

# Russian Nuclear Forces and Prospects for Arms Control

Austin Long

CT-495

Testimony presented before the House of Representatives Committee on Foreign Affairs, Subcommittee on Terrorism, Nonproliferation, and Trade on June 21, 2018.



For more information on this publication, visit [www.rand.org/pubs/testimonies/CT495.html](http://www.rand.org/pubs/testimonies/CT495.html)

## Testimonies

RAND testimonies record testimony presented or submitted by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies.

Published by the RAND Corporation, Santa Monica, Calif.

© Copyright 2018 RAND Corporation

RAND® is a registered trademark.

## Limited Print and Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited. Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Permission is required from RAND to reproduce, or reuse in another form, any of its research documents for commercial use. For information on reprint and linking permissions, please visit [www.rand.org/pubs/permissions.html](http://www.rand.org/pubs/permissions.html).

[www.rand.org](http://www.rand.org)

*Russian Nuclear Forces and Prospects for Arms Control*

Testimony of Austin Long<sup>1</sup>  
The RAND Corporation<sup>2</sup>

Before the Committee on Foreign Affairs  
Subcommittee on Terrorism, Nonproliferation, and Trade  
United States House of Representatives

June 21, 2018

In the eight years between the Obama and Trump Administrations' Nuclear Posture Reviews (NPRs), U.S.-Russia relations have grown increasingly confrontational, as vividly demonstrated in the arenas of nuclear forces and arms control. Two events underscore how dramatically relations have worsened. In April 2010, then–Presidents Dmitri Medvedev and Barack Obama signed the New Strategic Arms Reduction Treaty (New START) to much fanfare. In contrast, in March 2018, Medvedev's successor (and predecessor), Vladimir Putin, revealed two new Russian strategic nuclear delivery systems not covered in the text of New START.

In this statement, I draw upon unclassified sources to summarize developments in Russian nuclear forces and strategy over the past eight years as well as some of the factors driving those developments. I will then discuss the implications of Russian nuclear developments for arms control.

## What Has Happened with Russia's Nuclear Weapons?

Since the signing of New START, Russia has continued modernizing much of its nuclear arsenal, as succinctly described in the 2018 U.S. NPR.<sup>3</sup> Russia's Strategic Rocket Forces have deployed a new intercontinental ballistic missile (ICBM), the SS-27 Mod 2, which can be mobile

---

<sup>1</sup> The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of the RAND Corporation or any of the sponsors of its research.

<sup>2</sup> The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

<sup>3</sup> U.S. Department of Defense, *Nuclear Posture Review*, Washington, D.C., 2018, p. 8.

or silo-based.<sup>4</sup> It has also continued development of the SS-X-30 heavy ICBM and has begun or extended development of two other ICBMs.<sup>5</sup>

The Russian Navy has deployed a new submarine-launched ballistic missile (SLBM), the SS-N-32, and a new submarine-launched cruise missile, the SS-N-30A.<sup>6</sup> The latter system can deliver conventional and possibly nuclear warheads; the conventionally armed version has been used in Syria. In addition to new nuclear delivery systems, the navy has deployed two new nuclear-powered submarines, the *Borei*-class ballistic missile submarine and the *Yasen*-class attack submarine; the latter can carry the SS-N-30. The Russian Aerospace Forces have deployed a new long-range nuclear cruise missile, the Kh-102, and a conventional variant, the KH-101, and have begun development of a new medium-range missile that is likely to be nuclear capable.<sup>7</sup>

As Putin announced in March, Russia also has invested in two novel strategic nuclear delivery systems. The first is an extremely long-range nuclear-powered and nuclear-armed autonomous underwater vehicle, known as the Status-6 or Poseidon system.<sup>8</sup> This system is capable of striking coastal cities or other targets from transoceanic ranges. The second is an intercontinental-range nuclear-powered and nuclear-armed cruise missile, which could hold at risk much, if not all, of the United States.<sup>9</sup>

Russia also continues to deploy shorter-range nuclear-capable delivery systems. In addition to the SS-26 short range missile system, which is deployed in parts of Russia that border the territory of the North Atlantic Treaty Organization (NATO), the U.S. government in 2014 declared Russia to be testing an intermediate-range ground-launched cruise missile in violation

---

<sup>4</sup> U.S. National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat*, Wright-Patterson Air Force Base, Ohio, 2017, p. 26. The SS-27 Mod 2 carries multiple independently targetable warheads and is known in Russia as the RS-24 Yars.

