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Nuclear events in Ukraine and the war

International nuclear events and their connection with Russia

Events in the Russian nuclear sector and in Rosatom projects abroad

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The Bellona Environmental Foundation 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.

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After Russia's full-scale invasion of Ukraine in February 2022, Bellona ceased its activities in the aggressor country. On 18 April 2023, Russia's Prosecutor General's Office declared Bellona an undesirable organization.

Nevertheless, we continue to monitor developments in nuclear and radiation safety relating to Russia and Ukraine, which we believe are of interest to international readers. Our aim is to analyze these developments to assess the extent of Russia's influence abroad and the associated risks.

This survey covers events from June and July 2025 and includes commentary by Bellona's Nuclear Project experts Alexander Nikitin and Dmitry Gorchakov. You can follow the links to read our three most recent digests for May, April and March. Subscribe to our mailing list to stay informed about future issues.

Nuclear events in Ukraine and the war

The Zaporizhzhia NPP and other nuclear facilities in Ukraine. Event timeline for June and July 2025

Nuclear diplomacy events

On **June 3**, IAEA Director General Rafael Grossi visited Kyiv, where he held meetings with Ukrainian President Volodymyr Zelensky, Minister of Foreign Affairs Andrii Sybiha, and Minister of Energy Herman Halushchenko.

The discussions addressed current nuclear safety threats and the IAEA's involvement in the restoration of Ukraine's damaged nuclear energy infrastructure, as well as in its expansion, including the planned construction of two new reactor units at the Khmelnytsky NPP. The talks also covered an independent assessment of damage to the New Safe Confinement arch at the Chernobyl NPP.

This was Grossi's twelfth visit to Ukraine since the start of the war, the previous one having taken place on February 4, 2025.

On **June 6**, in Kaliningrad, an IAEA delegation led by Rafael Grossi met with a Russian delegation headed by Rosatom Director General Alexey Likhachev. The Russian side also included Alexander Trembitsky, Head of Rostechnadzor; Mikhail Ulyanov, Permanent Representative of the Russian Federation to the International Organizations in Vienna; Mikhail Kondratenkov, Deputy Director of the Department for Nonproliferation and Arms Control of the Russian Ministry of Foreign Affairs; Alexey Rtishchev, Chief of the Radiation, Chemical and Biological Defense Troops of the Russian Armed Forces; and Vladimir Mashevsky, Head of the General Directorate for the Facilities' Security of the Federal National Guard Troops Service.



Meeting of IAEA Director General Rafael Grossi with Ukrainian President Volodymyr Zelensky, Kyiv, June 3, 2025.
Credit: Office of the President of Ukraine

The discussions focused on nuclear safety and security at the ZNPP, as well as on issues related to the regular rotation of IAEA experts at the plant.

In addition, Alexey Likhachev noted the ongoing work to prepare for the restart of the Zaporizhzhia NPP and to ensure its operation in power generation mode. Overall, judging by Likhachev's statements, the discussions on this issue were in line with what he had said earlier, for example in his address to the Federation Council in May: that in any case the resumption of operations at the Zaporizhzhia NPP would only be possible after the end of hostilities and the complete elimination of all safety threats to the plant's operation, and that issues related to power supply, water supply, and fuel would need to be resolved.

The Rosatom head noted that, at present, the reactor cores of four out of six units at the ZNPP are loaded with American fuel, that fuel assemblies are stored in the fresh fuel storage facility, and that some assemblies are held in the spent fuel pools. According to him, Westinghouse and the US Department of Energy have already raised the issue of the need to address this problem, primarily in terms of intellectual property protection.

Rosatom is ready to consider any option, ranging from settling the issue of the use of American fuel assemblies to unloading and returning them to the supplier. During the meeting with IAEA representatives, Grossi was asked to act as a mediator between the US and Russia on this matter.

Recall that, following talks with Ukrainian Minister of Energy Herman Halushchenko during his visit to Kyiv on **June 3**, Grossi noted that a near-term restart of the ZNPP is not planned and is impossible as long as the armed conflict continues to threaten nuclear safety and security. In particular, he expressed disagreement with the conclusions set out in a Greenpeace report on a power transmission line being built in Russia-occupied territory, in which Greenpeace asserts that the construction indicates an intention to connect the ZNPP to the Russian power grid as soon as possible.

In response to Grossi's statements, Greenpeace Ukraine said on **June 10** that it has no doubt about Russia's intention to gradually bring the ZNPP back into operation, referring to Likhachev's remarks following his meeting with the IAEA Director General in Kaliningrad on June 6 about the decision to build a floating modular pumping station (*Bellona note: on January 15, 2025, a contract was signed for the manufacture and delivery of a cooling pond make-up station, with a design make-up flow rate of up to 18,000 m³/hour*) and about the fact that the developed plan for the restart of the ZNPP is already being coordinated within the Russian government at various levels. (It should be noted that a representative of the occupation administration in the Zaporizhzhia region, Renat Karchaa, commented that the floating pumping station on the Dnipro would require dedicated infrastructure and that "a fairly serious substation" would need to be built to provide its power supply.)



Press conference of Rosatom Director General Alexey Likhachev and IAEA Director General Rafael Grossi following interagency consultations, Kaliningrad, June 6, 2025.
Credit: newspaper Strana Rosatom

Greenpeace also noted that since the publication of its May report analyzing satellite images of the occupied territory, the organization has observed further progress in the construction of the power transmission line. New images taken after May 6 show that in the western part of the occupied Azov district of Zaporizhzhia region, 11 new towers have been installed over a distance of 3.6 km, and in the eastern section of the line in Donetsk region, a further 10 towers have been installed between May 22 and June 3 over a distance of 3.3 km.

According to Greenpeace Ukraine, the purpose of constructing this transmission line is to disconnect the ZNPP from the Ukrainian power system and synchronize it with the Russian one.

