



BRIEFING PAPER

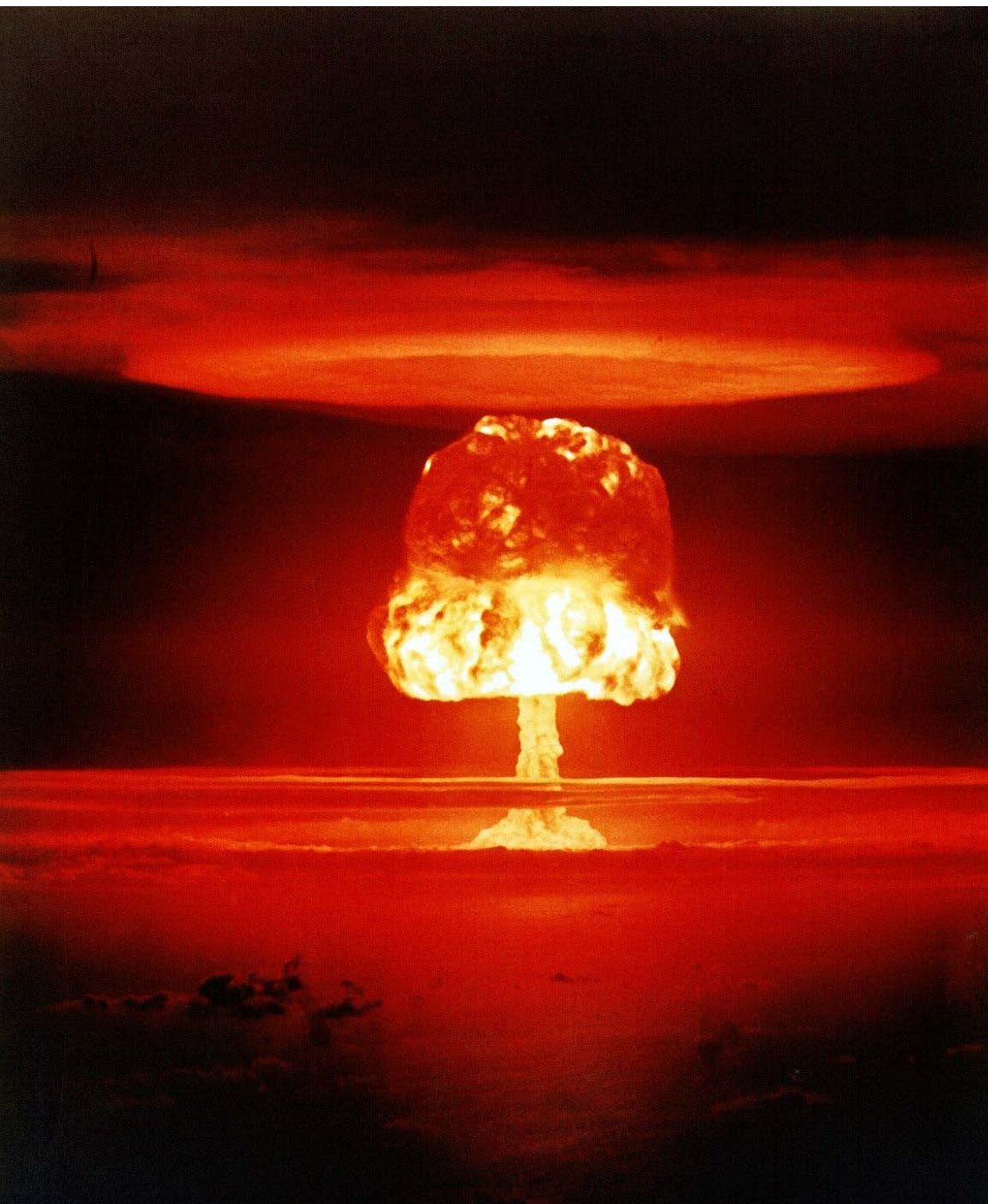
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Nuclear weapons at a glance: Russia

By Claire Mills

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Summary

In June 2020 the Russian Government published, for the first time, an updated version of its *Foundations of State Policy in the Area of Nuclear Deterrence*. Previously classified, the document sets out the basic principles of Russia's nuclear doctrine:

- Russia's nuclear deterrence policy is defensive in nature, to ensure Russia's sovereignty and territorial integrity, along with that of its allies.
- Russia will maintain its nuclear weapons at a sufficient minimum level to ensure deterrence.
- The use of nuclear weapons will be as a last resort.
- The document does not advocate "first use" in a nuclear scenario. Yet it does not rule out first use in response to a conventional attack under certain circumstances either.