<sup>5</sup> U.S. National Air and Space Intelligence Center, 2017, p. 29. The SS-X-30 is known in Russia as the RS-28 Sarmat.

<sup>6</sup> U.S. National Air and Space Intelligence Center, 2017, pp. 30 and 37; and U.S. Department of Defense, 2018, p. 8. The SS-N-32 is known in Russia as the RSM-56 Bulava, and the SS-N-30A is known as the 3M-14 Kalibr or Biryuza.

<sup>7</sup> U.S. National Air and Space Intelligence Center, 2017, p. 30.

<sup>8</sup> Sputnik News, “‘Doomsday Machine’: Russia’s New Weapon Reportedly Gets Nuclear Warhead (VIDEO),” webpage, May 17, 2018. As of June 18, 2018: <https://sputniknews.com/russia/201805171064549993-russia-poseidon-system-torpedo/>

<sup>9</sup> Defence Blog, “New Russian Intercontinental Cruise Missile May Endanger US National Interests,” webpage, March 25, 2018. As of June 18, 2018: <http://defence-blog.com/news/new-russian-intercontinental-cruise-missile-may-endanger-us-national-interests.html>. The missile has been named *Burevestnik* (literally “messenger of the storm”).

of the Intermediate-Range Nuclear Forces (INF) Treaty.<sup>10</sup> The United States subsequently claimed that Russia was deploying this missile, known as the SSC-8.<sup>11</sup>

While Russia and the United States are both engaged in nuclear modernization—as their respective arsenals still rely on systems built during the Cold War—Russia’s modernization is much further along. Russia is also expanding its arsenal to include new systems, such as the two novel delivery systems Putin revealed in March and the alleged INF-violating SSC-8. In contrast, U.S. nuclear modernization concentrates on replacement, rather than expansion.<sup>12</sup> The next section addresses how Russian leaders might think about using this diverse and modernizing arsenal.

## What is Russian Nuclear Strategy?

Over the past several years, and especially since the release of the 2018 NPR, the nature of Russian nuclear strategy has been a topic of intense debate. On one side of the debate is a view that characterizes Russian nuclear strategy as willing, perhaps even eager, to use the threat of limited nuclear escalation for purposes of coercion. The NPR states

Russian strategy and doctrine emphasize the potential coercive and military uses of nuclear weapons. It mistakenly assesses that the threat of nuclear escalation or actual first use of nuclear weapons would serve to “de-escalate” a conflict on terms favorable to Russia.<sup>13</sup>

Proponents of this view highlight certain aspects of Russia’s professional military debates on nuclear weapons as well as Russian nuclear activities (including exercises) and messages during and after the 2014 Russian occupation of Crimea.<sup>14</sup> This view is sometimes referred to by the shorthand expression “escalate to de-escalate” or “escalate to win.”

---

<sup>10</sup> U.S. Department of State, *Adherence to and Compliance With Arms Control, Nonproliferation, and Disarmament Agreements and Commitments*, Washington, D.C., July 31, 2014. As of June 18, 2018: <https://www.state.gov/t/avc/rls/rpt/2014/230047.htm>

<sup>11</sup> MissileThreat CSIS Missile Defense Project, “US Official Identifies Missile Believed to Violate INF Treaty,” webpage, December 8, 2017. As of June 18, 2018: <https://missilethreat.csis.org/us-official-identifies-missile-believed-violate-inf-treaty/>. The United States claims that the Russians designate this missile the Novator 9M729.