On **June 9**, Rafael Grossi presented to the IAEA Board of Governors the latest report (GOV/2025/26) reviewing the situation regarding nuclear safety, security and safeguards in Ukraine, covering the period from February 28 to May 30, 2025. (The previous report was published in March 2025.)

No significant changes were noted compared with the previous reporting period. The report states that the situation at the ZNPP remains extremely unstable. Six of the Seven Indispensable Pillars have been fully or partially violated.

As in the previous review, the report notes the presence of Russian armed forces at the site (according to Russia — members of the Russian National Guard and chemical, biological, radioactive and nuclear (CBRN) specialists) and military equipment, such as armoured personnel carriers, military logistics-type vehicles, and weapon-mounted armoured vehicles.

The IAEA mission continued to face restrictions on timely access to information and to several areas relevant to nuclear safety and security, including the western parts of the turbine halls at all levels of the six units (access to which was blocked by armed troops) and the off-site central warehouse (to which experts have not been granted access since July 2024). Experts were also denied access to the isolation gate of the cooling pond and to the 330 kV open switchyard of the Zaporizhzhia thermal power plant.

The report notes that these restrictions may affect the Agency's assessment of the overall situation (for example, its conclusions on the presence of heavy weaponry at the site).

As for the technical condition of the plant, experts reported that no physical damage to the reactors or fuel storage facilities was observed during the reporting period, but deposits of boric acid were detected in some areas of the reactor halls and safety system rooms, along with condensation and signs of corrosion in certain sections of several reactor halls. The report notes that this does not affect nuclear safety in the short term but points to potential equipment degradation that could have consequences in the future.

Risks related to the vulnerability of off-site power supply remain: the plant receives power through only two lines, one of which was damaged by shelling on May 7 and remained out of service until the end of the reporting period. (*Bellona note: in mid-August the backup line was still unavailable*.)

Reactor cooling continues to be provided through artesian wells and sprinkler ponds, which is regarded as a temporary solution.

In addition, it was noted that the Agency continued to face difficulties in obtaining security assurances for expert teams during rotations.

(Since the establishment of IAEA missions at Ukrainian NPPs, rotations of teams, including at the ZNPP, had been conducted almost monthly. However, after the disruption of a scheduled rotation in December 2024, the team stationed at the ZNPP was replaced only on **March 1**, 2025. For the first time, the convoy's route did not originate in Ukraine with a crossing of the front line, but instead ran through Russian-occupied territory. The subsequent rotation was also carried out with a delay, on **May 23**. Russia has noted that rotations of teams at the ZNPP are now conducted exclusively through Russian-controlled occupied Ukrainian territory under conditions it has set. The next IAEA team rotation at the ZNPP took place on **July 6**.)

On **June 12**, a joint statement by 48 IAEA Member States was published, noting that:

- it is important that all reactors at the ZNPP remain in cold shutdown, since the current situation at the plant with regard to the availability of cooling water, the reliability of off-site power supply, the completion of deferred maintenance, and the availability of spare parts does not allow a return to normal operation;
- any attempts to consider a short-term restart of the ZNPP reactors are excluded, as this would contradict established nuclear safety principles;
- any restart of the ZNPP reactors is only possible once the facility has been returned to the legitimate control and oversight of Ukraine's competent regulatory authority;
- Russia must immediately cease any actions that impede the timely conduct of IAEA mission rotations at the ZNPP and expose Agency personnel to risks;
- the IAEA missions at the ZNPP must be provided with full, unrestricted and timely access to all relevant areas and information to enable comprehensive reporting on nuclear safety and security at the plant, as well as to carry out necessary safeguards activities in line with Ukraine's legal obligations under the IAEA safeguards.

On **July 14**, in an official note, the Russian side criticized the report for referencing resolutions affirming that the Zaporizhzhia NPP belongs to Ukraine and is subject to Ukraine's safeguards agreement, as well as for failing to mention data regularly provided by Russia regarding actions by Ukraine that allegedly threaten safety at the ZNPP.

The document also stressed that there are no IAEA missions at the ZNPP, and that the Agency's experts are present there solely through the goodwill of the Russian side.

Russia expressed disagreement with the interpretation of the seven pillars and the Five Concrete Principles of nuclear safety and security, and considered remarks on the lack of full and unimpeded expert access to plant facilities and the recording of "minor shortcomings" to be unfounded, calling them nitpicking and saying that the experts' reports openly obscure the efforts of the Russian authorities and organizations to modernize the ZNPP equipment and ensure its safety and effective functioning.

The Russian side stated that the conclusions presented in the report demonstrate political bias and do not add credibility to the leadership of the IAEA.

In turn, on **July 18**, the Permanent Mission of Ukraine described the above-mentioned Russian document as politically motivated, legally groundless, and technically unfounded, noting that it distorts objective assessments and diverts attention from the real source of nuclear safety and security threats in Ukraine — Russia's actions.

The note stressed that claims of Agency bias and disregard of data provided by Russia are baseless. IAEA reports are based on direct observations by international experts at the sites and on verified data. The objections raised by the Russian side were regarded as an attempt to conceal the consequences of the unlawful military occupation of the plant.

Ukraine pointed out that it is the presence of Russian armed forces at the ZNPP that creates security threats: the plant remains militarized, it is inaccessible to the legitimate operator (Energoatom) and to the State Nuclear Regulatory Inspectorate of Ukraine, and six of the seven key nuclear safety principles defined by Grossi have been violated. It was noted that the involvement of Rostekhnadzor has no legal basis and is not recognized by the international community. It was also noted that restrictions on the IAEA mission at the ZNPP and difficulties with expert rotations are the result of conditions created by the Russian side.

