

ROSATOM 2025

*(the war, energy
and global activity)*

2026

BELLONA

Rosatam 2025

(the war, energy and global activity)

Authors: Alexander Nikitin, Dmitry Gorchakov

Published by: Bellona Foundation, Vilnius

About Bellona:

Bellona is an international science-based non-profit organization headquartered in Norway. Founded in 1986 as an action and protest group, Bellona has evolved into a recognized technology- and solution-oriented organization with offices in Oslo, Brussels, Berlin, and Vilnius. Today, more than 70 engineers, ecologists, physicists, chemists, economists, political scientists, and journalists work at Bellona.

Bellona makes every effort to ensure that the information published in this report is accurate and free from copyright infringement but does not guarantee or accept any legal responsibility for the accuracy, completeness, interpretation, or usefulness of the information that may result from reading this report.

©2026 Bellona.

All rights reserved. This copy is intended for personal, non-commercial use only. Users may download, print, or copy excerpts from the report for their own non-commercial use. No part of the report may be reproduced without referencing Bellona as the source. Commercial use of the report requires prior consent from Bellona.

<https://etc.bellona.org>

etc@bellona.org



With the financial support of the European Union. The views and opinions expressed in the report are those of the authors alone and do not necessarily reflect the views of the European Union or CINEA. Neither the European Union nor the granting body can be held responsible for them.

Table of contents

List of abbreviations	4
Summary	5
Introduction.....	7
1. Rosatom in the war in Ukraine	10
1.1. ZNPP and other energy facilities of Ukraine	11
1.2. The IAEA at Ukraine's nuclear facilities.....	19
2. Rosatom in Russia.....	26
2.1. Rosatom and society in wartime.....	26
2.2. Rosatom's governance framework.....	28
Energy, innovations and construction of new capacities	33
2.3.1. Construction of NPPs in Russia, innovative and prospective energy technologies and projects	35
2.3.2. Space nuclear technologies.....	39
2.4. Rosatom in the Arctic.....	40
2.4.1. Militarization of the Arctic and Rosatom	45
2.4.2. The nuclear legacy in the Arctic	48
2.5. Sanctions and import substitution	51
3. Rosatom abroad	55
3.1 Rosatom in the CIS	55
3.2. Rosatom projects in the EU and the USA	60
Construction of the Paks II NPP in Hungary.....	60
Nuclear fuel cycle services for Western countries.....	64
Conclusions and forecasts for Chapter 3.2	73
3.3. Rosatom projects in countries of the Global South	74
Turkey, Akkuyu NPP.....	74
Egypt, El Dabaa NPP	81
China, Tianwan NPP and Xudapu NPP	85
India, Kudankulam NPP	89
Bangladesh, Rooppur NPP	92
Iran, Bushehr NPP.....	95
Projects in Latin America.....	100
Projects in Central and Southern Africa.....	103
Projects in Asian countries	106
Conclusions and forecasts for Chapter 3.3	107
Conclusion.....	109

List of abbreviations

ChNPP – Chernobyl Nuclear Power Plant

FNPP – floating nuclear power plant

HALEU – high-assay low-enriched uranium

IAEA – International Atomic Energy Agency

LEU – low-enriched uranium

NL – nuclear legacy

NPP – nuclear power plant

NSR – Northern Sea Route

SMR – small modular reactor

SRW – solid radioactive waste

ZNPP – Zaporizhzhia Nuclear Power Plant

Summary

Russia's full-scale war against Ukraine has profoundly altered the political and strategic environment in which the Russian state nuclear corporation Rosatom operates. Not only has the war intensified scrutiny of the corporation's role in nuclear safety, energy security, and international governance, but it has also highlighted the extent to which Rosatom functions today at the intersection of technology, state policy, and geopolitical influence.

In this report, we at Bellona continue to analyze Rosatom during wartime, focusing on developments and trends observed in 2025. The report proceeds from a central question: how has Rosatom's role evolved under conditions of prolonged war, geopolitical fragmentation, and strategic confrontation—and what are the implications of that evolution for international security, nuclear governance, and energy politics?

We argue that Rosatom can no longer be understood solely through the traditional framework of a civilian nuclear operator or global technology supplier. Rather, it has increasingly emerged as a multifunctional state instrument—combining industrial, strategic, and political roles both within Russia and internationally.

Particular attention is devoted to the corporation's involvement in and around Ukraine, especially the unprecedented case of the occupied Zaporizhzhia Nuclear Power Plant. The continued militarization of the environment surrounding Europe's largest nuclear facility raises questions that extend beyond the immediate conflict, touching on the resilience of international nuclear governance, the limits of existing legal and institutional frameworks, and the risks created when civilian nuclear infrastructure becomes entangled in armed confrontation.

Several broader conclusions emerge from the report:

- Rosatom's wartime role has deepened institutionally and politically, reinforcing its function not only as a nuclear corporation, but as a strategic component of Russian state policy;
- The occupation of the Zaporizhzhia NPP represents a challenge to established assumptions in nuclear governance, exposing gaps in international mechanisms designed to respond to conflict involving nuclear infrastructure;
- Despite sanctions pressure and geopolitical disruption, Rosatom has maintained significant external reach, particularly through long-term projects in the Global South and through forms of nuclear diplomacy that remain politically resilient;

- Within Russia, the corporation continues expanding into sectors linked to dual-use infrastructure, Arctic development, logistics, and strategic technologies, underscoring its growing role beyond the nuclear sector narrowly defined;
- These developments have implications extending well beyond Russia, raising broader questions about energy dependence, sanctions policy, non-proliferation, and the future of international institutions confronted with new security realities.

We have based this report on analysis of open sources, regulatory and corporate materials, media investigations, and expert assessments. Its purpose is not only to document developments, but to identify patterns and structural trends shaping Rosatom's transformation in wartime conditions.

With this work, we hope to reach policymakers, analysts, regulators, researchers, and practitioners working on nuclear governance, sanctions, security policy, and international energy issues. At the same time, the report seeks to contribute to a wider debate about how strategic state corporations operate in periods of war and geopolitical instability—and how international policy frameworks may need to adapt in response.

Ultimately, this study is about more than Rosatom itself. It is about the changing relationship between nuclear technology, state power, and conflict. Understanding that relationship is increasingly essential for assessing not only Russia's nuclear sector, but also the emerging risks and political realities shaping the global nuclear landscape.

Introduction

Following the start of Russia's full-scale war against Ukraine in 2022, Bellona systematized its analytical work to focus on a comprehensive study of the role of the Russian state corporation Rosatom (hereafter Rosatom) amidst the military conflict and the transformation of the international political and economic environment.

This report continues a series of studies dedicated to analyzing Rosatom's operations during the wartime period. Previous publications examined key processes and trends from 2022–2024, including institutional changes, international activities, and the corporation's role in advancing the strategic interests of the Russian Federation.¹ This report focuses primarily on the events and dynamics of 2025.

The report's authors are, as before, Bellona experts Alexander Nikitin and Dmitry Gorchakov. The report consists of three major chapters. The first two chapters cover events related to Rosatom's activities during the war in Ukraine and within Russia, with Alexander Nikitin as their primary author, who also described Rosatom's activities in CIS countries (Chapter 3.1). Dmitry Gorchakov primarily wrote the chapters related to Rosatom's foreign activities in EU countries and the USA (Chapter 3.2) and in countries of the Global South (Chapter 3.3).

The relevance of the study stems from the fact that the war in Ukraine, now ongoing for four years, remains a factor of high strategic uncertainty. The lack of stable scenarios for its end, coupled with the continuing intensity of military operations, creates conditions in which state corporations possessing technological, infrastructural, and foreign economic potential gain additional significance as instruments of state policy.

Under these conditions, Rosatom extends beyond the traditional role of a nuclear energy operator and supplier of nuclear technologies. The corporation acts as a multifunctional institution, combining elements of an industrial holding, an export agency, and a tool of foreign policy influence. Its activities encompass both domestic areas, including the development of dual-use infrastructure, and international projects implemented under conditions of sanctions and geopolitical uncertainty.

¹ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/rosatom-in-the-war-years/>

In the context of the war in Ukraine, Rosatom's involvement in managing and operating energy infrastructure in the occupied territories, primarily the Zaporizhzhia Nuclear Power Plant (ZNPP), acquires particular significance. These processes raise issues of nuclear safety, international law, and the functioning of global institutions, including interaction with the International Atomic Energy Agency (IAEA).

Simultaneously, Rosatom demonstrates resilience to external restrictions and maintains a high level of international activity. Despite sanctions, the corporation continues to expand its presence in key foreign markets, especially in the countries of the Global South, while also maintaining interaction with certain EU member states and other participants in international regimes. In this context, mechanisms of so-called "low-threshold diplomacy" play a special role, where nuclear energy is positioned primarily as a technological and climate-related field, thereby reducing the political sensitivity of cooperation.

Within Russia, Rosatom is strengthening its position as one of the key elements of state governance in strategically significant industries. In 2025, further expansion of its participation in dual-use projects is observed, including the development of Arctic infrastructure, the icebreaker fleet, logistics systems, as well as projects related to space and mineral exploration. The corporation's activities are closely integrated with the objectives of ensuring Russia's defense capabilities and technological sovereignty.

Rosatom's institutional stability and political influence largely stem from its integration into the highest levels of state governance.

A significant role here is played by the Chairman of the corporation's Supervisory Board, Sergey Kiriyyenko, who concurrently serves as First Deputy Chief of Staff of the Presidential Executive Office of the Russian Federation. Within this configuration, Rosatom functions not only as an economic entity but also as an element that implements the state's foreign and domestic policy strategies.

Methodologically, the report is based on the analysis of publicly available sources, including official reports, regulatory documents, materials from Russian and international media, and expert assessments. It employs qualitative analysis aimed at identifying the key trends, institutional ties, and political-economic mechanisms shaping Rosatom's activities in 2025.

The report's structure reflects the corporation's main areas of activity amid the war and comprises three interconnected sections. The first section examines Rosatom's role in the war in Ukraine, including the situation around the Zaporizhzhia NPP and interaction with the IAEA. The second section analyzes the corporation's activities within Russia—from management structure and energy projects to the Arctic agenda, militarization, and import substitution policies. The third section is devoted to Rosatom's international activities, including its presence in the CIS countries, the EU states and the USA, and the countries of the Global South.

Thus, the report aims to provide a comprehensive understanding of Rosatom's transformation under wartime conditions and its active role as an instrument of current Russian state policy at both the national and international levels.



Photo: TASS

Rosatom in the war in Ukraine

The state corporation Rosatom effectively became a participant in the war in Ukraine from the first days of Russia's full-scale invasion.



Chairman of Rosatom's Supervisory Board Sergey Kiriyenko in the occupied Donbas.

Photo: Radio Liberty <https://youtu.be/G-mzrDdtOno?si=LrCYO2PrOfZw9bhQ>

Already during the occupation of the Chernobyl Nuclear Power Plant (ChNPP) in February–March 2022, signs were recorded of the involvement of relevant Russian specialists in the management and control processes of the nuclear facility.² Despite official statements by

² Ukrainska Pravda, March 12, 2022. Among the occupiers at the Chernobyl Nuclear Power Plant are Rosatom employees [in Russian]. (Accessed: May 14, 2026.) <https://www.pravda.com.ua/rus/news/2022/03/12/7330764/>

Rosatom denying the presence of its representatives at ChNPP, the corporation's institutional status and its exclusive competence in the operation of nuclear infrastructure strongly suggest its participation in advisory and expert activities in the occupied territory of the ChNPP zone.

In subsequent years, the key area of Rosatom's involvement in the war became activities related to the Zaporizhzhia Nuclear Power Plant (ZNPP), Europe's largest nuclear facility, which was seized by Russian armed forces in March 2022. By 2025, this facility had become the central element through which the intersection of Russia's military, energy, and foreign policy agendas is realized.

1.1. ZNPP and other energy facilities of Ukraine

Before the war, Ukraine possessed one of the most extensive nuclear energy programs in Europe, providing about 50–55% of its electricity and placing the country among the world's leaders in terms of the share of nuclear power.³



The Zaporizhzhia NPP before 2022, photo by Ukrainian media (ISW)

³ Chatham House, September 14, 2022. Attacks on Ukraine nuclear plant – what's at stake? (Accessed: May 14, 2026.) <https://www.chathamhouse.org/2022/08/attacks-ukraine-nuclear-plant-whats-stake>

Four nuclear power plants with 15 operating reactors were in operation in Ukraine: the Zaporizhzhia NPP (6 VVER-1000 reactors, the largest nuclear facility in Europe), the Rivne NPP (2 VVER-440 and 2 VVER-1000 reactors), the South Ukraine NPP (3 VVER-1000 reactors), and the Khmelnytskyi NPP (2 VVER-1000 reactors). Additionally, the Chernobyl NPP houses four decommissioned RBMK-1000 reactors, which were finally shut down between 1991 and 2000. Besides nuclear power plants, a number of research nuclear facilities were operating on Ukrainian territory, including the research reactor of the Institute for Nuclear Research of the National Academy of Sciences of Ukraine in Kyiv, the subcritical facility of the Kharkiv Institute of Physics and Technology, and the training and research reactor of Sevastopol National University in Russian-occupied Crimea.

The Zaporizhzhia NPP was captured by Russian troops on March 4, 2022. The unprecedented nature of this event lies in the fact that the armed seizure of a civilian nuclear facility was carried out for the first time in history not by an irregular or criminal armed group, but by a state—a permanent member of the UN Security Council. Rosatom's structures have provided and continue to provide support the armed seizure of another state's nuclear power plant. Therefore, Rosatom's current status at the ZNPP can be interpreted as nothing other than an act of state nuclear terrorism.

Furthermore, according to an investigation by the Ukrainian human rights organization Truth Hounds and Greenpeace Ukraine, elements of heavy-handed management, pressure on staff, violations of safety standards, and offenses against ZNPP employees and residents of Enerhodar have been noted in Rosatom's activities in the occupied territories.⁴

In 2025, Rosatom officially positions its activities at ZNPP as those of a structure ensuring its safety and preparing the plant to resume energy production should hostilities cease. Based on information coming from various Rosatom sources⁵ and from IAEA representatives present at the ZNPP, during 2025 the plant's personnel have been primarily engaged in the technical maintenance and repair of various systems and devices—i.e., performing scheduled preventive inspections and repairs. It is difficult to definitively assess what exactly has been happening at the ZNPP, and how, but apparently some work is indeed being carried out, since personnel are present at their workplaces and must work for the salary that, according to reports from the official Russian website of the ZNPP,⁶ Rosatom pays quite generously.

Today, the ZNPP is operating in a "beyond-design-basis condition" (a prolonged shutdown of reactors with fuel in a subcritical state in the core). Therefore, there is no certainty that inspections and various system adjustments can be carried out in full compliance with operating documentation and technical requirements.

⁴ Truth Hounds, September 24, 2025. Seizing Power: Rosatom's Complicity in Occupation, Torture, and Nuclear Safety Breaches at the Zaporizhzhia NPP. (Accessed: May 14, 2026.)

<https://truth-hounds.org/en/cases/toma-del-poder/>

⁵ Zaporizhzhia NPP [in Russian]. (Accessed: May 14, 2026.)

<https://znpp.ru/>

⁶ Zaporizhzhia NPP. Vacancies [in Russian]. (Accessed: May 14, 2026.)

<https://znpp.ru/career/>

Throughout 2024 and 2025, the Russian leadership and Rosatom stated that the ZNPP reactor units were being prepared for restart. However, according to the official position of Ukraine's Energoatom, the current condition of the equipment and the level of personnel training at the ZNPP do not provide the conditions necessary for a safe restart of the power units without a comprehensive inspection and overhaul of absolutely all equipment. At the same time, the Ukrainian company is skeptical about Rosatom's ability to carry out full-scale maintenance of key reactor control, regulation, and protection systems. Experts assert that all reactor control, regulation, and protection systems installed at ZNPP have been modernized and are technologically incompatible with the Russian energy infrastructure that supports reactor operations. The reason for this is that, beginning in the mid-2000s, Ukraine, in cooperation with Westinghouse and European partners, modernized its entire nuclear infrastructure. These upgrades went beyond fuel—they included safety systems and control units, bringing them into line with EU and WENRA standards adopted and integrated after the Fukushima nuclear accident in Japan.⁷ Ukrainian experts and officials associated with ZNPP estimate that it will take 2–2.5 years to bring the plant's reactor units back into operation, along with the required equipment, materials, documentation, and professionally trained personnel. In addition, experts point to the ongoing water crisis at ZNPP following the destruction of the Kakhovka dam on June 6, 2023, which deprived the plant of its main source of cooling water. Today, Rosatom is attempting to find additional cooling sources and has announced plans to build a special floating modular pumping station with a capacity of up to 18,000 cubic meters per hour. However, even if this pumping station is completed, it will only be able to provide emergency cooling for equipment and will not allow the plant to operate at full capacity. Therefore, despite the fact that in December 2025 Rostekhnadzor issued a 10-year operating license for ZNPP Unit 1, and on February 18, 2026, for Unit 2, the actual conditions remain extremely unfavorable for operating the power units. According to the Ukrainian side, the combination of military risks and unresolved technological problems makes the prospects for full-scale operation of ZNPP units highly doubtful.

In addition to all the problems mentioned above, concerns about the professional qualifications of the current plant personnel remain unresolved. Today, about 3,000 former ZNPP employees have signed contracts with Rosatom, and several hundred more specialists have been brought in from other Russian nuclear power plants. Ukrainian sources claim that the personnel recruited from Russian plants are mostly individuals who are not considered highly valuable or highly qualified specialists in their home facilities, which is why they are either permanently reassigned or temporarily seconded to what has become a hazardous operating environment for Rosatom staff, enticed by additional "hazard pay" offered in occupied territories.⁸ It should be noted that at nuclear facilities, the most important factor is not the quantity but the quality and reliability of personnel—especially under current wartime and unstable conditions. Rosatom cannot ignore this, which is why, during the war period,

⁷ Euromaidan Press, June 7, 2025. Putin's nuclear magic trick has no rabbit – Why Russia can't actually use captured Ukrainian reactors. (Accessed: May 14, 2026.) <https://euromaidanpress.com/2025/06/07/putins-nuclear-magic-trick-has-no-rabbit-why-russia-cant-actually-use-captured-ukrainian-reactors/>

⁸ Zaporizhzhia NPP. Vacancies [in Russian]. (Accessed: May 14, 2026.) <https://znpp.ru/career/>

a special training center was established at ZNPP, expanding the range of professional training programs, including maintenance training for personnel.⁹ In addition, at Sevastopol State University in occupied Crimea, a special VVER-1000 simulator was launched in early 2026 to train specialists for ZNPP. Taking all these issues into account, it is difficult to be confident today that staffing and personnel training at ZNPP have been reliably resolved or that the plant is ready to begin operating its power units.

Undoubtedly, the Kremlin is exerting strong political pressure on Rosatom, Rostekhnadzor, and other Russian agencies and organizations involved in the situation at the ZNPP. This is one of the main reasons why, at the end of 2025, the process of issuing operating licenses began—for power units as well as other facilities and systems subject to licensing at the ZNPP. Initially, a license was issued for the spent nuclear fuel storage facility, followed by licenses for Unit 1 (with American fuel) and Unit 2 (with Russian fuel in the reactor).

The issue of Westinghouse fuel currently loaded into the reactors of Units 1, 3, 4, and 5 at the ZNPP remains unresolved. Throughout 2025, several scenarios were discussed. The option of returning Westinghouse fuel assemblies announced by Alexey Likhachev is only one of several possibilities. It may be preferable for Russia, but that does not mean it is acceptable to Ukraine or the United States. The fuel issue involves Ukraine, Russia, the IAEA, the Trump administration, and Westinghouse. In the absence of agreed solutions among these parties—and without removing technological as well as legal and political barriers—the restart of ZNPP power units is currently impossible.

Rosenergoatom's flurry of technical preparations and licensing efforts has little to do with any genuine plan to provide electricity to any part of Russian territory. In 2025, Greenpeace, citing satellite imagery, reported that Russia was constructing a new high-voltage transmission line to deliver electricity from ZNPP toward the Russian-occupied territories in the direction of Mariupol and Berdiansk. The Ukrainian side reacted rather calmly, apparently because, in the context of an ongoing war, this information does not constitute definitive proof that the ZNPP units can actually be restarted. Electricity generated by a nuclear power plant has a voltage of 750 kilovolts, which significantly exceeds consumption levels; therefore, to become usable, it must pass through several step-down substations—none of which currently exist in the occupied zone. Even if such infrastructure begins to be built, it would not be particularly difficult for the Ukrainian military, given its current capabilities, to destroy or at least damage such facilities.

Nevertheless, one of the most critical issues in the current state of the ZNPP remains the prevention of accidents that could lead to nuclear or radiological hazards. The "cold shutdown" mode in which the plant's units are maintained virtually guarantees the physical impossibility of uncontrolled nuclear processes that could result in a nuclear accident. The risk is practically zero—provided there is no malevolent interference by personnel with specific intentions, such as attempting an unprepared restart of the units or carrying out criminal actions.

⁹ Zaporizhzhia NPP. Education. List of courses [in Russian]. (Accessed: May 14, 2026.)
<https://znpp.ru/utc/obrazovanie/spisok-kursov/>

As for the likelihood of purely radiological (non-nuclear) incidents, it is important to note the recurring outages of external power lines supplying electricity needed for cooling fuel and supporting other plant operations. In 2025, at least three cases of complete loss of off-site power (blackouts) were recorded, along with numerous other disconnections of individual high-voltage lines essential for reactor and spent fuel cooling systems. Major blackouts—i.e., prolonged total loss of external power—occurred in May and September 2025. In the first case, Russian shelling damaged the Ukrainian 330 kV Ferrosplavna-1 transmission line; in the second, phase “C” of a 750 kV Dniprovskia power line was damaged, leaving ZNPP in a complete blackout for almost a month. Over the entire period of occupation, from March 2022 to April 2026, there have been 12 complete blackouts at ZNPP.¹⁰ Ukrainian officials and experts believe that damage to Ukrainian power lines may indicate some sort of technical preparation aimed at legitimizing Rosatom and eventually recognizing it as the lawful operator of ZNPP.¹¹ Despite this, Ukraine’s position remains unchanged. In March 2025, President Volodymyr Zelenskyy stated once again: “No one will supply electricity to Russia...The Zaporizhzhia plant is our plant; it will not operate without us and will not operate for them (Russia)...”. From this, only one conclusion can be drawn: Ukraine does not intend to hand over ZNPP in operational condition to Russia.¹²

The concept of so-called “split operation” was discussed throughout 2025 in various forms. At times, a “50/50” arrangement involving a third party was proposed. Options were also considered for transferring control of the plant to the United States or even to the IAEA. From the standpoint of operational management and nuclear safety, however, such approaches appear highly problematic and not feasible in practice.

ZNPP was originally designed and operated as a single integrated technical complex. A significant portion of its infrastructure—power supply, cooling, control, and safety systems—is shared among all six units. Any attempt to administratively or technically “divide” the plant would inevitably either reduce safety levels or prove fundamentally unworkable.

Additional risks stem from the fact that the Ukrainian and Russian power systems operate in different synchronous zones. Ukraine’s grid is synchronized with the European ENTSO-E system, whereas Russia’s operates separately. These systems cannot be directly interconnected. In a split-operation scenario, this eliminates the possibility of mutual backup: an accident or loss of external power in one part of the plant could not be compensated by the other.

Questions would also arise regarding governance and responsibility: who and on what grounds would issue key commands on-site, how personnel interaction would be organized in emergency situations, and which regulator would be accountable for compliance with nuclear and radiation safety requirements.

¹⁰ IAEA, March 6, 2026. Update 343 – IAEA Director General Statement on Situation in Ukraine. (Accessed: May 14, 2026.) <https://www.iaea.org/newscenter/pressreleases/update-343-iaea-director-general-statement-on-situation-in-ukraine>

¹¹ Georgiy Balakan [LinkedIn], February 9, 2026. The bitter aftertaste of Russian insinuations — our medicine. (Accessed: May 14, 2026.) https://www.linkedin.com/pulse/bitter-aftertaste-russian-insinuations-our-medicine-georgiy-balakan-lerif?trk=public_post

¹² Euromaidan Press, March 25, 2025. Zelenskyy says Zaporizhzhia Nuclear Plant will not operate under Russian control. (Accessed: May 14, 2026.) <https://euromaidanpress.com/2025/03/25/zelenskyy-says-zaporizhzhia-nuclear-plant-will-not-operate-under-russian-control/>

An additional risk factor is the personnel situation: the language barrier, the breakdown of professional teams, and the replacement of operational documentation, which was kept in Ukrainian before the occupation and was subsequently translated into Russian by the Russian side. The level of hatred between the Ukrainian and Russian sides, which has emerged over the years of war and has risen to a critical point, must also be taken into account (even US President Trump has very often mentioned this in his comments regarding the difficulties of stopping the Russian-Ukrainian war).¹³ Against this backdrop, risks of sabotage, diversionary tactics, or terrorist threats cannot be ruled out.

A fundamentally important issue concerns the nuclear materials located at the plant. Nuclear fuel must have a legally defined custodian who is responsible for compliance with the non-proliferation regime. Under conditions of a “split” plant, the legal status of the fuel—including fuel supplied by Westinghouse—remains unclear.

Beyond the technical aspects, there is also a serious political risk: the very logic of “dividing” the plant effectively normalizes a situation in which a captured nuclear facility becomes an object of bargaining and may be used in the interests of the occupying power. This creates a dangerous international precedent, particularly from the standpoint of global nuclear safety.

Politicians and experts argue that for Russia, commercial considerations related to the operation of ZNPP are secondary. Russia’s occupation of the plant was most likely driven by political objectives and viewed as an instrument of nuclear coercion. Therefore, if even a single reactor is restarted—as Russia has repeatedly suggested—the risk of a nuclear incident would increase significantly and could be used as a tool of international pressure, especially if accompanied by combat incidents, sabotage, drone attacks, or other military actions.

On February 14, 2025, the protective structure over the destroyed Unit 4 of the Chernobyl NPP was struck by a Russian drone. The explosion damaged the outer shell of the new safe confinement (NSC), creating a hole of about six meters and causing a fire that took several weeks to extinguish. Despite the absence of casualties and normal radiation levels outside the facility, the incident had serious consequences. The damage compromised the integrity of the structure and partially disabled its protective functions, including its ability to contain radioactive material. The fire and subsequent firefighting efforts further weakened the structure, creating risks of corrosion and accelerated deterioration of the old sarcophagus inside. According to expert assessments, restoration will require substantial costs and may take years, and some of the shelter’s functions can no longer be fully restored. It is difficult to assess whether Rosatom had any involvement in the February 14 drone strike on the Chernobyl new safe confinement, but it was nonetheless the first direct armed attack in history on civilian nuclear infrastructure using combat aerial vehicles. Notably, such incidents have not occurred even in the ongoing active conflict in Iran.

¹³ Fox News, May 4, 2025. Trump says he could ‘walk away’ from Russia-Ukraine talks, cites ‘tremendous hatred’ on both sides. (Accessed: May 14, 2026.) <https://www.foxnews.com/politics/trump-says-he-could-walk-away-from-russia-ukraine-talks-cites-tremendous-hatred-both-sides>

Russia began to intensively attack and damage Ukraine's non-nuclear energy facilities from autumn 2025, although many such facilities had already been targeted in earlier phases of the war. According to Ukrainian authorities, from October 2025 through January 2026, approximately 8.5 GW of generating capacity—primarily thermal and hydroelectric—was damaged by Russian strikes, and around 20 to 25 GW over the entire course of the war.¹⁴

The objective of these strikes is clear: with the onset of cold weather, to deprive Ukraine's population of electricity, heat, water, and other essential resources, thereby worsening the humanitarian situation and exerting pressure on Ukraine's political leadership to concede to Russian demands.

It should be noted that, due to damage inflicted on Ukraine's coal- and gas-fired generation, the share of electricity from nuclear power plants consumed in the non-occupied territories now exceeds 70% of total supply, including both domestic generation and imports. Unlike thermal and hydroelectric plants, direct shelling of Ukrainian nuclear power plants—aside from the Chernobyl NSC—was not recorded in 2025. Therefore, in order to limit electricity supply from Ukrainian nuclear plants, Russia has actively targeted distribution networks and transformer substations. Such strikes disrupt power output and external power supply to nuclear plants, forcing reactor units to curtail power generation and increasing their dependence on backup transmission lines and diesel generators, thereby complicating efforts to maintain nuclear and radiological safety. Attacks on grid nodes and substations that provide external power to nuclear plants move the situation beyond the realm of conventional energy infrastructure. This is no longer merely about interruptions in electricity supply to consumers, but about direct impacts on the nuclear safety systems of reactor units. Loss of off-site power for a nuclear plant operating at capacity always entails the risk of an emergency scenario.

For military command, where to direct a missile or drone is essentially immaterial. However, specialists at Rosatom cannot fail to understand the consequences of disconnecting a nuclear power plant from external power sources. In this context, the role of Rosatom's experts in processes aimed at deliberately limiting the functioning of Ukraine's nuclear energy sector through strikes on infrastructure appears not incidental but systemic. This represents a shift of military pressure into the realm of nuclear risk.

Russia's strategy is clear—to use Ukraine's current dependence on nuclear energy as a tool of pressure. By avoiding direct attacks on nuclear power plants while simultaneously striking the energy infrastructure critical to their operation, Russia leaves room to deny direct attacks on nuclear facilities

Nevertheless, through strikes on the energy sector, Russia has brought Ukraine's power system to the brink of collapse. From December 2025 to February 2026, 15 major attacks involving missiles and drones were recorded—more than three times the average for the previous three winters of the war. The primary targets were power plants, substations, transmission lines, and boiler plants.

¹⁴ New Voice Ukraine, January 20, 2026. Russians damaged 8.5 GW of power generation this heating season, Ukraine needs \$1 billion in aid — Sobolev [in Russian]. (Accessed: May 14, 2026.)
<https://nv.ua/ukraine/events/energetika-ukrainy-rt-povredila-8-5-gvt-generacii-s-oktyabrya-2025-goda-50577133.html>

Timeline of incidents in 2025 (grid strikes and impact on NPPs)

Date	Plant	Incident	Effect on power / lines	Source
October 30, 2025	South Ukraine NPP	Military activity led to the disconnection of one external high-voltage line	Loss of one off-site power line; reduced stability of power output	UK Statement to IAEA Board, Nov 2025
October 30–31, 2025	Rivne NPP	Damage to substations connected to the plant	Two of four units reduced output at the request of the grid operator	Reuters, 31 Oct 2025
October 30, 2025	Khmelnyskyi NPP	Loss of an external line amid missile and drone attacks	Disconnection of one line; operational constraints	NV (citing the IAEA), 30 Oct 2025
November 8, 2025	Rivne NPP	Strike on substations supplying the plant	Reduced generation; limited power output to the grid	Reuters, 8 Nov 2025
November 8, 2025	Khmelnyskyi NPP	Strike on a substation providing power supply/output	Reduced capacity; temporary line loss	Reuters, 8 Nov 2025
November 8, 2025	Khmelnyskyi and Rivne NPP	Confirmed external line outages following attacks	Loss of off-site power lines and reduced generation at both plants	UK Statement to IAEA Board, Nov 2025
November 19, 2025	South Ukraine, Rivne and Khmelnyskyi NPPs	Large-scale attack on Ukraine's power system	All three operating NPPs reduced output; multiple line outages recorded	UK Statement to IAEA Board, Nov 2025

Experts note that Moscow has changed tactics: instead of dispersed strikes across Ukraine, Russia has begun methodically targeting specific nodes of the energy system, attempting to fragment the grid into isolated sections. Transmission lines are struck first to cut regions off from power imports, after which generation facilities within those zones are systematically destroyed. As a result, at certain periods the Ukrainian power system has come close to collapse. For example, in late January 2026, most of the city of Kyiv was left without electricity for several hours, and residents of the capital spent, on average, half of any day without power. Following strikes on CHP-4, around 500,000 people were left without heating in temperatures as low as -15 °C. A total collapse of the energy system was avoided only thanks to round-the-clock repair work and large-scale assistance from Western countries. During this period, Ukrainian households and businesses installed thousands of portable power generators with a combined capacity exceeding 3 gigawatts. According to Ukrainian government estimates, winter capacity shortages reached 5–6 gigawatts—roughly one-third of the country’s peak demand.¹⁵

In light of the foregoing, it is important to recognize that developments around the ZNPP extend beyond a regional conflict and assume systemic significance. This is not only about the safety of a single facility, but also the broader question of whether nuclear infrastructure can be used within the logic of military confrontation.

¹⁵ Reuters, September 19, 2024. Ukraine faces winter power shortfall of one-third of peak demand, IEA says. (Accessed: May 14, 2026.) <https://www.reuters.com/world/europe/ukraine-faces-6-gw-power-supply-shortfall-this-winter-iaea-says-2024-09-19/>

In addition, Ukraine's experience under wartime conditions indicates that the state's energy system must be decentralized and maximally protected. At the same time, in the event of military threats, the country must have reserves of equipment and trained personnel capable of ensuring the rapid restoration of the energy system under wartime conditions.

1.2. The IAEA at Ukraine's nuclear facilities

In Bellona's previous report ("The IAEA's Role in Times of War," 2022–2024),¹⁶ a detailed analysis was provided on the activities of the International Atomic Energy Agency (IAEA) under conditions of armed conflict. In 2025, the institutional model of the Agency's presence in Ukraine has not fundamentally changed, which allows us to speak of the consolidation of the existing format—with its strengths and systemic limitations.



Photo: Rosatom

¹⁶ Bellona, 2024. The IAEA's Role in Times of War. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/the-iaeas-role-in-times-of-war/>

The Russian Federation consistently uses the presence of the IAEA at the Zaporizhzhia NPP (ZNPP) and other facilities as an instrument of political legitimization of its de facto control over the plant. The mere presence of international inspectors on site is interpreted by the Russian side as evidence of the “controllability” and “safety” of ongoing processes. As a result, an effect of institutional cover emerges, whereby the Agency’s technical presence is used for political purposes that go beyond its mandate.

In 2025, IAEA missions continued their work at Ukrainian nuclear power plants and energy infrastructure facilities. The Board of Governors and the General Conference of the Agency repeatedly reviewed the situation in Ukraine, noting violations of nuclear safety principles and formulating recommendations to mitigate them. The IAEA Director General regularly issued statements, including in connection with episodes of loss of external power supply to the ZNPP and the attack on the protective structure of the Chernobyl NPP. Agency inspectors monitored the state of infrastructure, including power lines and safety systems, and sent regular reports to headquarters in Vienna.

At the same time, despite continuous monitoring, the IAEA’s influence on the behavior of the parties to the conflict remains limited. The Agency’s General Conference has repeatedly adopted resolutions demanding the withdrawal of Russian military and other unauthorized personnel from the ZNPP site and the return of the plant to Ukrainian control. However, these decisions have not led to any change in the actual situation at the site. The IAEA report published in 2025 contains comparatively strong language, including references to the militarization of the plant’s territory and systematic violations of the so-called “five principles” for ensuring the safety of the ZNPP under conditions of armed conflict.¹⁷ Nevertheless, the Russian side not only ignored these assessments but also accused the Agency of exceeding its mandate. From a practical point of view, this means that even in the presence of documented violations, international mechanisms in the field of nuclear safety do not provide enforcement to eliminate them. Moreover, the situation demonstrates a broader institutional effect: the IAEA, like other international organizations (the UN, the OSCE, the International Committee of the Red Cross), is highly limited in its ability to influence the actions of a state willing to ignore adopted norms and decisions. As a result, an asymmetry is formed in which compliance with rules becomes voluntary, while violations, in the short term, go effectively unpunished.

The Ukrainian side, including state authorities and the national operator Energoatom, generally understands the limitations of the IAEA’s mandate and avoids direct confrontation with the Agency. At the same time, Kyiv consistently demands a clearer and more principled position regarding Russia’s unlawful presence at the ZNPP. A key demand remains preventing the “normalization” of occupation through the language and practices of international engagement.

At the expert level, criticism of the IAEA’s activities is more severe. In particular, certain Agency decisions—such as rotating its mission through occupied Ukrainian territory (March 2025)—

¹⁷ IAEA, February 27, 2025. Nuclear Safety, Security and Safeguards in Ukraine. (Accessed: May 14, 2026.) <https://www.iaea.org/sites/default/files/documents/gov2025-11.pdf>

have been interpreted as steps that risk the de facto legitimization of Russian control over the ZNPP. At the same time, expert assessment of the rotation must take into account security factors for personnel in wartime conditions, making the situation fundamentally ambiguous.

Of particular importance is the IAEA's position regarding the licensing process of ZNPP power units by the Russian regulator (Rostekhnadzor). Throughout 2025, the Agency had full information about preparations for issuing licenses, including inspections and contacts with the Russian side. At the same time, the IAEA consistently emphasized that its mandate is limited to nuclear safety issues and does not extend to assessing the legal legitimacy of the parties' actions. Formally, this position corresponds to the Agency's statutory limitations; however, in practice it creates a legal vacuum.

In a situation where "re-licensing" of a nuclear facility in occupied territory is taking place, refusal to provide a legal assessment effectively means accepting a separation between safety and law—even though in reality these spheres are inseparable. Statements by the IAEA Director General in early 2026 about the impossibility of restarting the ZNPP under conditions of ongoing hostilities may be interpreted as an indirect non-recognition of the practical viability of Russian-issued licenses.¹⁸ However, the absence of a direct legal position leaves room for political interpretation. As a result, a "de facto without de jure" situation emerges: regulatory actions are undertaken but are not accompanied by international recognition of their legal consequences.

