invites an almost exclusive focus on countercity or countervalue targeting. A possible alternative to countercity targeting is to emphasize the targeting of defense-related and other critical infrastructure. An infrastructure-emphatic targeting plan would still kill many civilians but perhaps not so deliberately as would attacks targeted against populations.

Third, some persuading will be required to get the United States or Russia to agree to reductions below the 800 deployment limit unless the additional reductions are discussed on a multilateral basis that includes the other nuclear weapons states. The United States and Russia will have mixed motives in this regard: improving the security of their relationship and disposing of unnecessary nukes on the one hand, but, on the other hand, maintaining their roles as the dominant nuclear weapons states unless, or until, other countries have signed onto a commitment for serious and verifiable reductions of their own. Getting the major nuclear weapons states of Asia into this multilateral agreement will be crucial, if challenging of patience.

Fourth, missile defenses figure ambiguously into this mix of possibilities for Russian-US offensive nuclear force reductions. US missile defenses provide talking points for Russian politicians and defense hawks, but Russians should not deceive themselves by overselling the performances of emerging US defense technologies. For this decade, at least, the EPAA or the national missile defenses deployed in the continental United States can mitigate the consequences of small nuclear attacks. But preclusive theater or strategic missile defenses against larger attacks will require breakthroughs in technology development and in the affordable deployment of new weapons and new launch platforms. Doubtless there are some innovative ideas about missile defenses now incubating in research laboratories and think tanks.[19] Nevertheless, the offense-defense arithmetic in nuclear scenarios does not favor the defender, because even a few nuclear weapons can do so much infernal damage.

Conclusions

Russia and the United States could reduce their numbers of operationally deployed strategic nuclear weapons to 1,100, 800, or even 400 and maintain stable deterrence based on second-strike retaliation. How far they can descend on this scale depends partly on the level of political trust and military cooperation between Washington and Moscow. Mutual disarmament also depends upon the cooperation of other nuclear weapons states that may have to agree to freeze or reduce their own arsenals.[20] Missile defense technologies are arguably improved compared to their Cold War predecessors. However, missile defenses as proposed in the Phased Adaptive Approach for Europe are not game changers for US-Russian strategic nuclear stability. Russian defense modernization will have more to do with the viability of its nuclear deterrent than will US and NATO missile defenses. Further, the missile defense issue should not be hijacked by ideologues or partisans in Washington or Moscow. Both political and technical cooperation between NATO and Russia are possible and, in fact, desirable. Such cooperation has already been taking place for many years between NATO and Russia on theater missile defenses. What is needed going forward is a better BMD template for a politically wired world which has marched beyond the Cold War and is altogether subversive of technical and political follies. SSQ

Notes

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12. Nikolai Sokov, "The New, 2010 Russian Military Doctrine: The Nuclear Angle," Center for Nonproliferation Studies, Monterey Institute of International Studies, 5 February 2010, http://cns.miis.edu/stories/100205_russian_nuclear_doctrine.htm. See also: Vladimir Putin, "Being Strong: National Security Guarantees for Russia," *Rossiiskaya Gazeta*, 20 February 2012, http://rt.com/politics/official-word/strong-putin-military-russia-711/; and "Russia Retains Right to Play Nuclear Card—Gen-Staff Chief," http://rt.com/politics/russia-nuclear-card-general-371/.

13. The Obama phased adaptive approach to missile defense will retain and improve some technologies deployed by the George W. Bush administration but shift emphasis to other interceptors, supported by improved battle management–command control communications (BMC3) systems and launch detection and tracking. See Frank A. Rose, deputy assistant secretary, Bureau of Arms Control, Verification, and Compliance, "Growing Global Cooperation

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16. Ibid., 37.

17. Notional force structures are the author's. For expert estimates, see: Hans M. Kristensen, Trimming Nuclear Excess: Options for Further Reductions of U.S. and Russian Nuclear Forces, Special Report No. 5 (Washington, DC: Federation of American Scientists, December 2012), www.FAS.org, downloaded 23 January 2013; Joseph Cirincione, "Strategic Turn: New U.S. and Russian Views on Nuclear Weapons," New America Foundation, 29 June 2011, http://newamerica.net/publications/policy/strategic_turn; and Pavel Podvig, "New START Treaty in Numbers," from his blog, *Russian Strategic Nuclear Forces*, 9 April 2010, http://russianforces.org/blog/2010/03/new_start_treaty_in_numbers.shtml.

18. Grateful acknowledgment is made to Dr. James J. Tritten for use of his model for calculations and graphs in this study. Dr. Tritten is not responsible for any of the analyses or arguments here.

19. For example, a study by Global Zero discusses the possibility of missile defenses augmented by passive defenses (such as hardening and sheltering) and advanced US conventional missions against regional adversaries such as Iran or North Korea. See Global Zero's US Nuclear Policy Commission Report, "Modernizing U.S. Nuclear Strategy, Force Structure and Posture," May 2012, http://www.globalzero.org/en/us-nuclear-policy-commission-report.

20. On the need for a multilateral approach to nuclear arms reductions, see ibid., esp. 3–4.