Operational status of the ZNPP and IAEA walkdowns of site facilities

In June, Rostekhnadzor conducted two weeks of pre-licensing inspection activities at reactor units 1 and 2. The licenses issued by the State Nuclear Regulatory Inspectorate of Ukraine for these units expire in December 2025 and February 2026, respectively.

Grossi stated that, based on the meetings held during these activities with the participation of IAEA experts, it is clear that there is a consensus among all parties that the plant "*cannot restart operations as long as this large-scale war continues to threaten nuclear safety and security at the facility, which the IAEA has also stated very clearly*."

The IAEA team continued to carry out walkdowns of facilities at the Zaporizhzhia NPP as part of its mission to monitor and assess the state of nuclear safety and security.

In early June, several meetings were held with the Russian plant management to discuss the condition of its electrical systems. Experts visited the 750 kV open switchyard. They were informed that repair work was being carried out on one of the four 750 kV lines.

The Russian representation at the ZNPP also informed the experts that the implementation of the project to build a pumping station to supply water from the Dnipro to the cooling pond until the Kakhovka dam is restored—first to cool one reactor unit and then a second—would only begin after the end of hostilities.

On **June 12**, the IAEA reported that experts at the ZNPP had in recent weeks been monitoring a leak in the essential service water system of one of the reactor units, which delivers cooling water to the safety systems. It was detected during maintenance, with corrosion cited as the cause. The IAEA team was informed that the leak had been repaired.

In its **June 19** update, the Agency described how in previous days the IAEA team had observed scheduled work on parts of the safety system of Unit 5 and on the main transformer of Unit 4. Later, in early July, maintenance work began on one of the safety trains of Unit 2.

The experts were also informed of a malfunction in the pump of one of the 11 artesian wells supplying water for reactor cooling, and that the pump would be replaced. The remaining 10 wells are providing the required volume of water.

On **July 10**, the IAEA reported that in the preceding days the expert team had visited the warehouses of thermomechanical and electrical equipment to assess the availability of spare parts. The experts requested reports on recent internal audits and information on delays in the procurement of spare parts needed to begin the annual maintenance of all 20 emergency diesel generators.

The report also noted that the IAEA team visited all main control rooms of the reactors, confirmed the number of operating staff, and recorded safety parameters for all units.

In its **July 24** update, the Agency noted that experts had observed tests of three emergency diesel generators, visited safety system rooms and containment of two units (which ones were not specified).

On **July 30**, the IAEA team carried out independent radiation measurements at the site to verify social media reports of elevated radiation levels in the area of the plant. The results confirmed information from the ZNPP representatives that radiation levels remain within the norm. The State Nuclear Regulatory Inspectorate of Ukraine also reported that none of the departmental, state, or public automated monitoring stations registered any changes in radiation levels at the ZNPP or in the observation area.

At the end of July, experts conducted a walkdown of the turbine hall of one reactor unit (which one not specified), but were again denied access to the western part of the hall.

Military threats at the ZNPP

In June and July, the IAEA team at the Zaporizhzhia NPP continued to record, often on a daily basis, sounds of military activity at varying distances from the plant, including explosions and gunfire.

On **June 5**, the IAEA team at the Zaporizhzhia NPP heard rounds of gunfire and at least five explosions. Russian representatives at the ZNPP reported that a training center located outside the plant perimeter had come under attack. The shelling, they claimed, was aimed at "neutralizing drones," and no damage was reported. This was the fourth attack on the training center since the beginning of the year, with similar incidents previously reported in January, April, and May.

On **June 27**, the Russian representation at the ZNPP reported a drone attack near the cooling pond (about 600 meters from the nearest unit, outside the plant perimeter), where plant staff were carrying out canal cleaning work at the time. As a result of the attack, an utility vehicle was damaged, while the staff managed to take cover and were unharmed. It was also reported that an hour later another drone crashed at the same location, causing vegetation to catch fire.



According to the Russian management of the ZNPP, the car was damaged during a drone attack.
Credit: Russian press service of the ZNPP

On **June 30**, IAEA experts inspected the site of the attack and the burnt vegetation, but were unable to confirm any damage to equipment or see drone debris, as they were too far away.

On **July 4**, the Zaporizhzhia NPP completely lost off-site power for more than three and a half hours after the disconnection of the last remaining 750 kV line. According to the Ukrainian nuclear regulator, the outage occurred as a result of a strike on Ukrainian territory. Power to the plant was maintained by 18 emergency diesel generators, which automatically started up and provided cooling for the reactors and spent fuel pools. This was the ninth complete loss of off-site power at the ZNPP since the beginning of the conflict, and the first since December 2023.

Since May 7, the ZNPP had been receiving off-site power through its only functioning 750 kV line, as the ability to receive electricity through the sole backup 330 kV line had been lost due to Russian attacks on Ukrainian territory. The Ukrainian side reported that "the occupying forces systematically prevent Ukrainian repair teams from accessing the damaged section, making restoration impossible." According to the IAEA, as of August 13 the back-up line still had not been restored.

The IAEA team at the ZNPP reported that on **July 4** gunfire was heard near the plant, and on **July 5** three explosions.

On **July 13**, another drone strike hit the ZNPP training center, damaging its roof. No casualties were reported. Experts were not granted access to assess the damage to the building, with the explanation that security could not be ensured.

In the evening of **July 13**, the IAEA team recorded what they described as unusually intense small-arms fire (hundreds of rounds), which lasted for about an hour.

On the morning of July 14, during a walkdown of the site, experts found numerous small-caliber casings near Units 5 and 6. No damage to buildings or windows was observed. The team requested additional information about the incident.

