

Strategic Arms Control After START: Issues and Options

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Summary

The United States and Soviet Union signed the Strategic Arms Reduction Treaty (START) in 1991; it entered into force in December 1994, and is due to expire in December 2009. The United States and Russia have held several meetings to discuss options for continuing their arms control relationship, but have not agreed on whether to extend START or how to replace it. START counts each deployed ICBM, SLBM, and bomber as a single delivery vehicle under the treaty limit of 1,600 delivery vehicles and attributes an agreed number of warheads to each deployed delivery vehicle. This attribution rule provides the total number of warheads that count under the 6,000-warhead limit in the treaty. To verify compliance with START, each side monitors the numbers and locations of ballistic missiles, launchers, and heavy bombers deployed by the other country. The parties use a wide variety of means to collect information—or monitor—these forces and activities. Some of these monitoring systems, such as overhead satellites, operate outside the territories of the treaty parties. They have also been required to exchange copious amounts of data on locations, operations, and technical characteristics of the treaty-limited items. This verification regime has allowed the parties to remain confident in each other's compliance with the treaty.

The United States and Russia began to discuss their options for arms control after START expired as early as mid-2006. They have, however, been unable to agree on a path forward. Neither side wants to extend START in its current form, as some of the treaty's provisions have begun to interfere with some military programs on both sides. Russia wants to replace START with a new treaty that would further reduce deployed forces while using many of the same definitions and counting rules that are in place in START. The United States initially did not want to negotiate a new treaty, but would have been willing to informally extend some of START's monitoring provisions. It has recently agreed to conclude a new treaty, with monitoring provisions attached, but this treaty would resemble the far less formal Strategic Offensive Reductions Treaty that the two sides signed in 2002. In December 2008, the two sides agreed that they wanted to replace START before it expired, but acknowledged that this task would have to be left to negotiations between Russia and the incoming Obama Administration.

The United States and Russia could choose from a number of options for the future of their arms control relationship. They could allow START to lapse, or they could extend START for five years. They could extend START, and then amend it to ease some of the outdated provisions. They could negotiate a new treaty, or they could pur-

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sue less formal arrangements to manage their nuclear forces. Moreover, if a new treaty included further reductions in nuclear weapons, it could use some START definitions and counting rules, or the less formal Moscow Treaty declarations.

Introduction

The United States and Soviet Union signed the Strategic Arms Reduction Treaty (START) on 31 July 1991. After the demise of the Soviet Union in December 1991, the parties signed a protocol that named the four former Soviet Republics with nuclear weapons on their territory—Ukraine, Belarus, Kazakhstan, and Russia—parties to the Treaty.¹ START entered into force on 4 December 1994. The treaty was to remain in force for fifteen years, unless replaced by a subsequent agreement, and, therefore, will expire on 5 December 2009.² According to Article XVII of the treaty, the parties must meet “no later than one year” before this date to consider whether the treaty should be extended or allowed to lapse.³ If the parties agree to extend the treaty, the extension would last for five years, unless START were replaced by a subsequent agreement during that time. The United States and Russia have held several meetings to discuss the options for continuing their bilateral arms control relationship after START, but have not yet reached an agreement on whether to extend START or on how to replace it. The discussions between the two parties, along with statements from members of the U.S. Congress and others following the process, reflect not only on the specific issues that may be addressed in a possible follow-on treaty, but also on the broader question of what role (if any) arms control should play in future U.S.-Russian relations.

The Treaty contains many detailed definitions and restrictions that not only limit the number of nuclear warheads each nation is permitted to deploy but also restrain the locations and movement of delivery vehicles carrying nuclear warheads and require extensive exchanges of data about them. Many of these provisions reflect the more competitive relationship between the United States and Soviet Union that prevailed during the Cold War, and the concerns that drove their inclusion in the treaty may no longer seem as important to the U.S.-Russian relationship.

Specifically, some in the second Bush Administration and the broader foreign policy community have argued that, because the United States no longer structures its nu-

¹ The leaders in Belarus, Ukraine, and Kazakhstan agreed to eliminate all of the nuclear weapons on their territories and to sign the Nuclear Non-Proliferation Treaty (NPT) as non-nuclear weapons states. These three states have been nuclear-free since the late 1990s; all remaining Soviet-era nuclear warheads are deployed in Russia.

² The United States and Russia signed the Strategic Offensive Reductions Treaty (also known as the Moscow Treaty) on 24 May 2002. They do not, however, consider this treaty to be a successor to START. Article II of the Moscow Treaty specifically states that START remains in force. See Amy F. Woolf, *Nuclear Arms Control: The Strategic Offensive Reductions Treaty*, CRS Report RL31448 (Washington, D.C.: Congressional Research Service, 18 January 2008).

³ The parties did not need to make a decision about the future of START in December 2008; they just needed to meet to consider the question.

clear forces in response to a Russian threat, it no longer needs a treaty that restrains and reduces the weapons that make up that threat. They, therefore, question whether START, or U.S.-Russian nuclear arms control in general, remain important as tools in the political relationship between the United States and Russia.

Some U.S. critics of arms control argue that the bilateral arms control process should fade away after START expires. They note that START may have served its purpose by helping to reduce the size of the Russian arsenal after the demise of the Soviet Union and by restraining the permitted operations of the remaining forces, but its reductions have been overtaken by deeper cuts mandated by the Moscow Treaty. They also point out that the restrictions on Russian forces serve to restrict the flexibility of U.S. forces. In the current environment, the United States may be better served by maintaining its own freedom of action in deploying and operating its nuclear forces than by retaining START's or similar restraints on U.S. and Russian forces.

Others, however, argue that START remains relevant to the U.S.-Russian relationship and deserves to be either extended or replaced with a similar treaty. In this view, the predictability created by START's well-defined restrictions on Russian and U.S. nuclear forces can benefit both countries. Moreover, continuing this cooperation can help to restore some trust in the relationship between the two nations. In addition, some in Russia still feel threatened by U.S. nuclear weapons and continue to value the restraints provided by arms control treaties such as START.

Some members of the U.S. Congress have joined this debate, with several endorsing the view that extending START (and its monitoring and verification provisions) will help improve the relationship between the United States and Russia. For example, Senator Richard Lugar has stated that "the current U.S.-Russian relationship is complicated enough without introducing more elements of uncertainty. Failure to preserve the START Treaty would increase the potential for distrust between the two sides."⁴ Some also believe, as Senator Lugar has noted, that the "failure to renew START will be seen worldwide as weakening the international nuclear nonproliferation regime and [will be] a further sign to many foreign leaders and experts that U.S. nonproliferation policy is adrift."⁵

The United States Congress has limited influence on the process of seeking a replacement for START. If the United States and Russia amend START, or negotiate a new treaty to replace it, the U.S. Senate will have to provide its advice and consent before the parties ratify the treaty. However, if the two parties do not reach any agreement and START lapses, or if they choose simply to extend START for five years, according to the provision in Article XVII, the Senate would not have to approve or reject the outcome. Nevertheless, Congress can, through resolutions, hearings, and consultations, offer the administration its views on the future of START and the U.S.-Russian arms control regime.

⁴ Richard Lugar, speech at conference on "Defense against Weapons of Mass Destruction," Chantilly, VA (30 January 2008).

⁵ Richard Lugar, "Trust Still Needs Verification," *Washington Times* (18 July 2008): 24.

This article provides background information about START and reviews the discussions about a possible successor to the treaty. It also presents a range of alternatives that the United States and Russia might consider if they choose to follow START with a new framework for the arms control process.

The Strategic Arms Reduction Treaty

Key Limits

START limits long-range nuclear-capable delivery systems—land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (Slims), and heavy bombers—in the United States and the four states of the former Soviet Union. The treaty limits both the number of delivery systems and the number of warheads that can be carried on these systems. As Table 1 below indicates, each side can deploy 6,000 “attributed” warheads on no more than 1,600 ballistic missiles and heavy bombers, with no more than 4,900 attributed warheads on land-based and submarine-based ballistic missiles.

Table 1: Central Limits in START⁶

Deployed Strategic Nuclear Delivery Vehicles	1,600
<i>Heavy ICBMs</i>	154
Accountable Warheads on Deployed Delivery Vehicles	6,000
<i>Ballistic Missile Warheads</i>	4,900
<i>Warheads on Heavy ICBMs</i>	1,540
<i>Warheads on Mobile ICBMs</i>	1,100
Total Ballistic Missile Throwweight	3,600 metric tons ⁷

Within the aggregate limits on ballistic missile warheads, START also limits each side to no more than 1,540 warheads on heavy ICBMs, which are defined as those with a throwweight greater than 4,350 kg, and 1,100 warheads on mobile ICBMs. These two limits are an added effort to restrain forces that the United States feared would provide the Soviet Union with an avenue to exceed the warhead limit. The United States had long sought to use the arms control process to limit (or eliminate) the Soviet monopoly on heavy ICBMs, because it believed that the Soviet Union could expand the capabilities of these missiles by deploying them with more warheads or higher yield. The United States did not have any ballistic missiles of this size, and had no plans to develop or deploy them. The Soviet Union initially resisted U.S. pressures to

⁶ From the full text of the treaty and its many annexes, which is available at the U.S. State Department website: www.state.gov/t/ac/trt/18535.htm.