<sup>12</sup> The U.S. modernization includes a gravity bomb, the B61-12, which will eventually replace multiple types of gravity bomb; the Ground-Based Strategic Deterrent, which will replace the Minuteman ICBM; the *Columbia*-class submarine, which will replace the *Ohio*-class submarine; the Long-Range Stand-Off weapon, which will replace the AGM-86 air-launched cruise missile; the replacement for the Trident D5 missile; and the B-21 Raider heavy bomber, which will replace the B-2 Spirit. The 2018 NPR also calls for supplemental nuclear capabilities, one of which (a new sea-launched cruise missile) might constitute expansion of the U.S. arsenal. See U.S. Department of Defense, 2018, p. xii.

<sup>13</sup> U.S. Department of Defense, 2018, p. 8.

<sup>14</sup> See Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century*, Stanford, Calif.: Stanford University Press, 2016; David Johnson, *Russia’s Conventional Precision Strike Capabilities, Regional Crises, and Nuclear Thresholds*, Livermore, Calif.: Lawrence Livermore National Laboratory Center for Global Security Research, 2018; Jacek Durkalec, “Nuclear-Backed ‘Little Green Men’: Nuclear Messaging in the Ukraine Crisis,” Warsaw: Polish Institute of International Affairs, 2015; and Katarzyna Zisk, “Escalation and Nuclear Weapons in Russia’s Military Strategy,” *The RUSI Journal*, May 2018.

The other view in the debate is that, while Russia remains serious about its nuclear arsenal, it has not substantially embraced a broadened coercive role for nuclear weapons. Analysts embracing this view argue that neither Russian doctrine nor exercises indicate that “escalate to de-escalate” is in fact a policy, and point to the Russian declaratory nuclear policy that nuclear weapons are intended to ensure the survival of the Russian state (and perhaps, depending on one’s interpretation, the Putin regime).<sup>15</sup> Russia’s major investments in non-nuclear forces is cited as supporting evidence for this view.

My own view of Russian nuclear strategy falls between these two perspectives.<sup>16</sup> Whatever the Russian military believes, senior Russian political leadership has been circumspect in describing the role of nuclear weapons in its strategy. While some Kremlin leaders have described nuclear strategy in expansive terms, Putin has been more reserved, noting in 2015: “We proceed from the assumption that nuclear weapons and other weapons are the means to protect our sovereignty and legitimate interests, not the means to behave aggressively or to fulfil some nonexistent imperial ambitions.”<sup>17</sup>

This statement by Putin accords with Russian behavior. Whatever Russia’s signaling with nuclear weapons was over Crimea, Putin and the rest of Russia’s leadership clearly believed this situation was crucial to Russian security. Yet in other important but less crucial situations, Russia did not brandish the threat of nuclear weapons. For example, Russia did not invoke nuclear weapons following Turkey’s downing of a Russian fighter in November 2015.<sup>18</sup>

Russian behavior, along with Russian acquisition of substantial non-nuclear capabilities, including long-range precision strike, offensive cyber, and counterspace systems, suggest Russian leaders are preparing for a variety of military options short of a massive nuclear exchange.<sup>19</sup> These options would include limited nuclear use in dire circumstances. Yet dire circumstances, from a Russian perspective, could occur very quickly in a conflict, as discussed in the next section.

---

<sup>15</sup> See Olga Olikier and Andrey Baklitsky, “The Nuclear Posture Review and Russian ‘De-escalation:’ A Dangerous Solution to a Non-Existent Problem,” *War on the Rocks*, February 20, 2018. As of June 18, 2018: <https://warontherocks.com/2018/02/nuclear-posture-review-russian-de-escalation-dangerous-solution-nonexistent-problem/>; and Bruno Tertrais, “Russia’s Nuclear Policy: Worrying for the Wrong Reasons,” *Survival*, Vol. 60, No. 2, March–April 2018.