The debate continues as to whether the concept of "escalate to deescalate" is a central tenet of Russian nuclear policy.

Russia has the largest nuclear arsenal in the world, with a stockpile estimated at 6,375 warheads, of which 4,315 are operational (both strategic, non-strategic and reserve).

Russia's large arsenal of 1,875 non-strategic warheads are not currently subject to any arms control limitations.

Forces are organised on the nuclear triad principle. Russia does not operate a policy of continuous at-sea deterrence but patrols periodically.

Russia has been undertaking an extensive programme of capabilities modernisation since 2008. In 2018 President Putin outlined a number of new nuclear weapons capabilities under development that are intended to counter US missile defence systems. These include hypersonic missiles and glide vehicles, a nuclear-powered torpedo and a nuclear-powered cruise missile.

This short paper is intended as an introduction to Russia's nuclear weapons policies and programmes. It is part of a series of country profiles which are available on the [House of Commons Library website](#).

1. Nuclear status

The Soviet Union tested its first atomic weapon in 1949.

Under the Nuclear Non-Proliferation Treaty (NPT) a nuclear weapon state is defined as one that manufactured and exploded a nuclear weapon, or other nuclear explosive device, prior to 1 January 1967.

Following the dissolution of the Soviet Union in late 1991, Russia was formally recognised as the sole nuclear weapon state under a Protocol to the US-Soviet *Strategic Arms Reduction Treaty*, which was signed in May 1992.¹

Alongside the other permanent members of the UN Security Council (the P5), Russia is, therefore, one of the five officially recognised nuclear weapon states under the NPT.

¹ The dissolution of the Soviet Union left Soviet nuclear weapons stationed on the territory of four newly independent republics - Russia, Kazakhstan, Ukraine and Belarus. Under the Lisbon protocol all four states became parties to the Strategic Arms Reduction Treaty (START I) and acceded to the NPT as non-nuclear weapon states.

2. Nuclear Doctrine

Historically, Russia has been far more secretive about its nuclear policies than the United States.

Much of the detail had been contained in a classified report, *Foundations of State Policy in the Area of Nuclear Deterrence to 2020*. Only references set out in Russia's Military Doctrine and its National Security Strategy gave an indication of Russian nuclear thinking. The 2014 Military Doctrine confirmed:

27. The Russian Federation shall reserve the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and/or its allies, as well as in the event of aggression against the Russian Federation with the use of conventional weapons when the very existence of the state is in jeopardy.

The decision to use nuclear weapons shall be taken by the President of the Russian Federation.²

In December 2015 President Putin approved a new National Security Strategy for Russia. Echoing the 2014 Military Doctrine the strategy stated:

Strategic deterrence and the prevention of armed conflicts are achieved by maintaining the capacity for nuclear deterrence at a sufficient level, and the Russian Federation Armed Forces, other troops, and military formations and bodies at the requisite level of combat readiness.³

Although not formally acknowledged in either document, the concept of "escalate to de-escalate" was also considered, by some Western analysts at least, to be a central tenet of Russian nuclear doctrine.⁴ Under that concept Russia would contemplate the limited first use of non-strategic nuclear weapons in order to end a low-level conventional conflict in their favour.⁵

However, in a speech to the Valdai Club in October 2018, President Putin appeared to contradict this long-established belief on "escalate to de-escalate", stating that:

Our strategy of nuclear weapons use doesn't envision a preemptive strike...our concept is a launch under attack.