⁷ This is around 54 percent of the throwweight deployed on Soviet missiles when the treaty was signed.

limit these missiles, but eventually agreed under START to halve their force of 304 SS-18 ICBMs, each of which was deployed with ten warheads.

As the START negotiations proceeded through the 1980s, the United States also grew concerned about the Soviet deployment of ballistic missiles on mobile launchers. The Soviet Union had begun to deploy single-warhead SS-25 missiles on road-mobile launchers and ten-warhead SS-24 missiles on rail-mobile launchers. The United States considered these missiles both a military and an arms control problem. Because the United States did not think it could locate and track these missiles all the time, it believed it would be difficult to target them during a conflict. Moreover, because the Soviet Union had large land areas where it could operate and conceal these missiles, U.S. negotiators argued that the United States would not be able to monitor mobile ICBM deployments well enough to count the missiles and verify Soviet compliance with the limits in START.

The United States initially proposed that START ban mobile ICBMs, even though it was considering the possible use of mobile launchers for its new ten-warhead Peacekeeper (MX) ICBM and for a prospective small, single-warhead ICBM. But after the United States and Soviet Union began to consider options for a monitoring and verification regime that might track the numbers of mobile ICBMs, they agreed to limit, rather than ban, these systems. The limited numbers—when combined with location restrictions, notifications prior to movement, data exchanges that identified the numbers of missiles and warheads based at approved locations, and a continuous monitoring regime outside the final assembly facility for one type of mobile ICBM—would help each side count the number of acknowledged mobile ICBMs and complicate efforts to conceal extra missiles or warheads. Even though the United States eventually dropped its plans to deploy mobile ICBMs, it agreed to apply these limits and restrictions to the Peacekeeper (MX) missiles that were deployed in silos.

START also limits the total amount of throwweight on each side's ballistic missiles, to an amount equal to around 54 percent of the amount of throwweight deployed on Soviet missiles before the treaty entered into force. Throwweight is the combined weight of the post-boost vehicle, warheads, guidance system, penetration aids, and other equipment found on the front end of a missile. It is considered to be a measure of a missile's destructive capacity because larger missiles with greater throwweight can carry larger or greater numbers of warheads. Hence, this limit was a further effort by the United States to limit the potential for the Soviet Union to add warheads to its missiles in violation of the treaty's limits. Because the Soviet forces that were deployed when START was signed carried more than three times as much throwweight as U.S. missiles, the United States did not have to reduce its forces to comply with this limit. However, the United States could have exceeded the limit on throwweight if it had deployed new, larger missiles while START remained in force.

Counting Rules

START counts each deployed ICBM and its associated launcher, each deployed SLBM and its associated launcher, and each deployed heavy bomber as a single delivery vehicle under the treaty limit of 1,600 delivery vehicles. They count regardless of

whether they are equipped with nuclear or conventional warheads. They also continue to count under the treaty limits until the launchers or bombers are eliminated according to the treaty's detailed elimination procedures.

For example, a bomber (such as the U.S. B-1 bomber) that has been converted to carry conventional weapons continues to count under the treaty limits. Moreover, an empty missile launcher, either on land or on a ballistic missile submarine, continues to count as if it still held a missile and the missile still carried the attributed number of warheads, even if the missile system is deactivated or the launcher has been converted to another purpose.

The number of warheads *attributed* to each type of missile or bomber is listed in an agreed database.⁸ For the most part, the number of warheads attributed to each type of missile equals the maximum number of warheads that the missile had been tested with and could be equipped to carry when the treaty entered into force. In some cases, however—such as for the U.S. Trident II (D-5) missile—the number of warheads attributed to the missile (eight) fell below the maximum number the missile could carry (twelve). The Soviet SS-18 missile had also been tested with twelve or fourteen warheads, but the database counted it as carrying only ten. The parties adopted this formula of counting delivery vehicles and attributing warheads to each type of delivery vehicle because, although they sought to reduce warheads, they could not monitor the actual numbers of warheads deployed on the delivery vehicles. They could, however, identify and count the large delivery vehicles with their monitoring systems.

The number of warheads attributed to heavy bombers falls far below the maximum number that could be carried on those aircraft. Heavy bombers that are not equipped to carry long-range nuclear-armed air-launched cruise missiles (ALCMs)⁹—such as the U.S. B-1 and B-2 bombers—count as only one warhead under the START limits. This number applies even though these bombers can carry at least sixteen bombs and short-range missiles. Further, heavy bombers that are equipped to carry ALCMs count as half of the maximum number of weapons they are permitted to carry. START states that U.S. bombers can be equipped to carry up to twenty ALCMs, but they only count as ten warheads under the treaty limit of 6,000 warheads. Russian bombers can be equipped to carry up to sixteen ALCMs, and count as only eight warheads under the treaty limit.

START allows the United States and Soviet Union to reduce the number of warheads attributed to a particular type of ballistic missile through a process known as “downloading.” According to the treaty, each party can reduce the “attributed number” listed in the database for up to three types of missiles. If they do this, they must then reduce the number of warheads carried on each missile, and if the number declines by

⁸ The most recent data base exchanged among the parties to the treaty can be found at U.S. State Department, Bureau of Verification, Compliance, and Implementation, “START Aggregate Numbers of Strategic Offensive Arms;” available at www.state.gov/t/vci/rls/prsr/2008/110337.htm.

⁹ Long-range nuclear-armed air-launched cruise missiles are those with a range of more than 600 kilometers.

more than two warheads, they must replace the platform on the missile that holds the warheads, so that it does not have space for the larger number of missiles.

This “downloading” process would allow each country to spread its 4,900 ballistic missile warheads among a greater number of missiles. The countries use short-notice onsite inspections to confirm that the number of warheads actually deployed on a particular missile does not exceed the number of warheads attributed to that type of missile in the database. The United States has taken advantage of this provision with its Minuteman III and Trident II missiles.

Existing types of missiles cannot be deployed with more warheads than the number attributed to that type of missile in the database. The number in the database could only increase if the missile were altered to meet the definition of a “new type” of missile. START bans new types of heavy ICBMs. For smaller missiles, it contains an elaborate definition that is designed to allow the parties to distinguish between modified versions of existing ballistic missiles, which would be subject to the warhead attribution numbers already in the database, and new types, which would receive a new warhead attribution number. During the negotiations, the parties agreed that the definition would reflect changes in missile characteristics—such as the propellant used, the number of stages, its length and diameter, and its throwweight—but they differed on the magnitude of the changes that would define a “new type” of missile. The United States feared that, with smaller changes, the Soviet Union would be able to have a missile that was virtually identical to an existing missile declared a new type with a greater number of warheads, and then might secretly retrofit the older version with more warheads as well. This was one of the last issues resolved in the START negotiations.¹⁰

Collateral Constraints

START contains detailed definitions of the specific items and activities limited by the treaty. The parties have also been required to exchange copious amounts of detailed data on the technical characteristics of the treaty-limited items. The treaty mandates that the parties locate all strategic forces limited by the agreement at “declared facilities,” which include production, assembly, testing, storage, maintenance, deployment, and elimination facilities. It outlines detailed notifications that must be provided and procedures that must be followed when items move from one location to another. It further defines detailed procedures that the countries must follow when they eliminate weapons limited by the treaty, or close down facilities that had once housed these items. Designed to reduce ambiguities and minimize the opportunities for dispute,

¹⁰ The Soviet Union suggested that a 15 percent change in throwweight would be enough to distinguish a new type of missile, while the United States wanted a throwweight change of 30 percent and a change in one other missile characteristic. They eventually agreed to essentially split their differences and defined a new type of missile as one with a 21 percent change in throwweight and at least a 5 percent change in the length of the first stage. This would mean that new types of missiles would have to be significantly different from existing types.

these details provide the foundation for the treaty's verification regime by drawing sharp distinctions between permitted and prohibited forces and activities.

Monitoring and Verification

Verification is the process that one country uses to assess whether another country is complying with an arms control agreement. To verify compliance, a country must determine whether the forces and activities of another country are within the bounds established by the limits and obligations set forth in the agreement. Treaty language forms the core of the verification regime: it describes the limits and obligations the countries must observe and allows them to identify the forces and activities that comply with the terms of the treaty. The identification of compliant activities also helps a country focus on what it should look for when it collects information about the other country's forces and activities. No verification regime can ensure the detection of all violations, but the START regime is designed to ensure that parties would have a high probability of detecting militarily significant violations.

The parties to a treaty use a wide variety of means to collect information on (or monitor) the forces and activities of the other parties. Some of these monitoring systems, such as overhead satellites, operate outside the territories of the treaty parties. But the parties can also cooperate in providing information by exchanging data, displaying treaty-limited items, and allowing onsite inspections. Once they have collected this information, the parties analyze and refine the raw data to help develop a meaningful picture of each other's forces and activities. They then evaluate the results of the monitoring process, compare the observed forces and activities with the expected forces and activities, and determine whether the other party has complied with its obligations under the terms of the treaty.

To verify compliance with START, each side monitors the numbers and locations of ballistic missiles, launchers, and heavy bombers deployed by the other country. To achieve this goal, the countries have had to:

- Establish the number and location of deployed and stored ballistic missiles and deployed bombers when the treaty entered into force
- Confirm the technical characteristics of existing types of weapons and establish the measurements for new types of weapons
- Add the number of ballistic missiles and heavy bombers deployed after the treaty entered into force
- Subtract the number of ballistic missiles and heavy bombers eliminated, according to treaty rules, during the life of the treaty
- Track treaty-limited items when they move between declared facilities
- Monitor the armaments on permitted systems, to confirm that missiles and bombers are deployed with the numbers and types of warheads permitted by the START database
- Monitor ballistic missile flight tests to determine the characteristics of different types of ballistic missiles.