<sup>16</sup> For a more detailed discussion, see Austin Long, “Nuclear Strategy in an Era of Great Power Competition,” *Texas National Security Review* Policy Roundtable, February 13, 2018a. As of June 18, 2018: <https://tnsr.org/roundtable/policy-roundtable-trump-administrations-nuclear-posture-review/#essay3>

<sup>17</sup> CBS Sixty Minutes, “All Eyes on Putin,” webpage, September 27, 2015. As of June 18, 2018: <https://www.cbsnews.com/news/vladimir-putin-russian-president-60-minutes-charlie-rose/>

<sup>18</sup> Neil MacFarquhar, “Navigator of Downed Russian Plane Says There Was No Warning,” *New York Times*, November 25, 2015. As of June 18, 2018: <https://www.nytimes.com/2015/11/26/world/europe/turkey-russia-jet.html>

<sup>19</sup> See similar arguments in Kristin ven Bruusgaard, “Russian Strategic Deterrence,” *Survival*, Vol. 58, No. 4, August–September 2016, and Dmitri (Dima) Adamsky, “From Moscow with Coercion: Russian Deterrence Theory and Strategic Culture,” *Journal of Strategic Studies*, Vol 41, No. 1-2, January-February 2018.

## What Factors Are Driving Russian Nuclear Developments?

Russian nuclear strategy and forces have been developed to meet the challenges Russian leaders have identified in their security environment. The major challenges, which have their roots in the Cold War, are the United States and NATO, with China being an important but secondary challenge. Russian leaders perceive the United States as untrustworthy at a minimum, dating back to broken promises over NATO expansion, and as actively seeking to undermine the Russian government.<sup>20</sup>

Russian leaders have also greatly feared U.S. nuclear and missile defense capabilities since the Cold War. The Soviets were fearful that the combination of those capabilities could greatly reduce the effectiveness of a Soviet strike on the United States, undermining Soviet deterrence. In the 1970s, this fear led the Soviets to sign the Anti-Ballistic Missile (ABM) Treaty as well as accept the limits on the quantity of nuclear forces in the Strategic Arms Limitation Talks (SALT).<sup>21</sup>

Yet by the early 1980s, Soviet leaders were confronted with a growing qualitative improvement in U.S. nuclear forces and the prospect of the United States leaving the ABM Treaty with the announcement of the Strategic Defense Initiative (SDI, aka “Star Wars”). Soviet assessments became deeply pessimistic, with some indicating that by the mid-1990s, the Soviets might only be able to strike 100 targets in retaliation following a U.S. first strike.<sup>22</sup> If U.S. missile defenses were even modestly effective, that number might be reduced by half, while highly effective defenses might reduce that number to ten or perhaps even zero.

Russian leaders have inherited these Soviet fears from the 1980s, which were amplified following the U.S. withdrawal from the ABM Treaty in 2002. The developments over the past eight years in Russian nuclear strategy and forces have been an attempt to address these fears. Perhaps unsurprisingly, the two novel delivery systems Putin announced in March appear to have originated in the late Soviet period as means to circumvent SDI.<sup>23</sup>

Yet in addition to fears from the Soviet era, Russian leaders have two new fears. The first is the “precision revolution” in conventional munitions, which Russia has observed closely since the Gulf War in 1991. Based on these observations, the Russians now believe a massive first-strike volley of conventional precision munitions could be effective in neutralizing much of their strategic deterrent or crippling the government, highlighting U.S. “shock and awe”-style

---

<sup>20</sup> Joshua Itzkowitz Shiffrin, “Deal or No Deal? The End of the Cold War and the U.S. Offer to Limit NATO Expansion,” *International Security*, Vol. 46, No. 4, Spring 2016.

<sup>21</sup> For a more detailed discussion, see Austin Long, “Red Glare: The Origin and Implications of Russia’s New Nuclear Weapons,” *War on the Rocks*, March 26, 2018b. As of June 18, 2018: <https://warontherocks.com/2018/03/red-glare-the-origin-and-implications-of-russias-new-nuclear-weapons>

<sup>22</sup> For more detailed discussion, see Brendan Rittenhouse Green and Austin Long, “The MAD Who Wasn’t There: Soviet Reactions to the Late Cold War Nuclear Balance,” *Security Studies*, Vol. 26, No. 4, 2017. See also the declassified report by the President’s Foreign Intelligence Advisory Board, “The Soviet ‘War Scare,’” February 15, 1990. As of June 18, 2018: <https://nsarchive2.gwu.edu/nukevault/ebb533-The-Able-Archer-War-Scare-Declassified-PFIAB-Report-Released/>

<sup>23</sup> See Long, 2018b.

campaigns.<sup>24</sup> Moreover, the Russians believe the United States would be more likely to use conventional weapons in a first strike, making such a strike more likely than one that would have to rely on nuclear weapons.