From the standpoint of international law, the status of the plant continues to be determined by Ukraine's jurisdiction, since Russia's control is not recognized by the international community. In this context, the actions of Rostekhnadzor may be viewed as part of the institutionalization of control that contradicts the law of occupation—in particular, Article 43 of the 1907 Hague Regulations¹⁹ and the principle of non-recognition of territorial acquisitions obtained by force (Article 2(4) of the UN Charter and UN General Assembly Resolution 2625).²⁰ Accordingly, the licenses being issued do not create legitimate legal effects beyond Russian jurisdiction.

The IAEA's position, grounded in institutional neutrality, comes into structural conflict with the Agency's own standards, which presuppose the existence of

- a recognized regulator;
- a legitimate operator;
- transparent licensing procedures;
- clearly defined responsibility for safety.

¹⁸ Atomic Energy 2.0, March 17, 2026. The head of the IAEA has negatively assessed plans to restart the Zaporizhzhia NPP [in Russian]. (Accessed: May 14, 2026.) <https://www.atomic-energy.ru/news/2026/03/17/164343>

¹⁹ International Humanitarian Law Databases. Convention (IV) respecting the Laws and Customs of War on Land. Art. 43. (Accessed: May 14, 2026.) <https://ihl-databases.icrc.org/en/ihl-treaties/hague-conv-iv-1907/regulations-art-43>

²⁰ UN Legislative Series. Book 25. Art. 41. (Accessed: May 14, 2026.) https://legal.un.org/legislativeseries/pdfs/chapters/book25/english/book25_part2_ch3_art41.pdf

Under conditions of occupation, these requirements objectively cannot be met, and their intentional institutional disregard creates the risk of substituting the legal regime with purely technical procedures.

Thus, the situation surrounding the ZNPP reveals a fundamental limitation of the IAEA's mandate: the Agency is effective in situations involving technical incidents, but is insufficiently adapted to circumstances in which nuclear infrastructure becomes an element of armed conflict and a subject of dispute over sovereignty. This raises the question of the need for an institutional rethinking of the IAEA's role, including clarification of its functions in situations of occupation, armed conflict, and competing jurisdictions over nuclear facilities.

At the same time, it should be noted that the international community (the EU, the United States, and the member states of the Board of Governors) continues to regard the IAEA as an indispensable instrument of technical monitoring. The need for the Agency's continuous presence at Ukrainian facilities and for ensuring it has unimpeded access remains widely supported.

In the present situation, the IAEA's role is largely restraining rather than regulatory in nature. The Agency documents risks and violations but does not possess the instruments to prevent or halt them. At present, this constitutes the central contradiction between the scale of the challenge and the capabilities of the existing international institutional architecture in the field of nuclear safety.

In summary, the war has exposed numerous problems and risks that previously remained outside the focus of attention and for which neither instruments nor regulatory frameworks had been developed.

Rosatom has made little effort to conceal its active involvement in the war against Ukraine. The head of the state corporation, Alexey Likhachev, has periodically reported on Rosatom's involvement in non-nuclear military programs. Speaking in May 2025 at the Federation Council of the Russian Federation with a report on the development of the nuclear industry, he stated that Rosatom "...on its own initiative is developing models of non-nuclear weapons and military equipment... and is fulfilling the state defense order in full..."²¹

While Rosatom's role in the development of the nuclear weapons complex has long been known and undisputed, its initiative-driven shift toward the development of non-nuclear weapons is a product of contemporary Russian state policy and that of the nuclear sector, whose non-nuclear militarization became clearly evident with the outbreak of the war in Ukraine. Today, Rosatom employs approximately 420,000 people: about 88,000 work in

²¹ Federation Council, May 28, 2025. 590th meeting of the Federation Council [in Russian]. (Accessed: May 14, 2026.)
<http://council.gov.ru/activity/meetings/166436/transcript/>

divisions engaged in nuclear and non-nuclear weapons; around 70,000 in civilian nuclear energy; 80,000 in the nuclear fuel cycle; about 60,000 in information technology and scientific fields; around 60,000 on international projects; and the remainder in mechanical engineering, construction, and other areas.²²



Screenshot from the presentation accompanying Rosatom head Alexey Likhachev's report to the Federation Council, May 21, 2025

Source: Federation Council of the Russian Federation²³

Rosatom's leadership consistently emphasizes that atomic energy corporation is carrying out extensive work to support participants in the "special military operation" and their families, cooperating with the Defenders of the Fatherland Foundation and others, assisting those returning from the front, especially after injuries, as well as their relatives, by providing employment and opportunities for free education at its higher education institutions.

²² Rosatom State Corporation. About us. (Accessed: May 14, 2026.)
<https://rosatom.ru/en/about-us/>

²³ Federation Council, May 28, 2025. A. Likhachev: Rosatom is developing long-term development plans for the cities where it operates [in Russian]. (Accessed: May 14, 2026.)
<http://council.gov.ru/events/news/166581/>

We Support Our Own

Support for participants in the “special military operation” and their families – in partnership with the state foundation “Defenders of the Fatherland”

- **2.577 people** in the support program
- More than **2.7 billion rubles** allocated for support
- **261 people** have undergone rehabilitation in industry medical facilities
- A special **rehabilitation program** in the Sarov Monastery



Kurchatov



- **2.5 billion rubles** of assistance to residents of the Kursk region and participants of the special military operation
- **165 tons** of humanitarian aid
- **291 tons** of medical supplies
- **1,000 laptops** provided to the regional education committee
- A **mixed study format** has been organized – 99% of children attend schools
- **Safety ensured** for educational and medical institutions
- **80% of residents** participate in volunteer activities

80 years of the nuclear industry



Enerhodar

3.9 billion rubles in financing for the social sphere for 2023–2024; 2.7 billion rubles planned for 2025

- **3 Atom classes** opened
- More than **200 graduates** signed contracts from Sevastopol State University with the Zaportzhzhia NPP
- Opening of the **Polytechnic College**, a branch of Sevastopol State University
- Operation of the **Tochka kpenlya** youth center
- Repair and operation of the **Manzuli Boxing School**
- With the support of the FMRA, dispensary examinations conducted for more than **5,000 residents**
- **1,900 children** recuperated in children’s camps on the Crimean coast

Screenshot from the presentation accompanying Rosatom head Alexey Likhachev’s report to the Federation Council, May 21, 2025

Source: Federation Council of the Russian Federation²⁴

In 2025, Rosatom repeatedly stated that it was developing a plan to bring the Zaporizhzhia NPP to full capacity. At the same time, the company acknowledges at least four key problems that must be resolved: ensuring the plant’s water supply, restoring its connection to the power grid, addressing the issue of the fuel in use (likely of American origin), and the technical condition of the power units. However, the main factor preventing the resumption of operations remains the unresolved military-political situation.

In parallel, Rosatom regularly reports on the work of the Russian regulator (Rostekhnadzor) at the plant site, which issues licenses for the operation of individual equipment and entire power units, and also assesses personnel readiness, emphasizing the successful nature of this work. Likhachev stated that Rosatom intends to assemble a full licensing package for all six units of the ZNPP in 2026,²⁵ and that IAEA Director General Rafael Grossi was informed of this during their meeting in Moscow in March 2026.²⁶

²⁴ Federation Council, May 28, 2025. A. Likhachev: Rosatom is developing long-term development plans for the cities where it operates [in Russian]. (Accessed: May 14, 2026.) <http://council.gov.ru/events/news/166581/>

²⁵ TASS, March 13, 2026. Rosatom plans to form a licensing package for all Zaporizhzhya NPP units in 2026 [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/26754219>

²⁶ Rosatom State Corporation, March 13, 2026. The next round of consultations between Russia and the IAEA on the Zaporizhzhya NPP took place in Moscow [in Russian]. (Accessed: May 14, 2026.) <http://www.rosatom.ru/mainpage/v-moskve-proshel-ocherednoy-raund-konsultatsiy-rossii-i-magate-po-zaporozhskoy-aes/>

It is quite clear that in a situation where the country's leadership expects reports on the plant's readiness for operation, Russian state structures cannot refuse to issue permits and licenses, even if the actual readiness of the power units and personnel still raises many questions. In such circumstances, the leadership of Rostekhnadzor views the issuance of licenses primarily as a political task that must be fulfilled. At the same time, the regulator understands that the real risk to it is minimal, since in the foreseeable future the plant's full-scale restart is practically impossible, and its licensing decisions are unlikely to expose it to liability in the event of incidents.

At present, experts at various levels and from different countries share a fairly stable view that Europe's largest nuclear power plant will remain out of operation for its intended purpose for a considerable time, as the parties to the conflict are not yet capable of resolving the central issue—reaching a political settlement in the war.

The situation around the Zaporizhzhia NPP demonstrates a qualitative shift in the role of civilian nuclear infrastructure in conditions of armed conflict. The effective use of the plant as an instrument of political pressure and military influence creates a dangerous precedent in which control over a nuclear facility becomes an element of power politics.

In this situation, Rosatom's role extends beyond technical operation and takes on features of involvement in the implementation of a strategy that combines energy pressure with nuclear risks. The absence of a firm international response to such practices sends a troubling signal: existing international mechanisms are not fully capable of preventing their emergence or negative escalation.

2. Rosatom in Russia

At present, it can be stated that the state corporation Rosatom has effectively restored the status of a “state within a state,” once held by the USSR Ministry of Atomic Energy and Industry (Minatom). According to Bellona’s assessment, Rosatom currently enjoys the maximum level of political and economic support from the state.

Rosatom and society in wartime

Under wartime conditions, Rosatom has intensified its engagement with various social groups, primarily in so-called “nuclear cities,” the scientific community, and other significant public institutions. This effort to attract public attention and build support can be seen not only as part of fulfilling the state’s political objectives, but also as a means of strengthening the corporation’s institutional standing, necessary for advancing and implementing its key projects.

Since the start of the war, Rosatom has been operating in a substantially altered socio-political environment, in which the influence of the anti-nuclear movement—formed after the Chernobyl disaster and other nuclear incidents—has significantly declined. A large number of environmental and human rights organizations have either ceased operations or reduced their public activity. As a result, the level of structured criticism from independent civic and scientific communities directed at the corporation has markedly decreased.

At the same time, Rosatom has restructured its approach to environmental and social policy, transferring part of these functions to newly created or state-supported non-profit organizations, such as Dobro RF²⁷ and a number of other similar entities. According to available data, around 50 such organizations are currently active across approximately 20 “nuclear cities,” participating in the implementation of social and community initiatives.

During this period, there has also been an increase in the corporation’s activity in public, educational, and public relations initiatives aimed at various social groups—including youth,

²⁷ Dobro.RF Association [in Russian]. (Accessed: May 14, 2026.)
<https://dobro.ru/>

representatives of the scientific and educational communities, and other segments of the population. A notable development was the series of events held in 2025 to mark the 80th anniversary of the nuclear industry, including the international forum World Atomic Week 2025, corporate programs, exhibitions and mass campaigns, as well as the professional skills championship AtomSkills-2025.

According to open-source estimates, the combined audience of these initiatives in 2025 reached into the hundreds of thousands, while total funding reached tens of billions of rubles, indicating the significant scale and institutional priority of this area of Rosatom's activity.²⁸

In the context of the systemic suppression of independent civic and environmental organizations, Bellona draws particular attention to the activities of Rosatom's Public Council—a body originally designed within the framework of a “democratic ideology” formulated by Sergey Kirienko, the current chairman of Rosatom's supervisory board, during his tenure as head of the corporation (from 2005). According to this concept, the Public Council was intended to engage actively with the public and the scientific community, and to build consensus with them to ensure nuclear safety and promote Rosatom's projects.

Initially, the Public Council was composed as follows: one third consisted of representatives of active (including advocacy-oriented) public organizations; another third comprised independent scientists not affiliated with Rosatom; and the remaining third included representatives of various Rosatom structures.

Although even before the war the Council's work had to some extent become bureaucratized, it remained one of the few channels of interaction between the state corporation and representatives of the expert and public communities. Despite its limitations, it preserved elements of public oversight and provided a platform for open—including critical—discussion of sectoral issues.

After the outbreak of the war, this channel was effectively dismantled. A detailed assessment of the Council's activities during wartime is difficult: its website no longer publishes specific information on planned events or their outcomes, as it did in the pre-war period. With the onset of the war, the Council's composition was purged of independent participants.

Most representatives of public organizations either left voluntarily or were pushed out and replaced with loyal figures—heads of Rosatom-affiliated structures, representatives of the Civic Chamber of the Russian Federation, trade unions, and other institutions dependent on the state and the corporation. Remaining members associated with the earlier democratic environmental movement of the “Yablokov school”²⁹ were reassigned to the status of “Council advisers,” significantly reducing their influence and resources. As a result, the Public Council has transformed from a consultative body and a channel for engagement with

²⁸ Forbes. Engage and support: how Rosatom addresses social challenges [in Russian]. (Accessed: May 14, 2026.) <https://www.forbes.ru/special/rosatom-ludi-i-goroda/social-projects/?erid=F7NfYUJCUneTTTWwu1Jw>

²⁹ Yablokov Center [in Russian]. (Accessed: May 14, 2026.) <http://yablokov.site/center/>

stakeholders into an instrument for simulating public support. It has effectively closed itself off to independent—and especially critical—voices, focusing instead on serving the interests of the state corporation and current government policy.

Today, its main activities are limited to promoting the corporate agenda of “nuclear cities,” organizing formal events and competitions in support of Rosatom’s projects, and participating in large-scale propaganda initiatives involving “patriotic” youth movements such as Yug Molodoy (Young South), Young Guard, Movement of the First, the S.V.E.T. movement, and others. These activities are aimed not at substantive public dialogue, but at manufacturing loyalty and supporting the current political course.

Moreover, the Public Council has openly aligned itself with support for the war against Ukraine. Specifically, it established a “reception office” in the occupied city of Enerhodar, where the Zaporizhzhia Nuclear Power Plant is located. This initiative is intended to legitimize occupation authorities and create the appearance of “public consensus” under conditions of military control.³⁰

Rosatom’s governance framework

In its previous report “Russia’s Nuclear Industry on the Eve of and at the Beginning of the War,”³¹ Bellona provided a detailed analysis of the structure and governance framework of the state corporation Rosatom. Over four years of war, the corporation’s managerial configuration has changed significantly, both in terms of personnel and organizational structure. Amid expanding sanctions and a redistribution of economic priorities, the involvement of state bodies (the Presidential Administration of the Russian Federation and the Government) in shaping Rosatom’s management decisions has increased—particularly with regard to international contracts and strategic projects. This is reflected in the growing presence of government officials on the supervisory board of the nuclear sector and tighter control over key areas. In addition, due to the expansion of foreign policy and defense-related responsibilities, Rosatom has appointed deputy heads overseeing international business, export projects, and service lines, while also strengthening new management units focused on geopolitically oriented projects (the Arctic, international infrastructure logistics corridors, and others).

With the onset of military operations, Rosatom, according to official reports, has increased its participation in fulfilling the state defense order. This has led to a shift in managerial priorities toward ensuring supplies, technologies, and services critical for defense. The period 2022–2025 is characterized by an adjustment of Rosatom’s role in international relations, resulting

³⁰ Rosatom State Corporation, 2024. Annual report on the results of the activities of the Public Council of Rosatom State Corporation for 2023 [in Russian]. (Accessed: May 14, 2026.)

<https://sovetrostatom.ru/wp-content/uploads/2024/10/Ежегодный-отчет-об-итогах-деятельности-Общественного-совета-Госкорпорации-Росатом-за-2023-год.pdf>

³¹ Bellona, November 21, 2023. The Russian nuclear industry during wartime, 2022 and early 2023. (Accessed: May 14, 2026.)

<https://network.bellona.org/content/uploads/sites/3/2023/11/The-Russian-nuclear-industry-during-wartime-2022-and-early-2023.pdf>

in more active promotion of projects in Asia, the Middle East, and Africa under enhanced state control, as well as closer coordination with Russia’s foreign policy institutions (including the involvement of Rosatom structures in the implementation of geopolitical objectives).

Speaking in the Federation Council on May 21, 2025, Rosatom head Alexey Likhachev informed senators that the corporation’s framework now encompasses more than 120 areas of activity involving over 580 enterprises. In 2024, he had reported to the State Duma that Rosatom included around 460 enterprises operating across 100 areas—meaning that within a year the corporation expanded by approximately 120 enterprises. The precise figure is difficult to verify, as publicly available sources do not provide a comprehensive official list of entities that entered Rosatom’s structure in 2025 as new additions or acquired assets. However, based on media reports from various sources, it can be said that over four years of war approximately 20 legal entities (companies) of different types and statuses have been incorporated into Rosatom’s structure; the main ones are listed in Table 1 below. It should be noted that, in order to circumvent sanctions, Rosatom has increasingly resorted to renaming and relocating its organizations, especially those continuing to operate abroad.

Table 1. Legal entities and companies added to Rosatom’s assets in 2022-2025

Year of entry	Company / legal, entity	Location	Type of entry / change	Status within Rosatom’s structure	Note / source
2022	RIR Energo (formerly PAO Kvadra) ³²	Russia	↑ Stake to controlling level (through RIR)	Subsidiary / power generation segment on the wholesale market	Sale of 82% of shares to RIR—Rosatom’s control increased
2022	ISM (OOO Izhora Welding Materials)	Russia	Joint venture/entry	Machine-building segment (through AEM technologies) https://www.ism92.ru/	Entered as a subsidiary
2022	AT Consulting (State Corporation)	Russia	Controlling stake	Subsidiaries in the digital/IT segment	Control transferred to Rosatom
2022	OOO NPF Real Storm	Russia	Joint venture participation	Composite materials division	UMATEX/Rosatom participates in the structure
2022	OOO NPP RusKhimSintez	Russia	50% stake	Composite materials division	Stake acquired to expand assets
2022	Owens Corning assets (RF + Belarus)	Russia / Belarus	Purchase of assets	Subdivision of composite materials division	Integrated into the segment through subsidiaries

³² RIR Energo [in Russian]. (Accessed: May 14, 2026.)
<https://rirenergy.ru/>

2023	OOO Lovozersky Mining and Processing Plant ³³	Russia (Murmansk Oblast)	Joined segment	Mining division	Transferred to Rosatom management
2023	AO Solikamsk Magnesium Plant (SMZ) ³⁴	Russia	Joined division	Mining division	Mentioned as incorporated into the division
2023	Kirov-Energomash Plant ³⁵	Russia	Joined structure	Machine building segment	Enterprise integrated into segment
2023	AO Ilmenit Mining and Processing Plant ³⁶	Russia	Stake/control	Mining division	Structural consolidation of assets
2023–2024	FESCO / Far Eastern Shipping Company (logistics) ³⁷	Russia and an international port	Transfer of assets	Transport and logistics segment	Transfer of assets to Rostom (presidential decree)
2024	Moi operator (OOO) ³⁸	Russia	50% stake	IT/communications segment	Greenatom became a 50% owner
2024	OOO FER ³⁹	Russia	50% stake	Chemical and fuel segment. AO Rusatom Chemistry	Acquisition of stake to expand business
2024–2025	Top Systems ⁴⁰	Russia	49% stake → ???	Stake in IT segment	Rosatom acquired stake; status as subsidiary/ joint venture within the structure

Particular attention should be paid to the incorporation, at the end of 2023, of the transport and logistics company FESCO into Rosatom’s management framework. This move reflects a broader strategy to diversify assets and strengthen positions in the logistics sector, now encompassing development of the Northern Sea Route, control over key Russian ports, and expansion of maritime and rail transportation. According to 2023 data, logistics assets (FESCO + Delo Group) contributed around 20% of Rosatom’s revenue from new products (approximately 200 billion out of 1.1 trillion rubles). The expansion of transport geography

³³ Lovozersky Mining and Processing Plant [in Russian]. (Accessed: May 14, 2026.)

<https://xn--ctbegjihgheb7abhwp.xn-p1ai/>

³⁴ Russian Plants. Solikamsk Magnesium Plant [in Russian]. (Accessed: May 14, 2026.)

<https://xn-80aegj1b5e.xn-p1ai/factory/smz-3>

³⁵ Unified centralized system for ship component equipment [in Russian]. (Accessed: May 14, 2026.)

<https://ecs-sko.ru/>

³⁶ Tugansk Mining and Processing Plant "Ilmenite" [in Russian]. (Accessed: May 14, 2026.)

<https://www.ilmenite.ru/>

³⁷ FESCO Logistics Company. (Accessed: May 14, 2026.)

<https://www.fesco.com/en/>

³⁸ Moi Operator LLC [in Russian]. (Accessed: May 14, 2026.)

<https://atom.moioperator.ru/atom>

³⁹ Energy and Industry in Russia, August 23, 2024. Rosatom acquired 50% of FER LLC [in Russian]. (Accessed: May 14, 2026.)

<https://www.eprussia.ru/news/base/2024/4392199.htm>

⁴⁰ Top Systems [in Dutch]. (Accessed: May 14, 2026.)

<https://www.top.systems/>

and the emergence of new routes reflect Russia’s intention to strengthen trade ties with countries in the Global South, Africa, and South America—trends also visible in Rosatom’s export activities in nuclear technologies. In 2025, FESCO’s logistics infrastructure played a key role in supporting Rosatom’s international construction projects, including nuclear power plants such as Kudankulam and Akkuyu.

In an interview summarizing Rosatom’s performance in 2025, Likhachev emphasized that the corporation had proposed at a high level (to President Putin) “...the creation of international alliances for long-term partnership with countries committed to equal cooperation...,” while stressing the “absence [in this cooperation] of technological colonization...”⁴¹ This underscores Rosatom’s active promotion of a policy of “low-threshold diplomacy,” in which nuclear energy is framed as a technical, economic, and climate issue rather than a political one.

To advance this policy today, Rosatom relies primarily on its international structures listed in Tables 2 and 3, and several others.

Table 2

ROSATOM (center)
International strategy / export front
<ul style="list-style-type: none"> → Rusatom Overseas (RAOS) [CLIA SDN; UK designated] → Rosatom Energy Projects [UK designated] <i>(other promo/project legal entities, joint ventures etc.)</i>
NPPs abroad: realization
<ul style="list-style-type: none"> → Atomstroyexport (ASE) → EPC/construction/commissioning <i>[project companies in countries where NPPs are being built in HU, IR, EG, BD, Tu]</i> <i>(project institutes/engineering/contractors)</i>
Fuel and nuclear fuel cycle (export)
<ul style="list-style-type: none"> → Uranium One (Netherlands, Amsterdam; USA/group) → TVEL → fuel/part of services [joint enterprises in KZ, HU, CZ] → TENEX (Techsnabexport) → enrichment/trading/logistics [in US, JP, KR, FR] INTERNEXCO (Zug, CH) → subsidiary/contact company in Switzerland TENAM / TENEX-USA (US) → US representative/operations
Equipment
<ul style="list-style-type: none"> → Atomenergomash → delivery of equipment for export [HU, CZ]

⁴¹ Atom Media, January 4, 2026. Rosatom CEO Alexey Likhachev’s end-of-year interview with Russia 24 (January 3, 2026) [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/intervyu-glavy-rosatoma-alekseya-likhacheva-telekanalu-rossiya-24-3-01-2026/>

Table 3

Structure (segment)	Function in international projects	Type of countries/markets	Type of contracts	Sanction status (USA/UK/EU)
Rusatom Overseas JSC (PAOC)	Promotion of overseas projects, negotiation/project platform	Middle East, Asia, Africa, other	Development, consulting, project management, support	CLJA: SDN (EO14024); UK: designated (24 Feb 2026); EU: no confirmation of direct listing
JSC Rosatom Energy Projects	Management/development of foreign energy projects (mentioned in UK sanctions package)	Foreign energy projects (including liaisons with new markets)	project management/engineering projects	UK: designated (24 Feb 2026); USA/EU: confirmation in cited sources
REIN Engineering	Listed as an associated structure in UK sanctions (24.02.2026)	—	—	UK: designated (24 Feb 2026). USA/EU: no confirmation
Atomstroyexport (ASE)	EPC/construction of overseas NPPs; key contractor	Turkey/Egypt/Bangladesh/Central Europe (historically)	EPC, subcontracts, start-up/adjustment	USA/UK/EU: requires separate verification on lists; EU restrictions usually apply through export control/dual-use, not through direct SDN-listing
TENEX / Techsnabexport	Export of enrichment services and nuclear fuel cycle products; trading and logistics	USA/EU/Asia	long-term supply, enrichment services, trading	Role and operations confirmed in sources; direct SDN listing not confirmed here, but the US applies a separate regime restricting imports of uranium products (not always equivalent to SDN); in the EU, uranium imports and fuel ties have long remained outside "full" sanctions
TVEL	Fuel for VVER reactors, nuclear fuel cycle services	Eastern Europe (VVER), Asia	fuel supply, LTAs, service	Similar: not "automatically" SDN-listed, but subject to high regulatory and political risks; EU generally discusses reducing dependence, but does not equate to listing
Uranium One (NL/group)	Holding/mining/corporate structure used in international supply chains	Kazakhstan/Canada/and others	M&A, JV, supply chain	Dutch legal entities confirmed; sanctions status depends on specific entity and ownership structure (case-by-case verification in registries required)
INTERNEXCO (Zug, CH)	European trading and logistics segment ofTENEX	Europe	trading/logistics	Legal presence confirmed by TENEX contact materials' sanctions status must be verified for each legal entity (not asserted without checking lists)
TENEX-USA / TENAM (US)	Representation/operations in the US market	USA	support/sales/contract servicing	Confirmed as US-based TENEX structure; status depends on lists/licenses

It should also be noted that in 2025 Rosatom introduced several updates to its structure and international business. A joint additive manufacturing center was established with the Belarusian company N-Holding, as well as a joint ionizing processing center with Uzbekistan’s Uzatom agency. In addition, during the wartime period Rosatom’s asset base was expanded with new uranium deposits, including Budenovskoye (Kazakhstan), Tetrakhskoye, Shirondukuyskoye, and the Northern deposit in Yakutia (Elkon gold-uranium field). Among these, Budenovskoye appears to be the most significant, elevating the corporation to second place globally in uranium reserves.

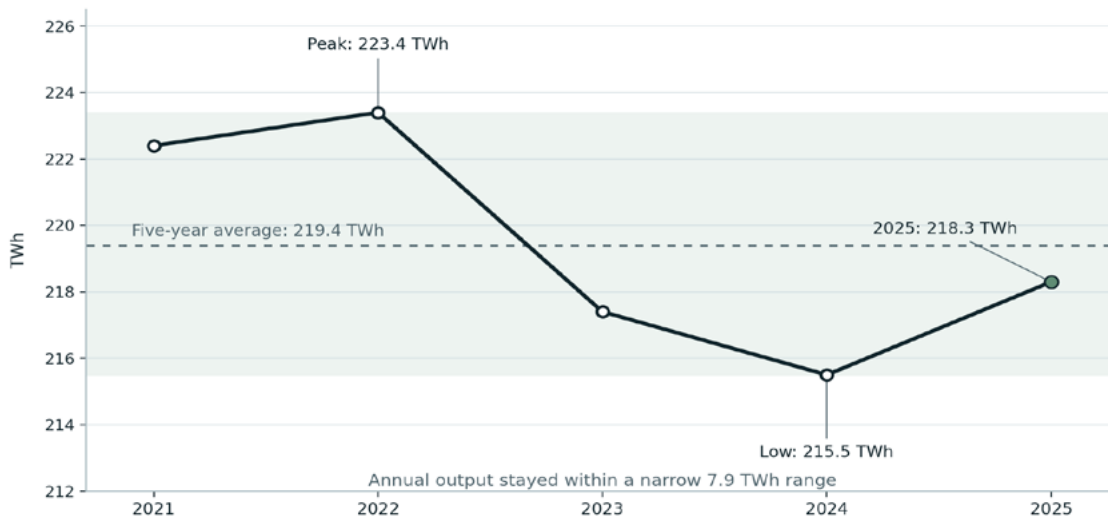
Energy, innovations and construction of new capacities

Energy remains Rosatom’s core area of activity both domestically and internationally. As of the end of 2025, electricity in Russia was generated by 33 nuclear power units (including the floating nuclear power plant) across 11 NPPs (including the Bilibino NPP, which remained operational through 2025 but without electricity generation).⁴²

Nuclear generation accounts for approximately 19% of the country’s electricity supply. In 2025, Russian nuclear power plants produced about 218.35 billion kWh, roughly 1.3% more than in 2024.

Russia's nuclear power output remained broadly flat in 2021-2025

Generation fluctuated between 215.5 and 223.4 TWh, with no sustained growth trend



Source: Bellona

⁴² Rosenergoatom. Nuclear power plants in Russia [in Russian]. (Accessed: May 14, 2026.) https://www.rosenergoatom.ru/stations_projects/atomnye-elektrostantsii-rossii/

Within Rosatom’s entire energy division—including nuclear, thermal, and wind power plants – the total electricity generation in 2025 amounted to approximately 233 billion kWh.

Rosatom continues to decommission power units that have reached the end of their service life. In December 2025, three EGP-6 units at the Bilibino NPP in Chukotka were shut down. While Rosatom does not provide detailed disclosure of its plans for the next five years (through 2030) regarding the decommissioning of aging units, it is simultaneously actively pursuing lifetime extensions for a number of older units. In 2025, the operation of Unit 3 of the RBMK-1000 at the Leningrad NPP was extended by five years, and in January 2026 the same extension was granted to Unit 4. Rostekhnadzor also extended the operating license of Unit 2 (RBMK-1000) at the Smolensk NPP for the same period. The oldest VVER-1000 unit at the Novovoronezh NPP (Unit 5) was extended until 2036 (an 11-year extension). Over the next five years, decisions will need to be made either to extend or to decommission the units listed in Table 4. Separate decisions will be taken regarding the Kola NPP. In 2025, discussions were held on the possible extension of Unit 1 at Kola NPP until 2038,⁴³ while Units 3 and 4, whose licenses expire in 2026 and 2029 respectively, are expected to be extended by 10–15 years.⁴⁴

Table 4

NPP	Unit	Reactor Type	License Expiry
Leningrad	№ 3	RBMK-1000	2030
Leningrad	№ 4	RBMK-1000	2030
Smolensk	№ 1	RBMK-1000	2027
Smolensk	№ 2	RBMK-1000	2030
Smolensk	№ 3	RBMK-1000	2034
Kola	№ 3	VVER-440	2026
Kola	№ 4	VVER-440	2029

Plans to extend the operating life of second-generation RBMK reactors began to be voiced at the end of 2022. These are primarily driven by delays in commissioning replacement capacity and constructing new nuclear units in Russia. All of these reactors are located closest⁴⁵ to Russia’s western borders and to Europe. RBMK reactors at the Leningrad, Kursk, and Smolensk NPPs are situated less than 70 km from European borders and belong to the Chernobyl-type design. Extending their operation by five years heightens concerns among neighboring countries regarding their own safety. However, in the confrontation between Russia and the

⁴³ SeverPost.ru, January 30, 2025. Extension of the Kola Nuclear Power Plant’s operating life has been deemed possible [in Russian]. (Accessed: May 14, 2026.) <https://severpost.ru/read/183436/>

⁴⁴ World Nuclear Association, March 25, 2026. Nuclear power in Russia. (Accessed: May 14, 2026.) <https://world-nuclear.org/information-library/country-profiles/countries-o-s/russia-nuclear-power>

⁴⁵ Bellona, March 13, 2024. Rosatom’s output dropped over the last year. We look at three reasons why. (Accessed: May 14, 2026.) <https://etc.bellona.org/2024/03/13/rosatoms-output-dropped/>

West, international dialogue and discussion of these issues to alleviate concerns will not be possible, and the views of neighboring states will not be a factor taken into account by Russian authorities.

In addition to nuclear units, Rosatom operates approximately 15–20 separate combined heat and power plants (CHPs) across 17 regions of Russia, supplying electricity and heat to cities, nuclear industry enterprises, and regional centers. As for wind power, as of December 1, 2025, about 1,187.5 MW of wind generation capacity had been commissioned in southern Russia (including 152.5 MW added in 2025), corresponding to roughly 10 wind farms. In addition, construction is underway on the second phase of the Novolak wind farm, with a total installed capacity of 147.5 MW (59 turbines of 2.5 MW each), located in the Kumtorkalinsky and Novolaksky districts of the Republic of Dagestan.⁴⁶

2.3.1. Construction of NPPs in Russia, innovative and prospective energy technologies and projects

Speaking at the Federation Council on May 21, 2025, Rosatom head Alexey Likhachev reminded senators of the general scheme for the placement of power facilities through 2042, according to which the corporation plans to build 38 new power units of large, medium, and small capacity over 17 years.

As of early 2026, a total of 36 nuclear power units were in operation in Russia in various modes (including units shut down but not yet decommissioned).

Table 5

Unit	Type	Capacity (MWt)
Balakovo NPP		
№1	VVER-1000	1000
№2	VVER-1000	1000
№3	VVER-1000	1000
№4	VVER-1000	1000
Kalinin NPP		
№1 (operating license extended)	VVER-1000	1000
№2	VVER-1000	1000
№3	VVER-1000	1000
№4	VVER-1000	1000

⁴⁶ Atom Media, December 1, 2025. Rosatom’s wind energy projects [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/reference/rosatom-v-vetroenergetike/>

Kola NPP		
№1	VVER-440	440
№2	VVER-440	440
№3	VVER-440	440
№4	VVER-440	440
Kursk NPP-1 / Kursk NPP-2		
№3	RMBK-1000	1000
№4	RMBK-1000	1000
№ 1 Kursk NPP 2	VVER-TOI	1250
Leningrad NPP		
№3 (operating license extended)	RMBK-1000	1000
№4	RMBK-1000	1000
№5	VVER-1200	1200
№6	VVER-1200	1200
Novovoronezh NPP		
№4	VVER-440	440
№5	VVER-1000	1000
№6	VVER-1200	1200
№7	VVER-1200	1200
Rostov NPP		
№1	VVER-1000	1000
№2	VVER-1000	1000
№3	VVER-1000	1000
№4	VVER-1000	1000
Smolensk NPP		
№1	RMBK-1000	1000
№2 (operating license extended)	RMBK-1000	1000
№3	RMBK-1000	1000
Beloyarsk NPP		
№3 (operating license extended)	BN-600	600
№4	BN-800	800
Academic Lomonosov Floating NPP		
№1	KLT-40C	35
№2	KLT-40C	35

Summing up 2025, Likhachev stated that Rosatom is currently constructing 20 power units in Russia (including small and floating NPPs) across nine sites, although 18 sites will ultimately be required, and these have not yet been fully identified.⁴⁷ In reality, Rosatom is actively

⁴⁷ Atom Media, January 4, 2026. Rosatom CEO Alexey Likhachev's final interview with Russia 24 (January 3, 2026) [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/intervyu-glavy-rosatoma-alekseya-likhacheva-telekanalu-rossiya-24-3-01-2026/>

constructing new NPP units at only three sites: Leningrad NPP-2, Kursk NPP-2, and the BREST-OD-300 project in Seversk. Other projects mentioned by Likhachev are still in planning or at early pre-design stages. This includes Smolensk NPP-2 (construction planned to begin in 2027), Kola NPP-2, the Yakut SMR plant, the Baimsk SMR plant, Primorye NPP, Southern NPP, and several others, where only design work or public consultations are underway.

On December 31, 2025, Unit 1 of Kursk NPP-2 with a VVER-TOI reactor was synchronized with the grid and reached a capacity of 240 MW, after which pilot industrial operation began. Rosatom did not provide detailed commentary on the progress of this project. Notably, there were no official announcements regarding the reactor's first criticality—or reaching the minimum controlled power level—key steps that typically precede first grid connection. In previous practice, such milestones were widely publicized as major achievements. The current lack of transparency may be related to the plant's proximity to the Ukrainian border and the conflict zone, suggesting a degree of information sensitivity. Nevertheless, Unit 1 of Kursk NPP-2 reached nominal capacity in March 2026. Its commissioning into commercial operation is planned for 2026. In total, four units are planned at the Kursk NPP-2 site.

Power Units 7 and 8 of Leningrad NPP-2, equipped with VVER-1200 reactors and intended to replace Units 3 and 4 of Leningrad NPP-1, are currently under construction. They are scheduled to be commissioned in 2030 and 2032, respectively. According to information analyzed by Bellona, construction of Unit 3 at Kursk NPP-2 has already begun, and first concrete was poured on December 24, 2025⁴⁸ (IAEA data as of January 2026).⁴⁹

In April 2025, Beloyarsk NPP received a license for the siting of a BN-1200M reactor unit, after which preparatory work (site preparation, surveys) began ahead of construction. The active construction phase is tentatively scheduled to begin around 2027. In 2026, preparatory work is also expected to begin for the first units of Kola NPP-2, which will use VVER-600 reactors.

As noted above, Russia's nuclear fleet is aging: older units are being shut down, while replacement capacity is not keeping pace. As a result, since 2022, output from Russian nuclear power plants declined in 2023 and 2024, with only a minimal increase recorded in 2025.