This incident occurred against the backdrop of a series of reported drone attacks near the ZNPP and other nuclear facilities in Ukraine in recent months, including a report of a strike on **July 11** on the town hall in Enerhodar, where most of the plant's staff live. On **July 17**, the main power transmission line in Enerhodar was damaged. Some buildings in the city were also affected by shelling, with this damage recorded by the expert team during their visit to Enerhodar on **July 19**.

On **July 26**, the IAEA team received information about new attacks in Enerhodar. The experts were able to visit the town and inspect damage at two locations, which, they were told, had been caused by shelling and drone strikes on **July 20**. One building had debris and broken

windows. The experts were unable to confirm the exact timing and cause of the damage. A few days before this visit, the IAEA team had been shown traces of shelling at other locations in Enerhodar.

"*Regardless of the intended targets, shelling or drone attacks near nuclear power plants must not occur as any such military activity can have adverse physical or psychological consequences for plant staff and therefore also potentially for nuclear safety and security,*" said Director General Grossi.

Commentary by Bellona. Alexander Nikitin:



Russia continues to demonstrate its intention to restart the seized reactor units of the Zaporizhzhia NPP and integrate them into its power system. This is evidenced by reports from Greenpeace and other sources about the construction of a new power grid and attempts to resolve technical problems. However, the real situation clearly shows that the plant has lost its energy significance and has de facto been turned into a military-political nuclear asset.

A restart of the ZNPP is impossible until the hostilities end. This is explicitly acknowledged by both the Ukrainian and Russian sides, as well as the IAEA. In the context of war, any decision to restart the reactor units is not only technically risky but also politically toxic: it would inevitably escalate the conflict and create a real nuclear threat for a vast area.

At present, the plant faces fundamental constraints:

- *a legal and technical deadlock regarding the US fuel loaded into most of the units;*
- *the need for a full inspection, repair, and restoration of equipment that has been operating in a degraded mode for several years;*
- *a severe shortage of resources, personnel, and time to ensure a safe restart.*

Under these conditions, the ZNPP has ceased to be an energy asset in the conventional sense. Its value today is defined solely as a tool of pressure, an object of blackmail, and a factor in negotiations. In the medium term, the plant remains a hostage of the war rather than a source of electricity.

Military threats at other nuclear facilities of Ukraine

In June and July, IAEA teams at other nuclear facilities in Ukraine—the Khmelnytsky, Rivne, and South Ukraine NPPs, as well as at the Chernobyl site—continued to report military activity in the vicinity of the facilities, including drone flights nearby and air-raid alerts.

On **June 3**, the Khmelnytsky and Rivne NPPs recorded the highest intensity of air-raid alerts in a single day since late 2024. IAEA teams at these plants were forced to take shelter, with the Rivne NPP team doing so three times that day. On the same day, a nationwide air-raid alert was declared across Ukraine. One of Rafael Grossi's meetings, held in Kyiv that day, also took place in an underground shelter.

At the South Ukraine NPP on **July 4**, there was a brief disconnection of one of the 750 kV lines, coinciding with the outage at the ZNPP (see above). The second 750 kV line and the 330 kV lines remained in operation, and this did not affect the operation of the unit that was online at the time (the other two units were undergoing scheduled maintenance).

On the evening of **July 9**, at the Chernobyl site, the IAEA team recorded the sounds of a drone and air defense activity. The Chernobyl NPP management reported that a drone flying over the open switchyard had been detected and intercepted.

On **June 25**, at a meeting of the Assembly of Contributors to the International Chernobyl Cooperation Account, it was **announced** that €42.5 million would be allocated for the restoration of the New Safe Confinement (NSC) at the Chernobyl NPP, which was damaged in February because of a Russian drone attack. Of this amount, France is contributing €10.6 million, the United Kingdom €6.9 million, and the European Commission €25 million. The meeting also discussed plans for temporary repairs of the NSC and subsequent work to fully restore its functionality.

On **July 1**, the Fifth Grant Agreement was signed between the European Bank for Reconstruction and Development and the SSE Chernobyl NPP. The grant will finance work to assess the damage and develop a plan of measures for the temporary repair of the NSC's outer cladding and sealing membrane.

A new international project launched in the Chernobyl Exclusion Zone to restore territories affected during the occupation

On June 16, the first meeting was held for a new international project on the remediation of radiation-contaminated territories in the Chernobyl Exclusion Zone that were affected by the Russian occupation. Participants included representatives of the Norwegian Radiation and Nuclear Safety Authority (DSA), the engineering company AFRY Ukraine, SSE Central Enterprise for Radioactive Waste Management, SSE Ecocenter, and the State Agency of Ukraine on Exclusion Zone Management.

The new project is a logical continuation of the initiative "Overcoming the consequences of military actions and the occupation of the Chernobyl Exclusion Zone," which was completed in 2024. After the territories were liberated, specialists recorded exceedances of control levels of ambient radiation dose and beta flux density, identified so-called hotspots, and conducted radiation surveys of about 50 facilities, streets in the town of Chernobyl, and highways.

Key areas of the new project include developing technical documentation, procuring modern industrial equipment and certified containers for radioactive waste, as well as conducting training for Ukrainian specialists.

Energoatom signs a series of agreements with Westinghouse and Holtec

During the Ukraine Recovery Conference held in Rome on July 10–11, Energoatom (the national nuclear energy generating company of Ukraine) and Westinghouse Electric Company announced the signing of key new agreements that will enable the deployment in Ukraine of capacities for the manufacture of nuclear fuel components compatible with Westinghouse technologies.



Energoatom and Westinghouse signed a series of agreements on the production of VVER-1000 fuel assemblies.
Credit: Ministry of Energy of Ukraine

According to information from the state public procurement system, one of the agreements provides for the transfer to Energoatom of the technology for producing VVER-1000 fuel assemblies, worth $27.7 million, including the transfer of technical documentation as well as the provision of information and consulting services. The second concerns the granting of a license for the design and production technology of such assemblies, valued at $3 million, valid until June 23, 2035.

