

ACA THREAT ASSESSMENT BRIEF

Analysis on Effective Policy Responses to Weapons-Related Security Threats
Published by the Arms Control Association

Dealing With Long-Range Missile Threats: It's All About Russia

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November 20, 2009

The nearly 2,000 nuclear warheads on Russian ICBMs and submarine-launched ballistic missiles constitute the sole near-term existential threat to the United States. The U.S. response to this threat has been to maintain the nuclear war-fighting posture adopted during the Cold War. Yet, this posture does not lead toward an improvement in U.S. security; it merely reinforces Russia's incentive to persist in its own anachronistic security calculus. The New START and a transformational post-Cold War Nuclear Posture Review would clear the path for major U.S. and Russian arms reductions, laying the foundation for a rejuvenated effort to halt nuclear nonproliferation and for engaging other nuclear-weapon states in arms control.

Highlights

- International political circumstances have changed radically since the end of the Cold War, but the posture of U.S. nuclear forces has changed little. These forces are still largely oriented toward deterring Russia from a nuclear attack against the United States or its allies.
 - In spite of significant numerical reductions in U.S. and Russian strategic arsenals and a much less crisis-prone bilateral relationship, both sides maintain hundreds of nuclear-armed ballistic missiles on high alert, poised to launch within minutes.
- The U.S. Nuclear Posture Review and the New START negotiations present opportunities to get off the strategic nuclear treadmill, but Russian strategic forces will not go away of their own accord because Moscow has realistic options for maintaining or exceeding the operational warhead levels of the 2002 Strategic Offensive Reductions Treaty. Negotiating further verifiable and irreversible nuclear reductions will be required to lock in lower levels of Russian strategic nuclear forces.
- China poses much less of a nuclear threat to the United States. Chinese nuclear forces cannot threaten the U.S. deterrent, and they do not require a large number of U.S. warheads to be countered.
 - Moreover, the slow growth of Beijing's minimal deterrent capability and the posture and training of Chinese nuclear forces underscore the "delayed second strike" strategy proclaimed in Chinese military doctrine.
- Neither North Korea nor Iran now threatens the U.S. homeland. Even worst-case scenarios posit that these two states could have only a few, very vulnerable ICBMs by the end of the next decade. Such contingencies would have no appreciable effect on the required size of the U.S. strategic nuclear arsenal.
- The global path to zero nuclear weapons passes first through a U.S.-Russian wicket. A willingness by the United States to make meaningful changes in its existing nuclear posture can facilitate negotiation of deep reductions in Russian nuclear forces and lead to progress on curbing the spread of nuclear weapons to additional states, as well as on engaging other nuclear-weapon states in arms control.

Table 1: Long Range Ballistic Missiles*

More than 95% of the nuclear warheads on long range ballistic missiles capable of threatening the United States are deployed by Russia. The U.S. nuclear force posture is principally oriented toward deterring an attack from Russia's strategic arsenal.