START contains a complex verification regime that is designed to allow the parties to achieve these objectives. Both sides use their own satellites and remote sensing equipment—their National Technical Means of Verification (NTM)—to gather the vast majority of the information each needs to monitor the other country's forces and activities and to determine whether the other country has complied with the limits in START. But the treaty also contains a number of specific verification provisions that are designed to help the parties gather and confirm the needed information. For example, it bans measures that would interfere with the parties' ability to collect information with their NTM, and requires that they use data exchanges, notifications, and onsite inspections to gather information about forces and activities limited by the treaty. These measures do not replace monitoring with NTM, but they can add detail to information collected by NTM, enhance a country's confidence in the meaning and reliability of the information, and help deter violations. The treaty also established the Joint Compliance and Inspection Commission (JCIC), where the parties meet to discuss treaty implementation issues and compliance questions.

Access Measures. START contains several verification measures that allow the countries' NTM to gain access to information about the other country's treaty-limited forces. These measures include a ban on interference with NTM—for example, the parties cannot interfere with the launch or operation of the other side's satellites—and a requirement that they broadcast telemetry (the technical data generated during missile flight tests) over open channels. START also bans efforts to conceal forces and activities from NTM and mandates that the parties display treaty-limited items under certain circumstances, so that NTM can confirm their locations and some characteristics.

The ban on data denial during missile flight tests was a particularly important feature of START for the United States. Each nation transmits data, known as telemetry, during its flight tests of ballistic missiles. Even before START came into effect, each nation monitored the other's missile flight tests to gain information about characteristics such as missile throwweight, launch weight, and the number of reentry vehicle releases tested during the flight. The nations could deny each other access to this data by encrypting it and transmitting it in coded form, recording it during the flight and storing it aboard the missile for recovery after the test, or by jamming and otherwise interfering with the other side's receiving instruments. Because the United States believed that this information would be critical to its efforts to monitor Soviet compliance with START, it insisted that the treaty contain a complete ban on the denial of data generated during flight tests. Not only must the parties broadcast unencrypted data during the tests, they also agreed to exchange the tapes of data recorded during the flight tests.

Information Exchanges. START mandates that the parties exchange detailed information about the numbers, locations, and characteristics of treaty-limited ballistic missiles and heavy bombers. For the most part, this information confirms data that each country collects with its own NTM. It can provide additional details and help the countries interpret ambiguous or incomplete data. The countries have also had to notify each other when they move ballistic missiles or bombers that are limited by the treaty. These noti-

fications help each country monitor the locations of the other side's permitted systems and detect the possible presence of excess or illegal systems.

Onsite Inspections. Under START, the United States and Russia have conducted several different types of onsite inspections. They use these inspections to collect information about permitted systems and activities at declared facilities, but they are not permitted to go "anywhere, anytime" in search of treaty violations. These inspections may not provide much new information that is needed to verify compliance with the treaty, but they can confirm and add detail to information collected by NTM and data exchanges. Further, with the short notice available before many of these inspections, a country would find it difficult to hide evidence of a violation at a declared facility.

START has permitted inspections at all the declared facilities that produce, house, and support ballistic missiles and heavy bombers. The countries use these inspections to confirm information about the number of systems located at each facility. They have also viewed treaty-limited items to confirm information about their characteristics. For example, they can use short-notice inspections to confirm that the number of warheads on a missile does not exceed the number attributed to that type of missile in the database. Each country has also established permanent monitoring systems around a final assembly facility for one of the other country's mobile ICBMs to help them count mobile ICBMs as they are deployed.

Each of the inspections permitted by START is governed by complex and detailed procedures that address everything about the inspection process. These procedures outline (among other things) the airports the inspectors can use when they arrive in the country, the amount of notice they need to give before the start of an inspection, the amount of time the host country has to transport the inspectors to the selected site, the types of equipment the inspectors can use, the amount of time that can transpire during the inspection, and the procedures the inspectors and hosts would use to resolve questions that came up during the visit. These procedures and rules are designed to outline the rights and responsibilities of both parties, and minimize any potential conflict that might occur during inspections, but they also can create conflicts of their own if questions about procedures come up during the process. Most analysts agree, however, that the START inspection process has had few significant problems over the years.

Synergy in Monitoring and Verification. Each verification provision in START is designed to provide the parties with a distinct source of information about the forces and activities of the other side. They also mesh together in a way that is designed to deter violations and increase confidence in the parties' compliance with the treaty. For example, much of the data collected during onsite inspections can also be collected by NTM or shared during data exchanges. The inspections essentially confirm expected information. Nevertheless, this redundancy can detect inconsistencies and thereby complicate efforts to conceal information and evade treaty limits. For example, if one party did not notify the other before it moved a treaty-limited item to a different facility, but the other party's NTM detected the movement, the inconsistency might raise questions about whether the first party was trying to hide or conceal an item limited by

the treaty. Over time, the START regime has also allowed the parties to collect information that may not be central to the goals of the treaty but could still add to their understanding of the forces and operations of the other side. Many of the treaty's supporters argue that this adds confidence and predictability to assessments of the other side's strategic forces.

START Implementation

In September 1990, before START entered into force, the United States had more than 10,500 accountable warheads deployed on nearly 2,250 delivery vehicles.¹¹ By mid-2008, this number had declined to 5,941 accountable warheads on 1,214 delivery vehicles.¹² Soviet forces had declined from more than 10,000 accountable warheads on 2,500 delivery vehicles in September 1990 to 4,138 accountable warheads on 839 delivery vehicles in mid-2008. All the nuclear warheads from the SS-18 ICBMs and heavy bombers in Kazakhstan had been returned to Russia by May 1995. All Soviet-era nuclear weapons had been removed from Ukraine's territory by June 1996, and all eighty-one SS-25 mobile ICBMs had been moved from Belarus to Russia by late November 1996. Ukraine has eliminated all the ICBM silos and heavy bombers that were deployed on its territory. All the parties have also participated in the onsite inspections permitted under the treaty. They continue to meet, twice each year, in the JCIC. While both the United States and Russia have raised some questions about compliance with the treaty, both agree that there have been few significant compliance disputes.

The Strategic Offensive Reductions Treaty¹³

In 2001, during its first year in office, the second Bush Administration conducted a Nuclear Posture Review to evaluate the size, structure, and role of the U.S. nuclear arsenal. As a part of that review, the administration determined that the United States could reduce its strategic forces to between 1,700 and 2,000 "operationally deployed nuclear warheads." During a summit meeting with Russia's President Vladimir Putin in November 2001, President George W. Bush announced that the United States would pursue these reductions unilaterally in the next decade, without signing a formal arms control agreement. President Putin indicated that Russia wanted to use the formal arms control process to achieve deeper reductions in nuclear arsenals, and emphasized that the two sides should focus on "reaching a reliable and verifiable agreement."¹⁴

¹¹ U.S. Arms Control and Disarmament Agency Archives, "START Data Base," exchanged 1 September 1990.

¹² U.S. Department of State, Bureau of Verification, Compliance, and Implementation, "Fact Sheet: START Aggregate Numbers of Strategic Offensive Weapons," 1 October 2008.

¹³ The text of this treaty can be found at U.S. Department of State, Bureau of Verification, Compliance, and Implementation, Treaties and Agreements section; available at www.state.gov/t/ac/trt/10527.htm.

¹⁴ The White House, Office of the Press Secretary, "Press Conference: President Bush and President Putin Discuss New Relationship," 13 November 2001.

Within the Bush Administration, Secretary of State Colin Powell supported the conclusion of a “legally binding” arms control agreement. He apparently prevailed over the objections of officials in the Pentagon, who reportedly wanted the United States to maintain the flexibility to size and structure its nuclear forces in response to its own needs.¹⁵ Consequently, the United States and Russia signed the Strategic Offensive Reductions Treaty (also known as the Moscow Treaty) on 24 May 2002. It received the advice and consent of the U.S. Senate on 6 March 2003 and the approval of the Russian Parliament on 14 May 2003; it entered into force on 1 June 2003.

The Moscow Treaty states that the United States and Russia will reduce their “strategic nuclear warheads” to between 1,700 and 2,200 warheads by 31 December 2012.¹⁶ The text does not define “strategic nuclear warheads” and, therefore, does not indicate whether the parties will count only those warheads that are “operationally deployed,” all warheads that would count under the START counting rules, or some other quantity. The text does refer to statements made by Presidents Bush and Putin in November and December 2001, when each outlined their own reduction plans. As a result, the United States and Russia each use their own definition when counting strategic nuclear warheads, and neither uses the START counting rules. The Moscow Treaty does not limit delivery vehicles or impose sublimit on specific types of weapons systems. Each party shall determine its own “composition and structure of its strategic offensive arms.” In addition, the treaty does not contain any definitions or descriptions of the types missiles and bombers whose warheads count under the treaty limits. In addition, the treaty does not contain any monitoring or verification provisions.