At the same time, Rosatom intends to undertake large-scale construction of new nuclear power plants in Russia in the coming years. By 2042, according to the government's general scheme⁵⁰ for the placement of energy facilities, at least 30 new nuclear power units with a total capacity of about 29 GW are to be commissioned. Of these, no fewer than 20 units are expected to have capacities of 1,000 MW or more, requiring high-capacity turbines. However, in 2025 reports emerged of initial deliveries of Chinese turbines for Units 3 and 4 of

⁴⁸ Bellona, April 30, 2026. The curious, secretive case of the Kursk II nuclear power plant's weird data. (Accessed: May 14, 2026.) <https://etc.bellona.org/2026/04/30/weird-kursk-ii/>

⁴⁹ IAEA Power Reactor Information System (PRIS), May 13, 2026. Kursk 2–3. (Accessed: May 14, 2026.) <https://pris.iaea.org/PRIS/CountryStatistics/ReactorDetails.aspx?current=1009>

⁵⁰ Government of the Russian Federation. Order № 4153-r of October 30, 2024 [in Russian]. (Accessed: May 14, 2026.) <http://static.government.ru/media/files/Rwf9Akjf5FwAnustDEL2m7PEvZ26i7k3.pdf>

Leningrad NPP-2.⁵¹ This suggests that Rosatom is no longer fully able to supply its projects with domestically produced equipment, despite Russia previously being considered self-sufficient in this area. Experts attribute the use of Chinese equipment primarily to sanctions against Power Machines and the breakdown of cooperation with Western companies, which has led to technological constraints, shortages of components, and limited manufacturing capacity. If Chinese turbines are used on a regular basis, experts believe this could significantly reshape the structure of Russia's nuclear engineering sector.

A key flagship project that Rosatom never tires of writing and speaking about at all levels of Rosatom media outlets is the construction of the BREST-OD-300 lead-cooled fast reactor, as part of the "Proryv" (Breakthrough) project. Rosatom reports that first criticality of the reactor is planned for 2028. In addition, the corporation plans to launch, by 2030, an on-site closed nuclear fuel cycle facility at the same location. In February 2025, Russian experts published a book titled "Reactors with Heavy Liquid-Metal Coolant: A History of Tragedy and Farce", in which the authors, experienced nuclear professionals with long years of experience in science and industry, concluded that the BREST-OD-300 reactor is "dangerous, premature, excessively expensive, and unlikely to operate in its current form. At best, it will become a monument to inefficient investment; at worst, it could result in an accident with far-reaching consequences."⁵²



The claimed promise of the project appears questionable. The historical experience of operating nuclear installations with heavy liquid-metal coolant on submarines indicates high complexity and a lack of stable positive outcomes.

⁵¹ Kommersant, December 11, 2025. Chinese connection [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8272186>

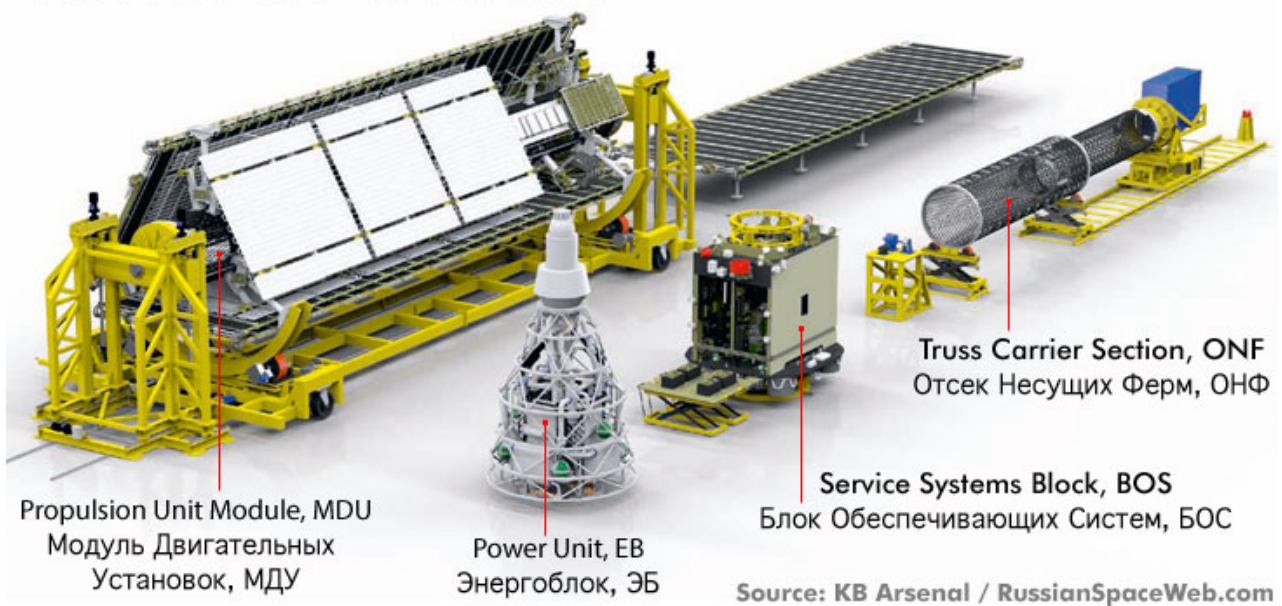
⁵² ProAtom, April 26, 2023. New book on fast reactors with liquid metal coolant [in Russian]. (Accessed: May 14, 2026.)
<https://www.proatom.ru/modules.php?name=News&file=article&sid=10516>

2.3.2. Space nuclear technologies

During the war years, Rosatom has reactivated its role in Russia’s space program, focusing on the development of nuclear energy systems for space. Space nuclear power has been designated as a separate priority area in Russia’s new space strategy (2025–2036). Rosatom’s strategic objective is to occupy a niche not in orbital services, but in energy supply for deep space and lunar infrastructure.⁵³

In cooperation with Roscosmos, the corporation has begun developing a nuclear-powered orbital “tug” with a megawatt-class power unit, intended for cargo transport between orbits and for interplanetary missions. In 2025, Rosatom completed a laboratory prototype of a plasma rocket engine.⁵⁴ In parallel, Rosatom is working with China on a nuclear power source for lunar infrastructure.

Transport and Power Module, TEM, and its components



Thus, through projects such as a nuclear tug, nuclear electric propulsion systems, plasma engines, and a lunar nuclear reactor, Rosatom aims not to become a “second Roscosmos,” but rather a key supplier of energy for space applications.

⁵³ Troitsky Variant — Science, November 18, 2025. National Project “Space” (2026–2036): Expert Commentary [in Russian]. (Accessed: May 14, 2026.) <https://www.trv-science.ru/2025/11/kosmos-project-2026-2036-kommentariy-experta/>

⁵⁴ Science and Innovation, February 7, 2025. Rosatom scientists have completed the development of a prototype plasma rocket engine for deep space flights [in Russian]. (Accessed: May 14, 2026.) <https://naukarosatom.ru/news/uchenye-rosatoma-zavershili-razrabotku-prototipa-plazmennogo-raketnogo-dvigatelya-dlya-dalnikh-kosmi/>

However, despite the scale of these ambitions, most projects remain at early stages and face technological challenges (partly due to sanctions) as well as financial constraints in wartime conditions. In the short term, practical implementation remains limited; in the long term, Russia seeks to establish itself in the niche of nuclear infrastructure for deep space.

It should also be noted that in 2025 these projects were linked to Roscosmos and the Ministry of Defense, although they are publicly presented as purely scientific.⁵⁵ Historically, Rosatom has always been connected to space projects with significant military applications, including communications satellites, reconnaissance, and early-warning systems, for which it develops nuclear power sources.⁵⁶ Therefore, in the future, the orbital platforms currently under development may have dual-use potential.⁵⁷

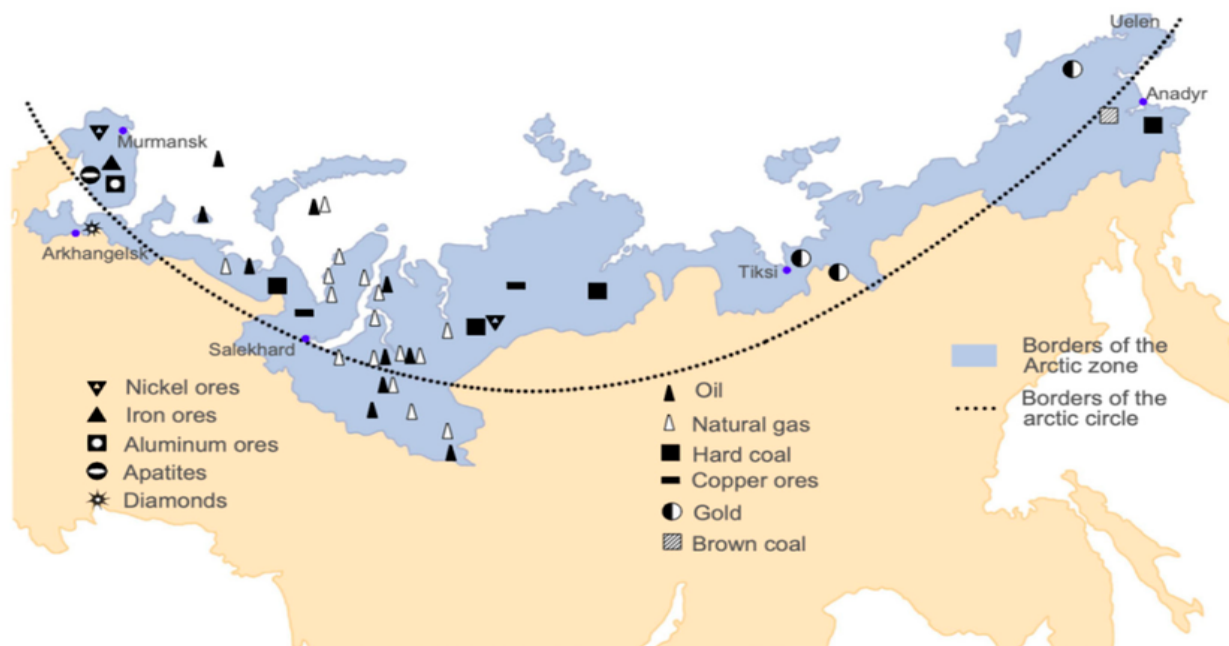
Rosatom in the Arctic

Events in the Arctic during the war years demonstrate that the Arctic region and everything connected with it have significant geopolitical importance for Russia. Accordingly, Russia has developed strategic objectives relating to Arctic infrastructure, the economy, transport, and environmental protection. In addition, the Arctic agenda continues to include issues related to security, activity at naval and other bases of the Russian Ministry of Defense, as well as testing grounds in the Arctic for new weapons systems, including those involving nuclear technologies. Rosatom's key functions along the Northern Sea Route (NSR) include: operation of nuclear icebreakers and ensuring year-round navigation; administration of the route and management of vessel traffic; development of infrastructure (ports, LNG terminals, communications and navigation systems); and commercialization of the route. Rosatom's geological activities in the Arctic and Siberia are focused on the extraction of uranium, lithium, rare earth elements, and other minerals of strategic military significance.

⁵⁵ RIA Novosti, April 9, 2026. Likhachev: Rosatom tested a plasma rocket engine [in Russian]. (Accessed: May 14, 2026.) <https://ria.ru/20260409/nauka-2086112873.html>

⁵⁶ Asif A. Siddiqi. *The Soviet Space Race with Apollo*. University Press of Florida, 2003. (Accessed: May 14, 2026.) <https://floridapress.org/9780813026282/the-soviet-space-race-with-apollo/>

⁵⁷ Briefly.ru [Telegram], April 15, 2026. Russia plans to place nuclear weapons in orbit for a "space Pearl Harbor" – The Times [in Russian]. (Accessed: May 14, 2026.) <https://t.me/brieflyru/42044>



Source: ResearchGate

Rosatom’s activities in the Arctic today encompass virtually all of the areas listed above. Bellona has previously reported on the key decisions adopted at all levels of government during the war years and earlier in its reports “Rosatom in Wartime 2023–2024”⁵⁸ and “The Northern Sea Route.”⁵⁹

In 2025, Rosatom’s “sphere of influence” in the Arctic expanded in a predictable manner. At the beginning of 2025, under Russian Government Directive № 589-r of March 13, 2025, JSC Rosatom Arctic was designated as the single maritime operator of the “northern delivery” system, with responsibility for these functions commencing on January 1, 2026.⁶⁰ As a result of assigning this role to a Rosatom structure, a legal model for managing Arctic logistics has begun to take shape: the corporation has acquired a new systemic logistics mandate in the Arctic and expanded its control over maritime logistics in northern regions. Arctic activity has thus given Rosatom yet another infrastructural role beyond the scope of nuclear energy. The adoption in 2025 of a number of ministerial and governmental directives,⁶¹ as well as presidential

⁵⁸ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/rosatom-in-the-war-years/>

⁵⁹ Bellona, July 27, 2025. The Northern Sea Route. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/nsr-risks-eng/>

⁶⁰ Official publication of legal acts, March 21, 2025. Order of the Government of the Russian Federation of March 13, 2025 № 589-r [in Russian]. (Accessed: May 14, 2026.) <http://publication.pravo.gov.ru/document/0001202503210040>

⁶¹ Official publication of legal acts, October 27, 2025. Order of the Government of the Russian Federation of October 27, 2025 № 3014-r [in Russian]. (Accessed: May 14, 2026.) <http://publication.pravo.gov.ru/document/0001202510270034?index=1>

decrees,⁶² has bureaucratically strengthened Rosatom’s role as operator of the Northern Sea Route. These and other documents have consolidated the NSR as a strategic national project and created a political mandate for the accelerated development of Arctic infrastructure. In addition, government decisions have effectively generated demand for energy, ports, and logistics. As a result, several territories have been identified as particularly important for Rosatom, including Pevek–Bilibino, Norilsk–Dudinka, the Murmansk agglomeration, the Arkhangelsk agglomeration, Novy Urengoy, and Salekhard–Labytnangi.

The Ministry of Transport has issued a number of directives concerning the port of Sabetta, the largest Arctic port, which ensures year-round navigation and serves the Yamal LNG and Arctic LNG 2 projects. Within the framework of these and other programs, implementation of the federal project “Development of the Greater Northern Sea Route” continues, requiring Rosatom to intensify efforts in building up its nuclear icebreaker fleet. As of 2025, the operator FSUE Atomflot operated eight nuclear icebreakers (see table below). With the commissioning of the icebreaker Yakutia in 2025, the fleet of new-generation nuclear icebreakers became comparable in number to the older generation (4+4). According to Rosatom, in the winter navigation season of 2025–2026, all eight nuclear icebreakers of Atomflot were deployed along NSR routes for the first time.⁶³ At present, the icebreakers Chukotka and Leningrad are under construction, and a seventh Project 22220 icebreaker, Stalingrad, is planned. All icebreakers have been built and continue to be built at the Baltic Shipyard, with the exception of the Project 10510 (Leader) icebreaker, which is being constructed at the Zvezda shipyard in the Russian Far East. The Leader nuclear icebreaker was laid down in 2020; under the revised schedule, it is expected to be launched in 2028 and commissioned in 2030. The prolonged construction timeline is due in part to the war in Ukraine, which has created supply chain problems for large hull components (for example, due to the destruction of the Energomashspetsstal plant in Ukraine), as well as labor shortages in the Far East and rising equipment costs.

Table 6

Name	Project	Commissioned	Decommissioning	Notes:
Icebreakers of Soviet design <i>Equipped with K-900A or KLT-40M nuclear reactors</i>				
Yamal	10520	1992	2027–2028	large Arctic icebreaker
50 Let Pobedy	10521	2007	after 2035	newest of the Soviet design series
Taymyr	10580	1989	2025–2026	shallow-drift icebreaker for river estuaries
Vaigach	10580	1990	After mid-2020s	Similar to Taymyr, operates in shallow waters

⁶² Official publication of legal acts, March 10, 2025. Decree of the President of the Russian Federation “On the celebration of the 500th anniversary of the beginning of Russia’s development of the Northern Sea Route” [in Russian]. (Accessed: May 14, 2026.) <http://publication.pravo.gov.ru/document/0001202503100019>

⁶³ GCaptain, December 16, 2025. Russia deploys all eight nuclear icebreakers for first time to keep Arctic export routes open. (Accessed: May 14, 2026.) <https://gcaptain.com/russia-deploys-all-eight-nuclear-icebreakers-for-first-time-to-keep-arctic-export-routes-open/>

New generation icebreakers (projects 22220 and 10510)				
Equipped with RITM-200 reactors				
Key feature: dual-draft capability: icebreaker can work in both the open sea and shallow waters of the NSR				
Arktika		2020		Lead vessel
Sibir		2021		serial
Ural		2022		serial
Yakutia		2024		serial
Icebreakers under construction (projects 22220 and 10510)				
Chukotka		2026		
Leningrad		2028		
Stalingrad		2030		
Leader (Russia). Pr. 10510		2030		Difference from previous nuclear icebreakers – designed for 4-meter-thick multi-year ice. (older icebreakers are designed for 2.5-3 m.) RITM-400 reactor (thermal power ~315 MWt), shaft power (3 propellers) ~120 MWt, speed in ice 10-12 knots

Currently, around 850 ice-class vessels of various types operate in Russia’s Arctic ports, one-third of which are over 25 years old. Russia faces a significant shortage of shipbuilding and ship repair capacity, particularly for icebreakers and large cargo vessels, as well as ship repair. Only about 30% of Russian vessels undergo maintenance domestically. Over the past five years, Russian shipyards have delivered only about 15 vessels for the Northern Sea Route—roughly half of what had been planned. Construction of ice-class vessels in Russia is carried out by only two shipyards: the Baltic Shipyard and the Far Eastern yard, which has not yet reached full capacity. Until recently, the Baltic Shipyard was the only Russian shipyard building surface nuclear vessels—both nuclear-powered cruisers for the navy and all nuclear icebreakers for Atomflot. However, it has recently faced serious problems, including difficult economic relations with the main designer of surface nuclear vessels (JSC CDB OSK Iceberg) and recurring annual losses.⁶⁴ These issues stem from low planned contract profitability, rising costs of materials and equipment, and the withdrawal of foreign subcontractors, leading to ongoing legal disputes.⁶⁵ In 2025, the Baltic Shipyard recorded a net loss of 564.5 million rubles, compared to a net profit of 3.6 billion rubles the previous year.⁶⁶

The Far Eastern shipyard Zvezda is being modernized to support the construction of nuclear icebreakers, but both the modernization process and the parallel construction of the first Project 10510 (Leader) icebreaker are facing significant delays due to insufficient resources, including financial constraints. This has led to plans to establish a major ship repair cluster in the Arctic Zone and to modernize the ship repair sector in the Far East, requiring approximately

⁶⁴ MashNews, June 24, 2024. The Central Design Bureau «OSK-Iceberg» has withdrawn all claims against Rostekhnadzor, which suspended its license [in Russian]. (Accessed: May 14, 2026.) <https://mashnews.ru/czkb-osk-ajsberg-otozvalo-vse-iski-k-priostanovishemu-ego-licenziyu-rostekhnadzoru.html>

⁶⁵ Novy Prospekt, August 21, 2023. A friend among strangers. The co-owner of the Central Design Bureau «OSK-Iceberg» has joined the fight for atomic billions [in Russian]. (Accessed: May 14, 2026.) <https://newprospect.ru/news/articles/svoy-sredi-chuzhikh-sovladelets-osk-ajsberg-vklyuchilsya-v-borbu-za-atomnye-milliardy/>

⁶⁶ PortNews, March 11, 2026. Baltic Shipyard’s net loss for 2025 amounted to 564.5 million rubles [in Russian]. (Accessed: May 14, 2026.) <https://portnews.ru/news/388909/>

153 billion rubles in investment.⁶⁷ In March 2025, Andrey Kostin, Chairman of the Board of Directors of the United Shipbuilding Corporation (USC) and head of VTB, stated at the Murmansk Forum that Russia plans to build new shipyards—particularly in the Far East—and to undertake large-scale modernization of shipyards in St. Petersburg, where three facilities are currently in operation.

It is difficult to say how and when this work will be carried out, but according to expert assessments, shipbuilding and ship repair constitute an expensive and long-term structural crisis problem for Russia.⁶⁸



Launch of the icebreaker *Sibir*. Photo: Rosatom

In spring 2025, the Russian government approved an updated Energy Strategy through 2050 (Government Directive № 908-r of April 12, 2025), for reliable energy supply in the Arctic. This creates conditions for Rosatom to develop small reactor projects and deploy them in isolated territories, as well as to support new floating nuclear power plant (FNPP) projects—primarily for the Baimsky mining and processing plant in Chukotka. Information about the operating FNPP in Pevek is largely celebratory, emphasizing that in 2025 the plant marked five years of commercial operation, generated 1 billion kWh of electricity, and provided more than 60% of power generation in the Chaun–Bilibino energy hub, which includes Pevek and other settlements in western Chukotka and parts of Yakutia, as well as several mining enterprises in the region. It was also reported that scheduled maintenance of the FNPP

⁶⁷ RG.RU, April 24, 2025. The ship repair industry has long been «ripe» for serious reform [in Russian]. (Accessed: May 14, 2026.) <https://rg.ru/2025/04/24/reg-dfo/o-chem-molchit-dok.html>

⁶⁸ Korabel.ru, March 27, 2025. Andrey Kostin revealed details of the USC development strategy [in Russian]. (Accessed: May 14, 2026.) https://www.korabel.ru/news/comments/andrey_kostin_raskryl_detali_strategii_razvitiya_osk.html

was carried out in 2025. However, there is no clear information about the plant's actual technical condition or its ability to fully replace the Bilibino Nuclear Power Plant, which was shut down at the end of 2025. Given that the FNPP Akademik Lomonosov took 13 years to build instead of the planned four, questions about the condition of its (already outdated even during construction) equipment, and how long the floating plant can remain operational, remain highly relevant. Nevertheless, Rosatom continues to plan serial production of floating power units based on RITM-200 and RITM-400 reactors, aiming to create a kind of "energy fleet" that could be relocated between projects and regions (the Russian Arctic, the Far East, island states, countries with weak power systems, etc.). Moreover, Rosatom is targeting deployment of such projects abroad, including in Africa—for example, in Guinea, with which it has signed a memorandum on the possible placement of a floating plant. Bellona has previously assessed and commented on these ambitions in its reports and publications.⁶⁹ At the same time, discussions are ongoing about building a specialized shipyard in Murmansk for mass production of floating nuclear plants, although it is difficult to realistically evaluate these plans in the current international situation.

2.4.1. Militarization of the Arctic and Rosatom

Rosatom has historically been directly linked to issues of military and state security affecting the Arctic region, since everything related to nuclear weapons and their delivery systems originates from the scientific and industrial enterprises of the nuclear sector. Rosatom controls or oversees all stages—from development to decommissioning—of nuclear and radiation-related products connected to national defense and security. The corporation has historically been present at testing sites, actively participating in the development and testing of nuclear weapons. In the early 2000s, many naval and civilian fleet assets were transferred to Rosatom for dismantlement and the elimination of nuclear legacy (NL) inherited from the Soviet Union.

Rosatom is also one of the key members of the Maritime Board of the Russian Federation, which, following its reform in 2024 and subordination to the President, became a supra-agency strategic planning body in the maritime domain. This has enabled Rosatom to expand its authority and involvement in Arctic areas such as naval presence, the NSR, shipbuilding, and Arctic policy. These areas include tasks related to the development of the navy, maritime security, protection of sea lines of communication, promotion of Russia's interests in the global ocean, creation of military infrastructure, and a number of civilian functions, some of which were mentioned earlier. After its restructuring in 2024, the Maritime Board—together with other state bodies overseeing the defense industry, the Arctic, and logistics—became part of a new governance architecture for Russia's strategic sectors.

It should be noted that EU and NATO countries tend to view much of Rosatom's activity as a civilian façade for Arctic militarization.^{70, 71, 72}

⁶⁹ Bellona, 2011. Floating NPPs [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/publication/floating-npps-ru/>

⁷⁰ Arctic Review on Law and Politics. (Accessed: May 14, 2026.)
<https://brill.com/view/journals/arlp/arlp-overview.xml>

⁷¹ EU Institute for Security Studies, October 30, 2025. The northern frosts: The EU should contain and unpower Russia in the Arctic. (Accessed: May 14, 2026.)
<https://www.iss.europa.eu/publications/analysis/northern-frosts-eu-should-contain-and-unpower-russia-arctic>

⁷² Business Insider, February 25, 2026. NATO's falling behind in the race to build icebreakers, critical tools for a war in the Arctic. (Accessed: May 14, 2026.)
<https://www.businessinsider.com/nato-falling-behind-russia-china-icebreaker-race-critical-arctic-war-2026-2>

NATO's and Russia's Militarization of the Arctic

Military bases in the Arctic belonging to NATO and Russia

NATO

- Norway
- Iceland, USA
- USA
- Canada
- UK

Russia

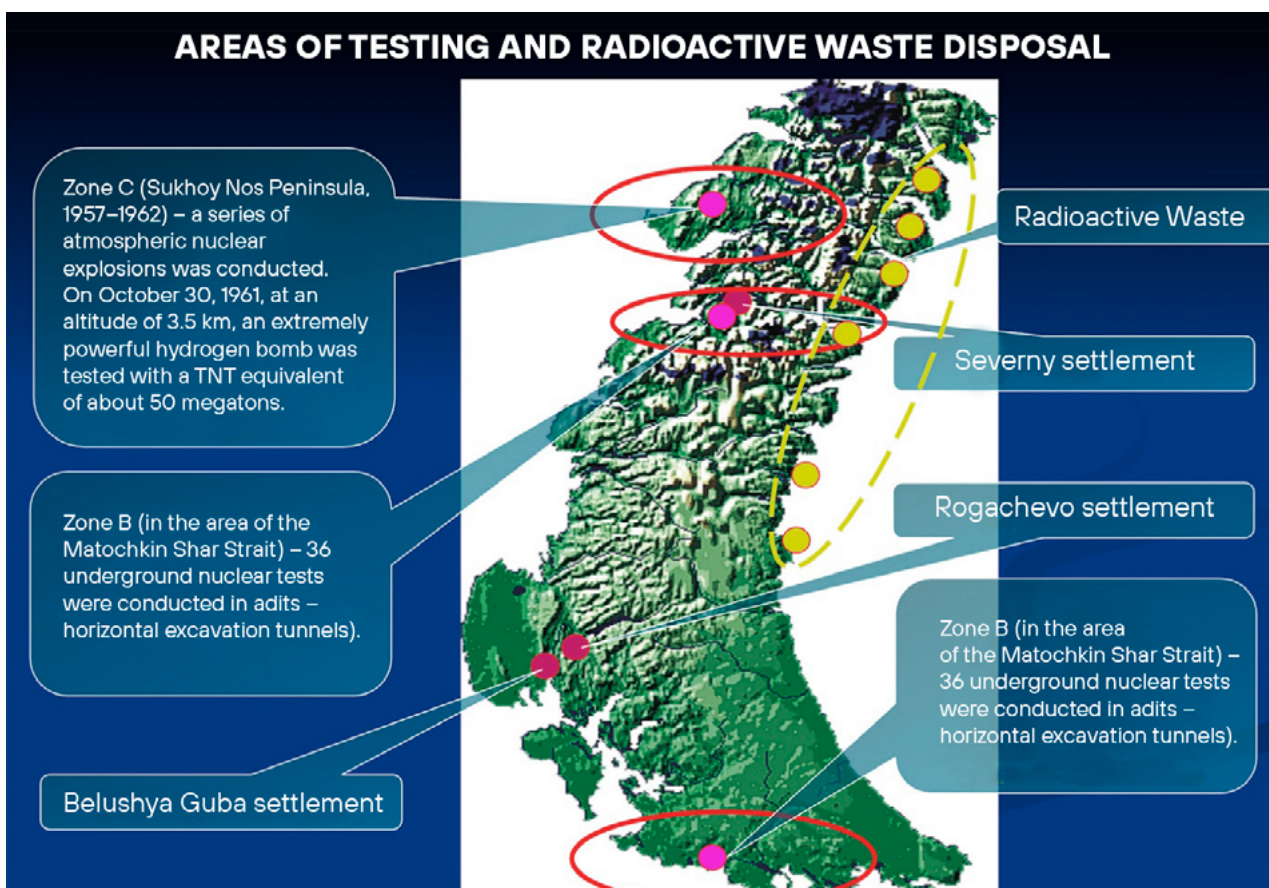


Map of NATO's and Russia's Militarization of the Arctic

Source: <https://www.voroniapp.com/geopolitics/NATOs-and-Russias-Militarization-of-the-Arctic-3797>

Rosatom’s key roles in the Arctic—such as icebreaker support for navigation, ensuring year-round access to Arctic facilities, escorting various types of cargo (including military shipments), and providing logistical support to the Northern Fleet—are widely regarded as classic examples of dual-use technologies.

In 2025, Russian authorities publicly stated that the Novaya Zemlya test site was ready for potential testing of various weapons, including nuclear-powered missile systems such as the “Burevestnik.” The war in Ukraine has heightened tensions, and some Russian officials have stated that under certain conditions Russia would be prepared to “press the red button.”⁷³ In November 2023, Russia withdrew its ratification of the Comprehensive Nuclear-Test-Ban Treaty, a move that Bellona has commented on in its publications.⁷⁴



⁷³ RTVI, February 2, 2026. «Well, you got it!»: Medvedev on his readiness to press the «red button» and Russia’s enemies [in Russian]. (Accessed: May 14, 2026.) <https://rtvi.com/news/nu-vsyo-poluchili-medvedev-o-gotvnosti-nazhat-na-krasnuyu-knopku-i-vragah-rossii/>

⁷⁴ Bellona, October 6, 2025. Decay Time: How the Global Nuclear Safety System is Collapsing [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2025/10/06/vremya-raspada/>

Note:

The Novaya Zemlya test site consists of three main settlements on the southern island. The principal one is Belushya Guba, where the test site headquarters and main services are located. Rogachevo, about 15 km away, serves as an air base and airfield, while the underground testing area is located near the settlement of Severny. Atmospheric tests were conducted on the northern island (Mityushikha Bay, Cape Sukhoy Nos), while underwater nuclear tests were previously carried out at the southern tip of the southern island. After the 1961 Treaty banning nuclear tests in the atmosphere, outer space, and underwater, testing shifted to underground explosions, primarily in the so-called Zone D-9 near Severny, where horizontal tunnels were constructed in the mountains for this purpose.⁷⁵

Experts familiar with nuclear weapons testing state that the Novaya Zemlya site is currently in a condition where it could be made ready for new nuclear tests within approximately one to one and a half years.⁷⁶

2.4.2. The nuclear legacy in the Arctic

The Soviet NL in the Arctic was primarily accumulated through military programs related to the development and testing of nuclear weapons and the operation of the nuclear-powered naval fleet. Only a small portion of this legacy was left behind by the civilian nuclear fleet.

For many years, Bellona has monitored the situation and problems of NL in the Arctic in the most detailed, comprehensive, and in-depth manner possible. As a result of the war, much has changed, including Bellona's potential capabilities, resources, and instruments of influence on addressing NL issues. Nevertheless, throughout the wartime period, Bellona has continued to monitor the situation and regularly comment on it in numerous publications.⁷⁷

This report examines the key events of 2025 related to Arctic NL, as well as decisions taken and specific activities in this field. In its previous report "Elimination of Russia's Nuclear Legacy (Problems and Prospects in the Context of the Military Conflict)"⁷⁸, Bellona highlighted stagnation and alarming signals in Rosatom's activities related to the elimination of Arctic NL. According to Bellona, changes in the management system of NL within Rosatom at the beginning of 2024, along with the suspension of international projects due to the withdrawal of foreign partners after the start of the war, have negatively affected the process of NL cleanup in the Arctic.

⁷⁵ RTVI, February 9, 2026. «Bang» is possible in just a year: a participant in Soviet nuclear tests on their resumption [in Russian]. (Accessed: May 14, 2026.) <https://rtvi.com/stories/bahnut-mozhno-uzhe-cherez-god-uchastnik-sovetskih-yadernyh-ispytanij-ob-ih-vozobnovlenii/>

⁷⁶ RTVI, February 9, 2026. «Bang» is possible in just a year: a participant in Soviet nuclear tests on their resumption [in Russian]. (Accessed: May 14, 2026.) <https://rtvi.com/stories/bahnut-mozhno-uzhe-cherez-god-uchastnik-sovetskih-yadernyh-ispytanij-ob-ih-vozobnovlenii/>

⁷⁷ Bellona. Publications [in Russian]. (Accessed: May 14, 2026.)

<https://ru.bellona.org/news/>.

Bellona, 2025. Eliminating Russia's Nuclear Legacy. (Accessed: May 14, 2026.)

<https://etc.bellona.org/publication/eliminating-russia-s-nuclear-legacy/>.

Bellona, November 4, 2025. Is it possible to raise the sunken nuclear submarines K-27 and K-159 in the Arctic in the foreseeable future? (Accessed: May 14, 2026.)

<https://etc.bellona.org/2025/11/04/k-27-k-159-in-media/>.

⁷⁸ Bellona, 2025. Eliminating Russia's Nuclear Legacy. (Accessed: May 14, 2026.)

<https://etc.bellona.org/publication/eliminating-russia-s-nuclear-legacy/>.

Information resources of key Rosatom enterprises involved in NL remediation along the Murmansk and Arkhangelsk coasts prior to the war have significantly diminished. It should be noted that the main source of state funding for bringing NL facilities into a safe condition is the federal program Federal Target Program “Ensuring Nuclear and Radiation Safety for 2016–2020 and for the period up to 2035” (FTP NRS-2). However, the official results of its implementation in 2025 contain no information—or even mention—of any work related to Arctic NL.⁷⁹ This may indicate that such work was largely unfunded and therefore not carried out in 2025.

Nevertheless, several developments drew Bellona’s attention. The first concerned the shipment, in July 2025, of the 22nd batch of spent nuclear fuel assemblies (SNF) from the dry storage facility at Andreeva Bay. Bellona analyzed this issue in detail in its 2024 report⁸⁰ and concluded that previously published data on the volume of removed spent fuel were not entirely accurate. As a result, it remains unclear how much fuel still needs to be removed and what its actual condition is.

There were also reports that the Russian government had become concerned about the condition of the sunken nuclear submarines K-27 and K-159, noting that funds for their recovery had been included in the 2026–2028 state budget, although no amounts were disclosed.⁸¹ The issues and challenges associated with raising these objects have been examined and analyzed by Bellona in two of its previous reports—“Eliminating Russia’s Nuclear Legacy”⁸² and “The Nuclear Legacy of the Russian Arctic.”⁸³ The main conclusions drawn in those publications regarding the feasibility and necessity of recovering sunken and submerged nuclear and radiation-hazardous objects in the Arctic seas remain relevant today.

Nevertheless, Bellona drew attention to reports of an expedition by the research vessel *Academic Ioffe*, which carried out studies aimed at monitoring the condition of underwater radiation-hazardous objects in several areas of the Barents and Kara Seas. The results of the *Academic Ioffe* expedition essentially confirmed existing information, specifying only that some containers and small vessels filled with solid radioactive waste (SRW) are located in slightly different places than indicated in archival sources. For Bellona, this information is neither new nor unexpected. As early as 1996, during work on the report “The Northern Fleet: Potential Risk of Radioactive Contamination of the Region,”⁸⁴ discussions with a senior Northern Fleet official—who had overseen the dumping of radioactive waste in the

⁷⁹ FTP NRS, December 29, 2025. Brief summary of the implementation of FTP NRS-2 in 2025 [in Russian]. (Accessed: May 14, 2026.)
<https://фцп-яpb.пф/society/news/kratkie-itogi-realizatsii-ftsp-yarb-2-v-2025-godu/>

⁸⁰ Bellona, 2025. Eliminating Russia’s Nuclear Legacy. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/eliminating-russia-s-nuclear-legacy/>

⁸¹ RBC, October 18, 2025. The budget includes the recovery of the sunken nuclear submarines K-27 and K-159 [in Russian]. (Accessed: May 14, 2026.)
<https://www.rbc.ru/finances/18/10/2025/68f18be19a79474ac524c72a>

⁸² Bellona, 2025. Eliminating Russia’s Nuclear Legacy. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/eliminating-russia-s-nuclear-legacy/>

⁸³ Bellona, 2024. The nuclear legacy of the Russian Arctic. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/nuclear-legacy-arctic-2/>

⁸⁴ Bellona, 1996. Northern Fleet. Potential risk of radioactive contamination in the region [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/publication/nothernfleet/>

1970s–1980s—suggested that the locations of radioactive waste disposal were sometimes recorded in archival documents in a rather formal and approximate manner. As a result, many expeditions continue to find discrepancies between the actual dumping sites and the archival records created and stored by the Soviet Navy. The expedition’s findings established⁸⁵ that environmental conditions and the state of underwater objects in the Novaya Zemlya trench in the Kara Sea—where, between 1967 and 1991, radioactive waste was disposed of by sinking vessels (12 units) loaded with SRW, containers (4,834 units), and individual components (306 units)—are characterized by the absence of cesium-137 (¹³⁷Cs) concentrations in the water column exceeding background levels. This is not a new finding, let alone a sensational one. SRW dumped at great depths more than fifty years ago is unlikely to be a significant source of radioactive contamination in the Arctic Ocean today.