Russia						
System	Status	Number Deployed	Range/Payload	# Warheads	Configuration	Fuel
SS-18 (RS-20A) ICBM	Operational	68	10,000 km / 8,800 kg	10	Silo	Liquid
SS-19 (RS-18) ICBM	Operational	72	10,000 km / 4,350 kg	6	Silo	Liquid
SS-25 (RS-12) ICBM	Operational	180	10,500 km / 1,000 kg	1	Road Mobile	Solid
SS-27 (Topol-M) ICBM	Operational	63-65	11,000 km / 1,000-1,200 kg	1 / MIRV 6**	Silo / Road Mobile	Solid
SS-N-18 (RSM 50) ICBM	Operational	76	8,000 km / 1,650 kg	3	SLBM	Liquid
SS-N-23 (Sineva) SLBM	Operational	96	8,000 km / 2,800 kg	4	SLBM	Liquid
RSM-56 (Bulava) SLBM	Developmental	0	10,000 km / 1,000-2,000 kg	6	SLBM	Solid
China						
System	Status	Number Deployed	Range/Payload	# Warheads	Configuration	Fuel
DF 5/5A (CSS-4 Mod 1/2) ICBM	Operational	20	12,000-13,000 km/3,200 kg	Single	Silo	Liquid
DF 31 (CSS-10 Mod 1) ICBM	Operational	<10	7,200 km / 700 kg	Single	Road-Mobile	Solid
DF 31A (CSS-10 Mod 2) ICBM	Operational	<10	11,200 km / 800 kg	Single	Road-Mobile	Solid
DF 41 ICBM	Developmental	0	~12,000 km / ~800kg	MIRV ?	Road-Mobile	Solid
JL 1 / 1A SLBM	Operational ***	~12	1,700-2,500 km / 600 kg	Single	SLBM	Solid
JL 2 SLBM	Developmental	0	8,000 km / 700 kg	Single	SLBM	Solid
North Korea						
System	Status	Number Deployed	Range/Payload	# Warheads	Configuration	Fuel
Taepo Dong 2 IRBM/ICBM	Developmental	0	3,700-6,700 km / 1,000 kg****	Single	Silo	Liquid
Iran						
System	Status	Number Deployed	Range/Payload	# Warheads	Configuration	Fuel
None						

*Intercontinental Ballistic Missile (ICBM) - range: > 5,500 km, or Sea-launched Ballistic Missile (SLBM) - range: sufficient to target continental United States from maritime patrol areas.

**A MIRVed version of the SS-27, the RS-24, with up to six warheads, is currently in development.

***The operational status of the XIA submarine which carries the JL-1 has been characterized by the DOD as "questionable."

****This estimate assumes a 3 stage version, but there is still considerable uncertainty among experts about the missile's range/payload capability.

Sources: START MOU, April 2009, Pavel Povdigi, "Russian Strategic Nuclear Forces." (russianforces.org/current), and Steven Hildreth. "North Korean Ballistic Missile Threat to the United States." Congressional Research Service. February 24, 2009.

Background

In order to assess national security threats realistically and to formulate appropriate responses, one needs to prioritize. Doing so is a challenge because it is necessary to compare the most destructive but remote threats (high impact/low probability) with less-destructive but more-likely threats (lower impact/higher probability) and to compare serious immediate threats with even more serious future threats.

National security threats have proliferated considerably since the early days of the Cold War. At that time, one enemy (the Soviet Union) could threaten the American homeland with one kind of lethal weapon (nuclear bombs carried by aircraft). With the development of a nuclear triad of nuclear weapons fired from land, sea, or air and the expansion of the superpowers' arsenals by thousands of operationally deployed bombs and missile warheads, there was little confusion about the source of the number one threat.

In the post-Cold War era, however, the newly independent states of the former Soviet Union were removed from the target lists of U.S. strategic planners, and U.S. relations with the Russian remnant of the USSR proceeded on a new track. U.S. and Russian leaders no longer characterized each other as "enemies," and overlapping national interests between the two countries emerged in fields as diverse as space and counterterrorism. Although the second post-Cold War decade brought new strains in bilateral relations, simmering tensions between Washington and Moscow never rose to Cold War crisis levels. Without the perceived "windows of vulnerability" emerging from new Soviet strategic weapons systems, pressure to modernize U.S. strategic forces became significantly less intense than in the past. Warnings about the absence of U.S. strategic modernization plans continue to be heard in U.S. defense deliberations, but they are usually expressed in the more abstract terms of the need to maintain the industrial and scientific base, without linkage to specific threats.¹

During the last decade, counterterrorism has become the new driver of U.S. national security efforts. In the wake of the September 11 attacks on New York and Washington, in which 19 terrorists used four airliners to kill 3,000 people within a few hours, the U.S. government dramatically broadened its definition of lethal security threats. Far more time and energy are now spent in Washington policy circles analyzing the threat posed by newly emerging nuclear powers and by nonstate terrorist organizations. Recent presidential candidates of each party have highlighted in particular the dangers of terrorists acquiring nuclear weapons or material.