During the hearings on the resolution of ratification, the Bush Administration noted that the United States and Russia already collect information about strategic nuclear forces under the START limits as well as through the implementation of the Nunn-Lugar Cooperative Threat Reduction Program. At the time, some in Congress questioned whether this information would be sufficient for the duration of the Moscow Treaty, since START expires three years ahead of the later treaty.¹⁷ This discontinuity is one of the primary reasons why many analysts and members of Congress believe the two sides should at least extend the monitoring and verification provisions in START through the end of the Moscow Treaty.

Preparing for START Expiration

U.S.-Russian Discussions

In September 2006, U.S. Undersecretary of State Robert Joseph and Russian Deputy Foreign Minister Sergei Kislyak met to initiate a new strategic security dialogue. This

¹⁵ Jonathan S. Landay, “Rumsfeld Reportedly Resists Firm Limits on Nuclear Arms,” *San Jose Mercury News* (27 April 2002).

¹⁶ See Amy F. Woolf, *Nuclear Arms Control: The Strategic Offensive Reductions Treaty*, CRS Report RL31448.

¹⁷ For details, see U.S. Senate Committee on Foreign Relations, Hearing on the Treaty on Strategic Offensive Reductions, Testimony of Secretary of State Colin Powell, 9 July 2002.

dialogue evolved into a series of meetings that addressed a range of issues; START was included, but was not high on the agenda of the meetings. During the first meeting, and at a second one in December 2006, the two sides outlined their goals for the talks. Russia indicated that it wanted to follow START with a new formal treaty that would be “similar in size and complexity to START” and would use many of the same definitions and counting rules as START. Russia also suggested that the two sides establish a regular working group, with meetings chaired at the Assistant Secretary level, to work out the details of this new treaty. According to a Bush Administration official, the United States had “no appetite for those big, giant documents that try to script every single element of strategic forces.”¹⁸

The Bush Administration emphasized that the United States and Russia no longer needed arms control agreements to manage their strategic relationship. The United States also did not want to set up a working group or negotiate a new treaty to follow START, and preferred to pursue broader “strategic discussions” within a political framework.¹⁹

In spite of their differences, the United States and Russia agreed that they should continue to implement some of the monitoring and verification provisions in START after the treaty expired. Russia proposed that they include these verification provisions in a new, legally binding treaty that would also limit the number of warheads permitted on each side. According to one Russian official, these measures would have to be a part of a legally binding agreement to be permitted by domestic Russian law.²⁰ The United States, however, argued for a less formal arrangement of transparency and confidence-building measures. These could include voluntary notifications and site visits, but would not contain the detailed procedures and provisions included in START.²¹

Although Undersecretary of State Joseph initially rejected the idea, the two sides did hold a series of meetings chaired at the Assistant Secretary level to pursue a possible monitoring and verification agreement. They continued to disagree, however, on whether the verification measures should be voluntary or legally binding, and whether they should be attached to a formal treaty that would also limit the numbers of deployed warheads.

In addition to the periodic meetings at the Undersecretary level (Joseph/Kislyak, then Rood/Kislyak) and the working group meetings at the Assistant Secretary level, the United States and Russia held several high-level meetings that addressed the future of U.S.-Russian arms control. For example, Secretary of State Condoleezza Rice met with Russia’s Foreign Minister Sergey Lavrov in July 2007. Their formal statement after the meeting stated that “the United States and Russia reiterate their intention to

¹⁸ Sebastian Sprenger, “Nations to Kick off Initiative against Nuclear Terrorism Next Week: Separate U.S.-Russian Meeting on START Expected,” *Inside the Pentagon* (26 October 2006).

¹⁹ Nicholas Kralev, “Russia, U.S. to Discuss START,” *Washington Times* (6 March 2007): 1.

²⁰ Wade Boese, “U.S., Russia Exploring Post-START Options,” *Arms Control Today* (May 2007).

²¹ Kralev, “Russia, U.S. to Discuss START.”

carry out strategic offensive reductions to the lowest possible level consistent with their national security requirements and alliance commitments.” It added that the “ministers discussed development of a post-START arrangement to provide continuity and predictability regarding strategic offensive forces.”²² But the United States still did not accept Russia’s proposal to pursue a formal treaty.

The U.S. position began to shift later in 2007. Secretary Rice and Secretary of Defense Robert Gates held joint meetings in Moscow with their counterparts in October, and concluded that, although the United States was still seeking something “far less formal than a major treaty,” it might accept, according to Secretary Gates, “a binding agreement” preserving some of START, as long as it was “narrowly focused.”²³ Nevertheless, the United States continued to reject a formal treaty that would limit the number of nuclear weapons. When Secretary Gates and Secretary Rice traveled to Moscow to discuss START again in March 2008, Secretary Rice argued that the current U.S.-Russian relationship does not require “the kind of highly articulated, expensive limitations and verification procedures that attended the strategic arms relationship with the Soviet Union.”²⁴ Russian officials, however, continued to reject the U.S. proposals for an “informal notification” regime.

Presidents Bush and Putin failed to break this stalemate when they met in Sochi, Russia in April 2008. Although they signed a new Strategic Framework that contained a pledge to enact nuclear weapons reductions “to the lowest possible level consistent with our national security requirements and alliance commitments,” they failed to agree on a way forward in their arms control relationship. Russia still wanted to negotiate a treaty based on the START framework, while the United States was only willing to codify some verification measures.²⁵

The talks continued through the spring and summer of 2008, although according to some news reports they were “irregular and unproductive.”²⁶ Some reports suggested that the United States might suspend the talks in response to the Russian incursion into Georgia in August 2008, but both sides agreed the talks were important enough to continue in September and October.²⁷ Nevertheless, the two sides remained far apart. Russia was unwilling to recede from its call for a formal treaty with detailed definitions and counting rules, while the United States still preferred a less formal agreement that

²² U.S. Department of State, Office of the Spokesman, “Joint Statement by U.S. Secretary of State Condoleezza Rice and Minister for Foreign Affairs of the Russian Federation Sergey Lavrov,” 3 July 2007.

²³ Ken Fireman, “Gates, Rice Made Last-Minute Offer of New Arms Ideas in Moscow,” *Bloomberg News* (13 October 2007).

²⁴ Wade Boese, “U.S., Russia at Odds on Key Arms Issues,” *Arms Control Today* (April 2008).

²⁵ Wade Boese, “Bush, Putin Leave Arms Disputes Unsettled,” *Arms Control Today* (May 2008).

²⁶ Wade Boese, “Russia Wants Limits on Prompt Global Strike,” *Arms Control Today* (June 2008).

²⁷ Wade Boese, “U.S.-Russian Strategic Dialogue in Limbo,” *Arms Control Today* (October 2008).

called for transparency and confidence-building measures. The United States did, however, recognize that Russia would not permit onsite visits without a formal treaty, so Washington proposed in October 2008 that the two sides attach an informal transparency regime to a legally binding treaty that essentially reiterated the limits and declarations outlined in the Moscow Treaty. Russia rejected this proposal. In a speech delivered on 10 October 2008, Russian President Dmitry Medvedev said that Russia attaches “exceptional importance to concluding a new, legally binding Russian-American agreement on nuclear disarmament” to replace START. He further noted that “what we need is a treaty and not a declaration,” which is a reference to the format used in the Moscow Treaty.²⁸

The United States and Russia—along with representatives from Ukraine, Belarus, and Kazakhstan—met in the JCIC from 13–21 November 2008. This forum provided the venue for the formal meeting, mandated by START, where the parties considered whether to extend the Treaty.²⁹ They did not reach any agreements during this meeting, other than to note that they were leaving the options open for the incoming Obama Administration. The United States and Russia held one final meeting in their series of strategic security discussions on 15 December 2008, where bilateral arms control was one of many issues on the agenda.³⁰ They held extensive discussions about the U.S. draft treaty, but they failed to reach agreement on any of the outstanding issues.

Neither the United States nor Russia believes the two parties should extend the START agreement. Neither wants to continue to implement all the monitoring and verification provisions included in START; the lengthy and highly detailed lists of procedures and requirements have proven costly and complicated. In some cases, these details were designed to address concerns about the potential for cheating and evasion that no longer exist in the current environment. Moreover, as is noted below, some of the limits and restrictions have begun to interfere with ongoing weapons programs for both nations. A simple extension of START would not reduce these pressures and, unless the parties could agree on a new treaty, could remain in force for five years.

Russian Proposals for Revision

In a speech to Russian diplomats in June 2006, then-President Vladimir Putin proposed that the United States and Russia begin negotiations to replace START with a new treaty.³¹ Since then, Russia has consistently and repeatedly insisted that the two sides replace START with a treaty that would not only reduce each side’s strategic offensive

²⁸ Wade Boese, “Bush Administration Sets Russian Arms Talks,” *Arms Control Today* (October 2008).

²⁹ U.S. Department of State, Bureau of Verification, Compliance, and Implementation, “Fact Sheet: Statement by the United States Representative to the Joint Compliance and Inspection Commission for the Strategic Arms Reduction Treaty,” 21 November 2008.

³⁰ U.S. Department of State, Office of the Spokesman, “Media Note: Acting Under Secretary for Arms Control and International Security John C. Rood to Travel to Moscow for Bilateral Strategic Security Dialogue Talks,” 12 December 2008.