A final agreement on the supply of main production equipment is expected to be signed in the near future.

Earlier, Westinghouse had approved one of Energoatom's enterprises as a qualified supplier for the manufacture of VVER-1000 fuel assembly components for the company and issued a license for the production of fuel assembly bottom nozzles.

Also at the conference, a memorandum was signed to deepen cooperation between Energoatom and Holtec International, providing for the construction of a plant to manufacture small modular reactors (SMRs) and spent nuclear fuel containers based on Holtec technology.

Commentary by Bellona. Alexander Nikitin:



After three and a half years of war, Ukraine's industry and economy are in a dire state. Territories and production facilities affected by the war require restoration and additional resources to support the economy and the energy sector. It is therefore understandable that the activities of Energoatom, as reported above, are aimed at more actively mobilizing resources to establish new production, to restart idled facilities, and to restore what has been destroyed. But for now, this remains only at the level of agreements, so we will be watching to see how the signed contracts are implemented and what the outcome will be.

It should be recalled that Ukraine currently operates 13 VVER-1000 reactor units, while six units at the ZNPP are temporarily not in operation, and there is the prospect of completing Units 3 and 4 at the Khmelnytsky NPP. Six of the 13 VVER-1000 reactors are operating on American fuel (RWFA). Since 2015, Ukraine has completely abandoned Russian fuel. Before the war, Ukraine planned to launch local production and manufacture 50% of the American fuel on its territory by 2026–2027. The war, however, has altered these plans.

International nuclear events and their connection with Russia

Paks-2 project: Siemens changes jurisdiction, US partially lifts sanctions

On June 3, Hungarian Minister of Foreign Affairs and Trade Péter Szijjártó announced that the German company Siemens Energy would transfer its nuclear control technology division related to the Paks-2 NPP to Hungary.

He recalled that the contract to supply the control system for the Paks-2 NPP had been awarded to a consortium consisting of Germany's Siemens and France's Framatome. Since this technology is dual-use, licenses from both countries are required for its use abroad. However, members of Germany's previous government did not grant Siemens the necessary authorization to participate in the project. After the relocation of the division, the project will be implemented through Siemens' Hungarian subsidiary.

On June 29, Péter Szijjártó announced that the United States had lifted sanctions related to investments in the construction of the Paks-2 NPP. This refers to the decision by the US Department of the Treasury's Office of Foreign Assets Control (OFAC) to exclude from American financial sanctions the activities of several Russian banks and insurance companies in nuclear energy projects. These legal entities are permitted to carry out transactions conducted solely to service or support civilian nuclear projects initiated before November 21, 2024. The exemption will remain in effect until December 19, 2025.



From left to right: Managing Director of Siemens Energy Kft. Árpád Goszták, Minister of Foreign Affairs and Trade Péter Szijjártó, Chairman and CEO of Paks II Zrt. Gergely Jákli.
Credit: Paks II. Ltd.

At the end of 2024, when Paks-2 received approval from the Hungarian nuclear regulator allowing construction of Units 5 and 6 to begin, Rosatom Director General Alexey Likhachev said that the first concrete pour at the NPP was scheduled for the first quarter of 2025. In June, Péter Szijjártó stated that the start of construction had been postponed to 2026 due to the complex political situation worldwide. He recalled that Gazprombank, which was supposed to participate in financing the Paks-2 NPP project and has now received a temporary exemption from OFAC restrictions, had been placed under US sanctions in November 2024. According to Szijjártó, this created risks for the project's implementation.

Meanwhile, on June 19, Hungary's Atomic Energy Authority issued a permit to resume construction work at the working pit for Unit 5, which had been suspended after the collapse on January 30 of part of the soil reinforcement in the southern section. In the meantime, Paks-2 carried out an inspection of the walls throughout the working pit, identified potentially hazardous areas, and removed damaged, unstable sections where similar risks of detachment and collapse had been found.



Construction site of the Paks-2 NPP, October 2024.
Credit: Paks II. Ltd.

Commentary by Bellona. Dmitry Gorchakov:



In connection with the easing of US sanctions and the change of jurisdiction of German companies involved in the Paks-2 NPP project, it is important to note two key points.

First, despite Russia's years of confident statements about the ineffectiveness of Western sanctions, in practice they did work to some extent—over all these years they created obstacles even for projects in Russia's civilian nuclear sector. Attempts to bypass or compensate for these restrictions required resources and time both from Rosatom and from its foreign partners.

Second, the foreign policy course of Western countries, especially the United States and, in particular, the new administration of Donald Trump, may be subject to fluctuations and determined by short-term political interests, ultimately leading to reduced pressure on Putin's Russia. In this regard, it is especially important to maintain the Western countries' steady commitment to a policy of containment and opposition to Russian aggression, as well as to develop expert and public pressure on political elites to reinforce this course of action.

Euratom Supply Agency annual report: Russia losing share in nuclear services supply to Europe

On June 20, the Euratom Supply Agency (ESA) published its annual report reviewing the nuclear fuel market in EU countries for 2024.

According to the report, in 2024 European utilities and other market participants made significant progress in diversifying nuclear material supplies, reducing their dependence on Russian sources.

Demand for natural uranium in the EU in 2024 accounted for about 20% of global requirements. EU utilities purchased 13,667 metric tons of uranium (tU) under multiannual contracts (12,623 tU) and spot contracts (1,044 tU). Since Russia's full-scale invasion of Ukraine, EU utilities have been stockpiling nuclear materials and fuel to mitigate the risk of supply chain disruptions. As a result, in 2024 they again loaded almost 13% less material into reactors than they had purchased.