As a result of the collapse of the Soviet Union and the September 11 attacks, the Russian nuclear missile threat has nearly receded from view. Richard Burt, who held a number of senior Department of State diplomatic positions during the Cold War, including

chief START negotiator (1989-1991), recently suggested that the likelihood of a U.S.-Russian nuclear war or even a U.S.-Russian nuclear crisis is already "nearly zero at this point."² The Global Zero movement, with which Burt is associated, looks forward to a time when "mutual assured destruction" becomes a relic of a previously irreconcilable relationship and when violent resolution of differences between the two countries becomes unthinkable.

Russia: The One Big Threat to the United States

In light of ongoing trends and declared end goals, it is important to acknowledge the residual U.S. and Russian nuclear forces inherited from the Cold War as "the bear in the room." Although the threat of a Russian strike has become more distant, the devastating consequences of a Russian nuclear attack remain. Dealing with the Russian nuclear missile threat remains the core preoccupation of U.S. strategic planners. Russia is still the only potential enemy capable of destroying the United States as a functioning society and possibly finishing off the rest of humanity as collateral damage in the process. The principal means of the United States' destruction would be long-range Russian ballistic missiles with nuclear warheads, based on land or at sea. Notwithstanding more than \$100 billion spent on U.S. strategic ballistic missile defenses, there is no way to prevent this unimaginable catastrophe once the missiles are launched. The only reasonable alternative is to convince Moscow that nothing could ever be gained from launching an attack in the first place.

The previous U.S. Nuclear Posture Review (NPR) in 2001 broadened the focus of U.S. nuclear forces without fundamentally changing their antiquated, Cold War structure. The 2001 effort and subsequent doctrinal adjustments maintained first-use options, expanded the designated role of nuclear weapons in war-fighting, delegated nuclear planning options to theater commanders, and emphasized the need for flexibility to offset a limit of 2,200 operationally deployed strategic nuclear warheads by maintaining a massive nuclear reserve force.³

U.S. strategic forces are very numerous because of Russia. They are maintained in a high state of readiness because of Russia. These forces are very sophisticated because of Russia. The nuclear reserve force is a hedge against a resurgent and hostile Russia. These characteristics of the U.S. arsenal, however, which are mirrored on the Russian side, are relics of a bygone era. They represent massive overinsurance, reflecting past patterns of hostility between the two sides rather than the large and growing compatibility in their core interests. The NPR to be released in early 2010 is the internal policy mechanism for making necessary conceptual changes. U.S.-Russian negotiations for a treaty to achieve deep reductions in current nuclear force levels are the means for making them possible.

Russian strategic trends

Those who see a steep and inexorable decline in the Russian strategic nuclear arsenal to much lower levels whether or not START is replaced by a new agreement are engaging in wishful thinking.⁴ The loss of the non-Russian portions of the Soviet Union, the collapse of the Russian economy, and Russian defense planning in anticipation of a START II force structure⁵ did combine to create a precipitous drop in Russia's actual military strength and future potential. Yet, the Strategic Rocket Forces (SRF) did not fall apart as some other Russian military elements did. Ten consecutive years of growth in Russia's economy has now given Moscow strategic options for SRF rejuvenation it did not have in the 1990s. Moreover, a political leadership resentful of perceived slights and abuse from the West has added political impetus to strategic forces funding.

Stanford researcher and Russian strategic forces expert Pavel Podvig convincingly describes some strategic options Moscow could exercise to avoid further reductions in the absence of further arms control limits:

Russia is already preparing to deploy a multiple-warhead version of the single-warhead Topol-M ICBM, the RS-24, on at least some of its 65 launchers. This modest increase in warhead numbers could be augmented by other steps if Russia were motivated to maintain its current force size. Russia could immediately redeploy up to 30 SS-19 ICBMs that have been kept unfueled in reserve storage. These missiles, which carry six warheads each, would increase the Russian nuclear warhead arsenal by 180. Russia could produce a new missile of the SS-19 class with multiple warheads, avoiding most of the development costs associated with a new system. By converting some of its 45 empty SS-18 silos, Russia could also avoid many of the major construction costs of deploying new missiles. In addition to ICBM upgrades, Russia could sustain and modernize its Delta III and IV ballistic missile submarines that are scheduled for retirement. These deployments, when combined with the development of a new generation of nuclear submarines, would increase the number of Russian submarine-launched ballistic missile (SLBM) warheads to 900. Finally, with two new-production strategic bomber types, the Tu-95MS and Tu-160, the size of the current force could be sustained. Moreover, Russia could build more Tu-160s, expanding the bomber leg of Russia's nuclear triad to 800 warheads. These modest and affordable measures would permit a Russian nuclear arsenal of 2,400-2,500 operational warheads, in excess of the 2,200 limit, which would enter into effect in 2012 under the Strategic Offensive Reductions Treaty and well beyond the 1,500-1,675 limits envisioned for New START.⁶

The United States: The One Big Threat to Russia

One of the primary concerns driving Russia's nuclear posture is the preservation of its nuclear deterrent. The May 2009 draft of Russia's national security strategy document reportedly identifies "a U.S. first-strike capability as the most serious external threat to Russia."⁷ Although Moscow's apprehension about U.S. conventional force capabilities is real and growing, the size and structure of Russia's strategic forces are still principally a response to U.S. nuclear forces.⁸ So far, Moscow has pursued and achieved the principle of legal parity in strategic arms control negotiations, exerting pressure on the United States to lower mutual numerical limits on aggregate strategic nuclear delivery vehicles and to prevent growth in other weapons, such as anti-ballistic missiles, which could affect the overall strategic balance. It is likely that Moscow will tolerate a significant reduction in the level of Russian strategic offensive forces only if it is confident U.S. counterpart systems will be reduced in equal measure and U.S. strategic missile defenses held in check.

U.S. Nuclear Doctrine

U.S. nuclear doctrine has not changed fundamentally since the late Cold War period. That doctrine is based firmly on the notion of deterrence. In order to ensure that this deterrent is protected, the United States maintains a high degree of readiness, meaning that many U.S. nuclear weapons are operated on high alert, which allows decision-makers to order a nuclear strike before U.S. strategic systems could be destroyed by incoming warheads.⁹ Advanced satellite early-warning systems create a potential for launching an overwhelming retaliatory strike only minutes after an enemy launch has been detected. To maintain this posture, elements of the U.S. ICBM and SLBM force are kept ready for launch on short notice. A high percentage of ballistic missile submarines is kept on patrol at all times to ensure the viability of the U.S. second-strike capability. High alert rates are seen as a signal of U.S. resolve to use its nuclear arsenal in response to an attack. Additionally, U.S. officials contend that the command and control mechanisms in place are robust enough to ensure that accidental or unauthorized launches will not occur.¹⁰

In addition to high states of readiness, the United States relies on a "counterforce" strategy that targets the nuclear weapons capabilities of peer competitors, such as Russia or China. Pursuing a counterforce capability is based on the notion that the United States can derive advantage from being able to reduce the retaliatory capability of its opponents. To this end, the current U.S. nuclear force is capable of striking every Russian and Chinese nuclear delivery vehicle that can be located.¹¹ Counterforce strikes are intended to mitigate damage to

the United States and to rob an opponent of any possibility of gaining political leverage from surviving nuclear forces. Some prominent proponents of a counterforce capability, including the Strategic Posture Commission, have argued that counterforce capabilities are also necessary to mitigate the risk of accidental launches or attacks by terrorists.¹² Proponents of counterforce strikes further contend that such strikes are more humane than countervalue

Collateral Benefits

In addition to paving the way for improved bilateral relations and accelerating “vertical” movement in weapons levels, a new arms control agreement between Russia and the United States would help check “horizontal” nonproliferation. An agreement to the further reductions envisioned in the New START would serve to de-emphasize the role of nuclear weapons in the national security strategies of

U.S. and Russian strategic nuclear forces now serve more as an excuse for each country to maintain a heavily armed status quo, which impedes improvements in bilateral relations and the achievement of global nonproliferation goals.

strikes, which directly and deliberately target cities or economic infrastructure. Russia remains the primary target of U.S. nuclear forces because it is the only potential enemy deploying hundreds of strategic nuclear delivery vehicles on ICBMs, heavy bombers, and nuclear submarines.