³¹ Wade Boese, “Russia Seeks New Nuclear Accord,” *Arms Control Today* (September 2006).

forces to 1,500 warheads, but also would count the warheads on all deployed delivery vehicles, as START has done.³² Such an agreement would maintain the predictability and the stability afforded by START, an outcome that would not be possible in the absence of a detailed, legally binding treaty.³³ The new treaty would not need to keep all the provisions of START, but should preserve “the main systematic structure of the agreement,” including limitations on delivery vehicles and warhead deployments.³⁴

Reports indicate that Russia would like the new treaty to relax START’s requirements for new types of ballistic missiles. As was noted above, START contains a precise definition of the changes needed to have a new missile counted as a “new type.” These provisions were designed to prevent Russia from deploying its SS-25 missile with more than one warhead. But Russia has developed the RS-24 missile, a new variant of its single-warhead SS-27 missile, which is itself a variant of the SS-25, and it plans to deploy this new system with three warheads on each missile.³⁵ Because the missile does not satisfy the treaty’s “new types” definition, it would be limited to a single warhead under START, and a three-warhead version would violate the treaty. This missile had its third successful test launch in late November 2008, and recent press reports indicate that Russia now plans to deploy this missile in December 2009, as soon as START expires. Russian officials have indicated that this missile is critical to the future of Russia’s strategic forces, not only because it can carry up to three warheads, but also because it will incorporate technologies that would allow it to penetrate U.S. ballistic missile defenses.³⁶

According to some reports, Russia would also like the new treaty to ease some of the restrictions that START imposes on mobile ICBMs.³⁷ Although these restrictions were intended to apply to both parties, the United States has never been affected by them because it never deployed mobile ICBMs. These provisions—including limits on the size of deployment areas, notifications about exercises, and the rights to special on-site inspections after the missiles have dispersed for exercises—were designed to complicate any effort to hide extra missiles within the legal deployments of mobile ICBMs.

³² Wade Boese, “Arms Issues Divide U.S. and Russia,” *Arms Control Today* (September 2007).

³³ Nikolai Sokov, “START I Replacement: The End of Cold War Disarmament,” *PONARS Policy Memo No. 418* (Monterey, CA: Monterey Institute of International Studies, December 2006).

³⁴ Arms Control Association, “Interview with Sergey Kislyak, Russian Ambassador to the United States,” December 2008; available at http://www.armscontrol.org/act/2008_12/KislyakInterview.

³⁵ Pavel Podvig, “Why START Is Important,” *Bulletin of the Atomic Scientists* (3 July 2007).

³⁶ “Russia to Deploy Missile to Counter U.S. Missile Shield Next Year,” *London Daily Telegraph* (29 November 2008).

³⁷ Anatoli Diakov and Eugene Miasnikov, “ReSTART: The Need for a New U.S.-Russian Strategic Arms Agreement,” *Arms Control Today* (September 2006).

But they also impinge on the operations of the permitted missiles and add to the costs of operating the systems.³⁸

Over the years, Russia has also expressed concerns about the U.S. ability to add warheads to its missiles quickly by restoring warheads that had been removed under START's downloading provisions. It may insist that a new treaty require the United States to replace the platform on all downloaded missiles, instead of just those that have had more than two warheads removed.³⁹

Russia would like to retain some of START's monitoring and verification provisions, although it would like to make them less costly and cumbersome. For example, the two sides could reduce the numbers of short-notice inspections permitted each year, and replace these inspections with less formal "visits." The parties could also reduce the number of mandatory notifications, which were intended to help each side monitor the numbers and locations of treaty-limited items, and replace them with routine, periodic data exchanges.⁴⁰

U.S. Proposals for Revisions

When U.S. and Russian talks on the future of START began in 2006, the United States expected START to expire and the parties to pursue their own priorities for modernizing and modifying their nuclear forces. However, the participants in the U.S. government were divided on the question of whether to extend START's monitoring provisions. According to some reports, U.S. officials believed the two sides should evaluate whether they even needed to continue to implement these provisions because, even without START, the amount of military cooperation and transparency between them had increased over the years.⁴¹ They further argued that the inspections regime had become too costly and cumbersome for the United States and could interfere with military operations, without providing certain knowledge about Russia's nuclear forces. Moreover, in the new security environment, the United States no longer needs detailed information about Russian forces; it just needs to understand the general trends and pending changes in force size and structure. Therefore, according to this argument, the two sides need at most an informal system with less structured visits and looser inspections.

Others argued that the START regime provides valuable information about Russian forces that is not available elsewhere, while also helping to build confidence and coop-

³⁸ Nikolai Sokov, "Review of Disarmament Issues in U.S.–Russian Relations," James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies (November 2007).

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ David Francis, "Arms Expert Calls for START Verification Extension," *Global Security Newswire* (8 November 2005).

eration between the two sides.⁴² Furthermore, reports indicate that officials in the U.S. intelligence community have argued that, without START's cooperative monitoring provisions, it will not be able to assess with any degree of confidence Russia's compliance with the limits in the Moscow Treaty.⁴³

While the United States has not identified any of the central limits in START that impinge on its current plans and programs, some officials have expressed concerns that an extension of these provisions (or their inclusion in a new treaty) could affect future plans, such as the possible deployment of conventional warheads on ballistic missiles and the potential deployment of these conventional missiles at sites that are not listed in the treaty.⁴⁴ This concern has emerged as a major roadblock in the recent U.S.-Russian discussions about what type of treaty should follow START.⁴⁵ Russia has insisted that the new treaty count the warheads that could be deployed on *all* strategic delivery vehicles, as START did, in part to capture the warheads that could be carried on missiles converted to carry conventional weapons. It wants to count these warheads to limit the United States' ability to break out of the treaty by converting the missiles back to nuclear warheads.⁴⁶ The United States, however, does not want the warheads that could be carried on these missiles to count under the treaty because it does not want any limits on conventional warheads or any forced trade-offs between numbers of nuclear and conventional warheads.

U.S. officials have also expressed concerns about some of START's monitoring and verification provisions. For example, the U.S. Navy has indicated that Russian requests for re-entry vehicle inspections on U.S. ballistic missile submarines can interfere with the scheduled maintenance and operations of the submarines, because the navy must bring the submarine into port and the missile into a handling facility on the base. The treaty's limits on the number of warheads that can be removed (or downloaded) from Trident submarines might also interfere with the navy's deployment plans for the future, particularly if the United States chooses to remove more warheads from Trident missiles as it continues to reduce the overall number of strategic warheads in its arsenal.

Some in the U.S. government have also argued that START's provisions requiring the exchange of telemetry data during flight tests of ballistic missiles will interfere with

⁴² Carol Giacomo, "U.S. to Let START Nuclear Treaty Expire," *Reuters* (22 May 2007); see also Jonathan S. Landay, "Dispute Delays Arms Control Talks with Moscow," *McClatchy Newspapers Washington Bureau* (18 June 2007).

⁴³ Wade Boese, "News Analysis: The Bush Administration and Verification," *Arms Control Today* (April 2005).

⁴⁴ Phil Gardner, Michael George, Vera Lev, and Sandra McMahon, *Extension of the START Treaty? An SAIC Emerging Issues Project* (December 2005).

⁴⁵ Walter Pincus, "U.S., Russia Split over Scope of Arms Treaty Follow-up but Concur on Goal, Negotiator Says," *Washington Post* (22 December 2008): 19.

⁴⁶ "Russia Concerned by U.S. Position on START, Deputy Foreign Minister Says," *Interfax News Agency* (19 December 2008).

U.S. military plans and programs.⁴⁷ In particular, the United States uses retired Minuteman II ICBMs as target vehicles during tests of its missile defense capabilities. Because these missiles are still limited by the START provisions, the United States must provide Russia with all the telemetry generated during these flights. Yet the data from these tests may reveal information not only about the Minuteman II ICBMs but also about the goals of the flight test and the characteristics of the missile defense interceptors. This concern has been a key issue in discussions about whether (and how) the United States and Russia should extend some of START's monitoring provisions.

The Bush Administration eventually proposed that the two sides replace START with a short, legally binding treaty similar to the Moscow Treaty and a longer, non-binding appendix on transparency and cooperation. This transparency regime would be far less detailed and complex than START. It would allow for informal visits, without the detailed plans and notifications required by START, and probably would relax the telemetry provisions, or at least exempt Minuteman II flights during missile defense tests from the requirement to broadcast and exchange telemetry. Moreover, as is noted above, the legally binding portion of the U.S. proposal would not contain any of the detailed definitions and counting rules of START; the parties would declare their numbers of deployed warheads, as they do under the Moscow Treaty.

Options for the Future

Many expect the Obama Administration to review the U.S. position on the future of START and the U.S.-Russian arms control process. In response to questions posed by the Arms Control Association, then-candidate Barack Obama stated that he would "seek Russia's agreement to extend essential monitoring and verification provisions of START before it expires." He also said that he would seek "real, verifiable reductions in all U.S. and Russian nuclear weapons—whether deployed or no deployed, whether strategic or nonstrategic...."⁴⁸ His transition team has since reaffirmed these goals. While this statement does not specify whether the new U.S. president will support an extension of START or its replacement with another agreement, it indicates that he is more open to completing formal agreements with Russia in general, and to negotiating further reductions in U.S. and Russian nuclear forces.