Most likely, another (and possibly the primary) objective of the expedition was to conduct research in the area where the nuclear submarine K-27 was scuttled. Its power plant includes two nuclear reactors with a liquid-metal coolant based on a lead–bismuth eutectic. Experts (including Bellona)⁸⁶ consider K-27 to be the most potentially hazardous nuclear object dumped in the world’s oceans and stress the need for continuous monitoring of the integrity of its containment barriers, as well as the development of a recovery project and the necessary technical means. It is precisely because of this risk that joint expeditions by the Shirshov Institute of Oceanology of the Russian Academy of Sciences, the Kurchatov Institute, and Russia’s Ministry of Emergency Situations conduct regular studies of the condition of the conserved nuclear power installation aboard K-27. As in previous cases, analysis of direct radiation measurements taken on the deck of K-27 showed⁸⁷ that there is no release of radioactivity from the submarine’s reactors into the interior of the reactor compartment and, consequently, into the surrounding marine environment. At the same time, all expeditions, including the most recent one, have detected the presence of anthropogenic cesium-137 (¹³⁷Cs) in the radionuclide spectra on the surface of the submarine’s hull. Experts believe this to be legacy contamination not associated with any current leakage from the reactor. This may indeed be the case; however, according to many experts,⁸⁸ including Bellona, the recovery of submarines K-27 and K-159 should be expedited, as their condition continues to deteriorate. Recovery operations may become so technically difficult over time that, eventually, leaving the submarines on the seabed could become the least risky option.

⁸⁵ Shirshov Institute of Oceanology, November 25, 2025. The 70th voyage of the Akademik Ioffe research vessel to the Arctic: the third and final stage of research [in Russian]. (Accessed: May 14, 2026.)

<https://www.ocean.ru/index.php/vse-novosti/item/3650-70-j-rejs-ps-akademik-ioffe-v-arktiku-3-zaklyuchitelnyj-etap-issledovaniy>

⁸⁶ Bellona, 2024. The nuclear legacy of the Russian Arctic. (Accessed: May 14, 2026.)

<https://etc.bellona.org/publication/nuclear-legacy-arctic-2/>

⁸⁷ Shirshov Institute of Oceanology, November 17, 2025. The 70th voyage of the Akademik Ioffe research vessel to the Arctic: Stage 2 of research [in Russian]. (Accessed: May 14, 2026.)

<https://www.ocean.ru/index.php/vse-novosti/item/3624-70-j-rejs-ps-akademik-ioffe-v-arktiku-2-etap-issledovaniy>

⁸⁸ Strana Rosatom, August 29, 2022. Tired submarines await: what’s preventing the submarine from being raised from the seabed? [in Russian] (Accessed: May 14, 2026.)

<https://strana-rosatom.ru/2022/08/29/zhdut-ustalye-podlodki-chto-meshaet-podn/>

2.5. Sanctions and import substitution

Despite unprecedented international sanctions imposed on Russia's energy sector after 2022, Rosatom remains largely outside a comprehensive sanctions regime. While the EU has imposed sanctions on oil, gas, and coal, the Russian nuclear sector has remained largely untouched. This is due not only to technical dependencies but also to the corporation's strong political influence built over years of engagement in European and global markets. Rosatom is not merely a supplier of fuel or technology, but a vertically integrated exporter offering a full range of services—from nuclear power plant construction and financing to fuel supply and waste management.

At present, Rosatom is subject to a hybrid sanctions model, consisting of targeted restrictions against subsidiaries and individuals, limitations on technology transfers and financing, and political pressure on its partners. However, these measures do not undermine its core business model.

A significant number of Soviet-designed reactors are in operation and under construction in the European Union and a number of other regions, fully or partially dependent on Russian fuel and services. In this context, Rosatom remains a unique case in sanctions policy. Its resilience is driven not only by technological dependence but also by its deep integration into the political and economic systems of individual states. As long as this dependence persists, attempts to impose full-scale sanctions will run up against institutional constraints.

Notably, Rosatom does not lobby for its interests in Europe directly through Brussels, but operates via national governments involved in its projects. A striking example is Hungary, which has consistently blocked sanction initiatives in connection with the construction of the Paks II Nuclear Power Plant. A number of countries operating VVER reactors do not support Russia, yet assume a de facto restrained posture on sanctions against Rosatom. At the same time, some states, such as the Czech Republic and Bulgaria, are taking steps to switch to alternative nuclear fuel. Since the start of the war, the European Union has also begun investing in the development of enrichment and fuel fabrication capacities for VVER reactors; however, deploying such production requires time and significant resources.

Thus, the issue of imposing sanctions on Rosatom is not only an energy matter but also a political and institutional one, since the structural gap in Western sanctions policy toward Russia creates a substantial dependence of the nuclear sectors of these countries on Russian enrichment services and fuel supplies. At present, up to 40% of uranium enrichment services used by European operators are linked to Russia, as historically around 20 VVER reactors in the EU depend on Russian fuel.⁸⁹ In addition, many EU companies continue to cooperate with Rosatom under long-term contracts. This is not a technical detail but a systemic vulnerability that the European Union needs to eliminate. To do so, it would be advisable within the EU to consider moving from unanimity to qualified majority voting for sanctions decisions, or to

⁸⁹ Serbia Energy, January 9, 2026. Nuclear fuel and uranium: Europe's quiet Russian dependency. (Accessed: May 14, 2026.) <https://serbia-energy.eu/nuclear-fuel-and-uranium-europes-quiet-russian-dependency/>

develop workaround mechanisms—for example, designating the nuclear sector as a category of strategic vulnerability with a special decision-making regime. Otherwise, the EU will remain unable to impose comprehensive sanctions on the Russian nuclear sector. Current measures are fragmented, selective, and insufficient.

During the war period, the European Union, the United Kingdom, and the United States have taken certain sanctions-related steps with regard to Rosatom, including:

- export controls on certain dual-use technologies;
- EU and US restrictions on sensitive technologies and high-tech materials, although supplies continue via third countries;
- a US ban on imports of Russian uranium (with exemptions until 2028), though this applies only to enriched uranium rather than the entire nuclear fuel cycle; the EU has not introduced such restrictions;
- US sanctions and partial EU restrictions against the Kurchatov Institute and its head Mikhail Kovalchuk, though these measures are not fully synchronized across jurisdictions;
- limited targeted personal sanctions by the EU, UK, and US against Rosatom representatives at the Zaporizhzhia NPP, as well as targeted sanctions against certain Rosatom executives, without systemic coverage of top leadership as a whole (Alexey Likhachev is not under EU sanctions);
- some EU countries (e.g., the Czech Republic, Poland, and the Baltic states) have refused cooperation with Rosatom, while others (e.g., Hungary) continue engagement.

The “punitive package” proposed by many experts, envisaged in the event of nuclear incidents at the ZNPP, remains unimplemented. This package would include asset confiscation, closure of Rosatom offices, and exclusion from international projects (such as ITER and Generation IV International Forum).

It should also be noted that Ukraine and some Western countries proposed excluding Rosatom from the United Nations Global Compact and limiting Russia’s influence in the International Atomic Energy Agency by removing Rosatom representatives from leadership positions. However, these proposals were not implemented. Moreover, in no Western country have the assets of Rosatom’s core structure (more than 262 companies linked to the nuclear sector) been frozen, nor have sanctions been imposed on it, although such proposals were considered. The proposal to impose full sanctions coverage on Rosatom’s Western subsidiaries and to ban operations in Western currencies has also not been implemented.

As a result, Rosatom continues to operate globally, maintains influence in international institutions, and remains directly involved in unlawful activities at occupied nuclear facilities in Ukraine.

The inability to eliminate this gap weakens pressure on Russia, increases risks to nuclear safety, and allows Rosatom to continue operating as a global Russian state actor with minimal constraints.

In recent years, the term “import substitution” has become a key element of official rhetoric in Russia and is actively used in Rosatom’s public communications. However, the lack of systematic, verifiable, and comparable information on the depth of localization in the nuclear sector complicates objective assessment and is itself an indicator of the incomplete and fragmented nature of import substitution processes. The model of import substitution being implemented in the nuclear industry is selective and hierarchically constrained. While heavy equipment and end products are localized, critical dependence on imported technologies persists at the level of components and engineering infrastructure. This means that substitution is occurring primarily at the “upper” levels of the technological chain, while the “lower” levels—those that determine genuine technological independence—remain vulnerable.

A key bottleneck is microelectronics. According to data from the Ministry of Industry and Trade and sectoral studies, Russia’s electronics industry is characterized by technological lag, including difficulties in mastering advanced process technologies, dependence on foreign technologies, and a shortage of production capacity. According to estimates by Higher School of Economics, Russia is a “latecomer producer” in high-tech sectors, with an extremely low share in global exports. The historically eroded technological base and the high share of imported components (in some sectors up to 70%) point to a structural, rather than temporary, nature of this lag. These constraints also affect the nuclear industry, where equipment and control systems have long relied on imported electronic component bases.⁹⁰ A systemic limitation of import substitution in the nuclear sector lies in safety requirements: rapid replacement of components is not feasible, since any changes to equipment affecting nuclear power plant safety require lengthy cycles of qualification, certification, and testing in accordance with the standards of Rostekhnadzor and the IAEA.

In Rosatom’s foreign projects, import substitution often takes the form not of localization but of redirected dependence. Under sanctions pressure, the withdrawal of Western suppliers is compensated by engaging alternative ones—for example, Chinese suppliers, as in the construction of the Akkuyu nuclear power plant in Turkey. This means that dependence is not eliminated but transformed. Such a model does not ensure technological sovereignty for Rosatom; it merely alters the configuration of external dependence, which is why many of its overseas construction projects encounter difficulties and reliance on external supply chains.

Taken together, this suggests that import substitution at Rosatom is adaptive rather than transformative in nature. It is aimed at maintaining the functioning of the sector under constraints but does not lead to the creation of a fully autonomous technological system. Continued dependence on external technologies—particularly in microelectronics,

⁹⁰ Wikipedia. Electronics industry of Russia [in Russian]. (Accessed: May 14, 2026.)
https://ru.wikipedia.org/wiki/Электронная_промышленность_России

engineering software, and turbine manufacturing —remains a key factor limiting the resilience and long-term competitiveness of Russia's nuclear industry.

Summarizing the key directions of Rosatom's strategy and activities in Russia in 2025, its new systemic role under conditions of war and sanctions pressure should be emphasized. The corporation functions not only as an operator of the nuclear sector but also as an instrument of state policy, ensuring the resilience of critical infrastructure and supporting priority areas of national development. With restricted access to external technologies and markets, Rosatom is attempting to pursue import substitution policies, develop certain high-tech industries, and strengthen its industrial base. At the same time, its activities in the Arctic and other strategic regions are increasingly acquiring elements of militarization, including infrastructure support and active participation in dual-use projects. Thus, Rosatom today plays a significant role in shaping the economic, technological, and, in part, defense agenda of contemporary Russia.

3. Rosatom abroad

3.1. Rosatom in the CIS

According to Alexey Likhachev, Rosatom's foreign revenue in 2025 amounted to \$17.2 billion – though this is lower than the previous year's \$18 billion.⁹¹ However, the corporation's core activities and, accordingly, the bulk of its foreign revenue derive from nuclear power plant construction projects in the Middle East and the Global South, as well as from its uranium fuel business.

Across the former Soviet republics, Rosatom maintains varying levels of operation in Belarus, Armenia, Uzbekistan, Kyrgyzstan, and Kazakhstan. Given that Rosatom today functions primarily as an instrument of Kremlin policy, it is unsurprising that its efforts are concentrated in CIS countries that hold geopolitical importance for Russia or can assist in addressing challenges arising from the war in Ukraine—for example, by facilitating the circumvention of international sanctions through Kyrgyzstan.⁹²



Former Soviet republics where Rosatom has ongoing projects. Credit: Bellona

Belarus is currently the principal political and military ally of Putin's Russia. Accordingly, in 2025 Rosatom was particularly active there, even though Belarus is not a significant source of the corporation's foreign revenue. One of Rosatom's key projects in the CIS remains the Belarusian Nuclear Power Plant (BelNPP), built according to the Russian AES-2006 design

⁹¹ Kommersant, March 12, 2026. Rosatom increases its foreign order portfolio to \$206 billion [in Russian]. (Accessed: May 14, 2026.) <https://www.kommersant.ru/doc/8499368>

⁹² Economist.kg, February 26, 2026. The EU is recording an abnormal increase in «combat transit» through Kyrgyzstan – O'Sullivan [in Russian]. (Accessed: May 14, 2026.) <https://economist.kg/ekonomika/2026/02/26/ies-fiksiruiet-anomalnyi-rost-boievogho-tranzita-chieriez-kyrgyzstan-osallivan/>

with VVER-1200 reactors. Its two units currently generate approximately 40% of Belarus's electricity. In 2025, Belarus and Rosatom began preparatory work for the construction of a third unit, with commissioning planned for 2035 and 2038.

In addition, Rosatom, in cooperation with Belarusian enterprises and research institutions, is developing related infrastructure, including the construction of a radioactive waste storage facility for the plant (the site is to be approved in 2026), as well as personnel training and service support.⁹³

Rosatom is also active in promoting non-nuclear technologies in Belarus, including in medicine, mechanical engineering, non-nuclear energy, and additive manufacturing. Belarus is likely to remain Russia's closest and most loyal ally for the foreseeable future, which explains Rosatom's readiness to invest actively in both nuclear and non-nuclear projects in the country despite limited direct financial returns, with political dividends being the primary benefit.

Armenia is one of the former Soviet republics where a Soviet-designed nuclear power plant was built during the Soviet period: the Metsamor Nuclear Power Plant, with two power units equipped with VVER-440 reactors. In 2025, work was underway to extend the operational lifetime of the second unit of the Metsamor NPP until 2036, and discussions were also taking place about the need to begin construction of a new nuclear power plant in 2026 or 2027. This is discussed in more detail, in particular, in Bellona's report "Rosatom" for 2023–2024.⁹⁴ Political relations between Russia, Armenia, Western and Eastern countries, as well as the internal situation in Armenia itself, will play a key role in selecting the design of the future nuclear power plant. Russia continues to maintain a significant presence in Armenia, especially in the fields of security and energy. Without its participation, Armenia will not be able to fully ensure the life extension and operation of its only nuclear power plant, which generates about 30–40% of the country's electricity. In addition, the possibility of modernizing the plant with Russian participation and extending its operational lifetime until 2046 is still under discussion.⁹⁵ Nevertheless, work has already begun to extend the plant's operation by 10 years, i.e., until 2036, for which approximately 63 billion drams (14 billion rubles) have been allocated from Armenia's state budget.⁹⁶

However, the most likely scenario remains the decision to build a new nuclear power plant. At present, five countries are effectively competing for this project—presumably involving small modular reactor (SMR) technology: the United States (Westinghouse), Russia, France (EDF and Framatome), South Korea (Korea Hydro & Nuclear Power), and China. Clearly, the choice will be determined by factors such as construction cost, safety standards and technological modernity, implementation timelines, and overall economic efficiency.

⁹³ Interfax, September 11, 2024. Options for sites to construct BelNPP storage facility for RAW to be determined in 2025 – Rosatom. (Accessed: May 14, 2026.) <https://interfax.com/newsroom/top-stories/105795/>

⁹⁴ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/rosatom-in-the-war-years/>

⁹⁵ Civilnet, February 12, 2026. Armenia may extend Metsamor nuclear plant operation until 2046. (Accessed: May 14, 2026.) <https://www.civilnet.am/en/news/1002473/armenia-may-extend-metsamor-nuclear-plant-operation-until-2046/>

⁹⁶ Mir 24, March 23, 2026. Almost 14 billion rubles have been allocated for work to extend the service life of the Armenian Nuclear Power Plant until 2036 [in Russian]. (Accessed: May 14, 2026.) <https://mir24.tv/news/16664747/na-raboty-po-prodleniyu-sroka-sluzhby-armyanskoj-aes-do-2036-goda-vydeleno-pochti-14-mlrd-rublej>

At the same time, it cannot be ruled out that the selection of the contractor will be a political decision, especially given possible changes in the country's domestic politics following the parliamentary elections in June 2026, as a result of which Armenian Prime Minister Nikol Pashinyan may lose power. It is certain that the outcome of the parliamentary elections will be influenced by the defeat in Nagorno-Karabakh in 2023, which has already triggered socio-political tensions and the rise of revanchist sentiments in the country. In addition, judging by the results of the most recent meeting between Putin and Pashinyan, at which Armenia was criticized for drifting toward the West, relations between Russia and Armenia are entering a more uncertain and contentious phase.⁹⁷ It should also be borne in mind that Armenia will continue its course toward EU accession.⁹⁸ All these factors may influence the choice of project and contractor for the construction of a new Armenian nuclear power plant.

Uzbekistan seeks to strengthen its influence in Central Asia in political, geo-economic, and energy terms. Therefore, cooperation with Rosatom was initially aimed at creating a national nuclear infrastructure and training personnel. In 2018, an intergovernmental agreement was signed for the construction of a nuclear power plant with two VVER-1200 reactors. However, in recent years, Uzbekistan's cooperation with Rosatom has evolved from a politically high-profile "first nuclear power plant" project into a more complex and multi-layered scheme. In 2024, the parties moved to the practical implementation of a small nuclear power plant project based on six RITM-200N reactors instead of large VVER-1200 units. In 2025, this configuration was further expanded: the parties agreed to develop and then formalize a new scheme in which small reactors are supplemented by two large VVER-1000 units. Thus, the project is no longer a single facility but rather the gradual formation of a full-fledged nuclear cluster in Uzbekistan with a Russian technological core. The shift toward small reactors in 2024 should not be seen as a rejection of a large nuclear power plant; rather, it represented a tactical reconfiguration of the project. The agreement signed on May 27, 2024 during Putin's visit to Uzbekistan concerned the construction of a plant based on six RITM-200N units. The first reactor was planned to reach criticality by the end of 2029, and the reactors themselves are a land-based adaptation of technology used in nuclear icebreakers.⁹⁹ For Rosatom, this was the first export order for this type of small modular reactor, meaning Uzbekistan effectively became a demonstration site for the company's new export product. In April 2025, it was announced that construction of auxiliary buildings for the small nuclear power plant had begun; in May, that reactor equipment manufacturing had started; and in June, Uzatom and Rosatom agreed to study the possibility of constructing a large plant with two VVER-1000 units. In September 2025, this development path was formalized into a new agreed configuration: two large Generation III+ VVER-1000 units plus two small RITM-200N reactors of 55 MW each. In March 2026, concrete was poured for the RITM-200N construction,

⁹⁷ Meduza, April 2, 2026. At a meeting with Putin in the Kremlin, Pashinyan spoke to him about democracy and freedom of speech [in Russian]. (Accessed: May 14, 2026.)

<https://meduza.io/feature/2026/04/02/pashinyan-na-vstreche-s-putinyem-v-kremle-rasskazal-emu-o-demokratii-i-svobode-slova>

⁹⁸ Brief World [Telegram], April 20, 2026. Armenia will continue its course towards EU accession – Armenian Prime Minister Nikol Pashinyan [in Russian]. (Accessed: May 14, 2026.)

<https://t.me/rusbri/22811>

⁹⁹ Reuters, May 27, 2024. Russia to build Central Asia's first nuclear power plant in Uzbekistan. (Accessed: May 14, 2026.)

<https://www.reuters.com/world/asia-pacific/russia-build-central-asias-first-nuclear-power-plant-uzbekistan-2024-05-27/>

although it should be noted that this pouring does not represent the “first concrete,” i.e., the official start of construction, but rather preparatory works only.

Uzbekistan has effectively become a testing ground for a “hybrid” model in which Rosatom is not selling a single type of nuclear power plant, but an entire portfolio of nuclear solutions simultaneously. In this way, it gains the ability to secure a long-term foothold in Central Asia through what is a classic dependency chain in the nuclear industry: design, construction, fuel supply, servicing, personnel training, regulatory support, and potentially future management of radioactive materials and technological modernization. In January 2026, Rosatom head Alexei Likhachev proposed not merely expanding electricity generation, but effectively creating a “nuclear cluster” that would also include nuclear medicine, radiation technologies, and social infrastructure. In this sense, Russia is attempting to turn the nuclear project into a platform for broader presence.¹⁰⁰

Rosatom traditionally promotes its export projects through a package approach—“construction plus state support plus a long-term service horizon”—or through the “build–own–operate” (BOO) model. However, under these conditions it becomes difficult to determine where economic rationale ends and politically driven dependency begins. This bundled approach carries inherent risks: the more stages of the value chain are locked into a single external partner, the higher the likelihood that the energy project will be shaped less by the recipient country’s national interests and more by the supplier’s operational convenience. It is important to note that nuclear energy creates one of the most rigid forms of external dependency, as it is tied to critical infrastructure over decades. In Uzbekistan’s case, Rosatom is not only supplying reactors but also an infrastructure of influence, including political dimensions. At the same time, it should be emphasized that for the small modular reactor project, Uzbekistan itself is financing the entire construction, underlining that it is a national project and that the country remains its sole owner.

From both a political and economic perspective, **Kazakhstan** is a key Central Asian state for Russia and Rosatom. It is the world’s largest uranium producer, accounting for roughly 40–45% of global output, making it a critical component of the global nuclear supply chain. In 2025, production by NAC Kazatomprom amounted to 25.8 thousand tonnes of uranium, of which 13.5 thousand tonnes corresponded to the company’s attributable share.

Through its subsidiary Uranium One, Rosatom participates in a number of joint ventures with Kazatomprom at key deposits, including Budenovskoye, Karatau, and Akbastau. This gives the Russian side direct access to the world’s largest uranium resource base. Kazakhstan does not possess a complete nuclear fuel cycle and remains structurally dependent on external suppliers for conversion and enrichment stages, including Russian facilities. As a result, an asymmetric interdependence emerges: Kazakhstan supplies uranium feedstock, while Rosatom controls critical stages of its processing and conversion into nuclear fuel. This model strengthens Rosatom’s position in the global supply chain, allowing it to combine control over uranium extraction and processing with expanded influence through reactor and fuel exports.

¹⁰⁰ Eurasianet, January 29, 2026. Uzbekistan non-committal on Rosatom offer to build nuclear ‘cluster’. (Accessed: May 14, 2026.)
<https://eurasianet.org/uzbekistan-non-committal-on-rosatom-offer-to-build-nuclear-cluster>

In June 2025, Kazakhstan selected Rosatom to lead an international consortium for the construction of its first nuclear power plant at the Ulken site (Almaty Region, the Balkhash project). The project foresees two VVER-1200 reactor units with commissioning expected in the mid-2030s. The consortium structure and financing terms remain non-transparent. The Russian side points to the possibility of export credit financing, which could create long-term financial obligations for Kazakhstan. At the same time, participation by third countries—especially China—is being discussed, and its role may turn out to be more significant than in other Rosatom foreign projects. Additional agreements cover cooperation in radioactive waste management, scientific research, and personnel training, which corresponds to Rosatom’s standard export model aimed at securing long-term institutional presence.

Thus, Rosatom’s strategy in Kazakhstan goes beyond individual projects and is aimed at creating a comprehensive dependency—from uranium mining to the operation of nuclear power generation and fuel supplies for decades to come. The absence of full-fledged international sanctions against Rosatom enables the company to maintain and expand its presence in the global nuclear value chain, including access to Kazakhstan’s critically important resources. This creates a structural gap between the EU’s sanctions policy toward Russia and the European nuclear sector’s actual dependence on Russian enrichment services and fuel.

At the same time, Kazakhstan seeks to preserve room for maneuver by considering the construction of second and third nuclear power plants with the participation of alternative suppliers, the primary one being China. This reflects the country’s desire to avoid critical dependence in this sector on a single technological and political partner.

A scenario is also conceivable in which the construction of two nuclear power plants in Kazakhstan is launched by Russia and China almost simultaneously. There are grounds to assume that, given China’s faster pace of nuclear construction compared to Rosatom, the “first Russian” nuclear power plant in Kazakhstan could be commissioned later than the Chinese one. This, in turn, could negatively affect Rosatom’s reputation.

The prospects for Rosatom’s projects in Kazakhstan (as in other countries) are highly dependent on Kazakhstan’s foreign and domestic policy. Today, Kazakhstan is seeking to minimize dependence on any single center of power. Within this logic, the country’s strategy of balance in the political, economic, and logistical spheres is shaped by its multidirectional interests involving the West, China, and Russia.

Kyrgyzstan is one of the Central Asian states of the former Soviet Union in which Rosatom had no interests or projects prior to the war. The first memorandum of cooperation on the construction of an SMR was signed between Rosatom and the government of Kyrgyzstan in January 2022, providing for cooperation in developing plans for nuclear power plant construction, building nuclear infrastructure, and training personnel. In this way, Russia entered Kyrgyzstan’s energy sector through a nuclear project with minimal commitments and maximum flexibility. In 2023–2025, there was a shift toward tangible energy projects, primarily involving the construction of a 100 MW wind farm in the Issyk-Kul region, which in 2025

moved from the agreement stage to the implementation phase, as well as the development of pilot projects for lithium-ion battery production.

Ultimately, Rosatom is consolidating its position in Kyrgyzstan through new energy projects, laying the groundwork for further expansion of its presence.

3.2. Rosatom projects in the EU and the USA

As noted in last year's report,¹⁰¹ Rosatom's projects in the EU and the United States are primarily related to nuclear fuel supply. In previous years, deliveries of enriched uranium from Russia covered up to 30% of demand in these markets. A number of nuclear power plants in Finland, Hungary, Bulgaria, the Czech Republic, and Slovakia still use Russian fuel. In 2025, these areas were not subject to direct sanctions in connection with Russia's invasion of Ukraine; however, the process of supply diversification is ongoing.

Among nuclear construction projects in these markets, Rosatom is actively involved only in the construction of the Paks II Nuclear Power Plant, where the first concrete was poured in 2026, and, as a subcontractor, it has limited participation in the completion of Unit 4 of the Mochovce Nuclear Power Plant in Slovakia, where hot hydro tests began in March 2025.¹⁰²

Construction of the Paks II NPP in Hungary

The Paks II project, consisting of two VVER-1200 units, is the only nuclear construction project being implemented by Rosatom in the European Union following Finland's withdrawal from the Hanhikivi-1 NPP project. Despite the fact that the Hungarian project has not been canceled and that no comprehensive EU sanctions have been imposed on Rosatom, the project has faced difficulties and delays of at least three years.

On February 5, 2026,¹⁰³ the first concrete was poured for the foundation of Unit 1 at Paks II (or Unit 5 of the entire Paks NPP, as classified in the IAEA PRIS system¹⁰⁴). According to IAEA standards, this marks the official start of construction. The ceremony was attended by representatives of Rosatom and Hungary, as well as IAEA Director General Rafael Grossi.

¹⁰¹ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

¹⁰² World Nuclear News, March 24, 2025. Hot hydro testing begins at Mochovce 4. (Accessed: May 14, 2026.)
<https://world-nuclear-news.org/articles/hot-hydro-testing-begins-at-mochovce-4>

¹⁰³ TASS, February 5, 2026. First concrete poured the foundation of the Paks-2 nuclear power plant in Hungary [in Russian]. (Accessed: May 14, 2026.)
<https://tass.ru/ekonomika/26355553>

¹⁰⁴ IAEA Power Reactor Information System (PRIS), May 13, 2026. Paks-5. (Accessed: May 14, 2026.)
<https://pris.iaea.org/PRIS/CountryStatistics/ReactorDetails.aspx?current=1076>

Delays and Sanctions

Prior to the full-scale invasion of Ukraine, Rosatom had planned—as early as March 2021—to pour first concrete at Paks II in 2022.¹⁰⁵ Thus, difficulties in the new situation caused by Russia's war in Ukraine led to delays of nearly four years.

By late 2024, when Paks II received authorization¹⁰⁶ from Hungary's nuclear regulator to begin construction of Units 5 and 6, Rosatom's leadership indicated that first concrete was scheduled¹⁰⁷ for the first quarter of 2025. In parallel with site preparation, long-lead equipment manufacturing was underway. In April 2025, production of forgings for the reactor pressure vessel of Unit 6 began¹⁰⁸ at the AEM-Spetsstal plant (part of Rosatom's Machine-Building Division). A similar stage for Unit 5¹⁰⁹ had been completed in April 2024.

On January 30, 2025, a collapse of part of the soil reinforcement¹¹⁰ at the excavation site for Unit 5 caused additional delays. On June 19, 2025, Hungary's Atomic Energy Authority granted permission to resume construction.¹¹¹

In June 2025, Hungary's Minister of Foreign Affairs and Trade, Péter Szijjártó, announced¹¹² that the United States had lifted sanctions related to investments in the construction of the Paks II Nuclear Power Plant. The U.S. Treasury's Office of Foreign Assets Control (OFAC) decided to exempt¹¹³ certain Russian banks and insurance companies from U.S. financial sanctions for activities related to nuclear energy projects. These entities are permitted to carry out transactions solely for servicing or supporting civilian nuclear projects initiated before November 21, 2024.

On November 7, 2025, following a meeting with the US President, Hungarian Prime Minister Viktor Orbán stated¹¹⁴ that an agreement had been reached on the full removal of U.S.

¹⁰⁵ TASS, March 10, 2021. Rosatom stated that the pandemic had not affected the construction schedule of the Akkuyu nuclear power plant [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/10874139>

¹⁰⁶ Bellona, February 3, 2025. Bellona Nuclear Digest. November–December 2024 [in Russian]. (Accessed: May 14, 2026.)

<https://ru.bellona.org/2025/02/03/nuclear-digest-11-12-24/>

¹⁰⁷ Kommersant, June 29, 2025. Sanctions lifted from nuclear power plant in Hungary [in Russian]. (Accessed: May 14, 2026.)

<https://www.kommersant.ru/doc/7851828>

¹⁰⁸ Atom Media, April 7, 2025. Rosatom's mechanical engineering division began manufacturing the reactor vessel for Unit 6 of the Paks II NPP (Hungary). [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/mashinostroitelnyy-divizion-rosatoma-nachal-izgotovlenie-korpUSA-reaktora-shestogo-energobloka-aes-p/>

¹⁰⁹ Bellona, May 28, 2024. Bellona Nuclear Digest. April 2024 [in Russian]. (Accessed: May 14, 2026.)

<https://ru.bellona.org/2024/05/28/nuclear-digest-04-24>

¹¹⁰ World Nuclear News, June 23, 2025. Regulator lifts construction restrictions at Paks-2 site. (Accessed: May 14, 2026.)

<https://www.world-nuclear-news.org/articles/construction-resumption-approved-for-paks-ii?cid=12107>

¹¹¹ Hungarian Atomic Energy Authority, June 19, 2025. The OAH has given permission for some construction work to continue at the Paks NPP Unit 5 site [in Hungarian]. (Accessed: May 14, 2026.)

<https://www.haea.gov.hu/web/v3/OAHPortal.nsf/web?OpenAgent&article=news&uid=50494F8CA7229565C1258CAE00435D8D>

¹¹² Hungarian Government, June 29, 2025. The US government has lifted sanctions related to the expansion of the Paks Nuclear Power Plant [in Hungarian]. (Accessed: May 14, 2026.)

<https://kormany.hu/hirek/az-amerikai-kormanyzat-feloldotta-a-paksi-bovitessel-kapcsolatos-szankciokat>

¹¹³ Office of Foreign Assets Control, June 27, 2025. General license № 115B. Authorizing certain transactions related to civil nuclear energy. (Accessed: May 14, 2026.)

<https://ofac.treasury.gov/media/934396/download?inline>

¹¹⁴ Bellona, September 3, 2025. Bellona Nuclear Digest. June–July 2025 [in Russian]. (Accessed: May 14, 2026.)

<https://ru.bellona.org/2025/09/03/nuclear-digest-06-07-25>

sanctions affecting the construction of Paks II, which until then had only been subject to temporary waivers.¹¹⁵ Subsequently, on November 21, 2025, OFAC issued a general license permitting¹¹⁶ specific transactions necessary for the implementation of the Paks II project by designated Russian banks.

In September 2025, the Court of Justice of the European Union upheld Austria's appeal and annulled¹¹⁷ the European Commission's decision of March 6, 2017, approving state aid for the Paks II project.¹¹⁸ The Court found that the Commission had limited its assessment to state aid rules and had not verified compliance with public procurement regulations in awarding the contract directly to a Russian company. As a result, the procedure was returned to the preliminary notification stage, and the Commission must reassess the project in light of the Court's ruling. Hungarian authorities stated¹¹⁹ that the decision would not affect the pace of implementation, emphasizing the country's sovereign right to determine its energy mix, while Rosatom confirmed¹²⁰ its intention to proceed.

On June 3, 2025, Szijjártó also announced¹²¹ that the German company Siemens Energy would relocate its nuclear control systems division related to Paks II to Hungary. The contract for supplying the plant's control system had been awarded to a consortium of Siemens and the French company Framatome. Because the technology is dual-use, export licenses from both Germany and France were required. However, Germany's previous government did not grant Siemens the necessary authorization¹²² to participate in the project. Following the relocation, implementation would proceed through Siemens' Hungarian subsidiary.

However, in February 2026, news agencies reported^{123,124} that Rosatom had terminated its contract with Siemens Energy at the end of 2025 for the supply of components for the Paks II project.

¹¹⁵ Bellona, September 3, 2025. Bellona Nuclear Digest. June–July 2025 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2025/09/03/nuclear-digest-06-07-25>

¹¹⁶ Office of Foreign Assets Control, November 21, 2025. General license № 132. Authorizing certain transactions involving Paks II civil nuclear power plant. (Accessed: May 14, 2026.)
<https://ofac.treasury.gov/media/934776/download?inline>

¹¹⁷ Court of Justice of the European Union, September 11, 2025. The Court of Justice annuls the Commission's decision to approve aid from Hungary for the Paks II nuclear power station. (Accessed: May 14, 2026.)
<https://curia.europa.eu/jcms/upload/docs/application/pdf/2025-09/cp250116en.pdf>

¹¹⁸ EUR-Lex Access to European Union law. Commission Decision (EU) 2017/2112 of 6 March 2017. (Accessed: May 14, 2026.)
<https://eur-lex.europa.eu/eli/dec/2017/2112/oj>

¹¹⁹ Hungary Today, September 12, 2025. Paks II project moves forward despite court decision. (Accessed: May 14, 2026.)
<https://hungarytoday.hu/paks-ii-project-moves-forward-despite-court-decision/>

¹²⁰ Kommersant, September 11, 2025. Rosatom will continue construction of a nuclear power plant in Hungary despite the EU court's ruling [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8026267>

¹²¹ Hungarian Government, June 3, 2025. Siemens Energy will relocate its nuclear process control technology business to Hungary [in Hungarian]. (Accessed: May 14, 2026.)
<https://kormany.hu/hirek/a-siemens-energy-magyarorszagra-helyezi-a-nuklearis-iranyitastechnikai-reszleget>

¹²² About Hungary, March 29, 2023. FM: Claim government is ending cooperation with Rosatom "is a lie". (Accessed: May 14, 2026.)
<https://abouthungary.hu/news-in-brief/fm-claim-government-is-ending-cooperation-with-rosatom-is-a-lie>

¹²³ Reuters, February 17, 2026. Rosatom terminates contract with Siemens Energy for Hungarian nuclear power plant [in German]. (Accessed: May 14, 2026.)
<https://www.reuters.com/de/firma/rosatom-beendet-vertrag-mit-siemens-energy-fr-ungarisches-atomkraftwerk-2026-02-17>

¹²⁴ Világgazdaság, February 11, 2026. Paks expansion – Berlin's bomb hits its target: Rosatom terminates contract with Siemens Energy [in Hungarian]. (Accessed: May 14, 2026.)
<https://www.vg.hu/vilaggazdasag-magyar-gazdasag/2026/02/siemens-paks-roszatom>

Under an agreement concluded in 2019, Siemens Energy was to supply¹²⁵ control systems for the new reactor units at Paks II in a consortium with the French company Framatome. However, difficulties arose with obtaining export licenses¹²⁶ from the German government. In June 2025, the Hungarian government announced¹²⁷ that Siemens Energy's division for nuclear control technologies would be relocated to Hungary, which was expected to help circumvent these obstacles. According to Hungary Today,¹²⁸ the termination of the contract suggests that this decision was either taken too late or that the legal barriers ultimately proved too significant.

According to Rosatom, the contract was terminated because the German company was unable to fulfill its contractual obligations. Rosatom also clarified that Siemens Energy's involvement was limited to certain elements of the control systems and accounted for less than 4% of the project's total equipment volume. It is claimed that these components can be replaced with Russian or European alternatives.

Siemens Energy, for its part, confirmed¹²⁹ that Rosatom initiated the termination of the contract but did not confirm its withdrawal from the project. In response to media inquiries, the company stated that it is fulfilling its contractual obligations in accordance with all national and international laws. It was also noted that work related to control and instrumentation systems for the Paks II project is currently suspended, but the company remains in close contact with the customer on this issue.

Summing up the results of 2025, Rosatom CEO Alexey Likhachev stated¹³⁰ that both Paks II and the Akkuyu Nuclear Power Plant project in Turkey had faced the greatest sanctions pressure and, in his words, had found themselves in a "sanctions meat grinder": "Siemens refused deliveries, \$2 billion in investments were frozen, and the payment system was disrupted."

In light of the results of the parliamentary elections in Hungary on April 12, 2026,¹³¹ the country's new government is likely to adopt a more pro-European stance compared to the outgoing government of Viktor Orbán and will seek to reduce dependence on Russia in the energy sector, which may lead to a more critical view of the Paks II project. However, it is still difficult to assess how exactly this might affect the project.