The second difference is the emergence of so-called “color revolutions” on the Russian periphery—successful uprisings against Moscow-friendly regimes that the Russians believe the United States helped engineer.<sup>25</sup> Together, these two new fears have led Russian leadership to fear U.S.-sponsored unrest (as Russian leaders believe happened in Ukraine), backed up with precision munitions supplied by the United States and its allies. The Russians think they have seen this movie before in Serbia, Libya, Iraq, and, if not for timely Russian intervention, Syria.

This combination of new and old fears about the United States, whether justified or not, has shaped Russian nuclear strategy and forces. Crucially, these fears also could help precipitate a nuclear crisis between the United States and Russia, even if neither side truly has aggressive intentions. Russian leaders could perceive unrest or revolution in one of its neighbors (e.g., Belarus) as engineered by the United States and take what it believes to be appropriate defensive measures. U.S. and NATO leaders could take what from their perspective are equally defensive measures, resulting in a crisis and possible conflict.

Moreover, if conflict did happen, Russia might rapidly expend most of its non-nuclear military options. Its long-range precision strike arsenal, while capable, is not very large. Its offensive cyber and counterspace capabilities might likewise fail to terminate conflict and, as NATO mobilized, a conventional battle would inevitably begin to shift against Russia. Therefore, Russian military commanders might recommend limited nuclear use relatively quickly if non-nuclear capabilities failed to terminate the conflict promptly. Whether Russian political leaders would accept such a recommendation is unknowable, but this scenario underscores that, even if Russian intentions are largely defensive, nuclear crisis and even limited nuclear use is possible.<sup>26</sup> This possibility highlights the important but tenuous role of arms control, discussed in the final section.

## Prospects for Arms Control

Given the foregoing, prospects for arms control are grim. The United States maintains Russia is in violation of the INF Treaty, and Russia has leveled counteraccusations, including that U.S. European Phased Adaptive Approach missile defense launchers could be used to launch Tomahawk cruise missiles. There has been essentially no progress on this deadlock since 2014.

---

<sup>24</sup> Thomas McCabe, “The Russian Perception of the NATO Aerospace Threat,” *Air and Space Power Journal*, Vol. 30, No. 3, 2016.

<sup>25</sup> Nicholas Bouchet, “Russia’s “Militarization” of Colour Revolutions,” Center for Security Studies-ETH Zurich, January 2016.

<sup>26</sup> See also Scott Boston and Dara Massicot, *The Russian Way of Warfare: A Primer*, Santa Monica, Calif.: RAND Corporation, PE-231-A, 2017. As of June 18, 2018: <https://www.rand.org/pubs/perspectives/PE231.html>; and Christopher S. Chivvis, Andrew Radin, Dara Massicot, and Clinton Bruce Reach, *Strengthening Strategic Stability with Russia*, Santa Monica, Calif.: RAND Corporation, PE-234-OSD, 2017. As of June 18, 2018: <https://www.rand.org/pubs/perspectives/PE234.html>



In contrast, both sides agree they are broadly in compliance with New START limits of 700 deployed strategic launchers and 1,550 strategic warheads. Russia claims that in February 2018 (the deadline for meeting the treaty limits) it had deployed 1,444 warheads on 527 launchers.<sup>27</sup> The United States was likewise in compliance, though Russia has questioned some of the conversions intended to limit launcher numbers.

New START expires in 2021, although there is an option to extend it for five years with both parties' agreement. While there has been some discussion of New START extension, the progress of the dialogue appears frozen at present. The two sides have had sporadic contact on arms control issues, with strategic stability talks in Helsinki in September 2017. More recently, strategic stability was one of the topics of a meeting between Chairman of the Joint Chiefs of Staff General Joseph Dunford and Chief of the General Staff General Valery Gerasimov in June 2018.