Only when we become convinced that there is an incoming attack on the territory of Russia, and that happens within seconds, only after that we would launch a retaliatory strike".⁶

2.1 Clarifying Russian nuclear doctrine

In June 2020 the Russia Government published, for the first time, an updated version of its [Foundations of State Policy in the Area of Nuclear Deterrence](#).

Whilst a welcome move in terms of transparency, the document has been widely viewed as providing nothing substantially new in terms of Russia's nuclear doctrine, from what has previously been expressed elsewhere. But

The debate over "escalate to deescalate" continues.

² *The Military Doctrine of the Russian Federation*, December 2014

³ *Russian National Security Strategy* (English translation), December 2015

⁴ This concept was referred to in the US' [2018 Nuclear Posture Review](#), p.8

⁵ In an article for the RUSI Journal in May 2018 Katarzyna Zysk of the Norwegian Institute for Defence Studies, discusses, in detail, where this policy of 'escalate to de-escalate' has been referenced in Russian strategic documents.

⁶ As reported by [Radio Free Europe](#), 19 October 2018

it is recognised as important in going some way toward helping the West's understanding of Russia's nuclear policies, and in particular concepts such as "escalate to deescalate".

The document confirms the following:

- Russia's nuclear deterrence policy is defensive in nature, to ensure Russia's sovereignty and territorial integrity, along with that of its allies.⁷
- Russia will maintain its nuclear weapons at a sufficient minimum level to ensure deterrence. However, what Russia considers to be sufficient is down to its own interpretation of the international security environment.
- A proportion of nuclear forces will be maintained at permanent readiness.
- The use of nuclear weapons will be as a last resort.

Escalate to deescalate is not a policy directly set out in this document. Yet, it does state that "this policy provides for the prevention of an escalation of military actions and their termination on conditions that are acceptable for the Russian Federation and/or its allies". The document also confirms that Russia will use nuclear weapons in response to a conventional attack that threatens the existence of the state, or one that targets the country's critical state and military infrastructure, thereby threatening its ability to retaliate with nuclear weapons. The debate over "escalate to deescalate" therefore continues.

Declaratory policy

The *Foundations of State Policy in the Area of Nuclear Deterrence* does not advocate "first use" in a nuclear scenario. This was confirmed by Kremlin Spokesman, Dmitry Peskov, who said that Russia "will never initiate the use of nuclear weapons".⁸

However, as outlined above, the document does not rule out first use in response to a conventional attack under certain circumstances. As Maxim Starchak, writing in a RUSI Commentary in June 2020 noted:

Three out of four reasons for the potential use of nuclear weapons as described in the latest document are not de facto nuclear threats, so the implication must be that Russia could, nevertheless, be ready to initiate a nuclear strike.⁹

⁷ Largely interpreted to mean the other countries of the Collective Security Treaty Organisation (CSTO): Armenia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan.

⁸ [TASS Russian News Agency](#), 3 June 2020

⁹ "Russia's new nuclear strategy: unanswered questions", RUSI Commentary 26 June 2020

3. Nuclear arms control agreements

3.1 Bilateral arms control

After the Cuban Missile Crisis, and throughout the 1960s, there was mounting concern about the rapid expansion in the number of nuclear warheads and delivery systems. By the time the NPT was concluded in 1968 both the Soviet Union and the United States had a nuclear stockpile of tens of thousands warheads apiece.

In response, bilateral talks aimed at restricting the nuclear arsenals of the Soviet Union and the US began. Over the decades that followed, a series of arms control regimes emerged.

A history of these bilateral arms control agreements is available in:

[Nuclear weapons: disarmament and non-proliferation regimes](#), House of Commons Library, June 2016

Of those agreements only the New START treaty, concluded in 2010, remains in force. The US officially withdrew from the Intermediate-Range Nuclear Forces (INF) treaty on 2 August 2019 after accusing Russia of violating the treaty.¹⁰

Box 1: Provisions of New START

Under the terms of New START the US and Russia committed to:

- A limit of 1,550 strategic operationally deployable warheads
- A combined limit of 800 deployed and non-deployed intercontinental ballistic missile (ICBM) launchers, submarine launched ballistic missile (SLBM) launchers and heavy bombers equipped for nuclear armaments.