¹²⁵ Rosatom Europe, October 23, 2019. RASU JSC and Framatome-Siemens Consortium Sign Contract to Supply Automated Process Control Systems for Hungarian Paks-2 Nuclear Power Plant. (Accessed: May 14, 2026.)
https://rosatom-europe.com/press-centre/news/rasu-jsc-and-framatome-siemens-consortium-sign-contract-to-supply-automated-process-control-systems-/?sphrase_id=7976

¹²⁶ Hungary Today, February 15, 2023. Exclusive: Reaction from Siemens Regarding Delayed Nuclear Plant Export License. (Accessed: May 14, 2026.)
<https://hungarytoday.hu/exclusive-reaction-from-siemens-regarding-delayed-nuclear-plant-export-license/>

¹²⁷ Bellona, September 3, 2025. Bellona Nuclear Digest. June–July 2025 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2025/09/03/nuclear-digest-06-07-25/#04p>

¹²⁸ Hungary Today, February 12, 2026. Rosatom Terminates Siemens Energy's Role in Paks II Project. (Accessed: May 14, 2026.)
<https://hungarytoday.hu/rosatom-terminates-siemens-energys-role-in-paks-ii-project/>

¹²⁹ Atlatzso, March 12, 2026. Minister Péter Szijjártó lost in the Rosatom-Siemens Energy-Framatome Bermuda Triangle. (Accessed: May 14, 2026.)
<https://english.atlatzso.hu/2026/03/12/minister-peter-szijarto-lost-in-the-rosatom-siemens-energy-framatome-bermuda-triangle/>

¹³⁰ Atom Media, January 4, 2026. Rosatom CEO Alexey Likhachev's end-of-year interview with Russia 24 (January 3, 2026) [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/press-releases/intervyu-glavy-rosatoma-alekseya-likhacheva-telekanalu-rossiya-24-3-01-2026/>

¹³¹ BBC News Russian Service, April 15, 2026. Results of the elections in Hungary: Orbán lost, but Orbánsim did not [in Russian]. (Accessed: May 14, 2026.)
<https://www.bbc.com/russian/articles/cqxll0dx7gyo>

Nuclear fuel cycle services for Western countries

Russia remains one of the largest suppliers in the nuclear fuel cycle for the EU and the United States. Purchases from Russia have even increased in recent years, as uncertainty regarding future supplies and potential restrictions has prompted NPP operators to build up stockpiles of nuclear materials.

Russia primarily supplies enriched uranium to the US. In the EU, supplies include uranium, as well as conversion and enrichment services, in addition to nuclear fuel in the form of fuel assemblies for VVER reactors of Soviet/Russian design. A significant share of Russian supplies to the EU within the nuclear fuel cycle consists of comprehensive fuel supply contracts, which include not only the fabrication of fuel for VVER reactors but also the supply of uranium, its conversion, and enrichment.

Nuclear fuel supplies for VVER reactors to EU countries

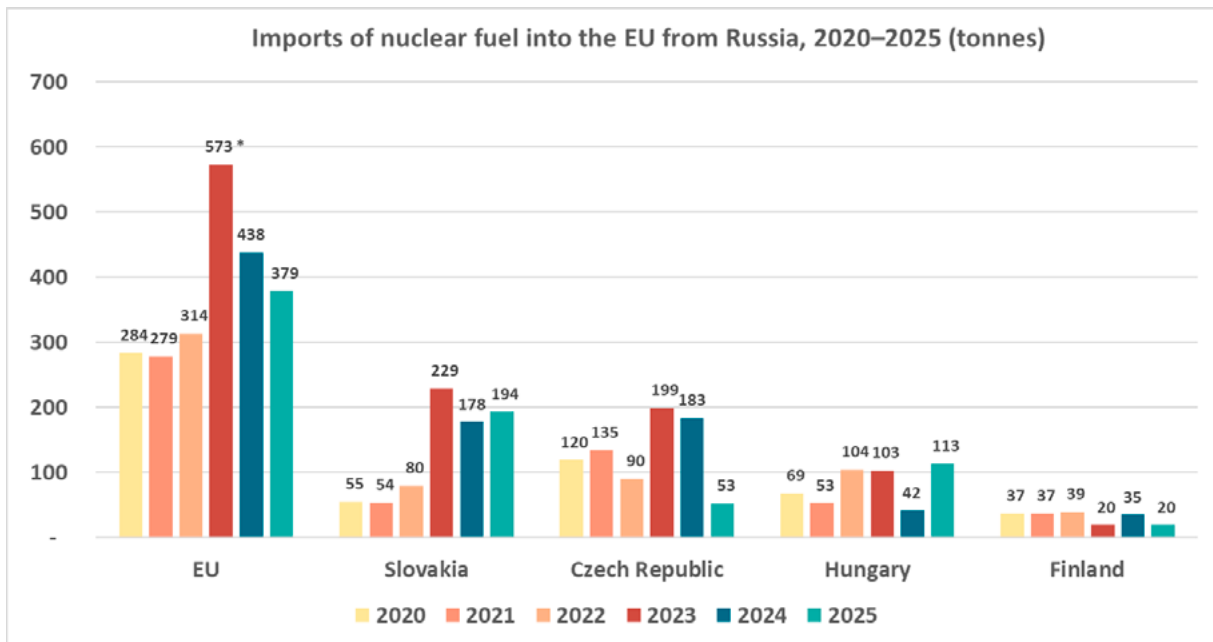
Within the European Union, only five countries use Russian nuclear fuel for 19 reactors of Soviet design—VVER-440 or VVER-1000. These are the Czech Republic (the Dukovany NPP with four VVER-440 units and the Temelín NPP with two VVER-1000 units), Slovakia (the Mochovce and Bohunice NPPs with a total of five VVER-440 units), Bulgaria (two VVER-1000 units at Kozloduy NPP), Hungary (four VVER-440 units at Paks NPP), and Finland (two VVER-440 units at Loviisa NPP).

According to Eurostat data analyzed by Bellona, in 2025 EU countries received 379.3 tonnes of nuclear fuel from Russia worth €464.7 million, which is 13.5% lower in volume and 11.8% lower in value compared to 2024. In 2025, Slovakia imported 193.5 tonnes worth €158.2 million, Hungary 113.4 tonnes worth €172 million, the Czech Republic 52.8 tonnes worth €104.8 million, and Finland 19.5 tonnes worth €29.7 million. The figures in the charts below are rounded. Supplies to Bulgaria are not reflected in the Eurostat database.

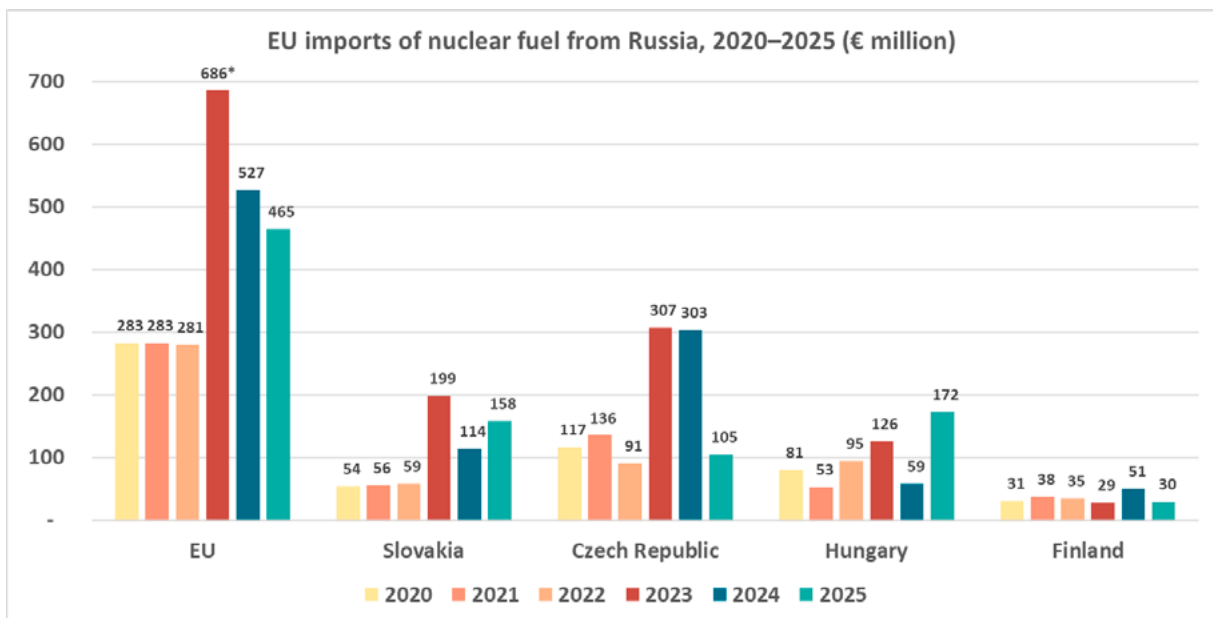
The decline in purchase volumes has continued for the second consecutive year following the record high of 2023, when deliveries reached their highest level in the past two decades—573 tonnes of nuclear fuel worth €686 million.¹³² These figures for 2023 do not include 62.3 tonnes of nuclear fuel worth €83.4 million supplied to Bulgaria, as data for Bulgaria is absent from the Eurostat database for other years. For consistency, supply data are therefore presented only for four EU countries: the Czech Republic, Hungary, Slovakia, and Finland. These data appeared in the Eurostat database with a delay.

The spike in growth in 2023 was driven by buyers' desire to draw down contracted volumes of fuel as quickly as possible, in order to secure a reliable supply during the period of switching suppliers and to avoid potential supply difficulties in the event of tighter sanctions in the nuclear sector or any further deterioration in relations between Russia and the EU. However, over four years of the war in Ukraine, across 20 EU sanctions packages against Russia, there are still no restrictions on the purchase of Russian nuclear materials.

¹³² Bellona, March 15, 2024. Europe doubled its import of Russian nuclear fuel for 2023, data say. (Accessed: May 14, 2026.) <https://etc.bellona.org/2024/03/15/europe-russian-nuclear-fuel/>



Deliveries of nuclear fuel from Russia to EU countries in tonnes. * Figures for 2023 do not include data for Bulgaria, which are available for that year but are absent from Eurostat statistics in other years. Source: Eurostat



Deliveries of nuclear fuel from Russia to EU countries in million Euros. * Figures for 2023 do not include data for Bulgaria, which are available for that year but are absent from Eurostat statistics in other years. Source: Eurostat

Despite the decline in purchases in 2025, total volumes remain above the average levels seen before the war. In 2025, only the Czech Republic and Finland returned to pre-war levels of procurement of Russian fuel or fell below them.

Overall, over four years of the war (2022–2025), EU countries paid Russia about 70% more for nuclear fuel (approximately €1.9 billion) than in the four years prior to the war (about €1.2 billion in 2018–2021). This is explained both by an increase in procurement volumes over these years (around +30% in total) and by rising prices with faster implementation of contracts.

However, given that all EU buyers of Russian fuel signed contracts¹³³ for alternative fuel supplies in 2022–2024, it can be expected that the downward trend in purchases of Russian fuel observed after 2023 will continue.

A number of operators of Soviet-designed VVER reactors in the EU have already received new fuel and begun loading it. In June 2024, Westinghouse RWFA fuel began to be loaded into a VVER-1000 reactor at Unit 5 of Kozloduy NPP in Bulgaria.¹³⁴ In August, the first batch of NOVA fuel, developed by Westinghouse for VVER-440 reactors, was loaded at Loviisa NPP in Finland.¹³⁵

In May 2025, the first batches of Westinghouse fuel for VVER-1000 reactors arrived at the Temelín NPP in the Czech Republic,¹³⁶ with loading expected in autumn 2026. In June 2025, the first batch of fuel from the same company for VVER-440 reactors was delivered to the Dukovany NPP in the Czech Republic.¹³⁷

On October 22, 2025, Hungary's Minister of Foreign Affairs and Trade, Péter Szijjártó, stated¹³⁸ that Hungary would begin negotiations to purchase nuclear fuel from the United States in order to diversify supplies, although abandoning Russian fuel is not planned. According to Hungary's Minister of Energy, Csaba Lantos,¹³⁹ after 2028 the Paks NPP will use three-quarters of its fuel from Framatome—produced at a joint European enterprise with Rosatom under a Russian license—and one-quarter from the U.S. company Westinghouse.¹⁴⁰ The fuel supply contract between Framatome and Paks NPP was signed in October 2024.^{141, 142}

¹³³ Bellona, November 25, 2025. Bellona Nuclear Digest. October 2024 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2024/11/25/nuclear-digest-10-24/#03p>

¹³⁴ Bellona, August 7, 2024. Bellona Nuclear Digest. June 2024 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2024/08/07/nuclear-digest-06-24/>

¹³⁵ Fortum, September 2, 2024. First batch of Westinghouse fuel loaded at Fortum's Loviisa nuclear power plant. (Accessed: May 14, 2026.)
<https://www.fortum.com/en/media/2024/09/first-batch-westinghouse-fuel-loaded-fortums-loviisa-nuclear-power-plant>

¹³⁶ Nuclear Engineering International, May 27, 2025. Westinghouse delivers first fuel to Temelín. (Accessed: May 14, 2026.)
<https://www.neimagazine.com/news/temelin-receives-first-fuel-shipment-from-westinghouse/>

¹³⁷ Group ČEZ, June 16, 2025. First Westinghouse nuclear fuel arrives in Dukovany. (Accessed: May 14, 2026.)
<https://www.cez.cz/en/media/press-releases/first-westinghouse-nuclear-fuel-arrives-in-dukovany-1-222263>

¹³⁸ Reuters, October 22, 2025. Hungary to start talks on buying nuclear fuel from United States. (Accessed: May 14, 2026.)
<https://www.reuters.com/business/finance/hungary-start-talks-buying-nuclear-fuel-united-states-2025-10-22/>

¹³⁹ TASS, December 16, 2025. Hungary plans to use US fuel at Paks NPP after 2028 [in Russian]. (Accessed: May 14, 2026.)
<https://tass.ru/ekonomika/25931285>

¹⁴⁰ Bellona, February 9, 2026. Bellona Nuclear Digest. December 2025 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2026/02/09/nuclear-digest-12-25/>

¹⁴¹ Framatome, October 25, 2024. Framatome to supply fuel to Hungarian VVER reactors. (Accessed: May 14, 2026.)
<https://www.framatome.com/medias/framatome-to-supply-fuel-to-hungarian-vver-reactors/>

¹⁴² Bellona, November 25, 2024. Bellona Nuclear Digest. October 2024 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2024/11/25/nuclear-digest-10-24/>

The Slovak nuclear power plant operator, Slovenské elektrárne, signed a contract with Westinghouse¹⁴³ in 2023 for the licensing and supply of fuel, and in 2024 concluded an agreement with Framatome for the supply of fuel for its VVER-440 reactors starting in 2027.¹⁴⁴ The contract for Russian fuel supplies had been valid until 2026. However, in November 2024, Slovenské elektrárne decided to extend its contract with Rosatom for fuel supplies for an additional five years—until 2030.¹⁴⁵

Thus, a trend can be observed toward a reduction in purchases of Russian nuclear fuel in the Czech Republic and Finland, along with an acceleration of its replacement by fuel from Westinghouse. At the same time, Slovakia and Hungary are not rushing to abandon Russian fuel and, while seeking alternatives, prefer to conclude agreements with the French company Framatome. The latter, however, does not yet have its own technology for producing fuel for VVER reactors and plans, in cooperation with Rosatom, to establish licensed assembly of Russian fuel at its plants in Romans-sur-Isère (France) and Lingen (Germany).¹⁴⁶ Therefore, in the coming years, Rosatom may partially maintain its presence in the European nuclear fuel market through cooperation with Framatome, unless stricter EU-level regulations and restrictions are introduced in this area.

Supplies of enriched uranium to EU countries

In 2025, according to Eurostat data analyzed by Bellona, imports of enriched uranium from Russia to EU countries increased compared to the previous year, reaching 583.4 tonnes worth €251.8 million, compared to 147.1 tonnes worth €170.1 million in 2024.

The main increase in volumes is linked to a large and unexpected delivery of more than 410 tonnes of enriched uranium to the Netherlands (for the first time since 2022), as well as a smaller shipment of 19.6 tonnes to Spain (for the first time since 2020). However, in monetary terms this resulted in only a modest increase: according to Eurostat, the shipment to the Netherlands cost just €17 million, or on average about €41,000 per tonne.

France and Germany, meanwhile, maintained roughly the same level of purchases in 2025 as in the previous year—about 150 tonnes combined. These volumes are most likely destined for fuel fabrication plants operated by the French company Framatome in France and Germany (in Lingen), which produce fuel for Western nuclear power plants and plan to begin licensed assembly of fuel for European VVER reactors.

The shipment of Russian enriched uranium directly to the plant in Lingen is also confirmed by existing licenses (ANVS-PP-2022/0087384¹⁴⁷ dated July 21, 2022, and ANVS-PP-2025/0113373¹⁴⁸ dated March 5, 2025), issued by the Dutch regulator ANVS to Orano NCS

¹⁴³ Westinghouse Electric Company, August 25, 2023. Westinghouse Strengthens Energy Security in Slovakia. (Accessed: May 14, 2026.) <https://info.westinghousenuclear.com/news/westinghouse-strengthens-energy-security-in-slovakia>

¹⁴⁴ Bellona, August 25, 2024. Bellona Nuclear Digest. July 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2024/08/25/nuclear-digest-07-24/>

¹⁴⁵ Bellona, February 3, 2025. Bellona Nuclear Digest. November–December 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2025/02/03/nuclear-digest-11-12-24/>

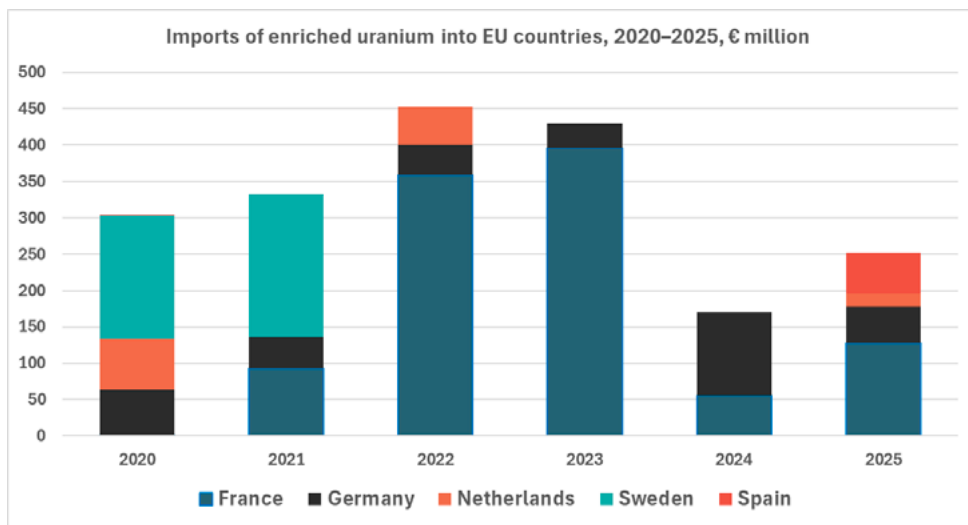
¹⁴⁶ Bellona, February 9, 2026. Bellona Nuclear Digest. December 2025 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2026/02/09/nuclear-digest-12-25/>

¹⁴⁷ Authority for Nuclear Safety and Radiation Protection (Netherlands), June 21, 2022. License ANVS-PP-2022/0087384 [in Dutch]. (Accessed: May 14, 2026.) https://puc.overheid.nl/anvs/doc/PUC_718504_32/1/

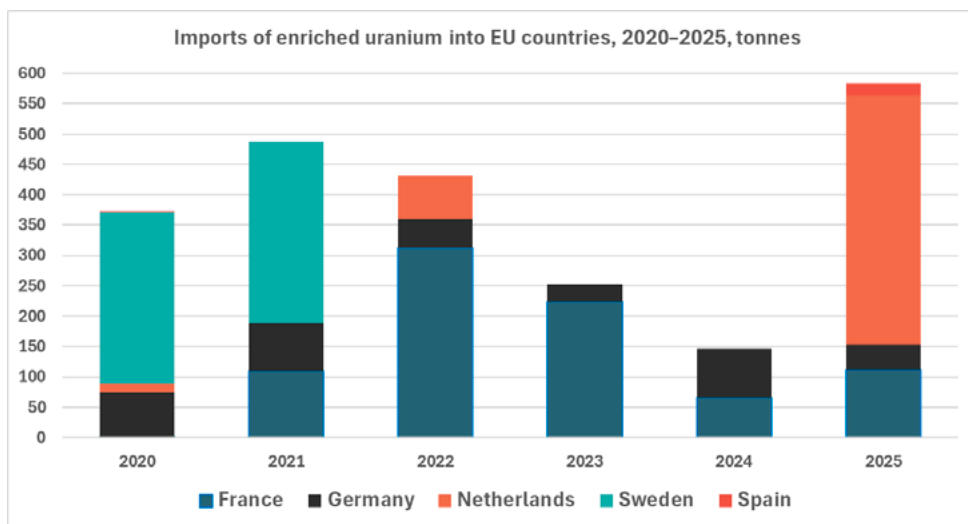
¹⁴⁸ Authority for Nuclear Safety and Radiation Protection (Netherlands), March 5, 2025. License ANVS-PP-2025/0113373 [in Dutch]. (Accessed: May 14, 2026.) https://puc.overheid.nl/anvs/doc/PUC_787327_32/1/

GmbH (Germany) for the transit transport of enriched uranium from Russia across the Netherlands (from port onward by road to Germany) to the Advanced Nuclear Fuels (ANF) plant in Lingen.

In Spain, the recipient of the uranium may have been the ENUSA fuel fabrication plant in Juzbado, which produces fuel for Spanish nuclear power plants.



Supplies of enriched uranium from Russia to EU countries from 2020 to 2025, excluding enriched uranium contained in nuclear fuel supplies, in million Euros. Source: Eurostat



Supplies of enriched uranium from Russia to EU countries from 2020 to 2025, excluding enriched uranium contained in nuclear fuel supplies, in tonnes. Source: Eurostat

However, the purpose and final consumers of the uranium imported into the Netherlands are not entirely clear. Most likely, this involves reprocessed uranium that had previously been sent from France to Russia for conversion and is now being returned to the Netherlands for re-enrichment before being sent back to France for fuel production. Several factors support this hypothesis.

First, the customs value of uranium imported from Russia to the Netherlands is extremely low (around €41,000 per tonne), which is hundreds of times lower than the value of enriched uranium supplied from Russia to other countries—Germany, France, the United States, or even China (around €1 million per tonne). This may indicate that what is being supplied is not uranium enriched to fuel-grade levels (up to 5%), but rather an intermediate product—reprocessed uranium (with enrichment levels in the range of 0.7% to 1%) that has undergone conversion but not further enrichment.

Second, there is an active contract for such services. Back in 2018, Tenex (a Rosatom subsidiary) and Électricité de France (EDF) signed a long-term contract¹⁴⁹ worth \$1 billion for comprehensive services¹⁵⁰ involving the conversion and enrichment of EDF's reprocessed uranium, as well as maintenance of transport containers for this material. The contract covers the period 2022–2032. After conversion at the plant in Seversk (Russia), part of the uranium is to be sent for enrichment to Urenco. Fuel assemblies will then be produced at Framatome's plant in Romans-sur-Isère.

In early 2024, a controversy emerged in the media¹⁵¹ when it was revealed that, despite Urenco's assurances that it had fully severed ties with Rosatom after 2022, the Dutch nuclear regulator ANVS had issued permits for the transport of enriched uranium from Russia to Urenco's facility in Almelo. Urenco then clarified¹⁵² that it was merely fulfilling its obligations to EDF by enriching uranium originating from Russia and that it had no direct contracts with Rosatom.

An analysis conducted by Bellona of licenses issued by the Dutch regulator shows that, as of April 2026, several valid licenses allow such transport. Most notably, license ANVS-PP-2023/0100827, issued on February 13, 2024, to the Belgian transport company Transrad NV/SA, permits the transport of low-enriched uranium (up to 1%) from the Siberian Chemical Combine (SCC—Rosatom facility in Seversk) to the Urenco plant in Almelo, Netherlands. Licenses ANVS-PP-2023/0100829 and ANVS-PP-2023/0100832 allow the transport of uranium compound samples and the return of transport containers with residual uranium. All three licenses are valid until February 13, 2027.

¹⁴⁹ Strana Rosatom, May 29, 2018. Contracts with a French accent [in Russian]. (Accessed: May 14, 2026.)
<https://strana-rosatom.ru/2018/05/29/kontrakty-s-francuzskim-akcentom/>

¹⁵⁰ ZATO Govorim, December 28, 2021. TVEL provided clarification on recycling [in Russian]. (Accessed: May 14, 2026.)
<https://web.archive.org/web/20240622115237/https://zato-govorim.ru/tvel-dal-razyasneniya-o-reczikirovanii-oyat/>

¹⁵¹ Bellona, March 25, 2024. Bellona Nuclear Digest. February 2024 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2024/03/25/atomic-digest-02-24>

¹⁵² Tubantia.nl, February 14, 2024. Urenco processes uranium from Russia, but that is perfectly possible [in Dutch]. (Accessed: May 14, 2026.)
<https://www.tubantia.nl/almelo/urengo-verwerkt-uranium-uit-rusland-maar-dat-kan-gewoon~adf9ba61>

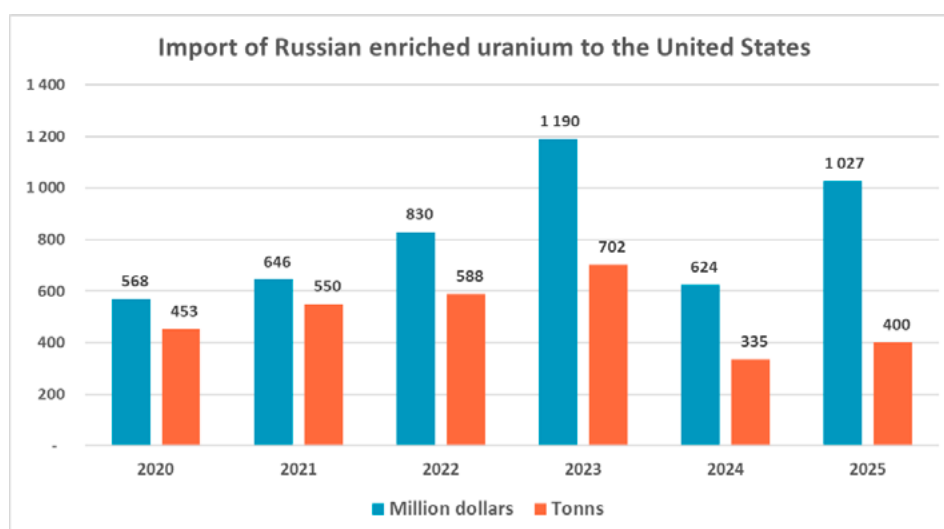
In addition, in June 2025 (valid until April 11, 2027), an expanded general license ANVS-PP-2025/0116609¹⁵³ was issued to the same company, Transrad, permitting transport—including to and from Seversk—of various uranium materials, including transport cylinders for enriched uranium. This indicates ongoing circulation of fuel cycle infrastructure (containers) between different facilities, including within Russia. Altogether, this points to the existence of bidirectional flows of nuclear materials between Russia and the EU, with the Seversk Chemical Combine acting both as a sender and a recipient.

Third, our analysis of Eurostat data shows that between 2022 and 2024 France exported more than 1,500 tonnes of enriched uranium (customs code HS 284420) to Russia at a declared value of €1,000–€3,000 per tonne, which may indicate that this was reprocessed uranium being sent to Russia for processing.

Thus, the likely explanation for the delivery of 410 tonnes of enriched uranium from Russia to the Netherlands in 2025 is that it was reprocessed uranium supplied under the Tenex–EDF contract, to be further enriched at Urenco and then sent to France. This points to the continued deep interconnection between the French and Russian nuclear industries.

Supplies of enriched uranium to the US

For more than 30 years, the US has actively purchased up to 25% of its required enriched uranium from Russia and has been the largest buyer of this material from Russia. For Rosatom, the U.S. accounts for up to 50% of its export sales of uranium enrichment services, generating around \$1 billion annually.



Supplies of enriched uranium from Russia to the United States from 2020 to 2025, in millions of dollars and tonnes. Bellona chart based on U.S. Customs Service data.

¹⁵³ Authority for Nuclear Safety and Radiation Protection (Netherlands), June 30, 2025. License ANVS-PP-2025/0116609 [in Dutch]. (Accessed: May 14, 2026.) https://puc.overheid.nl/anvs/doc/PUC_793702_32/1/

According to US customs statistics (US Census Bureau¹⁵⁴) analyzed by Bellona, in 2025 the United States imported 400.3 tonnes of enriched uranium from Russia worth \$1,026.8 million. Compared to 2024 (334.9 tonnes and \$623.7 million), physical volumes increased by about 19.5%, while total value rose by 64.6%. The main driver of the increase in value was higher prices: the average price rose from approximately \$1.86 million to \$2.56 million per tonne (around +37.7%). Thus, about 60% of the increase in import value was due to price growth and about 40% to higher volumes.

Our analysis shows that while in 2022 and 2023 Russia was the largest supplier of enriched uranium to the United States (accounting for 24–27% of total imports), in subsequent years it lost this position to European competitors. In 2024, the United Kingdom, the Netherlands, and France (each individually) supplied at least as much uranium to the U.S. as Russia, whose share fell to 14% in volume terms and 18% in value.

In 2025, the share of Russian supplies to the US rose again to 24.5% of total imports (both in volume and value), though this still lagged behind the UK, which accounted for 32% of US enriched uranium imports. Overall, EU countries and the UK together account for at least 70% of all enriched uranium imported into the US.

According to ImportYeti,¹⁵⁵ which aggregates maritime customs declarations in the US, the main end recipients of Russian enriched uranium in 2025 were Framatome subsidiaries (over 127 tonnes), Global Nuclear Fuel Americas (over 110 tonnes), and Westinghouse (around 27 tonnes).

In 2024, the US adopted a law banning imports of Russian enriched uranium starting in 2028. Until the end of 2027, purchases in limited volumes are allowed subject to approval by the US Department of Energy. The limits set by the law (476.5 tonnes in 2024 and 470.4 tonnes in 2025) were not exceeded.

The adoption of the law also enabled the U.S. Department of Energy to secure additional funding to develop and support the domestic uranium industry. By December 2024, the Department selected six companies eligible for contracts to supply low-enriched uranium (LEU), aimed at stimulating the construction of new domestic production capacity. In addition to US firms, the selected companies include the American subsidiaries of the European companies Urenco and Orano. The Department plans to procure LEU produced at new facilities or through expansion projects at existing plants. Contracts will run for up to 10 years, with a total maximum value of \$3.4 billion.¹⁵⁶

¹⁵⁴ US Census Bureau. USA Trade Online. (Accessed: May 14, 2026.)
<https://usatradeonline.census.gov/home>

¹⁵⁵ ImportYeti. (Accessed: May 14, 2026.)
<https://www.importyeti.com>

¹⁵⁶ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

On January 5, 2026, the US Department of Energy announced the allocation of \$2.7 billion¹⁵⁷ to develop domestic uranium enrichment services over the next ten years.

Two companies—American Centrifuge Operating (a subsidiary of Centrus Energy) and General Matter—will each receive \$900 million to establish capacity for the production of HALEU¹⁵⁸. The first new production facilities¹⁵⁹ by Centrus are expected to be commissioned in 2029 and will be used to produce both LEU and HALEU. In August 2025, General Matter signed a lease agreement with the U.S. Department of Energy to build¹⁶⁰ an enrichment facility at the site of the former gaseous diffusion plant in Paducah, Kentucky. Construction is expected to begin in 2026, with commissioning planned by the end of the decade.

Another \$900 million has been allocated¹⁶¹ by the US Department of Energy to Orano Federal Services to expand domestic LEU production capacity. Earlier, in 2024, Orano Federal Services was included in the list of six companies selected¹⁶² by the Department of Energy as potential participants in tenders for LEU supply. In 2024, Orano USA also announced plans to build¹⁶³ a centrifuge uranium enrichment plant in Oak Ridge, Tennessee—the \$5 billion Project IKE.¹⁶⁴ Production is scheduled to begin in 2031.

At the same time, outside federal support programs, the main producer of enriched uranium in the United States (covering about 30% of domestic demand), Urenco USA—a subsidiary of the European consortium Urenco—completed another stage of expansion of its enrichment plant in New Mexico¹⁶⁵ ahead of schedule in September 2025, launching a second cascade of new centrifuges. The first stage of expansion had been completed in May of the same year.¹⁶⁶

The expansion plan for the U.S. facility, initiated in July 2023,¹⁶⁷ envisages increasing plant capacity by 15% by 2027, adding approximately 700,000 separative work units (SWU).

¹⁵⁷ U.S. Department of Energy, January 5, 2026. U.S. Department of Energy awards \$2.7 billion to restore American uranium enrichment. (Accessed: May 14, 2026.) <https://www.energy.gov/articles/us-department-energy-awards-27-billion-restore-american-uranium-enrichment>

¹⁵⁸ Bellona, March 6, 2026. Bellona Nuclear Digest. January 2026 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2026/03/06/nuclear-digest-01-26/>

¹⁵⁹ Centrus, June 1, 2025. Centrus awarded \$900 million to expand uranium enrichment in Ohio. (Accessed: May 14, 2026.) <https://www.centrusenergy.com/news/centrus-awarded-900-million-to-expand-uranium-enrichment-in-ohio/>

¹⁶⁰ U.S. Department of Energy, August 5, 2025. Energy Department turns liabilities into assets — unleashing a new nuclear renaissance. (Accessed: May 14, 2026.) <https://www.energy.gov/em/articles/energy-department-turns-liabilities-assets-unleashing-new-nuclear-renaissance>

¹⁶¹ Orano Group, January 5, 2026. Orano selected for U.S. Department of Energy \$900M energy security funding to produce low-enriched uranium with a new American uranium enrichment facility. (Accessed: May 14, 2026.) <https://www.orano.group/usa/en/our-news/news-releases/2026/orano-selected-for-DOE-900m-funding-LEU-new-american-uranium-enrichment-facility>

¹⁶² Bellona, February 3, 2025. Bellona Nuclear Digest. November–December 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2025/02/03/nuclear-digest-11-12-24/#06p>

¹⁶³ Bellona, October 30, 2024. Bellona Nuclear Digest. September 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2024/10/30/nuclear-digest-09-24/#03p>

¹⁶⁴ Orano Group, Project IKE Enrichment. (Accessed: May 14, 2026.) <https://www.orano.group/usa/en/our-portfolio-expertise/project-ike-enrichment>

¹⁶⁵ Urenco USA, September 10, 2025. Urenco USA expands U.S. enrichment capacity with second new cascade. (Accessed: May 14, 2026.) <https://www.urencousa.com/news/sustainability/2025/urencousa-expands-u-s-enrichment-capacity-with-second-new-cascade>

¹⁶⁶ Urenco USA, May 19, 2025. Urenco USA starts up first phase of new U.S. enrichment capacity. (Accessed: May 14, 2026.) <https://urencousa.com/news/sustainability/2025/urencousa-starts-up-first-phase-of-new-u-s-enrichment-capacity>

¹⁶⁷ Bellona, August 11, 2023. Bellona Nuclear Digest. July 2023 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2023/08/11/atomic-digest-07-23/#04p>

Thus, with federal government support, the United States is actively stimulating the expansion of its uranium enrichment industry in order to eliminate dependence on Russia.

Conclusions and forecasts for Chapter 3.2

An analysis of Rosatom's projects and supplies in the EU and the United States shows that the formal absence of direct sanctions against the nuclear sector does not mean favorable conditions for the Russian state corporation's activities.

This is most clearly illustrated by the Paks II nuclear power plant project, which remains Rosatom's only major construction project in the European Union. Despite political support from Hungary and the absence of a direct EU ban, the project has faced a combination of constraints that Rosatom's head described by the end of 2025 as a "sanctions meat grinder." The pouring of first concrete only in 2026 instead of the planned 2022 represents a delay spanning nearly all four years of Russia's war in Ukraine.

The Paks II project allows Rosatom to retain its position as the only company building a large nuclear power plant in the EU. However, the project is being implemented in an increasingly complex environment with rising costs that call into question its successful completion. The situation is unlikely to improve following the change in Hungary's ruling party after the April 2026 parliamentary elections. Instead of the strong support provided by Viktor Orbán's government, the new government of Péter Magyar is expected, at a minimum, to take a more critical view of the project.

In the uranium supply sector, the situation is equally complex and contradictory. On the one hand, Russia maintained a significant presence in both European and U.S. markets in 2025. Over the past year, total imports of enriched uranium from Russia to the EU and the U.S. even increased. According to our estimates, they rose from \$0.8 billion in 2024 to \$1.25 billion in 2025.

However, the structure and circumstances of these supplies in recent years reveal important changes. France has effectively become Russia's key and almost only partner within the EU, both directly and through more complex logistical and technological chains involving Urenco and contracts with EDF in the Netherlands, as well as Framatome facilities in Lingen, Germany. Yet even this stable relationship may reflect not the irreplaceable dominance of Rosatom, but rather the inertia of previously concluded contracts and the market's temporary dependence.