The United States and Russia have two distinct issues to consider when they contemplate the future of their arms control relationship. First, what, if anything, should they do within the next year to extend or replace START? And, second, should they seek to negotiate a new treaty to replace the Moscow Treaty before it expires in 2012? Moreover, should the provisions in a new treaty focus on transparency and confidence-building measures, or should the two nations also seek to implement deeper reductions in their strategic offensive forces?

It is unlikely that the United States and Russia will be able to negotiate and ratify a new treaty before the end of 2009, even though both sides have said they want to do so.

⁴⁷ Ibid.

⁴⁸ Arms Control Association, "2008 Presidential Q&A: Democratic Candidate Barack Obama," *Arms Control Today* (24 September 2008).

The Obama Administration has to name the senior State Department and Defense Department officials who will be responsible for crafting U.S. policy on arms control and nuclear weapons, developing its negotiating positions for a future arms control treaty, and negotiating and reaching agreement on a wide range of issues with Russia. Both sides must present any prospective treaty to their legislatures for approval. Moreover, during its first year in office, the Obama Administration must conduct a Nuclear Posture Review, which could recommend changes in both U.S. nuclear weapons policy and the U.S. force structure.⁴⁹ These changes could affect U.S. arms control proposals, but the study will not be completed until early 2010.

The United States and Russia could choose from a number of options for the future of their arms control relationship. They could allow START to lapse, or they could extend START for five years. They could negotiate a new treaty, or they could pursue less formal arrangements to manage their nuclear forces. A new treaty could include further reductions in nuclear weapons, or it could simply establish a transparency regime that called for continued cooperation in monitoring without further reductions in deployed weapons. In their discussions thus far, the United States and Russia have agreed they do not want to extend START, but they have been unable to agree on what kind of arrangement will follow START, in part because they do not agree on the goals they seek to achieve in their discussions. Hence, the remainder of this article will review some of the possible goals for the future of the U.S.-Russian arms control relationship before it reviews the range of options.

Possible Goals

Improving the U.S.–Russian Relationship

Many of the public discussions about the future of the U.S.-Russian arms control process focus on whether arms control can help the United States and Russia improve the tenor of their broader political relationship. As was noted at the beginning of this essay, many observers (including some who served in the Bush Administration) believe that the U.S.-Russian relationship has evolved to the point where the parties no longer need arms control as a symbol of their cooperation on resolving common security issues. Others, however—including some members of the U.S. Congress—believe that START and the arms control process still represent “the foundation of the U.S.-Russian strategic relationship” and a “key basis for trust between the two sides.”⁵⁰

Supporting Nuclear Nonproliferation Goals. During the past few years, the public debate over arms control and nuclear weapons has increasingly focused on the role that the U.S.-Russian arms control process can play in furthering broader international nuclear nonproliferation goals. For example, many analysts have argued that a U.S.-Russian agreement to either extend or replace START can demonstrate their commitment

⁴⁹ The mandate for the new Nuclear Posture Review is contained in the FY2008 Defense Authorization Act (P.L. 110- 181, Sec. 1070).

⁵⁰ Senator Richard Lugar, “Trust Still Needs Verification,” *Washington Times* (18 July 2008).

to their arms reduction obligations under the Nuclear Nonproliferation Treaty, and can therefore help strengthen the nonproliferation regime in general, and help ensure a successful outcome at the 2010 review conference of the NPT.⁵¹ Others, however, argue that the nations that are currently seeking nuclear weapons would not be swayed in their decisions by any steps taken by the United States or Russia, as their nuclear programs derive from their own political and security concerns. Moreover, they note that the United States and Russia have already reduced their Cold War-era nuclear arsenals sharply, without reaping any benefits in their efforts to stem nuclear proliferation.

Restraining Weapons. Many analysts in the United States and officials in the Bush Administration have argued that, in the current security environment, the United States and Russia no longer need to worry about all the details related to the size or structure of the other side's nuclear forces. Rather, they just need to understand the general trends.⁵² Both have reduced their forces in recent years, and neither needs to fear that the other would attack it with its remaining forces. Therefore, this view holds that the two nations no longer need to negotiate formal treaties to establish and maintain balance between their force structures. Moreover, these treaties undermine the flexibility that each nation may need to adjust its forces in response to future threats from emerging adversaries.

Although Russia recognizes that the relationship between the two nations is not as tense as it was during the Cold War, it still sees threats to its security from U.S. policies and programs. Therefore Russia continues to value arms control measures that restrain U.S. forces because these measures provide both stability between the two sides' forces and predictability for Russia when it considers how U.S. forces may evolve.⁵³

Many analysts in the United States also believe that the stability and predictability offered by arms control agreements are sufficiently valuable to offset any limits the treaties may impose on U.S. flexibility. Some argue that the process of implementing an arms control treaty, with its communication and cooperation provisions, is an important exercise in itself, so that the parties can avoid misunderstandings while they work together to reduce nuclear forces and nuclear dangers. Others, however, emphasize that the actual limits and restrictions in the treaty determine the amount of stability and predictability offered by the treaty just as much as does the cooperation required to

⁵¹ Jenifer Mackby and Edward Ifft, "The End of START," Special to the *Washington Post* (20 April 2007).

⁵² Jonathan S. Landay, "Dispute Delays Arms Control Talks with Moscow," *McClatchy Newspapers Washington Bureau* (18 June 2007).

⁵³ In a recent interview with the Arms Control Association, Russia's Ambassador to the United States, Sergey Kislyak (who, as Deputy Foreign Minister, participated in talks on the future of START) stated that "the mutual constraints provided for in START should not be lost because they do provide stability and are one of the important things that also should be preserved and should not be discarded." See Arms Control Association, "Interview with Sergey Kislyak, Russian Ambassador to the United States," December 2008; available at www.armscontrol.org/act/2008_12/KislyakInterview.

implement them. They note that the United States and Soviet Union included many of the detailed provisions in START because both nations wanted to restrain and reduce the nuclear forces of the other side in order to reduce the threat from those forces, and both agreed to include detailed monitoring and verification provisions so that they could be more confident about achieving the goal of reducing the threat.

Promoting Transparency and Cooperation. Many have argued that—at least in the near term—the United States and Russia should seek to replace START with a regime that will ensure transparency and build confidence, even if it does not mandate deeper reductions in nuclear weapons.⁵⁴ This type of agreement will ensure that some form of monitoring and verification provisions remains in place in the gap after START expires and while the Moscow Treaty remains in force. A confidence-building regime can foster cooperation between the two sides even if the data it provides is not needed to verify compliance with an arms control treaty. As one observer has noted, START “forces the United States and Russia to communicate,” and to interact in ways that can build trust between them.⁵⁵ Therefore, an agreement that allowed the parties to continue with data exchanges, notifications, and some inspections could prove valuable, even if it did not mandate specific future reductions.

Some argue that the United States and Russia can promote transparency and continue their cooperation without signing a formal arms control agreement. They note that the two sides will continue to cooperate on reducing nuclear dangers through the nonproliferation and threat reduction programs that the United States funds to improve security and eliminate weapons in Russia. These efforts can be bolstered by informal visits to weapons deployment areas and storage facilities. Moreover, some have argued that the formal monitoring and verification provisions in START can create tensions and undermine cooperation with their rigid requirements and stringent rules, which do not allow the parties to adapt their activities when conditions change.⁵⁶

Scope

Reductions vs. Transparency. Some analysts have argued that START provides the United States and Russia with a framework they could use to move quickly to negotiate a comprehensive agreement that would both reduce forces below the Moscow Treaty limits and outline a wide-ranging monitoring and verification regime.⁵⁷ This approach would not only satisfy Russia’s preference for pursuing deeper reductions in a subsequent agreement to START in the near term, but would also allow the United States and Russia to demonstrate bold leadership to the international community in the months before the 2010 NPT Review Conference. The two sides may not have time to complete this type of agreement before START expires, but this could still advance the

⁵⁴ Edward Ifft, “The Future of START,” speech delivered to the Arms Control Association on 11 June 2007; available at www.armscontrol.org/pdf/20070612IfftSpeech.pdf.

⁵⁵ Pavel Podvig, “Why START Is Important.”

⁵⁶ Gardner, *et al.*, *Extension of the START Treaty?*

⁵⁷ Daryl G. Kimball, “START Over,” *Arms Control Today* (June 2007).

arms control agenda by highlighting their commitment to pursue a treaty on deep reductions even if START were to lapse in the near term.

On the other hand, some have argued that a shorter, less detailed document—such as the Moscow Treaty—might be sufficient to foster communication and cooperation. Even without specific definitions and restrictions, such a document can still demonstrate the parties' intent to reduce nuclear arms. Further, with fewer detailed restrictions, both sides would be able to maintain the flexibility they might need to alter their forces to meet unforeseen changes in the international security environment. Moreover, the negotiations could probably proceed more quickly than those that would seek to produce a lengthy, detailed treaty. The United States and Soviet Union took seven years to negotiate START, but the United States and Russia completed the Moscow Treaty in less than a year.