The treaty also established a verification regime that combines various elements of the original START verification regime and measures that are tailored to the current treaty.

The New START treaty will remain in force until February 2021, unless it is superseded by a subsequent agreement, or extended by Presidential agreement for no more than five years.

Over the last six months, negotiations on New START have failed to produce any agreement on a potential extension. Prior to the US Presidential election in November 2020, both sides had signalled a willingness to reach a deal involving an extension of the treaty for one year and a freeze on all US and Russian nuclear warheads. However, negotiators failed to agree the specific terms of the deal.

The fate of the treaty is now considered to lie in the hands of President Putin and the incoming Biden administration. President-elect Biden has expressed support for the extension of New START.

If the treaty is allowed to expire in February 2021 Russia will have no checks on its strategic nuclear forces for the first time since 1972.

¹⁰ The INF Treaty is examined in greater detail in [Demise of the Intermediate Nuclear Forces Treaty](#), House of Commons Library, September 2019

3.2 Other nuclear-related agreements

Nuclear Non-Proliferation Treaty

As a State Party to the NPT, Russia has a legal obligation to pursue disarmament under Article VI of that treaty.

Comprehensive Test Ban Treaty

Russia signed the Comprehensive Test Ban Treaty in 1996 and ratified it in 2000.

In May 2019 the [Head of the US' Defence Intelligence Agency](#) claimed that Russia had “probably” violated the CTBT by carrying out low yield tests at a remote facility in the Arctic. The comments were met with criticism for repeating earlier claims that proved to be unsubstantiated. The Comprehensive Test Ban Treaty Organisation (CTBTO) said at the time that there was no evidence to back up the US' claims.¹¹

In April 2020 the US State Department once again accused Russia of conducting nuclear tests “inconsistent with the zero-yield standard”.¹² Russia has denied the allegations.

Fissile Material Cut-off Treaty

Russia supports a verifiable ban on the production of fissile material for weapons purposes.

Treaty on the Prohibition of Nuclear Weapons

Russia has not signed the [Treaty on the Prohibition of Nuclear Weapons](#), which is due to enter force in January 2021.

However, Kazakhstan, which has been involved in several Russian ICBM tests in the last few years, ratified the treaty in August 2019. Under the treaty States Parties have an obligation to ensure the elimination or irreversible conversion of all nuclear related facilities. This would include the test site at Sary-Shagan. It is unclear what the implications of Kazakhstan's ratification of the TPNW will mean for Russia's ICBM programme in the longer term.¹³

Article VI, NPT

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

¹¹ [“Russia probably violating nuclear test ban treaty”](#), The Guardian, 29 May 2019, and [“Nuclear watchdog chief: no evidence Russia is violating test ban”](#), The Guardian, 30 May 2019

¹² US State Department, [2020 Adherence to and Compliance with Arms Control, Nonproliferation and Disarmament Agreements and Commitments \(Compliance Report\)](#)

¹³ See [“Kazakhstan – once more a testing ground?”](#), Carnegie Endowment for International Peace, July 2019

4. Capabilities

Since the end of the Cold War, Russia has relied on its nuclear arsenal, and its intercontinental ballistic missile (ICBM) capabilities specifically, as a means of power projection. Russia's nuclear arsenal has arguably also been used to offset the increasing obsolescence and inferiority of its conventional capabilities. Russia's sea and air-launched nuclear capabilities have, historically, been considered less technically advanced than its ICBM force.

For over a decade, however, Russia has been undertaking an extensive programme of military modernisation. Established in 2008, the intention of Russia's wholesale modernisation plan was to rebuild a cohesive military out of the old Soviet structures. As part of that programme, the modernisation of the strategic nuclear deterrent has been a priority.

While the broader plan has been beset with financial pressures and industrial challenges, upgrades to Russia's nuclear capabilities have remained largely unscathed.¹⁴ In March 2018 President Putin announced details of several new nuclear weapons systems under development, intended to defeat US missile defence systems. Those new capabilities include hypersonic delivery systems,¹⁵ a nuclear-powered torpedo and a nuclear-powered cruise missile. All form part of the State Armament Plan 2018-2027 and are expected to deploy over the next decade (see below).