Symptoms or Cause?

During the Cold War, the existence and structure of the two opposing strategic nuclear arsenals were more a symptom than a cause of mutual suspicions and zero-sum-based assumptions in the bilateral relationship. In the post-Cold War era, the arsenals themselves have become more of a driving force in determining force size and structure. The nuclear weapons still stand as an effective check against any temptation in either capital to use force against the other, but such a temptation is much less likely to arise in the first place. Strategic nuclear forces now serve more as an excuse for each side to maintain a heavily armed status quo, which impedes improvements in bilateral relations and the achievement of global nonproliferation goals.

To unravel this knot, the United States must renew its commitment to arms reductions with Russia. Continued strategic competition does not benefit either side. The best way to improve U.S.-Russian relations is to remove the major impediment to true partnership: nuclear arsenals designed for the security environment of the Cold War era. Agreeing to the reductions envisioned in a new START would be the first step on the road to a new strategic relationship between the sides, free of the competition that came to define the Cold War.

the two largest nuclear powers. Many states party to the nuclear Nonproliferation Treaty (NPT) measure U.S. and Russian commitment to the treaty by the willingness of the sides to implement bilateral arms reductions, in accordance with their NPT Article VI obligations.¹³ Achieving significant reductions in nuclear arsenals through a new START would help strengthen international willingness to confront proliferation attempts by states such as North Korea and Iran effectively. Strengthening the NPT bona fides of the United States and Russia would also pressure states such as India, Israel, and Pakistan to accede to the NPT. India and Pakistan have long cited the hypocrisy of NPT nuclear weapons states as an excuse for not signing the treaty. Renewed U.S. credibility in pursuit of nonproliferation goals would increase prospects for the 2010 NPT Review Conference. Progress in achieving nonproliferation goals in the Middle East would create an opening for U.S. engagement with Israel on the question of Comprehensive Test Ban Treaty accession and ultimately NPT membership.

It is necessary to weigh the benefits of further U.S.-Russian arms reductions outlined above against the concerns of arms control critics that such reductions will hamstring Washington’s ability to respond to the growing threats emanating from China, Iran, and North Korea.

China’s Nuclear Missile Forces

The People’s Republic of China poses a putative nuclear threat to the United States, but on both a lower order of magnitude and of a different nature than



STR/AFP/Getty Images

A Russian SS-19 is launched from the Baikonur Cosmodrome in a 2008 test. The Russians have operationally deployed 72 SS-19 ICBMs, carrying a total of 432 warheads—roughly ten times as many warheads as China has deployed on all of its long-range ballistic missiles. These 30-year-old missiles have had their service life extended until 2017. Thirty additional SS-19s currently in reserve storage and certified until 2030 could also be deployed.

does Russia. China continues to modernize its ballistic missile arsenal and improve the survivability of its longer-range systems, but it cannot and will not in the foreseeable future be able to threaten the ability of the United States to retaliate massively to a nuclear attack. In contingencies involving China, U.S. strategic forces are not in serious jeopardy. Moreover, targeting the relatively small number of fixed launch sites for Chinese strategic missiles would involve only a small percentage of even the lower level of forces anticipated under a new START. China is not a significant factor in sizing U.S. nuclear forces.