Linkages. The START regime limits only strategic offensive delivery vehicles and the warheads carried by those systems. But the history of U.S.-Soviet arms control negotiations is full of examples where one side or the other has tried to include limits or restrictions on other types of weapons. Over the years, both countries have sought to include some types of limits on their shorter-range nonstrategic nuclear weapons in arms control agreements; analysts continue to suggest that these limits are both necessary and inevitable in a future agreement.⁵⁸ The two sides have also often linked progress in discussions on missile defense programs with progress on limits on strategic offensive nuclear weapons. This linkage was explicit in the 1970s, when the first Strategic Arms Limitation Talks (SALT I) produced both the Anti-Ballistic Missile Treaty and the Interim Agreement on Offensive Arms. This linkage between offense and defense remains important to Russia, as is evident in its concerns about U.S. plans to deploy missile defense installations in Poland and the Czech Republic.

Several analysts have also suggested that future treaties should limit not only deployed warheads, but also the numbers of warheads that each side retains in its stockpile of reserve warheads.⁵⁹ While no arms control treaty has ever sought to reduce either nation's stockpile of reserve warheads, as the number of deployed warheads declines further, the number of warheads in storage could create an imbalance if either side could return them to deployment quickly. Moreover, reductions in the numbers of stored warheads (and their consolidation in a smaller number of storage facilities) might ease concerns about the possibility that some might be stolen from insecure installations and fall into the hands of terrorist groups.

Participants. Although the United States and Soviet Union signed START as a bilateral agreement, it evolved into a multilateral treaty when Belarus, Ukraine, Russia, and

⁵⁸ Oliver Thränert, *U.S. Nuclear Forces in Europe to Zero? Yes, But Not Yet* (Washington, D.C.: Carnegie Endowment for International Peace, 10 December 2008).

⁵⁹ As of this writing, President-elect Obama has indicated that he would seek to include limits on weapons in the stockpile in a future arms control treaty. See Arms Control Association, "2008 Presidential Q&A: Democratic Candidate Barack Obama."

Kazakhstan succeeded the Soviet Union as parties to the treaty. Each of the four former Soviet states is subject to the limits, restrictions, and monitoring provisions in START, even though Russia is the only one with nuclear weapons left on its territory. Each also has a voice and a vote in the deliberations in the Joint Compliance and Inspection Commission established by the treaty. If the parties agree to extend START, Ukraine, Belarus, and Kazakhstan will remain as parties to the treaty unless they agree to amend it to include only the United States and Russia. If the United States and Russia sign a new treaty, these three former Soviet states probably would not be included.⁶⁰

Analysts have long suggested that, as the United States and Russia reduce their forces to ever lower levels, they may eventually open up the arms control process to other nuclear weapons states. This was rarely an issue during the Cold War, because the United States and Soviet Union each deployed thousands of warheads on their strategic offensive nuclear weapons. France, Great Britain, and China have just a few hundred deployed warheads each.⁶¹ Most analysts agree that these other nations should not join the process until the United States and Russia reduce to 1,000 or fewer warheads. Hence, as the United States and Russia decide how (or whether) to advance their bilateral arms control agenda, they may also begin to think about when (or whether) to expand the process to include other nuclear nations.

Potential Paths

Allow START to Lapse

The United States and Russia could allow START to lapse at the end of 2009. The Bush Administration initially preferred this option because it did not want to continue the formal U.S.-Russian arms control process at all, but also because it believed that START could lapse without signaling the end of U.S.-Russian nuclear cooperation or even the end of formal arms control. As the Bush Administration eventually suggested, the two sides could agree to continue to implement some of the monitoring provisions in START without signing a formal treaty, so that they could both gather the information needed to verify compliance with the Moscow Treaty and maintain the cooperative relationship that had developed during START's verification process. This path could, however, conflict with Russia's domestic law, as it would need to be a party to a legally binding treaty before it could allow foreigners to have access to sensitive military

⁶⁰ According to an official with the U.S. State Department, Russia "prefers working bilaterally with the United States on nuclear weapons issues and wants to 'exclude' Belarus, Kazakhstan, and Ukraine from future arrangements." See Wade Boese, "START Decision Put Off to 2009," *Arms Control Today* (December 2008).

⁶¹ For summaries of the nuclear forces of these nations, see Robert S. Norris and Hans Kristensen, "Chinese Nuclear Forces, 2008," *Bulletin of the Atomic Scientists* (July/August 2008); Norris and Kristensen, "British Nuclear Forces, 2005," *Bulletin of the Atomic Scientists* (November/December 2005); and Norris and Kristensen, "French Nuclear Forces, 2005," *Bulletin of the Atomic Scientists* (July/August 2005).

and nuclear sites.⁶² To rectify this problem, the parties might seek to negotiate a separate executive agreement or memorandum of understanding to allow the visits. Alternatively, they could attach the monitoring provisions to a simple treaty document that essentially restated the provisions of the Moscow Treaty, as the Bush Administration suggested.

If the parties allowed START to lapse, and did not have the time to agree on a replacement before December 2009, they could still pursue negotiations on a treaty that would eventually replace both START and the Moscow Treaty. Concerns about the absence of any arms control limits might inspire them to press forward on this task and seek compromises in a short amount of time. Conversely, if the absence of arms control limits did not appear to threaten stability or diminish the level of cooperation between the parties, then the pressure to reach a new agreement might decrease. Hence, this path may be attractive to those who believe that the United States and Russia no longer need formal treaties to manage their relationship, but it may appear too risky to those who believe that the arms control process remains an important part of the relationship.

Extend START

Neither the Bush Administration nor the current Russian leadership want to extend START in its present form, particularly for the full five years allowed under the terms of Article XVII of the treaty. Yet this path may be the only one available if the parties want to retain some of the START monitoring and verification provisions in the near term. They could possibly agree to extend START for a shorter period of time—perhaps two years—while they negotiate a new treaty that would replace START. But this option is not mentioned in the current treaty, so it might need to be handled as an amendment to the treaty, and thus require the approval of both nations' legislatures. The U.S. Senate might not object to a short-term extension of START, particularly since several senators have already called on the parties to extend the treaty's monitoring and verification regime, but Russia's parliament may not be as accepting. The current tensions in the U.S.-Russian relationship—along with ongoing concerns about U.S. plans to deploy missile defense installations in Poland and the Czech Republic—could lead some in Russia to question whether any extension of START, with its limits on Russia's ability to modernize its forces and deploy multiple warhead ballistic missiles, serves Russia's interests.

Extend and Amend START

Instead of amending START so that they could extend it for less than the mandated five years, the parties might extend START according to the treaty provisions, which they could do without seeking approval from their legislatures, then try to amend the treaty to adjust the provisions that each finds too restrictive in the current environment. For example, Russia might want to alter the "new types" rule in START, or it might

⁶² Alexei Arbatov and Rose Gottemoeller, "New Presidents, New Agreements? Advancing U.S.-Russian Strategic Arms Control," *Arms Control Today* (July/August 2008).

seek a waiver from the rule for the RM-24 missile. For its part, the United States might want to alter the provision requiring the exchange of telemetry from missile flight tests, or seek a waiver for retired Minuteman II missiles that are used as missile defense targets. Both sides might want to modify the verification protocol to remove some of the more costly and intrusive requirements, particularly if the parties believe the data they provide is no longer critical to understanding the scope of the other side's nuclear forces. Consequently, they might be able to craft a package of amendments that would incorporate each side's highest priorities.

Both the United States and Russia would have to submit this package for approval by their legislatures. Some in the U.S. Senate might object to the changes that relieve Russia of some of its obligations, but a package that addressed both nations' concerns might still win the approval of the necessary two-thirds majority. The Russian parliament might object to any agreement that extended START without addressing Russia's concerns about U.S. missile defense plans. However, it might accept an amendment package that addressed some of Russia's concerns with the provisions in START. In addition, if the United States and Russia extended START for five years before negotiating the amendments, the Russian parliament would have to accept either the unmodified extension or the amendment package.

Replace START

Regardless of whether they allow START to lapse or extend it before December 2009, the United States and Russia could continue negotiations on a new treaty. If they completed the treaty before an extended START expired, the new treaty could replace START, or—if it were similar to the Moscow Treaty, with aggregate limits but no detailed definitions, counting rules, or monitoring provisions—it could run concurrently without substituting for START.

As was noted above, Russia would like the new treaty to be a complete package of further limits on nuclear weapons, detailed definitions and counting rules, and monitoring and verification provisions. The Bush Administration, on the other hand, would have liked the new treaty to essentially replace the Moscow Treaty, with some informal monitoring provisions to offer a measure of transparency and cooperation. A future treaty could take either of these forms, or it could focus solely on monitoring measures by establishing a legally binding framework for transparency and cooperation not linked to the need to verify compliance with restrictions on nuclear forces and activities.

Further Reductions with START Rules

A new treaty could contain START-style definitions and counting rules, along with deeper reductions in the permitted numbers of warheads. This combination of provisions would continue to reduce U.S. and Russian deployed forces and would also provide transparency and predictability for the future. Without the START-style definitions and counting rules, neither side would be able to confirm that the other has complied with the treaty's reductions, because each will not know what the other side considered to be limited by the treaty.

At the same time, a treaty that required the United States to reduce its forces below the Moscow Treaty limits of 1,700–2,200 warheads but that also used the START counting rules to calculate the number of warheads attributed to deployed delivery vehicles could force the United States to make hard choices and significant changes in the structure of its nuclear forces. Under START, all deployed delivery vehicles count under the treaty's limits (Russia has proposed that the same be true in a new agreement); the parties then calculated the number of deployed warheads by multiplying the number of deployed delivery vehicles by a set number of warheads listed in the database for that type of delivery vehicle.