In its 2019 annual update, the Russian Defence Ministry Board stated that Russia's nuclear forces were now equipped with 82 per cent modern armaments across the whole of the nuclear triad.¹⁶

Russian nuclear weapons spending is largely classified. A SIPRI estimate in 2016 suggested that Russia spent 606 billion roubles (\$10.8 billion) on nuclear weapons that year, around 13 per cent of its total defence budget.¹⁷

4.1 Stockpile

Russia continues to have the largest nuclear arsenal in the world, capable of being delivered from land, sea and air. At present it is estimated to have a total inventory of 6,375 warheads, of which:

- 4,315 are active/operational warheads, including non-strategic warheads
- 2,060 are retired and awaiting dismantlement

Russia has the largest nuclear stockpile in the world.

¹⁴ Russia's rearmament programme and the challenges it has faced in its first decade is examined in greater detail in Library briefing paper CBP7877, [Russia's rearmament programme](#), January 2017

¹⁵ Hypersonic weapons can travel five times faster than the speed of sound. There are generally two categories: cruise missiles powered by engines and glide vehicles which are launched nearly into space before diving back down to a target. Hypersonic cruise missiles are manoeuvrable and fly at lower altitudes making them more difficult to detect than a ballistic missile which flies on a more predictable trajectory. Such characteristics arguably make hypersonic missiles more destabilising as they reduce response time and it is difficult to distinguish between a nuclear and conventionally armed weapon.

¹⁶ Although that figure varies between each leg of the triad. [Russian Defence Ministry Board Session](#), December 2019

¹⁷ ["How much does Russia spend on nuclear weapons"](#), SIPRI Backgrounder, 1 October 2018

The latest New START data exchanged between the US and Russia on 1 December 2020 showed that, of those 4,315 operational warheads, 1,447 were deployed strategic nuclear warheads (below the ceiling agreed in new START).¹⁸

Russia possesses a large inventory of non-strategic nuclear weapons.

Russia possesses a significant non-strategic (tactical) arsenal that is thought to total approximately 1,875 warheads.¹⁹ According to the Russian Ministry of Defence, non-strategic warheads are kept in central storage and are not deployed with their delivery systems.²⁰ Russia retains a non-strategic capability for two primary reasons: the existence of potential nuclear powers within Russia's sphere of influence and the deployment of US nuclear weapons in Europe. Such capabilities could also potentially be deployed against elements of the proposed US ballistic missile defence architecture in Eastern Europe.

4.2 Fissile material

The extent of Russia's holdings of fissile material is uncertain. Although the country no longer produces fissile material for weapons purposes,²¹ according to the latest figures from the [International Panel on Fissile Materials](#), Russia has approximately 679 tons of HEU and 128 tons of plutonium available for weapons production.

In October 2016 Russia suspended its cooperation in a bilateral agreement signed with the US in 2000 to dispose of 68 tonnes of excess weapons-grade plutonium (34 tonnes each).²² The Russian Government justified its decision on the basis of "unfriendly actions" by the US and the inability of Washington to fulfil its own obligations under the agreement. The Russian Duma subsequently passed legislation setting out a number of conditions that would have to be met before Russia would resume cooperation under the agreement. Namely:

- The lifting of all US sanctions enacted in response to Moscow's actions in Ukraine in 2014.
- Compensating Russia for the damage caused by the sanctions
- Reducing the US military presence in Eastern European NATO countries.

The likelihood of the agreement being resurrected, in the current political climate, is regarded as negligible.

4.3 Ground based capabilities

The ground-based arm of the nuclear deterrent is operated and maintained by three Rocket Armies of the Strategic Missile Force, organised into 12 divisions operating both silo and mobile missile launchers.

According to SIPRI, the Strategic Missile Force has 302 ICBM at its disposal, collectively capable of carrying 1,136 warheads.²³ Less than a third (82) are now Soviet-era ICBM: the

¹⁸ US Department of State, [New START Aggregate Numbers of Strategic Offensive Arms](#), 1 December 2020

¹⁹ This figure is thought to have increased slightly due to the recent fielding of dual-capable non-strategic weapons.