Western competitors of Rosatom in this sector, primarily Urenco and Orano, are actively investing in capacity expansion with state support. This is particularly evident in the United States, where a law banning imports of Russian enriched uranium from 2028 has already been adopted, and the federal government is investing billions of dollars in developing domestic enrichment infrastructure. European capacity is also expanding, which, according to Bellona, means that in the coming years Western companies will be physically capable of replacing Russian supplies. Thus, despite the continued volume of trade, the strategic outlook for Rosatom in these markets is becoming increasingly unfavorable.

A similar ambiguity characterizes nuclear fuel supplies to the EU. On the one hand, after the peak levels of 2023, purchase volumes of Russian fuel have begun to decline, and this trend continued in 2025. On the other hand, overall purchase levels remain above pre-war figures, and over the period from 2022–2025 EU countries paid Rosatom 70% more for nuclear fuel than in the previous four years.

Within the EU, at least two behavioral models are emerging. The first consists of countries actively switching to alternative suppliers, primarily cooperating with Westinghouse. Finland and the Czech Republic, for example, have already received and begun loading new fuel while reducing purchases of Russian fuel under existing contracts to pre-war levels.

The second model is characteristic of countries such as Hungary and Slovakia, which are not ready or willing to quickly abandon Russian fuel and instead turn to Framatome as an alternative supplier. Importantly, however, the French company does not yet possess fully independent technology for producing fuel for VVER reactors and is preparing in the coming years to carry out licensed assembly of Russian fuel in France and Germany. This effectively means maintaining dependence on Russian technology in a more indirect form.

Therefore, the question of ending cooperation with Russia is no longer determined purely by technological and regulatory constraints, as may have been the case in the first years after the invasion of Ukraine, but increasingly reflects political inertia among certain governments and the predominance of economic considerations within a number of companies.

3.3. Rosatom projects in countries of the Global South

Countries and NPP Construction Projects

In recent decades, Rosatom has maintained its position as a global leader among nuclear corporations in terms of the number of power units under construction abroad for foreign customers. As of April 2026, Rosatom is actively involved in the construction of 20 power units in 7 countries (China, India, Turkey, Bangladesh, Egypt, Iran, and Hungary). Including the construction of four additional large units in Russia, Rosatom accounts for about one-third of all power units under construction worldwide, according to the IAEA PRIS database.¹⁶⁸

At the same time, nearly all of Rosatom's foreign projects are concentrated in countries of the Global South: 19 out of 20 units under construction abroad are located there.

Turkey, Akkuyu NPP

The flagship project of nuclear cooperation between Russia and Turkey is the Akkuyu NPP, the first nuclear power plant in Turkey, located in Mersin Province on the Mediterranean

¹⁶⁸ IAEA Power Reactor Information System (PRIS). (Accessed: May 14, 2026.) (Accessed: May 14, 2026.) <https://pris.iaea.org/PRIS/home.aspx>

coast. The plant will consist of four VVER-1200 units with a total capacity of 4,800 MW. Once commissioned, it is expected to supply up to 10% of Turkey's electricity demand.

In April 2018, the first concrete was poured for Unit 1 of the plant with four VVER-1200 units.¹⁶⁹ At the start of construction in 2018, the cost of the Akkuyu project was estimated at \$22 billion.¹⁷⁰ By June 2024, Rosatom's CEO revised the estimate to \$24–25 billion in current prices.¹⁷¹

This is Rosatom's first project implemented under the BOO (build-own-operate) model. Under this scheme, the Russian state corporation—through its subsidiary Akkuyu Nuclear JSC¹⁷²—acts as the main investor, owner (initially holding 100%, with a future stake not expected to fall below 51%¹⁷³), and operator of the plant, planning to recoup its investment through electricity sales.

Further details on the project's history and key milestones were covered in the previous report.

Key events at the construction site in 2025

By 2025, all four power units were in active stages of construction, with Unit 1 in the final phase of preparation for commissioning. In May, Turkish media reported¹⁷⁴ that the project had encountered a significant delay in receiving approximately \$7 billion in expected financing, which slowed work on Units 2, 3, and 4. Due to funding constraints, the operating company Akkuyu Nuclear JSC concentrated resources on completing Unit 1.

At Unit 1, commissioning activities began in February at the onshore pumping station,¹⁷⁵ along with the launch of the unit's first backup diesel power plant.¹⁷⁶ In December, nominal voltage from the external grid was supplied to part of the gas-insulated switchgear (GIS, 400 kV) equipment at the site. This operation was aimed at confirming the readiness of the switchgear to receive and transmit electricity generated by Unit 1 into Turkey's national power grid. In January 2026, Alexey Likhachev estimated the unit's readiness at 99%, with commissioning work approximately 65% complete.¹⁷⁷

¹⁶⁹ RBC, April 3, 2018. Erdoğan and Putin launched the construction of the Akkuyu NPP in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://www.rbc.ru/economics/03/04/2018/5ac387ee9a79472a4f288a66>

¹⁷⁰ RBC, April 3, 2018. Erdoğan and Putin launched the construction of the Akkuyu NPP in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://www.rbc.ru/economics/03/04/2018/5ac387ee9a79472a4f288a66>

¹⁷¹ Interfax, June 13, 2025. Rosatom head estimates cost of constructing the Akkuyu NPP at \$24–25 billion [in Russian]. (Accessed: May 14, 2026.) <https://www.interfax.ru/business/966515>

¹⁷² Akkuyu Nuclear. Our Company. (Accessed: May 14, 2026.) <https://akkuyu.com/en/company/info>

¹⁷³ International Energy Agency, 2021. Turkey 2021: Energy Policy Review. (Accessed: May 14, 2026.) https://iea.blob.core.windows.net/assets/cc499a7b-b72a-466c-88de-d792a9daff44/Turkey_2021_Energy_Policy_Review.pdf

¹⁷⁴ Habertürk, May 27, 2025. Financial crisis at Akkuyu Nuclear Power Plant [in Turkish]. (Accessed: May 14, 2026.) <https://www.haberturk.com/ozel-icerikler/guntay-simsek-1019/3794271-akkuyu-nukleer-santralinde-para-krizi>

¹⁷⁵ Rosatom State Corporation, February 3, 2025. Commissioning of equipment has begun at the pumping station of Unit 1 of the Akkuyu NPP (Türkiye) [in Russian]. (Accessed: May 14, 2026.)

<https://rosatom.ru/journalist/arkhiv-novostey/na-nasosnoy-stantsii-bloka-1-aes-akkuyu-turtsiya-startovala-puskonladka-oborudovaniya/>

¹⁷⁶ Rosatom State Corporation, February 21, 2025. The first backup diesel generator unit of Unit 1 was launched at the Akkuyu NPP (Türkiye) [in Russian]. (Accessed: May 14, 2026.)

<https://rosatom.ru/journalist/arkhiv-novostey/na-aes-akkuyu-turtsiya-sostoyalsya-pusk-pervoy-rezervnoy-dizel-generatornoy-ustanovki-bloka-1/>

¹⁷⁷ Interfax, January 19, 2026. Rosatom is preparing to begin operating the first power unit of the Akkuyu NPP [in Russian]. (Accessed: May 14, 2026.) <https://www.interfax.ru/business/1068364>

At Unit 2, a pressurizer¹⁷⁸ was installed in March, and in April the installation of the main circulation pump units¹⁷⁹ marked the completion of installation of the reactor building's main equipment.¹⁸⁰ In the turbine hall, a 350-ton overhead crane was put into operation.

At Unit 3, concreting of the turbine hall walls was completed at the end of July. In November, a transport airlock was delivered to the site.

At Unit 4, installation of the second tier of the internal containment structure of the reactor building was completed¹⁸¹ in March. In November 2025, the reactor vessel¹⁸² and pressurizer for Unit 4 were delivered to the construction site.



Delivery of the reactor vessel for Unit 4 to the Akkuyu NPP construction site. Source: AtomMedia¹⁸³ Sanctions and project delays in 2025

¹⁷⁸ Akkuyu Nuclear, March 12, 2025. One of the key components of the reactor plant was installed at Unit 2 of the Akkuyu Nuclear Power Plant (Türkiye) [in Russian]. (Accessed: May 14, 2026.)

<https://akkuyu.com/ru/news/na-bloke-2-aes-akkuyu-turtsiya-ustanovlen-odin-iz-klyuchevykh-komponentov-reaktornoy-ustanovki>

¹⁷⁹ Rosatom State Corporation, April 22, 2025. Installation of main circulation pumps has been completed at Unit 2 of the Akkuyu NPP (Türkiye) [in Russian]. (Accessed: May 14, 2026.)

<https://www.rosatom.ru/journalist/arkhiv-novostey/na-energobloke-2-aes-akkuyu-turtsiya-zavershyen-montazh-glavnykh-tsirkulyatsionnykh-nasosov>

¹⁸⁰ Rosatom State Corporation, January 2026. Akkuyu on the Homestretch. (Accessed: May 14, 2026.)

<https://rosatomnewsletter.com/2026/01/26/akkuyu-on-the-homestretch/>

¹⁸¹ Akkuyu NPP [Telegram], May 4, 2025 [in Russian]. (Accessed: May 14, 2026.)

https://t.me/akkuyu_nukleer/798?single

¹⁸² Atom Media, November 12, 2025. The reactor vessel for Unit 4 was delivered to the Akkuyu NPP site in Turkey [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/na-ploshchadku-aes-akkuyu-turtsiya-dostavlen-korpus-reaktora-dlya-bloka-4/>

¹⁸³ Atom Media, November 12, 2025. The reactor vessel for Unit 4 was delivered to the Akkuyu NPP site in Turkey [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/na-ploshchadku-aes-akkuyu-turtsiya-dostavlen-korpus-reaktora-dlya-bloka-4/>

In our previous report, we have already described¹⁸⁴ the complicated trajectory by which Rosatom's initial plans to commission the plant by 2023¹⁸⁵ began to change rapidly after 2022, following the start of Russia's full-scale invasion of Ukraine. Even after the first wave of Western sanctions against Russia, any impact on the project was denied. Throughout 2023, Turkey still expected the first unit to be launched in 2024,¹⁸⁶ while Rosatom officials continued to reject claims that sanctions were affecting the project.¹⁸⁷

In 2024, Russian officials began to acknowledge¹⁸⁸ delays and cited sanctions, as well as the refusal of several Western suppliers—such as Siemens—to deliver equipment, among the causes. At the same time, it was still maintained that the project was proceeding on schedule.

By 2025, however, it was no longer possible to conceal the scale of the problems: systemic issues were regularly reported in financing, payments, equipment supply, and social stability at the construction site. By the end of the year, the Akkuyu NPP construction project had become one of the most illustrative examples of how sanctions pressure affects the implementation of large international nuclear projects undertaken by Rosatom.

Timeline of problems in 2025

As early as the beginning of the year, it became clear that the key bottleneck in the project was financial settlements and transfers. In January 2025, The Wall Street Journal reported¹⁸⁹—and Rosatom confirmed,¹⁹⁰—that in previous years the U.S. Department of Justice had frozen \$2 billion transferred from Russia to accounts at the American bank JPMorgan that were linked to the financing of the Akkuyu NPP. On February 2, The Wall Street Journal published further information stating that the U.S. Department of Justice suspected¹⁹¹ Russia and Turkey of using the Akkuyu project to circumvent U.S. sanctions against the Russian Central Bank: more than \$5 billion had been transferred from Russia to Turkey in a short period via the American banks JPMorgan Chase and Citigroup, formally for the construction of the plant, but these funds may also have been used for other purposes. Ultimately, in 2024, \$2 billion of Russian payments to Turkey under the Akkuyu project were frozen in JPMorgan.

¹⁸⁴ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)

<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

¹⁸⁵ Vedomosti, August 18, 2017. Novak: Akkuyu NPP could be launched by 100th anniversary of Turkish Republic [in Russian]. (Accessed: May 14, 2026.)

<https://www.vedomosti.ru/business/news/2017/08/18/730153-blok-akkuyu>

¹⁸⁶ TASS, August 1, 2023. Projects for two additional NPPs in Turkey to be launched within five years [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/18419275>

¹⁸⁷ TASS, March 27, 2024. Localization potential at Akkuyu NPP comes to \$6.5 billion [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/20369645>

¹⁸⁸ TASS, June 14, 2025. Duma reports that contractual deadlines for commissioning Akkuyu NPP had not changed [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/21095889>

¹⁸⁹ The Wall Street Journal, February 2, 2025. Moscow has \$2 billion stuck at JPMorgan. The US isn't sure what to do with it. (Accessed: May 14, 2026.)

<https://www.wsj.com/politics/policy/moscow-has-2-billion-stuck-at-jpmorgan-the-u-s-isnt-sure-what-to-do-with-it-b0669584>

¹⁹⁰ TASS, February 3, 2025. Rosatom expects situation to be resolved concerning funds for Akkuyu NPP [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/23041877>

¹⁹¹ The Wall Street Journal, February 2, 2025. Moscow has \$2 billion stuck at JPMorgan. The US isn't sure what to do with it. (Accessed: May 14, 2026.)

<https://www.wsj.com/politics/policy/moscow-has-2-billion-stuck-at-jpmorgan-the-u-s-isnt-sure-what-to-do-with-it-b0669584>

Non-payment of contractors and protests

By spring, financing problems began to directly affect construction progress. On May 27, Turkish media reported¹⁹² that the project faced a serious funding shortfall of around \$7 billion, which slowed work on Units 2, 3, and 4. Under conditions of limited funding, the operating company Akkuyu Nuclear JSC concentrated all available resources on completing Unit 1, with the aim of commissioning it in 2026. Among the causes of delays were disagreements between Russia and Turkey over tax incentives, as well as difficulties arising from the blocking¹⁹³ of more than \$2 billion in the United States. According to experts cited by journalists, even the first unit alone requires at least \$5 billion to complete shared infrastructure facilities that will serve all four units.

In July, media reports indicated that protests were taking place at the Akkuyu NPP construction site, with workers demonstrating over months-long wage delays. According to reports, protesters clashed with the local gendarmerie, which used batons, tear gas, and water cannons to disperse the demonstrations. According to the newspaper Cumhuriyet,¹⁹⁴ the wage delays and mass layoffs are linked to the contractor TSM Enerji İnşaat Sanayi Limited Şirketi, which, according to lawyers, cites a lack of funds and shifts financial and labor risks onto the workers themselves. As noted in last year's report,¹⁹⁵ TSM became the general contractor in 2022, responsible for completing Unit 1 of the Akkuyu NPP.

Rosatom directly linked¹⁹⁶ the payment delays to blocked funds and the actions of "unfriendly countries," thereby confirming that the project's social stability depended on sanctions-related constraints.

"We have all become hostages to the behavior of unfriendly countries, which are engaging in unfair competition against advanced Russian nuclear projects using questionable methods," Rosatom stated.

Reports of protests are not new.¹⁹⁷ In March 2024, workers at the construction site also staged protests over unpaid wages, poor working conditions, and inadequate safety measures.

¹⁹² Habertürk, May 27, 2025. Financial crisis at Akkuyu Nuclear Power Plant [in Turkish]. (Accessed: May 14, 2026.) <https://www.haberturk.com/ozel-icerikler/guntay-simsek-1019/3794271-akkuyu-nukleer-santralinde-para-krizi>

¹⁹³ Bellona, April 2, 2025. Bellona Nuclear Digest. February 2025 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2025/04/02/nuclear-digest-02-25/#11p>

¹⁹⁴ Cumhuriyet, July 23, 2025. Workers demanding their rights at the Akkuyu Nuclear Power Plant construction site were subjected to very harsh intervention [in Turkish]. (Accessed: May 14, 2026.) <https://www.cumhuriyet.com.tr/turkiye/akkuyu-nukleer-santrali-insaatinda-haklarini-isteyen-iscilere-cok-sert-mudahale-2420605>

¹⁹⁵ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/rosatom-in-the-war-years/>

¹⁹⁶ RBC, July 23, 2025. Rosatom explained wage delays and protests at the nuclear power plant construction site in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://www.rbc.ru/business/23/07/2025/688109579a79476ab700e7d0>

¹⁹⁷ Bellona, April 26, 2024. Bellona Nuclear Digest. February 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2024/04/26/nuclear-digest-02-24/#10p>

Searching for alternative financing mechanisms

On February 11, 2025, Bloomberg reported¹⁹⁸ that Russia and Turkey were negotiating to settle payments for the construction of the Akkuyu NPP in natural gas rather than monetary transfers, in an attempt to circumvent restrictions on cross-border transactions that had tightened following the strengthening of U.S. sanctions in June 2024. According to sources in both countries, a scheme is being discussed under which Turkey would assume part of the construction costs. In turn, Rosatom would compensate this amount to Gazprom in rubles, after which Gazprom would deduct it from Turkey's monthly payments for gas imports. Although Rosatom, Gazprom, and the Akkuyu project are not formally subject to sanctions, international transfers between the two countries face delays due to the caution of foreign banks.

On July 1, Bloomberg, citing Anton Dedusenko, chairman of the board of Rosatom's subsidiary Akkuyu Nuclear, reported¹⁹⁹ that Rosatom was negotiating with Turkish and foreign investors over the sale of a 49% stake in the \$25 billion Akkuyu NPP project.

Rosatom stated²⁰⁰ that the possibility of selling such a stake is provided for in the intergovernmental agreement on the project's implementation signed in 2010, and that negotiations with potential partners are currently underway.

In 2018, Rosatom had already attempted²⁰¹ to sell a stake, but the effort failed when a consortium of Turkish firms—Cengiz Holding AŞ, Kolin İnşaat Turizm Sanayi ve Ticaret AŞ, and Kalyon İnşaat Sanayi ve Ticaret AŞ—withdraw from the deal,²⁰² citing an inability to agree on commercial terms.

Closer to autumn, on August 4, Rosatom Deputy Director General for Economics and Finance Ilya Rebrov announced that Rosatom was preparing to issue bonds²⁰³ of Atomenergoprom denominated in Chinese yuan, as well as Islamic bonds (sukuk), in order to attract foreign financing for the Akkuyu NPP construction project. In January 2026, Alexey Likhachev noted that "work on attracting bond financing, in particular Chinese 'panda bonds,' is still at an early stage, so to speak."²⁰⁴

¹⁹⁸ Bloomberg, February 11, 2025. Russia, Tukey discuss gas swap to pay for Akkuyu nuclear plant. (Accessed: May 14, 2026.) <https://www.bloomberg.com/news/articles/2025-02-11/russia-turkey-discuss-gas-swap-to-pay-for-akkuyu-nuclear-plant>

¹⁹⁹ Bloomberg, July 1, 2025. Russia weighs stake sale in 25 billion Turkish nuclear plant. (Accessed: May 14, 2026.) <https://www.bloomberg.com/news/articles/2025-07-01/russia-weighs-stake-sale-in-25-billion-turkish-nuclear-plant>

²⁰⁰ TASS, July 1, 2025. Rosatom is seeking buyers for 49% of the Akkuyu Nuclear Power Plant in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/24404395>

²⁰¹ RIA Novosti, March 10, 2017. Rosatom: Negotiations on the sale of the company's stake in the Akkuyu project are underway [in Russian]. (Accessed: May 14, 2026.) <https://ria.ru/20170310/1489780734.html>

²⁰² TASS, July 1, 2025. Rosatom is seeking buyers for 49% of the Akkuyu Nuclear Power Plant in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/24404395>

²⁰³ TASS, August 4, 2025. Some Rosatom enterprises are preparing for IPOs [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/24704699>

²⁰⁴ Atom Media, January 4, 2026. Rosatom CEO Alexey Likhachev's end-of-year interview with Russia 24 (January 3, 2026) [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/intervyyu-glavy-rosatoma-alekseya-likhacheva-telekanalu-rossiya-24-3-01-2026/>

On September 1, Turkish President Recep Tayyip Erdoğan, during a meeting with Vladimir Putin, stated²⁰⁵ that testing had been completed for a mechanism to finance the Akkuyu NPP construction through gas payments by Turkey's state energy company BOTAŞ. Under this scheme, BOTAŞ would transfer payments²⁰⁶ for Russian gas directly to the account of the Turkish-Russian joint venture Akkuyu Nükleer A.Ş., registered in Ankara and responsible for the project. This mechanism effectively represents an attempt to institutionalize a workaround to banking transfer restrictions, which remain one of the key obstacles to the project.

"Sanctions meat grinder"

By the end of 2025, both Russian and Turkish officials publicly acknowledged the serious scale of the problems facing the Akkuyu project. Rosatom CEO Alexey Likhachev, summarizing the year, stated,²⁰⁷ that this project, along with the Paks II project in Hungary, had experienced the greatest sanctions pressure and had, in his words, ended up in a "sanctions meat grinder": "Siemens refused to supply equipment, \$2 billion in investments were frozen, and the payment system was disrupted."

Turkey's Minister of Energy, Alparslan Bayraktar, in December listed the same factors²⁰⁸ that had prevented the launch of the first unit in spring 2025. Later that month, he announced that Russia had provided new financing for the Akkuyu project in the amount of \$9 billion and that commissioning of the plant was expected in 2026.²⁰⁹

In March 2026, Likhachev stated²¹⁰ that the first unit of Akkuyu was expected to be launched by December of the current year.

Rosatom fails to fulfill the intergovernmental agreement between Turkey and Russia in time

The intergovernmental agreement between Turkey and Russia on cooperation in the construction and operation of the Akkuyu NPP,²¹¹ signed in 2010, clearly defines the construction and commissioning procedures. According to the agreement (Article 6, paragraph 2), the first unit must be put into commercial operation within seven years from the date all documents, permits, licenses, approvals, and authorizations necessary to begin construction are issued.

²⁰⁵ TASS, September 1, 2025. Erdogan announced the successful testing of the Akkuyu nuclear power plant financing mechanism [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/24922823>

²⁰⁶ Centre for Eastern Studies, September 3, 2025. Turkey's nuclear power plant: old problems, new solutions. (Accessed: May 14, 2026.)

<https://www.osw.waw.pl/en/publikacje/analyses/2025-09-03/turkeys-nuclear-power-plant-old-problems-new-solutions>

²⁰⁷ Atom Media, January 4, 2026. Rosatom CEO Alexey Likhachev's end-of-year interview with Russia 24 (January 3, 2026) [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/intervyu-glavy-rosatoma-alekseya-likhacheva-telekanalu-rossiya-24-3-01-2026/>

²⁰⁸ TASS, December 9, 2025. Turkey announced a delay in the launch of the first reactor at the Akkuyu nuclear power plant [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/25855955>

²⁰⁹ Reuters, December 26, 2025. Turkey says Russia gave it \$9 billion in new financing for Akkuyu nuclear plant. (Accessed: May 14, 2026.)

<https://www.reuters.com/business/energy/turkey-says-russia-gave-it-9-billion-new-financing-akkuyu-nuclear-plant-2025-12-26/>

²¹⁰ Kommersant, March 12, 2026. Likhachev announces launch of first Akkuyu NPP unit in December [in Russian]. (Accessed: May 14, 2026.)

<https://www.kommersant.ru/doc/8499561>

²¹¹ Government of the Russian Federation. Order № 673-r of May 9, 2010 [in Russian]. (Accessed: May 14, 2026.)

<http://government.ru/docs/all/72333/>

All such documents were obtained by April 2018, when official construction of Unit 1 began.²¹² Accordingly, the seven-year period expired in April 2025. It is no coincidence that April 2025 was cited by some Rosatom managers²¹³ as the target date for commissioning as early as spring 2024. Thus, the condition of the intergovernmental agreement was not fulfilled in 2025.

The agreement stipulates that in the event of early or delayed commissioning, the obligations of the parties are determined by a Power Purchase Agreement between Rosatom/Akkuyu Nuclear and the Turkish side, to be signed after the plant receives an operating license.

It should be recalled that Akkuyu is the first project Rosatom is implementing under a BOO (Build-Own-Operate) model, under which the state corporation's structures will own the plant and seek to recoup investments through its operation and the sale of electricity.

Originally, it was envisaged that the Turkish side would purchase up to half of the electricity generated by the plant during the first 15 years of operation at a fixed price, with the remainder sold on the open market. Thus, the terms of the Power Purchase Agreement are crucial for the project's economics and for the future revenues of Rosatom's subsidiary in Turkey.

The delay in commissioning is unlikely to entail direct financial penalties for Rosatom from the Turkish side. However, it is almost certainly already being used by Turkey as leverage in political and commercial negotiations. Delays may not only lead to a less favorable (for Russia and Rosatom) and more favorable (for Turkey) Power Purchase Agreement, but also weaken Rosatom's position in discussions of future nuclear projects in Turkey at other sites.

Rosatom had been counting on securing a second nuclear power plant site in Turkey. Previously, both representatives of the corporation and Russian officials spoke quite confidently about the Sinop site being awarded to Rosatom. However, in 2025 such statements were no longer heard, and Turkey actively conducted negotiations²¹⁴ with other potential developers of the site. As of now (early 2026), Turkey presents Sinop as an "open" project, in which Rosatom is one of the candidates, but no longer the only one or the obvious frontrunner.²¹⁵ This shift may be the result of delays and the large number of problems encountered in the Akkuyu NPP project.

Egypt, El Dabaa NPP

In 2015, an intergovernmental agreement was signed for the construction of Egypt's first nuclear power plant, named El Dabaa. The plant, consisting of four Russian VVER-1200 units with a total capacity of 4,800 MW, is being built in the city of El Dabaa in Matrouh Governorate

²¹² RBC, April 3, 2018. Erdogan and Putin launched construction of the Akkuyu nuclear power plant in Turkey [in Russian]. (Accessed: May 14, 2026.) <https://www.rbc.ru/economics/03/04/2018/5ac387ee9a79472a4f288a66>

²¹³ TASS, May 18, 2024. The first power unit at the Akkuyu NPP will begin operation in April 2025 [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/20840185>

²¹⁴ Nordic Monitor, October 8, 2025. Turkey shifts to US partnership for second nuclear plant once promised to Russia. (Accessed: May 14, 2026.) <https://nordicmonitor.com/2025/10/turkey-shifts-to-us-partnership-for-second-nuclear-plant-once-promised-to-russia/>

²¹⁵ Nuclear Engineering International, October 9, 2025. US and Korea play for second Turkish NPP. (Accessed: May 14, 2026.) <https://www.neimagazine.com/news/us-and-korea-play-for-second-turkish-npp/>

on the Mediterranean coast, approximately 300 km northwest of Cairo. The contract value is \$30 billion,²¹⁶ the majority of which (\$25 billion) will be financed through a Russian loan.

Under the contractual obligations, Rosatom will not only construct the plant, but will also supply Russian nuclear fuel throughout the entire lifecycle of the NPP, assist with personnel training, and provide operational and maintenance support during the first 10 years of its operation.²¹⁷

As of 2026, all four units of the plant are in an active phase of construction. First concrete was poured for Unit 1 and Unit 2 on July 20 and November 19, 2022²¹⁸, respectively; for Unit 3 on May 3, 2023,²¹⁹ and for Unit 4 on January 23, 2024.²²⁰

An important feature of the project is the involvement of South Korean subcontractors. The company Korea Hydro and Nuclear Power (KHNP) received a \$2.25 billion contract for the construction of buildings and components for El Dabaa.²²¹ In total, KHNP will construct around 80 buildings and structures, and will also procure and supply equipment and materials for the turbine halls.²²² GE Power will supply Arabelle low-speed steam turbines²²³ for all four units of the plant. The contract will be implemented through Turbine Technology AAEM, a joint venture between GE Power and Atomenergomash.

Key events in 2025

In May, concreting of the second tier of the inner containment structure at Unit 2 was completed.²²⁴

²¹⁶ TASS, March 25, 2024. What is known about Russia's nuclear projects abroad. [in Russian]. (Accessed: May 14, 2026.)
<https://tass.ru/info/18916163>

²¹⁷ Rosatom engineering division. EL Dabaa NPP [in Russian]. (Accessed: May 14, 2026.)
<https://ase-ec.ru/about/projects/aes-el-dabaa/>

²¹⁸ Rosatom Engineering Division, July 20, 2022. Main stage of construction of first unit starts at El Dabaa NPP [in Russian]. (Accessed: May 14, 2026.)
<https://ase-ec.ru/for-journalists/news/2022/jul/na-aes-el-dabaa-nachalsya-osnovnoy-etap-sooruzheniya-pervogo-energobloka/>

²¹⁹ Strana Rosatom, May 3, 2023. Construction of the third power unit of Egypt's El Dabaa nuclear power plant has begun [in Russian]. (Accessed: May 14, 2026.)
<https://strana-rosatom.ru/2023/05/03/nachalos-stroitelstvo-tretego-ene/>

²²⁰ Interfax, January 23, 2024. Rosatom began construction of Unit 4 of the El Dabaa Nuclear Power Plant in Egypt [in Russian]. (Accessed: May 14, 2026.)
<https://www.interfax.ru/world/941508>

²²¹ NucNet, August 30, 2022. South Korean company KHNP wins USD2.25 billion El Dabaa contract from Russia. (Accessed: May 14, 2026.)
<https://www.nucnet.org/news/south-korea-s-khnp-wins-usd2-25-billion-el-dabaa-contract-from-russia-8-2-2022>

²²² World Nuclear News, August 26, 2022. Contract signed for El Dabaa turbine islands. (Accessed: May 14, 2026.)
<https://www.world-nuclear-news.org/Articles/Contract-signed-for-El-Dabaa-turbine-islands>

²²³ GE Power, October 9, 2018. GE Power supply 4 nuclear turbine islands for El Dabaa, Egypt's first nuclear plant. (Accessed: May 14, 2026.)
<https://www.ge.com/news/press-releases/ge-power-supply-4-nuclear-turbine-islands-el-dabaa-egypts-first-nuclear-plant>

²²⁴ Atom Media, May 12, 2025. Concreting of the second tier of the inner containment shell at Unit 2 of the El Dabaa NPP (Egypt) was completed ahead of schedule [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/press-releases/na-energobloke-2-aes-el-dabaa-egipet-s-operezheniem-srokov-zavershilos-betonirovanie-vtorogo-yarusa/>



Unit 2 of the El Dabaa NPP under construction, Egypt. Source: ASE²²⁵

On July 8, during a visit to Egypt by Rosatom Director General Alexey Likhachev, agreements were signed²²⁶ providing for the possible involvement of the Russian side in the design, supply of equipment and materials, and execution of construction, installation, and commissioning works necessary for the creation of the physical protection system of the El Dabaa NPP.

On July 10, work was completed on the installation²²⁷ of the third tier of the inner containment structure at Unit 2 of the El Dabaa NPP in Egypt.

²²⁵ Atom Media, May 12, 2025. Concreting of the second tier of the inner containment shell at Unit 2 of the El Dabaa NPP (Egypt) was completed ahead of schedule [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/na-energobloke-2-aes-el-dabaa-egiptet-s-operezheniem-srokov-zavershilos-betonirovanie-vtorogo-yarusa/>

²²⁶ Rosatom Engineering Division, July 8, 2025. Rosatom CEO Alexey Likhachev held a working meeting with Egyptian President Abdel Fattah el-Sisi [in Russian]. (Accessed: May 14, 2026.)

<https://ase-ec.ru/for-journalists/news/2025/jul/glava-rosatoma-aleksey-likhachev-provel-rabochuyu-vstrechu-s-prezidentom-egipta-abdelem-fattakhom-a/>

²²⁷ Rosatom Engineering Division, July 10, 2025. Installation of the third tier of the internal containment vessel has been completed at Unit 2 of the El Dabaa NPP in Egypt [in Russian]. (Accessed: May 14, 2026.)

<https://ase-ec.ru/for-journalists/news/2025/jul/na-energobloke-2-aes-el-dabaa-v-egipte-zaversheny-raboty-po-ustanovke-tretego-yarusa-vnutrenney-zashchi/>

On November 19, the reactor vessel for Unit 1—delivered to the site a month earlier²²⁸—was installed in its design position.²²⁹ The ceremony was attended via videoconference by the presidents of Egypt and Russia.²³⁰



The reactor vessel for Unit 1 is installed in its design position at the El Dabaa NPP construction site in Egypt. Source: Atomstroyexport

Throughout 2025, no serious delays or major problems were observed in the project. The projected commissioning timeframe (2028–2030) remains distant, which for now allows Rosatom and Russian officials to report that everything is proceeding “strictly according to schedule.”²³¹

²²⁸ Atom Media, November 19, 2025. The reactor vessel was installed at Unit 1 of the El Dabaa nuclear power plant in Egypt [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/na-ploshchadku-sooruzheniya-aes-el-dabaa-v-egipte-dostavlen-korpus-reaktora-dlya-energobloka-1/>

²²⁹ Atom Media, October 24, 2025. The reactor vessel for Unit 1 was delivered to the El Dabaa nuclear power plant construction site in Egypt [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/na-energobloke-1-aes-el-dabaa-v-egipte-ustanovlen-korpus-reaktora/>

²³⁰ Official Website of the President of Russia, November 21, 2025. Reactor vessel installation ceremony at power unit of El Dabaa NPP. (Accessed: May 14, 2026.) <http://en.kremlin.ru/events/president/news/78496>

²³¹ TASS, November 25, 2024. Russian ambassador reports that construction of El Dabaa is proceeding according to schedule [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/22487797>

China, Tianwan NPP and Xudapu NPP

General description

For decades, China has been Russia's largest customer and partner in nuclear projects. Russia not only assists in building nuclear power units in China using Russian technologies, but also helps establish uranium enrichment and fuel fabrication facilities, supplies nuclear materials, cooperates on China's fast reactor program, and provides fuel for those reactors. China is also actively involved in a number of Russian nuclear projects, both within Russia and in Rosatom's overseas projects. A detailed account of the history and scale of Russian–Chinese cooperation was provided in last year's report.²³²

At the Tianwan NPP (also known as Tianwan Nuclear Power Plant), four nuclear units with Russian VVER-1000 (V-428) reactors are already in operation, commissioned between 2006 and 2018. In 2021 and 2022, construction began on four additional units with VVER-1200 reactors: Units 7 and 8 at Tianwan and Units 3 and 4 at Xudapu NPP (also referred to as Xudabao).

Thus, by 2026 Rosatom is simultaneously participating in the construction of four VVER-1200 units at two sites in China. A key feature of these projects is their extremely high degree of localization. The Chinese side, represented by CNNC, has taken on all construction, installation, and commissioning work, as well as the supply of most equipment outside the "nuclear island." Rosatom is involved primarily as the designer and supplier of key nuclear island equipment, as well as in providing related services such as design supervision, installation supervision, and commissioning supervision.



Units 7 and 8 of Tianwan NPP in China. Source: CNNC

²³² Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

Key events in 2025

On February 10, Rosatom announced the shipment of equipment²³³ for nuclear power plants under construction in China: a set of four main circulation pump casings for Unit 4 of Xudapu NPP, and four pump units for Unit 7 of Tianwan NPP.

On **July 23**, cold hydrostatic testing was completed²³⁴ at Unit 7 of Tianwan NPP. The main purpose of these tests is to verify the tightness of the primary circuit and its components—such as pressure vessels, pipelines, and valves—on both the nuclear and non-nuclear islands, as well as to flush the main circulation pipelines.

On **June 6**, Rosatom's mechanical engineering division, the Petrozavodskmash plant, shipped²³⁵ a core emergency cooling system (ECCS) tank to Unit 4 of Xudapu NPP. According to Rosatom, its facilities have already manufactured 95% of the contracted equipment for the four units under construction in China at Tianwan and Xudapu. It is expected that by the end of 2025, production of all equipment for the nuclear islands will be completed.

On **September 26**, Rosatom Service JSC and the CNRP Operations and Maintenance Company (CNOM) signed an agreement to expand cooperation²³⁶ and increase the number of Chinese nuclear units for which Rosatom Service provides technical support: Units 1–4 at Tianwan, as well as the newly commissioned Units 7 and 8 at Tianwan and Units 3 and 4 at Xudapu.

By **December 2025**, cold functional testing²³⁷ had been completed at Unit 3 of Xudapu NPP. These tests verify the operation of systems and equipment under conditions of low temperature and high pressure. Their completion marks the transition from the installation phase to the commissioning phase.

On **December 30**, at another joint project—Unit 7 of Tianwan NPP—hot tests were completed,²³⁸ preceding the transition to physical start-up and the loading of nuclear fuel.

²³³ Atom Media, February 10, 2025. Rosatom machine builders shipped pump kits for nuclear power plants under construction in China [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/mashinostroiteli-rosatoma-otgruzili-komplekty-nasosov-dlya-aes-stroyashchikhsya-v-kitae/>

²³⁴ World Nuclear News, July 24, 2025. Cold testing completed at Tianwan unit 7. (Accessed: May 14, 2026.)