The Moscow Treaty, on the other hand, does not assume all delivery vehicles carry deployed warheads, and allows the parties to exclude those that do not. As a result, the United States does not count the launchers or warheads on two of its fourteen Trident submarines, because they are in overhaul and not "deployed." However, these systems would count under the START rules. It also has removed more than two warheads from some Trident missiles, without changing the front end of the missile. Under the START provisions, these missiles would count as six warheads each. In its declaration under the Moscow Treaty, the United States counts only the aggregate number of actual deployed warheads; it does not even have to specify how many warheads are deployed on any given missile or submarine. Moreover, under the Moscow Treaty, the United States counts only the bomber weapons maintained in the active stockpile at U.S. bomber bases. Under START, each bomber equipped to carry cruise missiles would count as twenty warheads, regardless of available weapons or actual deployments.

These differences produce striking variations in the number of warheads that count under each treaty. In May 2008, the United States declared that it had 2,871 operationally deployed strategic warheads that would count against the Moscow Treaty.⁶³ At the same time, when it exchanged START data with Russia in July 2008, it stated that it had 5,951 warheads attributed to deployed ICBMs, deployed Slims, and heavy bombers. Many of these attributed warheads could be eliminated with some accounting changes, but it is clear that under START definitions, the United States would have to count hundreds of warheads that it excludes from the Moscow Treaty total because it does not consider them to be operationally deployed.⁶⁴

To bring its warhead totals down to 1,500 or less while using definitions and counting rules similar to those in START, the United States could seek to deploy each

⁶³ U.S. Department of State, Bureau of Verification, Compliance and Implementation, "2008 Annual Report on Implementation of the Moscow Treaty," 13 May 2008.

⁶⁴ For example, this total includes 400 warheads attributed to Peacekeeper missiles. These missiles have been deactivated, but the United States did not eliminate the silos according to START rules, so the warheads still count. It also excludes up to 768 warheads that could be deployed on four Trident submarines. The U.S. Navy has converted these submarines to carry non-nuclear cruise missiles, but because it did not remove the launch tubes for the Trident missiles, they still count under START as if each launch tube held one missile and each missile carried either six or eight warheads.

of its remaining Trident missiles with a smaller number of warheads. However, if START rules apply, a reduction of more than two warheads would necessitate the costly replacement of the platform on the post-boost vehicle on each missile. The United States could suggest that the new treaty relax this rule, but Russia may object, as it has been concerned about the U.S. ability to upload its missiles and increase its warheads in a crisis. Russia has long suggested that the parties tighten the downloading rules to minimize this possibility.

As an alternative, the United States could reduce its total warheads by eliminating some of its deployed launchers (bombers, ICBMs, or Slims), or even removing one leg of its “strategic triad” from the nuclear force. However, the United States probably would not want to reduce the number of B-52 and B-2 bombers, as these aircraft also fly conventional missions in ongoing conflicts, so it might have to remove them from the nuclear force altogether. It also might be difficult to reduce the Minuteman fleet of ICBMs below the current number of 450 without also reducing the number of bases and cutting into the number of personnel trained to operate the system. Furthermore, as the number of deployed platforms drops, it may be difficult to justify the costs associated with retaining the smaller force.

Most experts agree that the Trident submarines are going to be the mainstay of the U.S. nuclear arsenal in the future. But, unless the United States cuts deeply into the other “legs” of its strategic triad, deep reductions in total warheads may require reductions in the number of Trident submarines. If the United States were to reduce its Trident fleet to ten or fewer submarines, it might not be able to operate out of two bases, as it does now, and retain submarines in both oceans on patrol in the areas from where they would fire their missiles. Changes in this deployment pattern might require changes in the missions and targets of the submarine fleet. The president and the U.S. military would probably want to consider the implications of these basing and operational changes before deciding whether to accept arms control limits that produce such changes.

Hence, if the United States agrees to replace START with a new treaty that reduces warheads below the levels in the Moscow Treaty but retains many of the definitions and counting rules of START, it will have to make difficult choices about how to structure and operate its nuclear force. These decisions are not likely to come easily or quickly, and could delay both the start and the finish of negotiations on a new treaty.

Further Reductions without START Rules

The complexities detailed above demonstrate why the Bush Administration was unwilling to follow START with a similar, detailed document. Even those in the administration who believe that the U.S.-Russian arms control process should continue argue that the two sides should pursue a treaty that does not contain the same level of detail that existed in START. For example, during a speech before the Carnegie Endowment for International Peace in October 2008, Secretary of Defense Robert Gates said, “I am not sure that agreements that are the size of a telephone book and take years to negotiate are in the interest of either party.” He went on to say, “I believe we should go for another agreement with Russia. I believe it could involve further cuts in the number of

warheads. I believe we do need the verification provisions. But I think it ought to be an agreement that is shorter, simpler, and easier to adjust to real-world conditions than most of the arms control agreements I've seen over the last forty years."⁶⁵

A shorter, less detailed treaty may not, however, provide the level of transparency or predictability sought by many analysts. Under the Moscow Treaty (which is short and contains few details) neither the United States nor Russia has to offer any transparent view into the structure of its nuclear forces. Each simply has to declare how many warheads it has deployed on its operational forces. Further, because the treaty includes no timelines for the reduction process, and no definitions of the items limited by the treaty, neither side can predict with confidence the process or outcome of the other side's reductions. As a result, some argue that, while the shorter negotiations may seem preferable, a shorter treaty with fewer details would not necessarily serve the goals of an arms control process that seeks to strengthen the relationship between the United States and Russia or to reduce the perceived threats from their nuclear weapons.

Transparency and Confidence-Building Measures

Some members of Congress and analysts outside government have called on the United States and Russia to extend the monitoring regime in START, even if they cannot reach agreement on further reductions in nuclear forces. In a "Dear Colleague" letter circulated in July 2007, Representative Ellen Tauscher, Chair of the House Armed Services Committee, Subcommittee on Strategic Forces, noted the "transparency required by the START verification regime has bred confidence in both Russia and the U.S. enabling cooperation on a range of nuclear arms issues."⁶⁶

An agreement that established a transparency regime without imposing any further reductions in nuclear weapons could allow the United States and Russia to sustain their confidence in their knowledge of each other's nuclear deployments. The START regime's extensive exchanges of data about the characteristics of each party's weapons systems provide both nations with significant amounts of information that would not have been available otherwise, or would have been extremely difficult to acquire. The parties can be confident in the accuracy of this data because they have the opportunity to visit the sites and view the weapons themselves. Moreover, START required each party to notify the other when they changed the numbers or locations of strategic systems. Even if the parties have not agreed to limit or reduce their nuclear weapons, they could continue to house their weapons at agreed sites, provide data about their characteristics and capabilities, and provide notifications when they moved them.

Some have also argued that by continuing to cooperate in monitoring the locations and characteristics of deployed nuclear weapons, the United States and Russia would

⁶⁵ Secretary of Defense Robert Gates, "Nuclear Weapons and Deterrence in the 21st Century," speech delivered at the Carnegie Endowment for International Peace, Washington, D.C., 28 October 2008; available at http://www.carnegieendowment.org/files/1028_transcrip_gates_checked.pdf.

⁶⁶ Representative Ellen Tauscher, "Call on the President to Extend the Most Significant Remaining Arms Control Agreement of Our Time," July 2007.

be better positioned to monitor compliance with the Moscow Treaty. The notifications and data exchanges would continue to inform them about the numbers and locations of missiles and bombers, while onsite visits would give them an opportunity to count the warheads deployed on at least some missiles. These inspections would not, however, provide the parties with an opportunity to calculate all the warheads that would count under the Moscow Treaty. Because START inspections were designed to confirm that the number of warheads deployed on a particular missile did not exceed the number specified in the database, they do not provide a way to count the total number of warheads deployed within the entire force. However, by confirming that the deployed warhead number did not exceed the number in the database, the inspections could provide the parties with some confidence in the number of warheads they might then use in their calculations of deployed warheads across the force.

Choosing a Path

Although President-elect Obama has stated that he would like the United States and Russia to negotiate deeper reductions in their nuclear arsenals, the two nations still may not be on the same page in their views of their arms control relationship. They still have to decide what (if anything) to do about START before it expires, and what (if any) type of treaty they should negotiate to replace START in the longer term. They may agree that such a treaty should contain more details than were included in the Moscow Treaty, but they will still have to decide which of START's counting rules and definitions will continue to apply, whether the new treaty would ease or tighten the rules governing the downloading of missiles and the deployment of new types of missiles, and which of the treaty's monitoring and verification provisions they would continue to implement. Moreover, they would have to decide whether to include only deployed warheads, or all deployed and reserve warheads, and whether to link reductions in strategic weapons to other issues, like nonstrategic nuclear weapons or missile defense.⁶⁷

Because each side would like some of START to continue and some of it to end, both may find it difficult to reach an agreement on the substance of a new treaty that matches their priorities. On the other hand, if they balance and offset their differing preferences and priorities, they may be able to craft a compromise that provides them with more transparency and predictability than the Moscow Treaty, but less precision than the START agreement.

⁶⁷ For a detailed proposal that addresses these issues, see Arbatov and Gottemoeller, "New Presidents, New Agreements? Advancing U.S.-Russian Strategic Arms Control."

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