²⁰ Most analysts concur that storage facilities are often located near to operational bases.

²¹ Russia announced a halt to highly enriched uranium production in 1989 and the cessation of plutonium production for weapons in 1994.

²² [Plutonium Management and Disposition Agreement](#), 2000.

²³ Although it is thought that the ICBM force deploys around 810 warheads in total, as a result of arms control agreements, ageing missiles and resource constraints.

RS-20 with MIRV capability (up to 10 warheads apiece), the RS-12M mobile single warhead ICBM and the RS-18 ICBM, equipped with up to 6 warheads each.²⁴

The remainder are Topol-M single warhead ICBM (both silo-based and road mobile) and the RS-24 Yars ICBM (road mobile and silo based) which has MIRV capability.²⁵ The older Soviet-era missiles are gradually being phased out to be replaced by these two ICBM variants. Estimates have put delivery of new Topol-M and RS-24 Yars ICBM systems at 40 per year.²⁶ Around 200 RS-24 Yars ICBM are expected to be procured in total, with the replacement programme scheduled for completion by 2022.

In December 2019 the Russian Ministry of Defence announced that two missiles equipped with the new Avangard hypersonic boost glide vehicle (HGV) had also been deployed.²⁷ The Russian Ministry of Defence has confirmed that Avangard HGV falls within the scope of the New START treaty.

Russian ground forces also possess an undisclosed number of non-strategic (tactical) nuclear weapons. Estimates vary but SIPRI's 2020 assessment suggests that 90 warheads are assigned to ground-launched, short-range ballistic missiles.²⁸ The majority are deployed on the dual-capable Iskander-M tactical short-range ballistic missile system, which over the last few years has reportedly been stationed close to NATO territory, for example around St Petersburg and in the Russian enclave of Kaliningrad, between Poland and Lithuania. More recently, Russia has also begun deploying the nuclear-capable Novator 9M729 ground-launched cruise missile. With a range of between 500km and 5,500km it was the fielding of this missile which led to the collapse of the Intermediate Nuclear Forces Treaty in August 2019.²⁹

4.4 Naval capabilities

The Russian Navy currently has 10 operational SSBN (plus one in reserve for training), each equipped with 16 SLBM, at its disposal. The majority of those SSBN are Soviet-era platforms, dominated by the six vessels of the Delta IV class.

Russia does not operate a policy of continuous at-sea deterrence but patrols periodically. The adoption of this posture has been largely attributed to the possession of capabilities across the nuclear triad, and Russia's primary focus on its extensive ground-launched ICBM capability.

Modernisation of Russia's SSBN fleet has been a priority since 2008. The Delta IV SSBN have been upgraded to deploy with a modified SLBM, codenamed Sineva, which carries up to four warheads. Since 2008 three new vessels of the new Borey class have also entered service.³⁰ The first SSBN to be constructed since the end of the Cold War, the Borey class is equipped with 16 new Bulava SLBM, each with an operational range of 8-9,000 km and capable of carrying 6 warheads apiece. A total class of ten boats is

²⁴ In contrast to 2017 when more than half of the ICBM inventory were Soviet-era missiles (Military Balance 2017).

²⁵ Deployment of the RS-24 began in 2010. The RS-24 is reportedly a modified Topol-M but was given a new designation in order to avoid potentially violating the obligations of the START treaty, or its successor, which prohibited increasing the number of warheads on existing missiles, but did not preclude building new missiles.

²⁶ In 2016 strategic ground forces received 41 new ballistic missiles ([Statement to Extended Board Session of the Russian Defence Ministry](#), 22 December 2016)

²⁷ Using the former RS-18 ICBM as a booster.

²⁸ *SIPRI Yearbook 2020*, p.338. This excludes those assigned to anti-ballistic missile defence.