Yet a fundamental impasse remains. From the U.S. perspective, as embodied in the 2018 NPR, Russia is an unrepentant violator of existing arms control agreements, most notably the INF Treaty. It may seek to use nuclear weapons for coercive purposes against the United States and its allies.<sup>28</sup> From the Russian perspective, the United States is a serial invader bent on destroying the Russian state (or at the very least Russian leadership). It is also seeking to neutralize Russia's strategic deterrent.

It is especially important to note that given Russia's long-standing fears, there is probably no future for formal, treaty-based U.S.-Russian arms control if the negotiations do not cover missile defense (with the possible exception of New START extension). The Russians sought unsuccessfully to include missile defense in New START negotiations. Today, with their "new" systems, they may believe they have a stronger bargaining position. Yet the United States would certainly want any new agreements to ensure Russia returns to compliance with the INF Treaty and to involve the two new Russian systems Putin revealed in March.

Given these divergent views, the instinct may be to simply walk away from arms control, allowing New START to expire and even withdrawing from the INF Treaty. While this is understandable, arms control can provide transparency and communication mechanisms that can help prevent nuclear crisis scenarios like the one described previously. For example, even as U.S.-Russia relations have grown tense, both sides have been able to undertake more than 130 onsite inspections while exchanging data thousands of times.<sup>29</sup>

The most comprehensive solution may be to start from scratch, with a broader set of negotiations that seeks new mutually acceptable limits on intermediate-range systems (to replace the INF Treaty), "new" Russian systems, and missile defenses. Yet the United States understandably seeks missile defenses against North Korea and Iran, even if it does not seek to neutralize Russia's strategic deterrent, as the Kremlin fears. Moreover, a comprehensive solution by its nature would likely take a very long time to negotiate.

---

<sup>27</sup> U.S. State Department, "New START Treaty Aggregate Numbers of Strategic Offensive Arms, fact sheet, February 22, 2018. As of June 18, 2018: <https://www.state.gov/t/avc/newstart/278775.htm>

<sup>28</sup> See U.S. Department of Defense, 2018, pp. xvii and 8.

<sup>29</sup> U.S. Department of State, "New Start Treaty Inspection Activities," webpage, undated. As of June 18, 2018: <https://www.state.gov/t/avc/newstart/c52405.htm>

Absent such a comprehensive solution, the current arms control regime between the United States and Russia will likely continue to fray. It seems very unlikely the Russian government, which does not acknowledge violating the INF Treaty, will change its behavior. The United States will thus be faced with a stark choice by 2021—maintain New START, which the Russians seem to be complying with, for as long as possible, despite Russian violation of the INF Treaty? Or allow New START to expire and possibly withdraw from the INF Treaty as well?

Maintaining New START will maintain valuable transparency and channels of communication, yet will *de facto* confirm to the Russians that the United States will treat each arms control issue separately. This could encourage further violations of INF and other treaties, as the Russians would believe New START would continue and that a successor treaty might even be possible in 2026. Russian leaders might even conclude the United States is so desperate for arms control that they could even violate New START in the future.

Allowing New START to expire would help disabuse Russian leaders of the idea of U.S. desperation and demonstrate that arms control violations have real consequences. Yet it would mean that for the first time in more than three decades that U.S.-Russian nuclear competition would be unrestrained. Neither side would have the clarity on the status of the other side's strategic forces that years of inspections and data exchanges have enabled.

Perhaps the key indicator will be how the Russians seek to present the two novel systems Putin revealed in March. New START includes a provision on novel systems:

When a Party believes that a new kind of strategic offensive arm is emerging, that Party shall have the right to raise the question of such a strategic offensive arm for consideration in the Bilateral Consultative Commission.<sup>30</sup>

If the Russians are willing to address these two systems at the Bilateral Consultative Commission (or other official venue) for potential inclusion in New START limitations, then extension may make sense despite Russian violation of INF and other treaties. If the Russians are unwilling to engage in productive dialogue on these novel systems, it is hard to see a future for New START or indeed arms control generally.

---

<sup>30</sup> See Article V of the New Strategic Arms Reduction Treaty, Prague, 2010. As of June 18, 2018: <https://www.state.gov/documents/organization/140035.pdf>