The supply structure for natural uranium in the EU in 2024 remained similar to that of 2023, although the shares of individual countries changed. The largest suppliers were Canada, Kazakhstan, Russia, and Australia. Some of the volumes from Russia and Niger were replaced by imports from Australia and, to a minor extent, from Kazakhstan and China.

Origin	Quantity	Share (%)	Change in quantities 2023/2024 (%)
Canada	4 741	33.90%	-1.27%
Kazakhstan	3 391	24.25%	10.79%
Russia	2 185	15.63%	-36.08%
Australia	1 474	10.54%	296.32%
Niger	1 154	8.25%	-44.75%
China	644	4.61%	100.00%
Uzbekistan	249	1.78%	-8.04%
Namibia	146	1.04%	-73.41%
Malawi	3	0.02%	100.00%
EU	0	0	0
Re-enriched tails	0	0	0
Other [1]	0	0	0
Total	13 984	100	-4.08%

Origins of uranium supplied to EU utilities in 2024 (tU).
Infographic from the ESA annual report 2024

In the conversion services segment, Russia remained the largest supplier in 2024, despite a 16% decrease in volumes compared to 2023—to 2,977 tU, corresponding to 22.4% of the market. (It was also noted that the share of conversion services provided as part of integrated contracts, which include the procurement of UF_6, enriched uranium product, and fresh fuel fabrication, increased by 9.6% to 58% of all supplies, contrary to ESA's recommendations.)

Converter	Quantity in 2024 (tU)	Share in 2024 (%)	Quantity in 2023 (tU)	Share in 2023 (%)	Change in quantities 2023/2024 (%)
Rosatom (Russia)	2 977	22.37	3 543	26.51	-15.97
ConverDyn (US)	2 898	21.78	2 448	18.32	18.39
Orano (EU)	2 840	21.34	3 834	28.69	-25.94
Cameco (Canada)	2 643	19.86	2 525	18.90	4.66
Unspecified	1 949	14.65	1 013	7.58	92.33
Total	**13 306**	**100**	**13 364**	**100**	**-0.43**

Provision of conversion services to EU utilities.
Infographic from the ESA annual report 2024

In uranium enrichment, the total volume of work decreased by 15.1% compared with 2023, with Russian enrichment accounting for 23.55% (down from 37.9% a year earlier), representing a 47.3% reduction in volumes.

Enrichment origin	EUP tU 2024	Uranium feed 2024 (tU)	Quantities in 2024 (tSW)	SW share in 2024 (%)	Quantities in 2023 (tSW)	SW share in 2023 (%)
EU	1 042	7 932	6 654	63.95	6 728	54.88
Russia	356	2 844	2 450	23.55	4 647	37.90
Other	182	1 423	1 301	12.50	885	7.22
TOTAL	**1 580**	**12 199**	**10 405**	**100**	**12 260**	**100**

Origin of enrichment services to EU utilities (EUP – enriched uranium product, tSW – thousand separative work units).
Infographic from the ESA annual report 2024

According to the ESA report, by the end of 2024 European utilities held about 40,000 metric tons of uranium equivalent in inventories, sufficient on average for more than three reload campaigns. Despite the absence of direct EU measures against Russian nuclear materials, the strategic policy direction remains a complete phase-out.

A vulnerability persists in the supply of fuel for Russian-designed VVER reactors. However, countries operating such reactors have advanced in diversifying supplies, with the exception of Hungary.

ESA notes that in 2024 alternative fuel began to be loaded into both VVER-440 and VVER-1000 reactors. In April 2024, the Bulgarian Agency for Nuclear Regulation issued a permit for the use of Westinghouse RWFA fuel at Unit 5 of the Kozloduy NPP, and on May 29 it was loaded into the reactor. In August, at the Loviisa NPP (Finland), a batch of NOVA fuel developed by Westinghouse for VVER-440 reactors was loaded for the first time during a scheduled outage.

For NPPs with other fuel designs, short-term risks of dependence on Russia remain limited, as the need for materials and enrichment services is largely covered by alternative supplies.

Commentary by Bellona. Dmitry Gorchakov:



The ESA annual report is the main, most comprehensive, and most reliable official source of information on nuclear material supplies to EU countries. However, it usually comes with a delay—the information for the previous year is published in the second half of the current year.

Nevertheless, this year, as before, we find in it confirmation of the information that Bellona had already published several months earlier, starting from early 2025, based on our analysis of Eurostat and Comtrade data.

In particular, already in January 2025 we published preliminary information on the results for 2024, noting a significant reduction in EU purchases of enriched uranium and nuclear fuel from Russia during the year.

Later, in April 2024, in our report "Rosatom in the War Years of 2023 and 2024", we published more complete information on the results of the year, pointing out that EU purchases of nuclear fuel from Russia had decreased in 2024 by almost one and a half times compared with 2023 (from 635 metric tons to 438 metric tons, although these data do not fully reflect Bulgarian purchases—see the report for details), and purchases of enriched uranium outside fuel contracts were almost halved (147 metric tons in 2024 versus 253 metric tons in 2023).

Direct comparison of these figures with ESA data is complicated by differences in methodology, as ESA analyzes various supply segments—natural uranium, enrichment services, etc.—without breaking them down by contract type, and does not provide figures specifically on nuclear fuel purchases. By contrast, our analysis of export operations based on Eurostat and Comtrade data makes it possible to track material flows by specific commodity codes—nuclear fuel or enriched uranium. A more precise comparison of the data requires a separate analysis.

Nevertheless, the trend of a significant decrease in EU purchases from Russia in 2024 compared with 2023 is evident in both approaches. This may be seen as a positive sign, demonstrating the EU's reduced dependence on Russia in the nuclear sector.

ČEZ receives first batch of Westinghouse fuel for VVER-440

On June 16, Czech energy company ČEZ announced the delivery of the first batch of Westinghouse nuclear fuel—eighty NOVA E-6 fuel assemblies—for the Dukovany NPP with VVER-440 reactors.