<https://world-nuclear-news.org/articles/cold-testing-completed-at-tianwan-unit-7>

²³⁵ Atom Media, February 10, 2025. Rosatom machine builders shipped pump kits for nuclear power plants under construction in China [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/mashinostroiteli-rosatoma-otgruzili-komplekty-nasosov-dlya-aes-stroyashchikhsya-v-kitae/>

²³⁶ Atom Media, June 6, 2025. Rosatom Engineering Division has shipped equipment for the Xudapu Nuclear Power Plant's safety system in China [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/mashinostroitelnyy-divizion-rosatoma-otgruzil-oborudovanie-dlya-sistemy-bezopasnosti-aes-syuydapu-ki/>

²³⁷ China National Nuclear Corporation, December 26, 2025. Unit 3 of Xudapu nuclear power plant completes cold functional test. (Accessed: May 14, 2026.)

https://en.cnncc.com.cn/2025-12/26/c_1150790.htm

²³⁸ China National Nuclear Corporation, January 13, 2026. Tianwan Nuclear Power Unit 7 completes hot functional test. (Accessed: May 14, 2026.)

https://en.cnncc.com.cn/2026-01/13/c_1154431.htm

Sanctions and delays

Rosatom's projects in China are the least affected by Western sanctions due to the high level of Chinese localization and Rosatom's relatively limited role. Most of the primary circuit equipment supplied by Rosatom is manufactured in-house, while project financing is provided by China. As a result, risks associated with the non-delivery of Western components or difficulties in financial transactions—issues encountered in other Rosatom export projects—are likely to have minimal impact on Russian–Chinese nuclear cooperation projects.

The commissioning of the units currently under construction is scheduled for 2027–2028—just six years after the start of construction.

Cooperation in the nuclear fuel sector

In 2025, Russia supplied 1,121 tonnes of enriched uranium to China—40% more than in 2024 (748 tonnes).²³⁹ This is a record volume of enriched uranium purchases by China from Russia. Since 2022, China has significantly increased its purchases, becoming the main buyer of this Russian product, overtaking both the United States and the EU, which had previously been the primary customers.

However, according to Comtrade data, Russia consistently sells enriched uranium to China at prices nearly half those charged to Western countries (around \$1 million per tonne versus approximately \$2 million per tonne).

China also continues to order initial fuel loads from Russia for the VVER-1200 reactors²⁴⁰ under construction and for its fast reactor CFR-600.²⁴¹

²³⁹ Bellona, March 6, 2026. Bellona Nuclear Digest. January 2026 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2026/03/06/nuclear-digest-01-26/>

²⁴⁰ TVEL, November 6, 2019. Rosatom fuel company TVEL delivers fuel for new power units of Xudapu NPP (China) [in Russian]. (Accessed: May 14, 2026.)
https://tvel.ru/press-center/news/?ELEMENT_ID=91

²⁴¹ Nuclear Engineering International, January 3, 2023. Russia completes fuel deliveries for China's CFR-600 fast reactor. (Accessed: May 14, 2026.)
<https://www.neimagazine.com/news/russia-completes-fuel-deliveries-for-chinas-cfr-600-fast-reactor-10486493/>



Delivery of nuclear fuel for Unit 7 of Tianwan NPP. Source: TVEL

In January 2026, Rosatom reported the delivery of the initial fuel load for Unit 7 of Tianwan NPP.²⁴² In 2026, TVEL plans to supply three additional initial core loads for units at Tianwan and Xudapu NPPs, describing these as record annual volumes of nuclear fuel shipments.

According to Chinese customs data,²⁴³ in 2025 China imported \$259 million worth of nuclear fuel from Russia (90% of which was delivered in December), and an additional \$58.1 million in January 2026. A year earlier, imports of nuclear fuel from Russia amounted to just \$57 million.

Russia not only supplies nuclear materials to China but also provides technologies in this field.

Between 2000 and 2011, Russia built four stages of a uranium enrichment plant in China at the Hanzhong site,²⁴⁴ equipped with Russian centrifuges with a capacity of around 1 million SWU.²⁴⁵ Nuclear fuel for the four VVER-1000 units at Tianwan NPP has been produced at the Yibin fuel fabrication plant under a TVEL license since 2009.

²⁴² Atom Media, January 21, 2026. Rosatom delivered the initial nuclear fuel load for the new power unit of China's Tianwan nuclear power plant [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/rosatom-postavil-startovuyu-zagruzku-yadernogo-topliva-dlya-novogo-energobloka-kitayskoy-aes-tyanvan/>

²⁴³ General Administration of Customs People's Republic of China. Customs statistics. (Accessed: May 14, 2026.)

<http://stats.customs.gov.cn/indexEn>

²⁴⁴ AtomInfo, May 4, 2009. Centrifuges shipped to China for fourth phase of plant. [in Russian]. (Accessed: May 14, 2026.)

<http://www.atominfo.ru/news/air6470.htm>

²⁴⁵ China National Nuclear Corporation, March 21, 2018. China launches new uranium enrichment centrifuges. (Accessed: May 14, 2026.)

https://en.cnncc.com.cn/2018-03/21/c_1026722.htm

Russian-Chinese cooperation in NPP construction outside China

In December 2025, reports emerged²⁴⁶ about the possible supply of turbine equipment for Units 3 and 4 of Leningrad NPP-2 by the Chinese company Dongfang Electric Corporation, instead of the traditional Russian supplier Power Machines. This shift has been linked both to the lower cost of Chinese equipment and to delays in Russian deliveries. At the same time, discussions are underway about establishing domestic turbine manufacturing in Russia in partnership with China's Dongfang Turbine. This could support plans for large-scale nuclear construction and serve as a backup solution for export projects. Against the backdrop of similar experience in China, the use of Chinese turbines is technically feasible. However, their potential adoption in Russian projects may indicate difficulties faced by Rosatom in supplying its own projects with domestically produced equipment, while the final implementation of these plans remains uncertain.²⁴⁷

In April, there were also reports about possible participation by Chinese companies in the construction of Rosatom's SMR project in Uzbekistan. The head of Uzatom, Azim Akhmedkhadzheyev, stated²⁴⁸ that a consortium including companies from China, Hungary, and other European and Asian countries would be formed. Nuclear technologies and the reactor island²⁴⁹ would remain Russian, while the production and supply of turbine equipment²⁵⁰ are being discussed with China.

India, Kudankulam NPP

General description

India is Russia's second-largest partner in the civilian nuclear sector after China. The flagship project of Russian-Indian cooperation is the Kudankulam NPP in Tamil Nadu in southern India, comprising six VVER-1000 units.

Units 1 and 2 with VVER-1000 reactors were commissioned in 2013 and 2016.

Construction of the second phase (Units 3 and 4) began in 2017, and by August 2025 the project was approximately 78% complete.²⁵¹

²⁴⁶ Kommersant, December 11, 2025. Chinese connection [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8272186>

²⁴⁷ Bellona, February 9, 2026. Bellona Nuclear Digest. December 2025 [in Russian]. (Accessed: May 14, 2026.)
<https://ru.bellona.org/2026/02/09/nuclear-digest-12-25/>

²⁴⁸ Gazeta.uz, April 22, 2025. Uzbekistan President calls to accelerate implementation of small NPP construction project [in Russian]. (Accessed: May 14, 2026.)
<https://www.gazeta.uz/ru/2025/04/22/nuclear-power-station/>

²⁴⁹ Gazeta.uz, April 28, 2025. "Not if, but when Uzbekistan returns to the topic of a large nuclear power plant, we will have proposals ready," says Rosatom CEO [in Russian]. (Accessed: May 14, 2026.)
<https://www.gazeta.uz/ru/2025/04/28/rosatom/>

²⁵⁰ Nuclear Engineering International, April 28, 2025. China to provide turbines for Uzbekistan's NPP. (Accessed: May 14, 2026.)
<https://www.neimagazine.com/news/china-to-provide-turbines-for-uzbekistans-npp/>

²⁵¹ ET Manufacturing, October 27, 2025. 50 MW from Kudankulam nuclear power plant approved for commissioning of two more units. (Accessed: May 14, 2026.)
<https://manufacturing.economicstimes.indiatimes.com/news/energy/50-mw-from-kudankulam-nuclear-power-plant-approved-for-commissioning-of-two-more-units/124838881>

Construction of the third phase (Units 5 and 6) began in 2021, with completion estimated at 33% as of early 2025.²⁵²

According to media reports from November 2025, the total cost of all six units is 1.11 trillion rupees (\$16.3 billion).²⁵³

India has extensive experience in nuclear construction and in implementing the first phase of the Kudankulam project. As a result, construction of the second and third phases follows a model similar to projects in China. The Indian side, represented by the Nuclear Power Corporation of India Limited (NPCIL), is responsible for construction, installation, and commissioning, while Rosatom provides design, supplies key equipment, and delivers technical support.²⁵⁴

Key events of 2025

At Unit 3, installation of the gas-insulated switchgear (GIS)²⁵⁵ was completed in April 2025, and the system was commissioned in July. During the summer, a desalination plant was also put into operation. Over the course of 2025, concreting of both the inner and outer containment structures was completed, as well as welding of the main circulation pipelines. By November, preparations were underway for safety system testing with an open reactor.

At Unit 4, construction of the inner containment structure and the steam supply system was completed during the year.²⁵⁶

On January 15, 2025, Rosatom shipped²⁵⁷ the reactor vessel for Unit 6 of Kudankulam NPP to India.

In September 2025, Holtec International announced²⁵⁸ the delivery of the first batch of transport casks—manufactured by its subsidiary Holtec Asia—for the wet spent fuel storage facility under construction at Kudankulam NPP. This illustrates that not all technical solutions and components for the plant are produced and supplied by Rosatom.

²⁵² The New Indian Express, January 27, 2025. Kudankulam plant's Unit 3 to be commissioned in 2026: Site director. (Accessed: May 14, 2026.) <https://www.newindianexpress.com/states/tamil-nadu/2025/Jan/27/kudankulam-plants-unit-3-to-be-commissioned-in-2026-site-director>

²⁵³ World Construction Network, November 11, 2025. Rosatom provides Kudankulam NPP construction progress update. (Accessed: May 14, 2026.) <https://www.worldconstructionnetwork.com/news/rosatom-kudankulam-npp-update/>

²⁵⁴ Russian MFA, December 5, 2008. Agreement between the Government of the Russian Federation and the Government of the Republic of India on cooperation in the construction of additional power units of the Kudankulam nuclear power plant, as well as in the construction of nuclear power plants based on Russian designs at new sites in the Republic of India [in Russian]. (Accessed: May 14, 2026.) https://www.mid.ru/ru/foreign_policy/international_contracts/international_contracts/2_contract/45623/

²⁵⁵ NPCIL, April 2025. Major achievements of NPCIL in April 2025. (Accessed: May 14, 2026.) https://www.npcil.nic.in/WriteReadData/userfiles/file/MA_News_19052025_01.pdf

²⁵⁶ World Construction Network, November 11, 2025. Rosatom provides Kudankulam NPP construction progress update. (Accessed: May 14, 2026.) <https://www.worldconstructionnetwork.com/news/rosatom-kudankulam-npp-update/>

²⁵⁷ Atom Media, January 15, 2025. Rosatom ships the reactor pressure vessel for the sixth power unit of the Kudankulam NPP to India [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/rosatom-otgruzhaet-v-indiju-korpus-re/>

²⁵⁸ Holtec International, September 24, 2025. First Multi-Purpose Transport Cask and the First Batch of High-Density Wet Storage Modules on Way to India's National Nuclear Company, NPCIL. (Accessed: May 14, 2026.) <https://holtecinternational.com/hh-40-20/>



A HI-STAR 149 cask manufactured by Holtec, designed for transporting spent nuclear fuel from the spent fuel pools of VVER-1000 reactors at Kudankulam NPP units to a centralized on-site spent fuel storage facility. Source: Holtec

At the end of 2025, Rosatom's fuel division, TVEL, completed the delivery of nuclear fuel²⁵⁹ for the initial core loading of the VVER-1000 reactor at Unit 3 of the Kudankulam NPP.

Project delays

As with the projects in China, there is no clear evidence of significant direct impact from Western sanctions on the Kudankulam NPP project in India. However, complications with financial transactions, logistics, and delays in the supply of components have had some effect.

Overall, the implementation of the Kudankulam project has not progressed particularly quickly, and delays were recorded even before 2022. At nearly every Russian–Indian meeting on the

²⁵⁹ Atom Media, December 29, 2025. Rosatom delivered nuclear fuel to India for the initial loading of Unit 3 of the Kudankulam NPP [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/rosatom-postavil-v-indiyu-yadernoe-toplivo-dlya-startovoy-zagruzki-energobloka-3-aes-kudankulam-indi/>

project's implementation, the need to accelerate construction is raised.²⁶⁰ These delays are most likely largely due to challenges on the Indian side and delays in the development of supporting infrastructure.

In January 2024, Alexey Likhachev stated²⁶¹ that Unit 3 of Kudankulam was definitely planned to be launched in 2024. However, this did not happen in 2025 either. The commissioning of Unit 3 is now expected in 2026, and Unit 4 in 2027.

Prospects

On December 5, the President of the Russian Federation paid a state visit to India. The joint statement²⁶² issued following the meeting with Indian Prime Minister Narendra Modi includes provisions related to Russian–Indian cooperation in nuclear energy (paragraphs 23–26). The parties reaffirmed their intention to expand cooperation, agreed to adhere to the schedule for the delivery of equipment and fuel for the Kudankulam NPP under construction, and also agreed to continue discussions on allocating a second site in India for nuclear power plant construction in line with previously concluded agreements.

In addition, Likhachev stated²⁶³ that Rosatom and India's Ministry of Ports, Shipping and Waterways had established a special working group to discuss expanding cooperation in the field of floating nuclear power plants. Rosatom is also discussing²⁶⁴ with Indian partners the possibility of localizing nuclear fuel production in India.²⁶⁵

Bangladesh, Rooppur NPP

General description

Rosatom is constructing the Rooppur NPP in Bangladesh, consisting of two VVER-1200 units. Under the intergovernmental agreement signed in 2011²⁶⁶ and the contract concluded in 2015, Rosatom is fully responsible for turnkey construction of the plant, supply of nuclear fuel throughout its entire operational lifetime, and the return of spent nuclear fuel to Russia.

²⁶⁰ Government of India, February 9, 2023. Press release № 3/2024. (Accessed: May 14, 2026.)

<https://cdnbbsr.s3waas.gov.in/s35b8e4fd39d9786228649a8a8bec4e008/uploads/2024/02/20240216663524780.pdf>

²⁶¹ TASS, January 27, 2024. Rosatom plans physical launches at nuclear power plants in Bangladesh and India in 2024 [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/19836817>

²⁶² Official website of the President of the Russian Federation, December 5, 2025. Joint statement following the 23rd Russian–Indian annual summit "Russia–India: a time-tested progressive partnership based on trust and mutual respect" [in Russian]. (Accessed: May 14, 2026.)

<http://kremlin.ru/supplement/6426>

²⁶³ TASS, December 5, 2025. Likhachev: Russia and India will develop cooperation within the Northern Sea Route [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/25828305>

²⁶⁴ TASS, December 5, 2025. Likhachev: Russia and India are discussing localizing fuel production for nuclear power plants [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/25829859>

²⁶⁵ Bellona, February 9, 2026. Bellona Nuclear Digest. December 2025 [in Russian]. (Accessed: May 14, 2026.)

<https://ru.bellona.org/2026/02/09/nuclear-digest-12-25>

²⁶⁶ Ministry of Foreign Affairs of the Russian Federation, November 2, 2011. Agreement between the Government of the Russian Federation and the Government of the People's Republic of Bangladesh on cooperation in the construction of a nuclear power plant in the territory of the People's Republic of Bangladesh [in Russian]. (Accessed: May 14, 2026.)

https://www.mid.ru/ru/foreign_policy/international_contracts/international_contracts/2_contract/44742/

Russia is also providing a loan of up to \$11.38 billion,²⁶⁷ covering up to 90% of the project's cost.²⁶⁸ The first concrete for Unit 1 was poured in 2017, and for Unit 2 in 2018.

Key events of 2025

In spring 2025, Russia and Bangladesh agreed to ease the terms of the Russian loan provided for the construction of the Rooppur NPP²⁶⁹. Under the agreement, Bangladesh would be exempted from paying a \$164 million penalty for delays in servicing a \$500 million loan used for the project's feasibility study. It was also proposed to extend the term of the \$11.38 billion loan and to defer the start of repayments by one and a half years. In addition, according to sources in the Economic Relations Division (ERD), repayments may now be made in Russian rubles alongside US dollars. ERD representatives explained that payment delays²⁷⁰ were beyond Bangladesh's control, as funds had been credited to Rosatom's account at Sonali Bank but could not be transferred due to US sanctions on Russian banks following the war in Ukraine.

In March 2025, hydraulic testing of the primary circuit systems and equipment was completed at Unit 1, and installation of the turbine in the turbine hall was finalized.²⁷¹

During the summer, tightness and strength tests of the containment of the reactor compartment at Unit 1 was completed,²⁷² step-up and auxiliary transformers were commissioned, and high-temperature functional testing of the reactor was carried out.²⁷³ In August, one of the key stages of cold and hot functional tests of the turbine equipment—blowdown of the fresh steam pipelines—was completed.²⁷⁴

²⁶⁷ RIA Novosti, January 13, 2017. Russia to provide state loan for the construction of Rooppur NPP in Bangladesh [in Russian]. (Accessed: May 14, 2026.) <https://ria.ru/20170113/1485677764.html>

²⁶⁸ RIA Novosti, April 17, 2024. Bangladesh to pay Russia in yuan for NPP construction [in Russian]. (Accessed: May 14, 2026.) <https://ria.ru/20230417/yuani-1865796647.html>

²⁶⁹ The Business Standard, April 16, 2025. Russia extends Rooppur loan repayment by two years, waives \$164m penalty. (Accessed: May 14, 2026.) <https://www.tbsnews.net/bangladesh/energy/russia-extends-rooppur-loan-repayment-two-years-waives-164m-penalty-1117041>

²⁷⁰ Bellona, October 30, 2024. Bellona Nuclear Digest. September 2024 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2024/10/30/nuclear-digest-09-24/>

²⁷¹ Atomic Energy 2.0, March 25, 2025. Rosatom completes installation of turbine at first VVER-1200 unit of Rooppur NP [in Russian]. (Accessed: May 14, 2026.) <https://www.atomic-energy.ru/news/2025/03/25/154736>

²⁷² Rosatom Engineering Division, June 24, 2025. Leak tests of the reactor compartment of Unit 1 of the Rooppur NPP in Bangladesh were successful [in Russian]. (Accessed: May 14, 2026.) <http://ase-ec.ru/for-journalists/news/2025/jun/ispytaniya-na-germetichnost-reaktornogo-otdeleniya-bloka-1-aes-ruppur-v-bangladesh-proshli-uspeshno/>

²⁷³ Rosatom State Corporation, January 26, 2026. Future Energy in Action. (Accessed: May 14, 2026.) <https://rosatomnewsletter.com/2026/01/26/future-energy-in-action/>

²⁷⁴ Atom Media, August 5, 2025. At Unit 1 of the Rooppur NPP (Bangladesh), the fresh steam pipelines in the turbine compartment were successfully purged [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/na-bloke-1-aes-ruppur-bangladesh-uspeshno-vypolnena-produvka-paroprovodov-svezhego-para-v-turbinnom-/>



Units under construction at the Rooppur NPP, Bangladesh. Source: Rosatom

Project delays

At the start of construction, commissioning of Unit 1 was planned for 2023. However, from 2024 onward, the expected launch date has been repeatedly pushed back to the end of the current year—first 2024,²⁷⁵ then 2025,²⁷⁶ and, according to the latest statement by Alexey Likhachev in February 2026,²⁷⁷ now to the end of 2026. Likhachev says the unit is essentially ready for the start of commissioning, and much will now depend on the operating organization and the Bangladeshi regulator.

²⁷⁵ TASS, August 13, 2024. The Rooppur NPP in Bangladesh is preparing for the reactor start-up of the first power unit [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/ekonomika/21595359>

²⁷⁶ Interfax, August 21, 2025. Physical start-up of the Rooppur NPP in Bangladesh may begin in 2025 [in Russian]. (Accessed: May 14, 2026.) <https://www.interfax.ru/business/1043249>

²⁷⁷ Atomic Energy 2.0, February 20, 2026. Rosatom will launch the first VVER-1200 power unit at the Rooppur NPP in Bangladesh by the end of 2026 [in Russian]. (Accessed: May 14, 2026.) <https://www.atomic-energy.ru/news/2026/02/20/163627>

According to the Bangladeshi newspaper *The Financial Express*,²⁷⁸ in spring 2026 the ceremony marking the start of fuel loading was postponed several times due to delays in obtaining the license required for this operation from the Bangladesh Atomic Energy Regulatory Authority (BAERA). It was initially planned for March, then moved to early April, and was expected to take place virtually with the participation of Prime Minister Tarique Rahman and Russian President Vladimir Putin. First grid connection was expected in June–July, with full-capacity operation by December. However, according to a representative of the Bangladesh Atomic Energy Commission (BAEC), specialists still need to complete inspections of the plant site for fire safety and other critical issues.

According to the publication, the main causes of delays in recent years have been the COVID-19 pandemic and difficulties with financial settlements arising in the context of the war between Russia and Ukraine, as well as a number of interrelated factors—including incomplete safety system testing, uncertainty regarding the actual cost of the project (which, according to some reports, may have increased by 23%²⁷⁹), affecting the conclusion of a power purchase agreement; the lack of necessary grid infrastructure; insufficient readiness of certified reactor operators; and the absence of a functioning emergency response center. Progress on the project was also slowed by a wave of nationwide protests and the subsequent change of government in Bangladesh in the summer of 2024.

Iran, Bushehr NPP

Construction of Unit 1 of the Bushehr NPP in Iran was originally started in 1975 by the West German company Kraftwerk Union and was halted in 1979 following the Islamic Revolution. In 1995, the Russian side signed contracts to complete the unit with a VVER-1000 reactor and to supply fuel for the first 10 years of its operation.²⁸⁰ Russia also undertook to take back spent nuclear fuel to Russia for reprocessing.²⁸¹

In 2011, the unit was first connected to the grid,²⁸² and in 2013 it was commissioned for commercial operation. In 2014, a contract was signed for the construction of a second phase of the plant, consisting of two VVER-1000 units, with a value of around \$10 billion, financed by the Iranian customer.²⁸³ The first concrete for Unit 2 was poured in 2019.

²⁷⁸ The Financial Express, April 2, 2026. Fuel loading into Rooppur N power plant stalls again. (Accessed: May 14, 2026.) <https://today.thefinancialexpress.com.bd/print/fuel-loading-into-rooppur-n-power-plant-stalls-again-1775066751>

²⁷⁹ The Daily Star, January 25, 2026. Rooppur power project seeks Tk 25,593cr cost hike. (Accessed: May 14, 2026.) <https://www.thedailystar.net/business/news/rooppur-power-project-seeks-tk-25593cr-cost-hike-4089541>

²⁸⁰ PIR Center, August 8, 2022. Bushehr Nuclear Power Plant [in Russian]. (Accessed: May 14, 2026.) <https://pircenter.org/2022/08/08/busherskaja-atomnaja-jelektrostancija/>

²⁸¹ TASS, November 11, 2014. Iran and Russia signed a package of agreements on the construction of eight nuclear power plant units [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/politika/1564819>

²⁸² IAEA Power Reactor Information System (PRIS), March 13, 2025. Bushehr-1. (Accessed: May 14, 2026.) <https://pris.iaea.org/PRIS/CountryStatistics/ReactorDetails.aspx?current=310>

²⁸³ TASS, February 5, 2026. "Russian nuclear projects abroad. Where and how Rosatom builds NPPs around the world [in Russian]. (Accessed: May 14, 2026.) <https://tass.ru/info/18916163>

The agreement²⁸⁴ signed in 2014 between Russia and Iran envisages²⁸⁵ the construction of up to eight nuclear power units in Iran.

Key events of 2025

On September 24 in Moscow, Rosatom and the Atomic Energy Organization of Iran signed a memorandum of understanding²⁸⁶ on cooperation in the construction of small nuclear power plants in Iran. It is reported²⁸⁷ that this agreement paves the way for the preparation and signing of contracts for the design and construction of plants based on small modular reactors.

On June 6, 2025, Ebrahim Rezaei, a representative of the Iranian parliament's Commission on National Security and Foreign Policy, stated²⁸⁸ that Iran had signed a contract with Russia for the construction of eight nuclear power units in the country, four of which would be located at Bushehr.

Sanctions and delays

In September 2024, Iranian officials stated²⁸⁹ that the physical start-up of Unit 2 at Bushehr was scheduled for 2029. First concrete for Unit 3 had been planned by the end of 2024, and similar timelines were also announced by the head of Rosatom.²⁹⁰ However, this has not yet taken place.

At the same time, the delays are likely not primarily related to sanctions pressure on Russia after 2022, as they had already emerged earlier, in 2020–2021.²⁹¹ More broadly, Iran itself faces sanctions pressure at least as severe as Russia's, meaning that Western components are not used at the site, and most work is carried out by local contractors. Financing is also provided by the Iranian side without reliance on Russian loans, and difficulties with payments²⁹² may affect the pace of project implementation.²⁹³

²⁸⁴ Ministry of Foreign Affairs of the Russian Federation, November 11, 2014. Protocol to the agreement between the Government of the Russian Federation and the Government of the Islamic Republic of Iran on cooperation in the construction of a nuclear power plant in Iran, dated August 25, 1992 [in Russian]. (Accessed: May 14, 2026.)

https://www.mid.ru/ru/foreign_policy/international_contracts/international_contracts/2_contract/44069/

²⁸⁵ TASS, November 11, 2014. Iran and Russia signed a package of agreements on the construction of eight nuclear power plant units [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/politika/1564819>

²⁸⁶ Atom Media, September 24, 2025. Rosatom CEO Alexey Likhachev met with Iran's Vice President and President of the Atomic Energy Organization of Iran Mohammad Eslami [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/press-releases/sostoyalas-vstrecha-glavy-rosatoma-alekseya-likhacheva-s-vitse-prezidentom-irana-prezidentom-organiz/>

²⁸⁷ Islamic Republic News Agency, October 2, 2021. Iran and Russia signed a memorandum of understanding on the construction of small nuclear power plants [in Persian]. (Accessed: May 14, 2026.)

<https://www.irna.ir/news/85948430/>

²⁸⁸ Iranian Students' News Agency, June 19, 2021. Russia to build 8 nuclear power plants in Iran [in Persian] (Accessed: May 14, 2026.)

<https://www.isna.ir/news/1404031912233>

²⁸⁹ World Nuclear News, September 27, 2024. Iran outlines nuclear energy plans, including first concrete for 'Bushehr-3' this year. (Accessed: May 14, 2026.)

<https://www.world-nuclear-news.org/articles/iran-aims-for-first-concrete-for-bushehr-3-by-end-of-year>

²⁹⁰ TASS, September 30, 2024. Core catcher to be installed at second unit of Bushehr NPP in Iran in 2024 [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/22002671>

²⁹¹ Eghtesad news, February 6, 2025. Bushehr Nuclear Power Plant Unit 2 successfully equipped [in Persian]. (Accessed: May 14, 2026.)

<https://www.eghtesadnews.com/دش-م-اچن-ت-ی-ق-ف-وم-اب-ر-ه-ش-وب-هاگ-وری-ن-م-ود-د-ج-او-ز-ی-ه-ج-ت-61-702829-ا-ه-ه-ن-اس-ر-ری-اس-ب-راب-خ-اش-خ-ب>

²⁹² TASS, June 26, 2021. Iran owes Russia €500 million for the construction of the Bushehr NPP [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/11762063>

²⁹³ TASS, May 17, 2023. Russia and Iran have resolved their debt to Rosatom for the construction of the Bushehr NPP [in Russian]. (Accessed: May 14, 2026.)

<https://tass.ru/ekonomika/17772273>



*Bushehr NPP. The operating Unit 1 with its white dome is visible in the upper left; the construction site for two new units is in the lower right. Satellite image from Google Maps, 2024.
 Impact of US-Israeli strikes on Iran*

In June 2025, US–Israeli strikes on a number of Iranian nuclear facilities, potentially linked to Iran’s military nuclear program, raised serious concerns about the safety of the Bushehr NPP. However, no attacks on the plant itself were recorded at that time. Vladimir Putin stated that agreements had been reached with Israel to ensure the safety of “more than 200” Russian specialists at the Bushehr site.²⁹⁴

At the end of February 2026, a full-scale US–Israeli military operation against Iran began, targeting the country’s political and military leadership, as well as military and civilian infrastructure and nuclear facilities. On the very first day of the operation, February 28, a strike was recorded in the city of Bushehr near the NPP²⁹⁵—more precisely, on a facility located 350 meters from the plant—which was destroyed. No casualties or damage at the plant itself were reported. The head of Rosatom later stated that the strike occurred near the facility’s meteorological service.

²⁹⁴ RIA Novosti, June 19, 2025. Putin announced an agreement on the safety of Bushehr NPP construction workers [in Russian]. (Accessed: May 14, 2026.) <https://ria.ru/20250619/putin-2023732278.html>

²⁹⁵ World Nuclear News, March 18, 2026. ‘Projectile’ hit 350 metres from Bushehr nuclear reactor – IAEA. (Accessed: May 14, 2026.) <https://world-nuclear-news.org/articles/iran-tells-iaea-a-projectile-hit-bushehr-nuclear-plant-premises>

Given the scale of attacks across the country, Rosatom began evacuating family members of its employees in the first days of the conflict. “All employees’ children, as well as all non-essential personnel and those who wished to leave the country, have been evacuated—a total of 94 people,” Likhachev stated²⁹⁶ on February 29. By March 12, another 150 people had been evacuated by plane, while about 450 remained in Iran “in relative safety.”²⁹⁷

On March 17, the first attack on the territory of the Bushehr NPP itself was recorded: according to Iranian and Russian sources, one projectile landed within the plant’s grounds, though no casualties or damage were reported. Two further similar incidents, also without casualties or damage, occurred on March 24²⁹⁸ and 27.²⁹⁹

On March 25, the head of Rosatom stated that the situation was developing along a negative scenario, and on that day Rosatom evacuated another 163 people via the Iran–Armenia border. Around 300 personnel remained at the site,³⁰⁰ with plans to evacuate them in two groups in the near future. Ultimately, only a minimal team of several dozen people is expected to remain on site “to maintain the plant’s operability, ensure the preservation of equipment, and support the functioning of the workers’ settlement.”³⁰¹

According to Rosatom’s head, as of March 2026, Unit 1 of the Bushehr NPP continues to operate at full capacity, and the Iranian side does not plan to shut it down. The site contains 72 tonnes of nuclear fuel inside the reactor and approximately 210 tonnes of spent nuclear fuel.³⁰² According to Bellona, this volume generally corresponds to the amount of spent fuel accumulated during the operation of a VVER-1000 unit since 2011. This, together with the lack of publicly available information regarding the removal of this fuel to Russia, suggests that despite the intergovernmental agreement on returning spent fuel from Bushehr to Russia, it has in fact been accumulating in Iran over the years.

Prospects

On September 26, 2025 in Moscow, Rosatom and Iran Hormoz Energy Co signed an agreement³⁰³ for the construction of a nuclear power plant in the Sirik area of Hormozgan

²⁹⁶ Kommersant, February 28, 2026. Children of Rosatom employees evacuated from Iran [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8477141>

²⁹⁷ Kommersant, March 12, 2026. Another 150 Rosatom employees returned from Iran to Russia [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8499411>

²⁹⁸ IAEA, March 24, 2026. A projectile struck the premises of the Bushehr nuclear power plant. (Accessed: May 14, 2026.)
<https://www-news.iaea.org/ErfView.aspx?mld=e2f5b755-2113-4b04-8a7f-79156fff547e>

²⁹⁹ Kommersant, March 28, 2026. Iran reports US and Israeli strike on Bushehr NPP [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8549726>

³⁰⁰ Kommersant, March 25, 2026. Another 163 Rosatom employees evacuated from the Bushehr NPP in Iran [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8534955>

³⁰¹ Kommersant, March 28, 2026. Rosatom will leave only several dozen employees at the Bushehr NPP in Iran [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8550193>

³⁰² Interfax, March 3, 2026. Likhachev sees risk of regional-scale catastrophe from strike on Bushehr NPP [in Russian]. (Accessed: May 14, 2026.)
<https://www.interfax.ru/world/1075826>

³⁰³ Islamic Republic News Agency, October 26, 2021. A \$25 billion deal has been signed to build four new nuclear power plants in Iran [in Persian]. (Accessed: May 14, 2026.)
<https://www.irna.ir/news/85949922/>

Province, with a capacity of 5,020 MW and an estimated total cost of around \$25 billion. It was noted that the site is in an active phase, with engineering and environmental studies underway. Six months earlier, Russia had pledged³⁰⁴ to partially finance the construction of a new NPP in Iran, suggesting that the Sirik project is likely intended to be implemented with Russian participation.

The Iranian side had already announced the start of work at the site in February 2024, stating that it would consist of four Generation III+ units with a capacity of 1,250 MW each,³⁰⁵ though without specifying the developer. In last year's report, we suggested³⁰⁶ that Rosatom was a likely candidate—an assumption that has since been confirmed.

However, in light of the full-scale war in Iran, the prospects for any large-scale NPP construction in the near term are highly uncertain, as is the continuation of work on the second phase of the Bushehr NPP.

From a nuclear risk perspective, the operating unit at Bushehr raises the greatest concern—a view shared by the head of the IAEA.³⁰⁷ At the same time, the Bushehr NPP is not directly linked to Iran's potential military nuclear program. The plant operates under IAEA safeguards and monitoring and is a civilian facility. Despite the deterioration in Iran's relations with the IAEA and its refusal since summer 2025 to allow inspectors access to other nuclear sites following U.S. and Israeli strikes, inspections at the Bushehr NPP³⁰⁸ resumed in August 2025. The IAEA Director General reported this in his statement³⁰⁹ to the IAEA Board of Governors on February 27, 2026,—just one day before the new military operation against Iran began.

Nevertheless, the area near the Bushehr NPP has already come under fire. As seen in the case of the Zaporizhzhia NPP and other NPPs in Ukraine, attacks on broader energy infrastructure can also pose risks to nuclear facilities, potentially leading to a blackout and an emergency shutdown of an operating unit—which in a worst-case scenario could result in a major nuclear or radiological accident with consequences for neighboring countries.

³⁰⁴ Nuclear Engineering International, April 29, 2025. Russia backs Iran nuclear plant. (Accessed: May 14, 2026.)
<https://www.neimagazine.com/news/russia-backs-iran-nuclear-plant/>

³⁰⁵ World Nuclear News, February 2, 2024. Iran announces start of work at new plant site. (Accessed: May 14, 2026.)
<https://www.world-nuclear-news.org/articles/iran-announces-start-of-work-at-new-plant-site>

³⁰⁶ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

³⁰⁷ Kommersant, March 15, 2026. I always try to approach all issues as impartially as possible [in Russian]. (Accessed: May 14, 2026.)
<https://www.kommersant.ru/doc/8512521>

³⁰⁸ IAEA, September 3, 2025. Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015). Report by the Director General. (Accessed: May 14, 2026.)
<https://www.iaea.org/sites/default/files/documents/gov2025-50.pdf>

³⁰⁹ IAEA, February 27, 2026. NPT Safeguards Agreement with the Islamic Republic of Iran. Report by the Director General. (Accessed: May 14, 2026.)
<https://www.iaea.org/sites/default/files/gov2026-8.pdf>

Projects in Latin America

Rosatom is considering the possibility of building small nuclear reactors in Chile, El Salvador, and Argentina,³¹⁰ and is also monitoring similar opportunities in Brazil.³¹¹ However, all of these plans remain far from actual implementation.

The corporation's largest current projects in the region are concentrated in Brazil, where cooperation in the nuclear fuel cycle continued to develop in 2025. Another country of key importance for Rosatom in the region is Bolivia, where a nuclear research center is under construction and contracts for lithium extraction have been signed. However, following a change of government in 2025, these projects encountered delays.

Bolivia

In Bolivia, Rosatom continues the construction launched in 2021 of a Nuclear Research and Technology Center (NRTC) with an estimated cost of around \$300 million.³¹² It had been expected that fuel for the BRR-1 research reactor,³¹³ already manufactured, would be delivered to the site in 2025, with the reactor scheduled to be launched in July 2025.³¹⁴ However, this did not occur. In April 2025, only a cooperation agreement on fuel management was signed.³¹⁵

Another major Rosatom project in Bolivia, lithium extraction, has also faced difficulties and delays. As early as 2023, Rosatom, through Uranium One Group JSC, and the Bolivian state company YLB (Yacimientos de Litio Bolivianos) signed a framework agreement,³¹⁶ followed by a contract in September 2024 for the development of a lithium deposit in Bolivia.³¹⁷ Investments in the project were expected to amount to approximately \$600 million, with the first industrial facility scheduled to be commissioned in the second half of 2025.