One of the central components of China's nuclear doctrine is its nuclear no-first-use pledge, stating that China will use its nuclear arsenal only if it is subjected to a nuclear attack. Although declaratory policy does not necessarily determine crisis behavior, China's nuclear posture and training is consistent with this pledge. The Chinese maintain a

small nuclear arsenal that is designed to withstand a nuclear attack before being used in retaliation. China's Second Artillery Corps—the People's Liberation Army command responsible for maintaining China's nuclear and conventional ballistic missiles—is geared toward ensuring that China's nuclear retaliatory capability can withstand several days of sustained nuclear strikes before retaliating.¹⁴ This strategy, known as a “delayed second strike,” relies primarily on the missile forces. Numerical and operational limitations prevent the Chinese from relying on a “launch-on-warning posture” or targeting the nuclear retaliatory capabilities of other nuclear powers. China's lack of an advanced early-warning system and its policy of storing nuclear warheads separately from its ICBMs¹⁵ are evidence of the no-first-use doctrine's sway.

China's strategic posture is best described as a “minimum deterrent.” Such a deterrent is not designed to win a nuclear war by crippling the nuclear capabilities of an opponent. Instead, it relies on the threat of eventual retaliation to prevent a potential adversary from using its nuclear weapons. Thus, there is no strategic imperative for China to expand its nuclear arsenal significantly as such an investment would provide little additional security.

This posture is not immune to the dynamics of competition with other nuclear powers. If China perceives its limited arsenal as potentially subject to neutralization by an opponent launching a disarming first strike, it will presumably accelerate efforts to improve and diversify its nuclear forces. In this regard, China is especially wary of two trends in the evolving U.S. strategic posture. First, ongoing U.S. strategic missile defense efforts may undermine China's confidence in its ability to retaliate or its confidence in U.S. perceptions of China's retaliatory capabilities. Second, the counterforce focus of the U.S. nuclear posture must be considered a serious potential threat to China's minimal deterrent. To address these concerns, China is actively modernizing its nuclear arsenal, in some cases developing technologies specifically designed to penetrate missile defense systems.¹⁶

Iran and North Korea

As the missile chart on page 2 makes clear, neither Iran nor North Korea is part of the nuclear missile threat the U.S. homeland currently faces. If current trends continue and worst-case political assumptions are realized, these countries may be able to deploy a few ICBMs with nuclear warheads by the end of the next decade. If this were to happen, these countries would still be unable to put U.S. ICBMs and SLBMs at risk. Furthermore, the small number of Iranian and North Korean long-range missile launchers would themselves be extremely vulnerable to attack, whether by nuclear or conventional means. These third-country contingencies would have no appreciable impact on the size of the U.S. strategic forces target list or on

the required size of the U.S. nuclear arsenal. For the purposes of implementing the NPR, the high impact comes principally from Russia and only secondarily from China; the Iranian and North Korean threats are relatively low impact. Overstating the significance of the threats from the latter two countries in the NPR would run the risk of providing further impetus for Pyongyang and Tehran to seek nuclear weapons as tokens of prestige and power and as a means of leveraging concessions from the international community.

Back to the Future

A sober review of the highest-impact security threats to the United States brings one back to basics. It is all about Russia and mostly about Russian missiles. The good news is that the original Cold War drivers for the nuclear buildup on both sides are gone. Residual fears and suspicions linger, but limiting the degree of threat is now very much a function of U.S. willingness to reduce strategic nuclear weapons through negotiations with Moscow.

Achieving a new START, which gets the strategic arms control process back on track, followed by an NPR that removes the most significant impediment to major reductions in U.S. nuclear weapons, would open the door to reversing unnecessary strategic competition with Russia. Achieving lower U.S. and Russian force levels through negotiations to address the highest-impact present threat would lead to mitigation of the lower-impact, higher-probability, midterm threats posed by emerging nuclear-weapon states, such as Iran and North Korea. It would reduce incentives for China to increase the size of its nuclear arsenal and would begin the process of transforming China from a nuclear weapons competitor into a nonproliferation ally. Furthermore, it would open up possibilities for engaging India, Israel, and Pakistan on the goal of reversing the growth in their nuclear arsenals as well.

ENDNOTES

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