This fuel design is a modification of assemblies developed in 1996–1998 for the Loviisa NPP in Finland.

At the Temelín NPP (VVER-1000), the first American RWFA-T assemblies were delivered at the end of May.

According to Tarik Choho, President of the Westinghouse Nuclear Fuel, both types of new VVER fuel supplied from Västerås (Sweden) are fully compatible with assemblies from other manufacturers and provide improved fuel efficiency and extended fuel cycles: 16 months at Dukovany NPP and 18 months at Temelín NPP.

Before loading the new fuel into reactors, ČEZ must still obtain approval from the State Office for Nuclear Safety. At Temelín, loading is scheduled for autumn 2026.



First Westinghouse fuel delivered to the Dukovany NPP in the Czech Republic.
Credit: ČEZ

Commentary by Bellona. Dmitry Gorchakov:



The Czech Republic has become the second EU country, after Finland, to receive alternative fuel for its VVER-440 reactor units to replace Russian supplies. The slow but steady transition to alternative fuel sources in the EU shows that even in technologically complex sectors such as VVER-440 fuel, NPP operators are ready to break with Rosatom, and dependence on Russia in this sector could be significantly reduced in the coming years.

Diversification of suppliers for the nuclear fuel cycle continues in Europe

On July 14, Kazakhstan's national nuclear company Kazatomprom announced the signing of a memorandum of understanding with Slovak energy company Slovenské Elektrárne, providing for long-term cooperation in the nuclear energy sector.

The memorandum sets out the parties' intention to arrange deliveries of natural uranium concentrate and potential supplies of uranium dioxide (UO_2) for Slovakia's Bohunice and Mochovce NPPs, which operate five VVER-440 reactors with one more in the commissioning phase. This is the first official agreement between Kazatomprom and Slovenské Elektrárne.

Kazatomprom is actively developing new and existing partnerships with European companies.

In February, a contract was signed with Swiss company Axpo Power AG together with Kernkraftwerk Leibstadt AG (KKL AG) for the supply of Kazakh natural uranium concentrate for the Beznau and Leibstadt NPPs.

In April, Kazatomprom signed a contract with Czech energy company ČEZ to supply uranium concentrate to provide natural uranium for the Temelín NPP.



Slovenské Elektrárne and Urenco sign contract for enriched uranium supplies.
Credit: Slovenské Elektrárne

In May, the company held talks with Romania's Ministry of Energy and state-owned SN Nuclearelectrica S.A.—a nuclear fuel producer and operator of the Cernavodă NPP—on concluding a ten-year contract for extended supplies of natural uranium. Cooperation in beryllium processing was also discussed. Earlier, in December 2022, Kazatomprom won a tender to supply uranium oxide for the Romanian plant.

On July 28, Slovenské Elektrárne and Urenco, an international provider of uranium enrichment services and nuclear fuel cycle products, announced the signing of a long-term agreement for uranium enrichment services for Slovakia's NPPs. Under the contract, supplies will continue until the mid-2030s. The agreement followed an international tender launched in early 2024.

Commentary by Bellona. Dmitry Gorchakov:



The ongoing diversification of nuclear fuel cycle supplies in the EU is an important and encouraging trend. The key focus here is not only on replacing Russian nuclear fuel, which is already underway, but also on changing suppliers at other critical stages—primarily natural uranium supplies and enrichment services.

In the past, Russia mainly promoted integrated fuel contracts covering the entire fuel production cycle—from natural uranium and its enrichment to the fabrication of fuel assemblies—thereby increasing operators' dependence. Today, with these ties being severed, European companies must rebuild the supply chain through separate agreements with different suppliers, which is typical of the Western market.

The agreements signed in July by Slovenské Elektrárne with Kazatomprom (for natural uranium) and Urenco (for enrichment) are a clear example of how VVER operators are establishing new supply routes beyond Russia's orbit. This is not just diversification, but a structural transformation of the entire supply chain, necessary to strengthen resilience and energy security. Even if fuel fabrication does not always end up entirely free of Rosatom's licensing, as in the case of potential assembly at Framatome's plant in Lingen, Germany, a significant part of the fuel cycle will still be diversified.

Centrus contract for HALEU supplies to the US government extended until 2026

On June 20, 2025, Centrus announced the extension of its contract with the US Department of Energy, worth about $110 million, to continue production of high-assay low-enriched uranium (HALEU) until June 30, 2026.

Cooperation between the US government and Centrus (through its subsidiary American Centrifuge Operating) on HALEU production began in 2019 with an agreement to build a 16-centrifuge demonstration cascade in Piketon, Ohio. This was followed in November 2022 by the signing of a three-phase contract to launch the cascade and enrich uranium to HALEU levels for the Department's needs. Production started in October 2023, with the first 20 kg of HALEU delivered in November 2023, marking the completion of the first phase of the contract. The plan then called for production of 900 kg of enriched uranium over the following year.



Centrus Energy's demonstration enrichment cascade for the production of high-assay low-enriched uranium (HALEU).
Credit: Centrus Energy

Centrus announced on June 25 that it had achieved this key milestone, thereby completing the second phase of the government contract.

The extension of the agreement for the next year opens the third phase. Originally, this phase was expected to include three additional extension periods of three years each, for up to nine years, with an annual output of 900 kg of HALEU. However, the Department of Energy amended the contract to divide the first three-year extension period into one year and then two more.

At present, the Centrus plant is the only facility in the US licensed to enrich uranium up to 19.75%, and the first American enrichment plant since the 1950s. The Department of Energy will distribute the enriched uranium to US advanced reactor developers to meet their short-term needs.