²⁹ This is examined in greater detail in Library briefing, CBP08634, [Demise of the Intermediate Nuclear Forces \(INF\) Treaty](#)

³⁰ Two Borey class SSBN are operational with the Pacific Fleet and one with the Northern Fleet.

anticipated to replace the ageing Delta III SSBN, which has largely been retired from service.³¹

However, a series of testing failures of the Bulava missile in 2008 and 2009 delayed the programme which is now years behind schedule. Delays in the introduction of the Borey class has subsequently forced Moscow to retain the Delta IV-class SSBN in service until well into the 2020s. As such, the delay to the Borey class is not considered detrimental to Russia's sea-based nuclear posture, although it has raised questions as to the technical capabilities and overall condition of Russia's military-industrial complex.

Approximately 905 warheads are also thought to be assigned to Russia's naval forces for delivery via cruise missiles, anti-submarine weapons, torpedoes and depth bombs.³²

4.5 Air-launched capabilities

Russia's air-delivered nuclear capability is operated by Long Range Aviation Command.

It consists of four squadrons operating 68 bomber aircraft: the Tu-160 'Blackjack' and the Tu-95MS 'Bear H'. Both aircraft are in the process of being incrementally upgraded with significant improvements to the aircrafts' weaponry, navigation and avionics. Those upgrades will allow both aircraft to remain in service until the late 2020s-early 2030s, and to deploy with the new KH-102 stealthy air-launched cruise missile (ALCM). While modernisation is progressing, the pace of delivery has, however, been slower than anticipated.³³

One squadron deploys 13 Tu-160 and the upgraded Tu-160M1 aircraft. Both are equipped with up to 12 AS-15B nuclear air-launched cruise missiles (ALCM). The Tu-160M1 is also equipped with the new KH-102 ALCM, which has a range of approximately 5,000km, twice that of the AS-15.

Three squadrons operate the Tu-95MS 'Bear H' (55 aircraft in total), each with between six and 16 AS-15A ALCM. 16 modernised aircraft (the Tu-95MSM) have been delivered thus far, which are also equipped with the Kh-102. Both platforms can also be equipped with nuclear-armed free-fall bombs. The ambition for 2020 is to complete the upgrade of a further six Tu-95MS aircraft to Tu-95MSM standard.³⁴

Approximately 495 non-strategic warheads are also estimated to be deployed on AS-4 air-to-surface missiles and free fall bombs assigned to tactical air forces.³⁵ The air force operates a medium-range bomber, the Tu-22M, which is capable of deploying with nuclear-armed cruise missiles. The Su-24 and the new Su-34 aircraft can also be deployed in a tactical nuclear role.

In November 2019 Russia also conducted the first tests of the new Kinzhal hypersonic air-launched ballistic missile, deployed aboard a MiG-31K.

³¹ The Military Balance 2020 suggests that only one Delta III SSBN remains in service.

³² SIPRI Yearbook 2020, p.339

³³ SIPRI Yearbook 2020, p.337

³⁴ [Russian Defence Ministry Board Session](#), December 2019

³⁵ SIPRI Yearbook 2020, p.338

5. Ongoing modernisation

Despite having already been in place for over a decade, modernisation programmes across all three legs of the triad are ongoing. As outlined above, in March 2018 President Putin revealed details of several new nuclear delivery systems that are expected to enter service over the next decade. Not all of these programmes are new, however. Some, including the new Sarmat ICBM programme, have been under development for many years.

5.1 Ground-launched nuclear capabilities

Work has been ongoing to develop a new silo-based ICBM, the RS-28 Sarmat, for some years. A replacement for the RS-20, it is expected to be capable of carrying up to 10 warheads. It has recently been suggested that a few may be equipped with the Avangard hypersonic glide vehicle.³⁶

The first Sarmat prototype was due to be completed in March 2016, with entry into service expected in 2019/2020. However, flight testing of the missile only began at the end of December 2019. Entry into service has therefore been earmarked 2022 and 2027. In November 2019 the Russian Ministry of Defence confirmed that the Sarmat ICBM would fall within the scope of the New START treaty, should it be extended.

Russia also plans to deploy two Avangard HGV regiments, each with six missiles, at Dombarovsky in southern Russia by 2027.

Should New START expire in February 2021 it would allow Russia to significantly increase the number of warheads deployed aboard its ICBM.