³¹⁰ TASS, July 22, 2024. Rosatom may build nuclear reactors in Chile, El Salvador, and Argentina [in Russian]. (Accessed: May 14, 2026.)
<https://tass.ru/ekonomika/21422601>

³¹¹ Nuclear Engineering International, May 20, 2025. Brazil moves forward with Russian-backed SMRs. (Accessed: May 14, 2026.)
<https://www.neimagazine.com/news/brazil-moves-forward-with-russian-backed-smrs/>

³¹² Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

³¹³ Atom Media, October 28, 2024. Rosatom has produced its first nuclear fuel for a research reactor in Bolivia [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/press-releases/v-rosatome-vpervye-izgotovleno-yade/>

³¹⁴ Prensa Latina, November 14, 2024. Bolivia to launch research reactor in 2025 [in Spanish]. (Accessed: May 14, 2026.)
<https://www.prensa-latina.cu/2024/11/13/bolivia-pondra-en-marcha-reactor-de-investigaciones-en-2025/>

³¹⁵ Correo del Sur, April 8, 2025. Bolivia and Russia sign agreement for the management of fuel destined for the El Alto nuclear reactor [in Spanish]. (Accessed: May 14, 2026.)
<https://correodelsur.com/economia/20250408/bolivia-y-rusia-firman-acuerdo-para-la-gestion-de-combustible-destinado-al-reactor-nuclear-de-el-alto.html>

³¹⁶ Tenex, June 30, 2023. Rosatom company and YLB signed a cooperation agreement in lithium mining and production in Bolivia [in Russian]. (Accessed: May 14, 2026.)
<https://www.tenex.ru/media-center/news/kompaniya-rosatoma-i-ylb-podpisali-soglashenie-o-sotrudnichestve-v-oblasti-dobychi-i-proizvodstva-li/>

³¹⁷ Atom Media, September 11, 2024. Rosatom company and YLB strengthen cooperation in industrial lithium development [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/2024/09/11/kompaniya-rosatoma-i-ylb-ukrepyajut-sotr/>

However, since early 2025, Rosatom's lithium project, as well as a similar Chinese project³¹⁸ in Bolivia, has faced significant criticism and was later effectively frozen³¹⁹ amid political struggles during the change of government following a series of elections in late summer–autumn 2025.

In October 2025, Bolivia's new president, Rodrigo Paz, announced plans³²⁰ to review lithium development agreements signed by the previous administration and to establish a more transparent system for attracting foreign investment. Following this statement, discussions on the future of the national lithium sector resumed in the country, and international partners expressed cautious optimism about the possibility of unfreezing stalled projects.

In December 2025, the Russian ambassador to Bolivia stated that discussions were underway on completing the Nuclear Research and Technology Center project, but noted that this was "complicated by the upcoming change in leadership of the Bolivian Nuclear Energy Agency, which is the client for the project."³²¹

Brazil

In February 2025, Rosatom announced³²² that its subsidiary Internexco GmbH had signed a contract with the state-owned company Indústrias Nucleares do Brasil (INB) for the conversion and enrichment of uranium mined in Brazil at Russian facilities. The contract value was approximately \$40 million.

Later, INB announced³²³ that the agreement involves the export of 275 tonnes of uranium concentrate from the Caetité mining complex. The uranium hexafluoride (UF₆), enriched to 4.25%, is expected to be returned to Brazil by December 2027. The contract was awarded following an international tender.

³¹⁸ Reuters, June 29, 2023. Bolivia taps China, Russia's Rosatom in bid to unlock huge lithium riches. (Accessed: May 14, 2026.)
<https://www.reuters.com/world/americas/bolivia-seals-14-bin-lithium-deals-with-russias-rosatom-chinas-guaoan-2023-06-29/>

³¹⁹ Mongabay, August 26, 2025. Bolivia: Why did a judge suspend lithium contracts with Russia and China and demand environmental studies? [in Spanish]. (Accessed: May 14, 2026.)
<https://es.mongabay.com/2025/08/bolivia-jueza-suspendio-contratos-litio-rusia-china>

³²⁰ Miningreporters.com, November 7, 2025. Bolivia rethinks lithium deals with China and Russia amid US pivot. (Accessed: May 14, 2026.)
<https://www.miningreporters.com/noticia/news/2025/11/bolivia-lithium-deals-china-russia-us-shift>

³²¹ Mos.news, December 15, 2025. Bolivia is interested in Rosatom's nuclear center, the ambassador said [in Russian]. (Accessed: May 14, 2026.)
<https://mos.news/news/society/boliviya-zainteresovana-v-yadernom-tsentre-rosatoma-zayavil-posol/>

³²² Strana Rosatom, February 27, 2025. Rosatom wins tender for uranium enrichment in Brazil [in Russian]. (Accessed: May 14, 2026.)
<https://strana-rosatom.ru/2025/02/27/rosatom-vyigral-tender-na-obogashhe/>

³²³ Indústrias Nucleares do Brasil, March 11, 2025. INB signs contract with Russian company for conversion and enrichment of uranium produced in Caetité [in Portugal]. (Accessed: May 14, 2026.)
<https://www.inb.gov.br/pt-br/Detalhe/Conteudo/inb-fecha-contrato-com-empresa-russa-para-conversao-e-enriquecimento-do-uranio-p/Origem/395>



Uranium concentrate production facility in Caetité, Brazil. Source: INB

Rosatom also holds a 2022 contract³²⁴ for the supply of 330 tonnes of Russian enriched uranium to Brazil over the period 2023–2027, as well as a 2023 contract for the supply of natural uranium.³²⁵ According to UN Comtradedata analyzed by Bellona, approximately 17 tonnes of enriched uranium worth \$13.7 million were supplied from Russia to Brazil in 2025. A year earlier, 15.4 tonnes were delivered, valued at \$11.8 million.

Following the visit of Brazil's president to Moscow in May 2025, Brazil's Minister of Mines and Energy, Alexandre Silveira, stated³²⁶ that a contract was being planned with Rosatom for the construction of small modular reactors. He also noted that Rosatom was ready to participate in completing the construction of Unit 3 of the Angra NPP.

³²⁴ Tenex, December 6, 2022. Rosatom will supply uranium products to Latin America [in Russian]. (Accessed: May 14, 2026.) <https://tenex.ru/media-center/news/rosatom-postavit-uranovuyu-produktsiyu-v-latinskuyu-ameriku/>

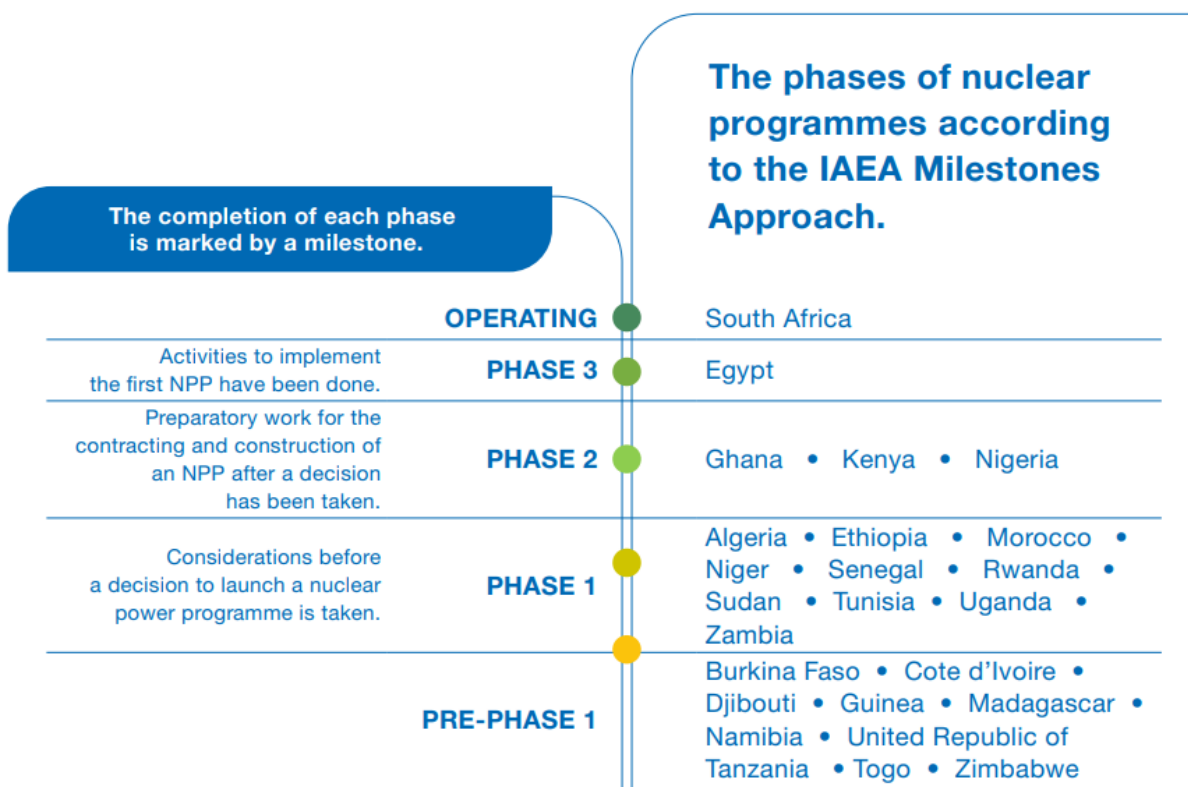
³²⁵ Rosatom State Corporation, May 5, 2023. Rosatom took part in the Nuclear Trade and Technology Exchange international conference in Brazil [in Russian]. (Accessed: May 14, 2026.) <https://web.archive.org/web/20230909130755/https://rosatom.ru/journalist/news/rosatom-prinyal-uchastie-v-mezhdunarodnoy-konferentsii-nuclear-trade-and-technology-exchange-v-brazi/>

³²⁶ Nuclear Engineering International, May 20, 2025. Brazil moves forward with Russian-backed SMRs. (Accessed: May 14, 2026.) <https://www.neimagazine.com/news/brazil-moves-forward-with-russian-backed-smrs/>

Projects in Central and Southern Africa

Rosatom is already constructing Africa’s largest nuclear power plant—the El Dabaa NPP in Egypt—but it also has numerous other projects in the region and a strong interest in expanding nuclear development across the continent. According to the IAEA,³²⁷ at least 15 African countries have plans to develop nuclear energy, and around nine more are considering doing so. Rosatom has signed agreements and memoranda on nuclear energy development with most of these countries,^{328, 329}

However, in most cases, these agreements reflect only the earliest stages of negotiations. Moreover, countries that have made more substantial progress in developing their nuclear programs do not always ultimately select Rosatom as the project developer.



The phases of nuclear programs according to the IAEA Milestones Approach. Source: Outlook for Nuclear Energy in Africa, IAEA, 2025³³⁰

³²⁷ IAEA, 2025. Outlook for nuclear energy in Africa. (Accessed: May 14, 2026.) <https://www.iaea.org/publications/15896/outlook-for-nuclear-energy-in-africa>

³²⁸ Nuclear Control, № 9 (18), 2026. Prospects for Cooperation Between Russia and Africa in Nuclear Energy. (Accessed: May 14, 2026.) <https://pircenter.org/en/editions/№-9-18-2026-prospects-for-cooperation-between-russia-and-africa-in-nuclear-energy/>

³²⁹ The Independent, May 13, 2025. How Russia is pushing to take control of Africa’s nuclear future. (Accessed: May 14, 2026.) <https://www.independent.co.uk/news/world/africa/russia-nuclear-power-trump-aid-africa-b2741038.html>

³³⁰ IAEA, 2025. Outlook for nuclear energy in Africa. (Accessed: May 14, 2026.) https://www-pub.iaea.org/MTCD/Publications/PDF/p15896-PAT-011_web.pdf

For example, a particularly noteworthy development unfolded in Ghana in 2025. Back in 2015, Ghana signed a memorandum of understanding with Rosatom on cooperation in nuclear energy, and by 2024 Rosatom was considered³³¹ one of the potential developers of the country's first large nuclear power plant, alongside competitors from France, China, and South Korea.³³² However, in March 2025, Ghana selected companies from China and the United States to build its first nuclear facilities.³³³ It is expected that the American companies NuScale Power and Regnum Technology Group, in partnership with Japanese firms, will construct small modular reactors—12 modules of 77 MW each (a total of 924 MW). The project will be financed through a public-private partnership. Meanwhile, the China National Nuclear Corporation will build a large-scale NPP with a capacity of 1,200 MW, financed under a Build–Operate–Transfer (BOT) model with participation from local capital. This marks the first case in which Rosatom has lost a tender for the construction of a large nuclear power plant in a third country to China.

At the same time, Russia continues to expand its political engagement in Africa, offering nuclear projects as a potential area for cooperation, albeit still largely in a long-term prospect.

For example, in December 2025, the ambassador of the Central African Republic to Russia, Léon Dodonu-Punagaza, stated that the possibility of constructing a small nuclear power plant in the republic was being discussed with Rosatom.³³⁴

A steady and nearly synchronized process of signing cooperation agreements between Russia and Burkina Faso and Mali has continued. In June, agreements on cooperation in the peaceful uses of nuclear energy were signed between the governments of Russia and Burkina Faso (June 19 in St. Petersburg)³³⁵ and between Russia and Mali (June 23 in Moscow).³³⁶ These followed a series of agreements concluded in 2023–2024, including memoranda of understanding and roadmaps for cooperation in various areas of peaceful nuclear energy.³³⁷

Cooperation with Ethiopia has progressed somewhat further. In addition to the contract signed in 2024 for a feasibility study on the construction of a Nuclear Science and Technology Center (NSTC),³³⁸ Rosatom and Ethiopian Electric Power signed an action plan in September

³³¹ Semafor, April 25, 2024. US and Russia are vying to build Ghana's nuclear energy plant. (Accessed: May 14, 2026.)
<https://www.semafor.com/article/04/25/2024/us-and-russia-are-vying-to-build-ghanas-nuclear-energy-plant>

³³² Reuters, May 21, 2024. French, Russia, Chinese firms vie to build Ghana's first nuclear power plant. (Accessed: May 14, 2026.)
<https://www.reuters.com/business/energy/french-russia-chinese-firms-vie-build-ghanas-first-nuclear-power-plant-2024-05-21/>

³³³ Ghana News Agency, March 27, 2025. Ghana selects US, China as vendors for first nuclear plants. (Accessed: May 14, 2026.)
<https://gna.org.gh/2025/03/ghana-selects-us-china-as-vendors-for-first-nuclear-plants/>

³³⁴ Interfax, December 9, 2025. CAR and Rosatom discuss possibility of building a small nuclear power plant [in Russian]. (Accessed: May 14, 2026.)
<https://www.interfax.ru/world/1062099>

³³⁵ Atom Media, June 19, 2025. Russia and Burkina Faso signed a cooperation agreement on the peaceful use of nuclear energy [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/press-releases/rossiya-i-burkina-faso-podpisali-soglashenie-o-sotrudnichestve-v-oblasti-ispolzovaniya-atomnoy-energ/>

³³⁶ Atom Media, June 23, 2025. Russia and Mali signed an intergovernmental agreement on cooperation in the peaceful use of nuclear energy [in Russian]. (Accessed: May 14, 2026.)
<https://atommedia.online/press-releases/rossiya-i-mali-podpisali-mezhpravsovglashenie-o-sotrudnichestve-v-oblasti-ispolzovaniya-atomnoy-energ/>

³³⁷ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.)
<https://etc.bellona.org/publication/rosatom-in-the-war-years/>

³³⁸ Strana Rosatom, December 4, 2024. Rosatom may build nuclear science and technology center in Ethiopia [in Russian]. (Accessed: May 14, 2026.)
<https://strana-rosatom.ru/2024/12/04/rosatom-mozhet-postroit-centr-yader/>

2025 for the development of a nuclear power project in Ethiopia.³³⁹ On December 18, Rosatom and the Ethiopian Atomic Energy Commission held talks in Moscow on the prospects for implementing a large-scale NPP project.³⁴⁰

Niger

In July 2025, Rosatom and Niger's Ministry of Energy signed a memorandum of understanding³⁴¹ on cooperation in the peaceful use of nuclear energy. Russia's Minister of Energy, Sergey Tsivilev, commented that Russia's objective in Niger is not only to participate in uranium mining, but also to establish a system for developing peaceful nuclear energy in the country, including the construction of nuclear power plants.

In September, Niger's Minister of Mining, Ousmane Abarchi, stated that his country would like to "build two nuclear reactors with a capacity of 2,000 MW on our territory"³⁴² together with Russia.

On December 9, 2025, the Nigerien state-owned company Timerso National Uranium Company and the Russian uranium mining company Uranium One Group JSC signed a memorandum of cooperation in uranium extraction.³⁴³ Timerso National Uranium Company was established³⁴⁴ in September 2024, one year after the military coup in Niger. The new military government announced³⁴⁵ its intention to review foreign concessions in the extractive sector.

Other countries

Rosatom also has extensive plans and projects for mineral extraction in other African countries.

In Tanzania, in July 2025, Rosatom's subsidiary Mantra Tanzania Ltd (part of Uranium One Group) commissioned a pilot uranium processing plant at the Nyota deposit as part of the Mkuju River project. The importance of the event for the country was underscored by the presence of Tanzanian President Samia Suluhu Hassan at the launch ceremony.³⁴⁶ The pilot

³³⁹ Interfax, September 25, 2025. Russia and Ethiopia signed action plan for the development of NPP project [in Russian]. (Accessed: May 14, 2026.) <https://www.interfax.ru/russia/1049361>

³⁴⁰ Rosatom State Corporation, December 19, 2025. Rosatom and the Ethiopian Atomic Energy Commission held talks on the prospects for implementing a large-capacity nuclear power plant project [in Russian]. (Accessed: May 14, 2026.) <https://rosatom.ru/journalist/news/rosatom-i-komissiya-po-atomnoy-energetike-efiopii-proveli-peregovory-po-perspektivam-realizatsii-pro/>

³⁴¹ World Nuclear News, July 29, 2025. Russia-Niger MoU on nuclear energy cooperation. (Accessed: May 14, 2026.) <https://world-nuclear-news.org/articles/russia-niger-mou-on-nuclear-energy-cooperation>

³⁴² Rosatom State Corporation, January 26, 2026. Africa opts for Russian atoms [in Russian]. (Accessed: May 14, 2026.) <https://rosatomnewsletter.com/ru/2026/01/26/africa-opts-for-russian-atoms/>

³⁴³ Uranium One Group, December 12, 2025. Niger state uranium company TNUC and Uranium One Group (Rosatom company) sign a memorandum of cooperation [in Russian]. (Accessed: May 14, 2026.) <http://uranium1.com/ru/news/news/uranovaya-goskompaniya-tnuc-niger-i-uranium-uan-grup-kompaniya-rosatoma-podpisali-memorandum-o-sotru/>

³⁴⁴ Nuclear Engineering International, December 19, 2025. Rosatom in Niger uranium deal. (Accessed: May 14, 2026.) <https://www.neimagazine.com/news/rosatom-in-niger-uranium-deal/>

³⁴⁵ Bellona, August 11, 2023. Bellona Nuclear Digest. July 2023 [in Russian]. (Accessed: May 14, 2026.) <https://ru.bellona.org/2023/08/11/atomic-digest-07-23/#06p>

³⁴⁶ World Nuclear News, July 31, 2025. Pilot uranium processing plant launched in Tanzania. (Accessed: May 14, 2026.) <https://world-nuclear-news.org/articles/pilot-uranium-processing-plant-launched-in-tanzania>

plant will test uranium processing technologies and develop solutions for optimization. The data collected will form the basis for designing the main processing plant, which is expected to have an annual production capacity of up to 3,000 tonnes of uranium. Construction of the main plant is planned to begin in the first quarter of 2026, with commissioning expected in 2029.³⁴⁷

Under the Wings project in Namibia, implemented through Rosatom's subsidiary Headspring Investments (part of the Uranium One Group), exploration and regulatory work continued in 2025–2026, with completion of the exploration phase expected in 2026 and the start of production tentatively planned for 2029. The projected investment in the project is up to \$500 million, with an annual production capacity of 3,000 tonnes of uranium once fully operational, and a mine life exceeding 25 years. However, actual timelines depend on obtaining the necessary permits from Namibian authorities. According to several media reports, the issuance of these licenses has been delayed since 2021.³⁴⁸

Projects in Asian countries

In addition to its major nuclear power plant construction projects in China, India, and Bangladesh, Rosatom is also engaged in projects with other Asian countries.

For example, Rosatom has long been a supplier of enriched uranium to South Korea. In 2024, it supplied 540 tonnes worth \$650 million, and in 2025, 260 tonnes worth \$327 million. Since 2022, South Korea has ranked among the top four buyers of Russian enriched uranium, alongside the United States, France, and China.

Russia has also resumed negotiations with Vietnam on a nuclear power project that had been suspended in 2016. The decision to return to the Ninh Thuan-1 NPP project was made during the visit of Russian Prime Minister Mikhail Mishustin and a Russian delegation to Hanoi in January 2025.

In May 2025, Vietnam and Russia adopted a roadmap for cooperation in peaceful nuclear energy through 2030, which includes the development of Rosatom-led projects in Vietnam, including Ninh Thuan-1.³⁴⁹

In September 2025, Rosatom and the Vietnamese engineering company PECC2 signed a memorandum of understanding providing for the update of the feasibility study and documentation package for the Ninh Thuan-1 site, as well as joint work on grid and logistics infrastructure development, personnel training, and other related areas.³⁵⁰

³⁴⁷ Atom Media, July 30, 2025. Rosatom's subsidiary has launched a pilot uranium processing facility at the Mkuju River project in Tanzania [in Russian]. (Accessed: May 14, 2026.)

<https://atommedia.online/en/press-releases/dochernyaya-kompaniya-rosatoma-zapustila-pilotnyuyu-ustanovku-po-pererabotke-urana-na-proekte-mkuju-r/>

³⁴⁸ The Extractor Magazine, July 12, 2025. Rosatom's Namibian affiliate Headspring's 4-year wait for permit worries lawmakers. (Accessed: May 14, 2026.)

<https://theextractormagazine.com/2025/07/12/rosatoms-namibian-affiliate-headsprings-4-year-wait-for-permit-worries-lawmakers/>

³⁴⁹ Nuclear Engineering International, January 30, 2026. Vietnam nears Ninh Thuận deal. (Accessed: May 14, 2026.)

<https://www.neimagazine.com/news/vietnam-nears-ninh-thuan-deal/>

³⁵⁰ Viet Nam News, September 27, 2025. Rosatom, PECC2 sign MoU on cooperation in nuclear power plant project. (Accessed: May 14, 2026.)

<https://vietnamnews.vn/economy/1726111/rosatom-pecc2-sign-mou-on-cooperation-in-nuclear-power-plant-project.html>

On March 23, 2026, during the visit of Vietnam's prime minister to Moscow, an intergovernmental agreement was signed for the construction of the Ninh Thuan-1 NPP, consisting of two VVER-1200 units with a total capacity of 2.4 GW, as Vietnam's first commercial nuclear power plant.³⁵¹ The tentative commissioning date is 2030–2031. Details regarding project costs and financing arrangements will be discussed in subsequent negotiations.

In November 2025, Rosatom also reported the delivery of nuclear fuel for the Vietnamese research reactor in Da Lat.³⁵²

Conclusions and forecasts for Chapter 3.3

An analysis of Rosatom's projects in the Global South indicates that in 2025, clear signs of serious complications and even an emerging crisis in the corporation's international business began to appear. Formally, Rosatom still maintains global leadership in the number of power units simultaneously under construction abroad, and its project geography remains extensive. Yet behind this impressive outward appearance, there are increasingly visible signs of deteriorating economic performance, rising political and sanctions-related risks, and growing competitive pressure in key external markets.

One of the most telling indicators is the decline in foreign revenue to \$17.2 billion,³⁵³ compared to \$18 billion the previous year. This marks Rosatom's first drop in foreign revenue since 2016. Over the preceding five years, revenue had been growing rapidly—by more than 20% annually—and doubled between 2021 and 2024.

This decline is difficult to explain by reduced activity in the nuclear fuel cycle, which, based on available data, remained roughly at the same level in 2025 as in the previous year—just under \$4 billion. It is therefore more likely that the main pressure on revenues stems from problems in overseas nuclear construction projects: delays, cost overruns, disruptions in financing schedules, and difficulties in receiving payments.

This is particularly evident in the case of the Akkuyu NPP in Turkey, where in 2025 systemic problems emerged, including difficulties with fund transfers, the freezing of \$2 billion in U.S. banks, worker protests over delayed wages, and the need to seek alternative payment mechanisms through gas transactions.

Notably, by the end of 2025, Rosatom Director General Alexey Likhachev publicly acknowledged that projects in Turkey and Hungary had found themselves in a "sanctions meat grinder." This marks an important turning point: whereas in 2022–2024 the impact of sanctions on overseas projects was often downplayed or denied, in 2025 the Russian side effectively recognized their serious destabilizing effect.

³⁵¹ Asia Pacific Telegraph, March 26, 2026. Vietnam Targets 2031 Nuclear Commissioning Amid Fuel Emergency. (Accessed: May 14, 2026.) <https://asiapacifictelegraph.com/vietnam-and-russia-sign-ninh-thuan-1-nuclear-plant-agreement/>

³⁵² Atom Media, November 11, 2025. Rosatom supplies nuclear fuel to Da Lat research reactor in Vietnam [in Russian]. (Accessed: May 14, 2026.) <https://atommedia.online/press-releases/rosatom-obespechil-yadernym-toplivom-dalatskiy-issledovatel'skiy-reaktor-vo-vetname/>

³⁵³ Interfax, March 12, 2026. Rosatom's foreign revenue in 2025 amounted to \$17.2 billion [in Russian]. (Accessed: May 14, 2026.) <https://www.interfax.ru/business/1077398>

Another growing source of pressure is intensifying competition with China in third-country markets. In 2025, Rosatom lost a major nuclear project in Ghana to a Chinese corporation selected to build a large NPP. In Kazakhstan, Russia formally retained strong positions by securing the lead role in a consortium for the country's first nuclear power plant, but the consortium for the second plant was placed under Chinese management—suggesting a division of the market rather than Rosatom's uncontested leadership.

A similar trend is visible in Turkey: whereas Moscow previously expected to automatically secure a second site after Akkuyu, Rosatom is no longer the clear frontrunner for the Sinop project, while China has effectively been promised a new site in Thrace^{354,355} for Turkey's third nuclear power plant.

This indicates that even in countries maintaining cooperation with Russia, Rosatom's room for maneuver is narrowing under pressure from more flexible, increasingly powerful, and in some respects less politically sensitive competitors.

At the same time, Rosatom is increasingly compelled to cooperate with China across multiple areas, leading to growing dependence—both in international projects (for example, the use of Chinese equipment to replace Siemens components at Akkuyu) and domestically. For instance, Rosatom has already commissioned the construction of hulls for floating nuclear power plants in China, and in 2025 reports emerged about the possible use of Chinese turbines in future nuclear projects within Russia.

We already predicted this combination of intensifying competition and growing dependence on China in last year's report.³⁵⁶

We may conclude that 2025 was not a year of steady expansion for Rosatom, but rather a year in which crisis symptoms accumulated. While its project portfolio remains large, its quality and commercial sustainability are increasingly in question. Sanctions are already significantly complicating the implementation of major overseas projects, delays are stretching over years, and competition with China is undermining Russia's position in securing new markets. If these trends persist, Rosatom risks facing not just isolated delays, but a systemic weakening of its position as a global exporter of nuclear technologies in the coming decade.

³⁵⁴ Daily Sabah, September 15, 2023. Türkiye says nears deal with China for 3rd nuclear power plant. (Accessed: May 14, 2026.) <https://www.dailysabah.com/business/energy/turkiye-says-nears-deal-with-china-for-3rd-nuclear-power-plant>

³⁵⁵ Hürriyet Daily News, January 23, 2026. Talks underway with US, China, S Korea for nuclear power plants: Minister. (Accessed: May 14, 2026.) <https://www.hurriyetdailynews.com/talks-underway-with-us-china-s-korea-for-nuclear-power-plants-minister-218151>

³⁵⁶ Bellona, April 25, 2025. Rosatom in the war years of 2023 and 2024. (Accessed: May 14, 2026.) <https://etc.bellona.org/publication/rosatom-in-the-war-years/>

Conclusion

Rosatom's activities in 2025 demonstrate the continued transformation of the corporation into an instrument of Russia's comprehensive state policy, operating at the intersection of energy, military technology, strategy, and geopolitical influence.

A key element of these systemic changes is Rosatom's relatively stable economic and political functioning within Russia, as well as its involvement in processes linked to the war and the seizure of nuclear infrastructure during the occupation of Ukrainian territories. In the context of the protracted war in Ukraine, an authoritarian domestic regime in Russia, and the deepening fragmentation of the global political and economic system, Rosatom has adapted to new conditions and constraints while strengthening its functional role across its core areas of activity.

The situation surrounding Zaporizhzhia NPP represents a qualitatively new phenomenon—the use of a civilian nuclear facility as an instrument of military and political pressure. This goes beyond traditional nuclear safety risks and creates a precedent in which nuclear infrastructure becomes a tool of coercion and leverage. Rosatom's de facto presence at the plant, alongside ongoing licensing processes, technical preparations for a potential restart, and the development of infrastructure to integrate the facility into Russia's energy system, points to an attempt to legitimize control over a seized civilian nuclear asset. At the same time, this appears to be less about commercial operation than about creating a long-term lever of pressure—both on Ukraine and on the international community.

Bellona believes that this is giving rise to a new model of “nuclear coercion,” in which:

- a civilian nuclear facility is used as a source of strategic uncertainty;
- the risks of nuclear incidents increase and become embedded in the political context of interstate decision-making;
- the armed seizure of nuclear power plants and subsequent manipulation of their operating modes becomes a tool of military and political pressure;
- decision-making in armed conflicts must take into account not only military factors but also nuclear risks associated with civilian nuclear facilities in the territories involved.

The normalization of such practices poses particular danger. In the current war, the Russian-

occupied Zaporizhzhia NPP—even without restarting its reactors—already functions as a political and technological asset, allowing Russia to shape international attention, influence institutions, and raise the stakes in negotiations. Against this backdrop, it is evident that existing international mechanisms, including the IAEA, lack enforcement tools sufficient to prevent such use of civilian nuclear infrastructure. Their mandate is limited to technical safety issues, creating a structural gap between law, security, and politics. As a result, violations do not necessarily lead to immediate or tangible consequences for those responsible.

Rosatom's role within Russia is expanding. In 2025, its activities can be characterized as undergoing deep transformation, with the corporation moving far beyond its traditional role as a nuclear energy operator and becoming a multifunctional instrument of state policy. It is expanding its scope of control, increasing the number of enterprises and areas of activity, and integrating into dual-use projects, including Arctic infrastructure, logistics, and technological chains linked to defense capabilities and resource control.

The growing involvement of top-level state authorities in decision-making reflects a high degree of concentration of resources and authority within the corporation. This consolidates its status as a key element of the state system rather than merely an industry player. Under such conditions, the boundaries between public governance and corporate activity become blurred, reducing transparency and accountability. This model amplifies systemic risks, as potential errors or politically motivated decisions can have consequences far beyond a single sector.

At the same time, despite ambitious development plans—including new domestic reactor construction and innovative projects—there are signs of technological constraints in Rosatom's activities. The lag in commissioning new capacity relative to the retirement of older units, the extension of the operation of aging reactors, and emerging dependence on foreign (particularly Chinese) equipment all point to declining technological self-sufficiency.

Particular attention should be paid to Rosatom's expansion into previously non-core sectors such as logistics, mineral extraction, Arctic infrastructure, and participation in space programs. On the one hand, this reflects the state's intent to use the corporation as a universal instrument for implementing strategic objectives. On the other, it leads to a dilution of sectoral specialization and increased managerial complexity.

Rosatom's activities in the Arctic are especially significant in this regard. The expansion of its powers, including control over Northern Sea Route logistics and participation in resource development, creates a new infrastructural role for the corporation. However, Bellona believes this expansion is associated with heightened environmental and geopolitical risks, particularly in conditions of limited international cooperation and weakened external oversight mechanisms.

An accelerated militarization of Rosatom is also evident. The corporation not only fulfills state defense orders but is involved in the development of non-nuclear weapons and is increasingly integrated into dual-use projects, including Arctic infrastructure, logistics, and space technologies. This reflects a shift in priorities away from civilian energy toward

defense and geopolitical objectives. As a result, the concept of the “peaceful atom” is eroding, while technological and industrial policy is increasingly shaped by military and political considerations—potentially reducing attention to nuclear safety and economic efficiency.

Significant changes have also affected the social and institutional environment in which Rosatom operates. Mechanisms of public oversight are deteriorating, as evidenced by the effective dismantling of the public council established during the “perestroika thaw” and the marginalization of critical experts. At the same time, Rosatom has strengthened the role of formal, loyal structures that serve more of a symbolic than an expert function, such as numerous regional branches of the public council in nuclear cities and quasi-NGOs. In the context of declining activity by independent environmental and human rights organizations, this has led to the emergence of a closed corporate environment lacking effective mechanisms for external scrutiny and professional debate. As a consequence, the risk of accumulating latent technological, environmental, and social problems is increasing.

Despite the ongoing war and sanctions pressure, Rosatom maintained a broad international presence in 2025. The corporation continues to implement projects in the Global South and cooperate with certain EU countries, systematically using mechanisms of “depoliticizing” nuclear energy: cooperation is framed primarily in technological and climate terms, reducing its political sensitivity and allowing partial circumvention of sanctions.

At the same time, the detailed analysis presented in this report suggests that Rosatom is finding it increasingly difficult to adapt to growing constraints. The year 2025 can be characterized at least as transitional—and by some indicators, close to crisis. After several years of rapid growth, Rosatom’s foreign revenue declined for the first time, falling to \$17.2 billion from over \$18 billion the previous year. In EU and US markets, this is reflected in diversification efforts and shrinking prospects due to tightening restrictions; in the Global South, in financial difficulties, prolonged delays, and intensifying competition, particularly from China. Rosatom’s own Director General acknowledged that several overseas projects had entered a “sanctions meat grinder.”

These trends are examined in greater detail in the report in dedicated sections, including the conclusions to Chapter 3.2 on Rosatom’s projects in EU countries and the United States, and the conclusions to Chapter 3.3 on Rosatom’s projects in the countries of the Global South.

At the same time, Rosatom continues to operate internationally as an instrument of Russian state policy, integrated into military and foreign policy contexts. Its involvement in the management of facilities in occupied Ukrainian territories—especially the Zaporizhzhia NPP—places its activities beyond the scope of conventional civilian energy cooperation and raises the question of the acceptability of its continued privileged position in the global nuclear market. This creates a systemic contradiction: an entity involved in actions that undermine international security continues to retain access to foreign markets, technologies, services, and politically sensitive partnerships. As a result, an institutional asymmetry persists in which participation in war does not lead to comparable isolation in a strategic high-tech sector. Bellona therefore considers it logical for Western countries and their allies to move from partial and fragmented measures toward a more coherent containment policy, including:

- The introduction of phased but mandatory sectoral restrictions against Rosatom and its key subsidiaries. This would likely require abandoning the current selective approach, under which certain areas of Rosatom’s activities are effectively shielded from pressure. Sanctions policy should cover not only specific legal entities and management, but also the core segments of export, engineering, logistics, and service—especially where they directly support the corporation’s international expansion;
- Tightening export controls on nuclear equipment, components, and software. It would be advisable to expand the lists of dual-use goods and technologies whose supply could directly or indirectly enhance Rosatom’s production and foreign economic capabilities. This may include reactor servicing equipment, specialized electronics, control and safety system components, software solutions, critical fuel cycle elements, as well as modernization and technical support services;
- Restricting Rosatom’s access to Western financial, insurance, and consulting services. This is a distinct policy area, as it underpins the stability of its international contracts;
- Banning new contracts with Rosatom and gradually reducing dependence on existing agreements. For current contracts, it would be appropriate to develop roadmaps for reducing dependence, with clear timelines and financial instruments to support the transition;
- Accelerating diversification of nuclear fuel supplies and related services. This should apply both to fuel for Soviet/Russian-designed reactors and to licensing, engineering, and technical adaptation services. Diversification policy should be treated not as a commercial choice, but as a matter of strategic security;
- Introducing restrictions on imports of Russian nuclear materials and fuel-cycle services where these are not yet in place. Particular attention should be paid to uranium supplies, conversion and enrichment services, and associated logistics. The aim should be to eliminate long-term financing of the Russian nuclear sector through foreign markets.
- Strengthening secondary sanctions, restrictions, and legal scrutiny for third countries and companies. Cooperation with Rosatom should be regarded as carrying elevated sanctions, legal, and reputational risks;
- Preventing the normalization of Rosatom’s presence at occupied Ukrainian facilities. Any attempts to portray the corporation’s activities at the Zaporizhzhia NPP as purely technical management, detached from the political and military context, should receive clear legal and diplomatic responses;
- Clarifying the political cost of international cooperation with Rosatom, emphasizing that such cooperation entails not only energy considerations but also broader risks of dependence on Russia;
- Developing a unified transatlantic approach to the Russian nuclear sector. At present, Western and other states’ policies remain fragmented, allowing Rosatom to exploit differences in regulatory regimes and political will. A more coordinated line—across sanctions, export controls, financing, and public diplomacy—could significantly reduce its room for maneuver.

The current lack of comprehensive restrictions allows the corporation to maintain access to international markets and technologies by leveraging existing dependencies in nuclear energy to soften political pressure. Nevertheless, Bellona argues that as long as the state corporation Rosatom remains embedded in advancing Russia's strategic interests in wartime, its international activities cannot be regarded as ordinary civilian or climate cooperation. Taken together, these trends point to the emergence of a new model: a state corporation functioning as an instrument of hybrid influence, combining economic and technological activity with political leverage and involvement in military contexts.

The long-term consequences of the transformation of Russia's nuclear sector extend beyond a single country and the Russia–Ukraine war. It likely calls for a reassessment of the fundamental principles governing both global and national nuclear industries—particularly the strict separation of civilian and military nuclear components and technologies, and the inadmissibility of using civilian nuclear infrastructure for military purposes. If such a model does not receive systematic opposition in the near future, there is a risk that the Ukrainian scenario could be replicated in other interstate conflicts already emerging on the horizon in the Middle East.

BELLONA

2026