Russia is also developing the Burevestnik ground-launched nuclear cruise missile. Nuclear-powered, it has an estimated range of over 25,000km. While achieving intercontinental range, it would also be low flying and potentially radar evading, therefore posing a major challenge for any missile defence system. However, a fatal explosion in northern Russia in August 2019 is thought to have been caused by a test of the missile that went wrong, raising concerns over the viability of the programme. In October 2020 media reports suggested that Russia was preparing to resume testing of the Burevestnik,³⁷ although experts still remain sceptical of the programme's future.

5.2 Naval nuclear capabilities

Within the Russian Navy, further vessels of the Borey class SSBN, and its complement of Bulava SLBM are expected within the 2020-2030 timeframe. A total class of ten boats is anticipated, with the boats currently under construction expected to have some modifications, thereby designated the *Borey-A*.

Work is also expected to begin in post-2020 on a fifth generation SSBN, and equivalent SLBM, which will enter the production phase from 2031 onwards.

Russia's non-strategic naval capabilities have also been the focus of modernisation, with the expected introduction into service of a new class of attack submarine, the *Yasen*, equipped with a new type of long-range sea-launched cruise missile which is nuclear capable. The *Yasen* class will also be able to deliver nuclear armed anti-submarine rockets, as well as nuclear torpedoes.

³⁶ SIPRI Yearbook 2020, p.342

³⁷ "Satellite images indicate Russia is preparing to resume testing its nuclear-powered cruise missile", CNN, 20 October 2020

As President Putin outlined in March 2018, the Navy also has a ship-launched dual-capable hypersonic cruise missile (the Tsirkon) and a new long-range, nuclear-armed, nuclear-powered torpedo (Poseidon) under development.

The Tsirkon has been earmarked for deployment in the 2025-2030 timeframe, while the Poseidon is expected to deploy after 2027. In April 2019 Russia launched its first submarine designed to deploy the Poseidon. In July 2020 testing of that submarine was reported to be underway and that testing of the weapons systems was “nearing completion”.³⁸

5.3 Air-launched nuclear capabilities

Modernisation of the Tu-160 and Tu-95 strategic bomber fleets remains ongoing, which will allow them to remain in service until the late 2020s-early 2030s.

Going forward the Russian Ministry of Defence is procuring a next generation strategic bomber (PAK-DA), to replace the fleet of Tu-160 and Tu-95 aircraft, and the Tu-22 in a tactical role. Flight testing of a prototype had been expected in 2019, although the project has suffered delays. Construction of the first prototype PAK-DA is reported to have begun in May 2020, with final assembly scheduled for 2021. Flight testing is expected in 2025 or 2026. It is unclear when the PAK-DA will enter service.

In 2019 the Russian Government confirmed that it would restart the Tu-160 production line to manufacture up to 50 Tu-160M2 variants, starting in the early 2020s. The project is intended to fill a gap until the PAK-DA enters service. In February 2020 Russian media reported that the Tu-160 was also being modified to carry the hypersonic Kinzhal dual-capable ballistic missile.

Concerns have been expressed over the capacity of Russian aviation industry to manufacture two strategic bombers at the same time.³⁹

Box 2: Suggested reading

- [World Nuclear Forces](#), SIPRI Yearbook 2020
- Hans Kristensen and Matt Korda, [Nuclear Notebook: Russian nuclear forces](#), 2020
- Russia’s military modernisation: an assessment, International Institute for Strategic Studies, September 2020
- [“Russia: arms control and non-proliferation”](#), European Parliament Research Service, September 2020
- [“Russia’s nuclear weapons: doctrine, forces and modernization”](#), US Congressional Research Service, July 2020
- [Arms Control and Proliferation Profile: Russia](#), Arms Control Association, August 2019
- [Russia’s Rearmament Programme](#), House of Commons Library, January 2017

³⁸ “Putin says Russian Navy to get hypersonic nuclear strike weapons”, Reuters, 26 July 2020

³⁹ Kristensen and Korda, Nuclear Notebook: Russian nuclear forces, 2020

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