Events in the Russian nuclear sector and in Rosatom projects abroad

Rosatom selected to build Kazakhstan's first NPP, China may construct the second and third

On June 14, the Atomic Energy Agency of the Republic of Kazakhstan announced that Rosatom had been chosen as the leader of an international consortium to build the country's first nuclear power plant.

The shortlist of potential vendors also included China National Nuclear Corporation (CNNC, China), Électricité de France (EDF, France), and Korea Hydro & Nuclear Power (KHNP, South Korea). The proposals were evaluated based on estimated construction costs, projected timelines, financing models, approaches to localizing equipment and construction work, training and scientific-educational development programs, opportunities for cooperation in the nuclear fuel cycle, and social responsibility commitments.

The bids were assessed using a methodology developed with the participation of French engineering company Assystem. Following the evaluation, the proposals of the Russian state corporation were recognized as the most optimal and advantageous.

The project calls for the construction of two units with Generation III+ VVER-1200 reactors, with a total capacity of 2.4 GW. Such units are already in operation in Russia and Belarus. Plants based on the same technology are also under construction in Hungary, Egypt, Turkey, Bangladesh, and China.

The next step will involve arranging state-backed export financing from Russia and continuing cooperation with international partners to establish the consortium.

Almasadam Satkaliyev, Chairman of Kazakhstan's Atomic Energy Agency, commented that the Republic of Kazakhstan will be the owner, operator, and producer of uranium raw material, as well as the holder of all technological processes of the future nuclear plant. To this end, a system for personnel training, an industrial and technical base, and maximum localization of all stages of construction are envisaged. In addition, Kazakhstan will set up its own production of fuel assemblies. "*The risks of dependence on Russia in the field of nuclear technologies are minimal—virtually nonexistent. All of this is enshrined in the contract*," Satkaliyev noted.

Based on international practice, Kazakhstan expects to complete the construction of its first NPP by 2035–2036. The project cost will be determined after the design and review stages are completed.

On June 20, following a meeting between Almasadam Satkaliyev and Rosatom Director General Alexey Likhachev, an Indicative Roadmap was approved outlining the stages of project preparation and implementation, including engineering surveys, the signing of an EPC contract, and the development of project documentation.

A framework agreement was also signed between Kazakhstan Nuclear Power Plants LLP and Atomstroyexport JSC, setting out the key principles of cooperation on the project in the Zhambyl district of Almaty Region.

An intergovernmental agreement on the construction of the NPP is expected to be signed by the end of this year.

Immediately after the announcement of Rosatom's selection to build the first NPP, on June 14 Satkaliyev stated that China's proposal had also been very strong, and therefore Kazakhstan would like to build its second NPP using a Chinese design, with corresponding talks to be held with the Chinese side. According to Kazakhstan's First Deputy Prime Minister Roman Sklyar, a final decision on the second NPP project is expected in the autumn of this year.

On July 31, Sklyar added that China would also build a third NPP in Kazakhstan. (President Kassym-Jomart Tokayev had already mentioned in March that the country would need three plants.)

Commentary by Bellona. Dmitry Gorchakov:



Rosatom's selection to build Kazakhstan's first NPP can certainly be regarded as a success for the corporation on the international stage, once again demonstrating its leading position in many segments of the nuclear market, the impossibility of fully isolating Russia under Western political and economic pressure, and the lack of sufficient competitiveness of alternative proposals (from France and South Korea) compared to Rosatom's bids in tenders where they compete together.

At the same time, Rosatom's competition with China is becoming increasingly tough. Earlier this year, Rosatom already lost a tender to China for the construction of a large NPP in Ghana. In effect, the Kazakh authorities have divided the country's ambitious nuclear construction program between China and Russia. At the same time, several negative points for Rosatom should also be noted.

First, Russia and Rosatom had long counted on building an NPP in Kazakhstan, having signed a cooperation agreement on the matter more than 10 years ago. Russia views the post-Soviet space in Central Asia as its sphere of influence, and against this backdrop, the protracted process of selecting a contractor for the first NPP, along with the decision to grant the right to build the second (and possibly the third) NPP to China, can hardly be called an unequivocal success for Russia.

Second, Rosatom has been given the right to head an "international consortium for the construction of the first NPP," but the conditions for forming this consortium remain unclear. It is possible that Kazakhstan's requirements will mandate the participation of many foreign suppliers in the project, meaning that Rosatom's role, while central, will not be exclusive. It is also uncertain how extensively China and its companies will be involved in this consortium. There is reason to believe their role in this project will be significantly greater than in other Rosatom foreign projects that already involve cooperation with Chinese companies. Thus, China's participation in Kazakhstan's nuclear construction will not be limited to building the second (and possibly third) NPP.

Third, for the first time we will see a situation where two NPPs are launched almost simultaneously by Russia and China in the same foreign country. Given that China builds NPPs much faster than Rosatom (even using Russian designs), there is reason to believe that the "first Russian" NPP in Kazakhstan will actually be completed second—something that would not reflect well on Rosatom's reputation.

Commentary by Bellona. Alexander Nikitin:



The announcement that Rosatom has been chosen to lead the international consortium for the construction of Kazakhstan's first NPP is not unexpected. As is known, unlike other former Soviet republics (such as Belarus and Uzbekistan), Kazakhstan went through a fairly lengthy process before deciding to build an NPP, holding a referendum and making decisions on the consortium. Russia exerted strong political pressure on Kazakhstan. Likhachev and even Putin were constantly involved in this process, meeting with Kazakhstan's leadership at all levels.

The task for the Kazakh side was to choose an option under which "the risks of dependence on Russia in nuclear technologies are minimal—virtually nonexistent. All of this is enshrined in the contract." The details of the contract have not been disclosed, but one can hope that Kazakhstan has taken into account the experience, as well as the advantages and especially the disadvantages, accumulated by those countries where Rosatom has built and continues to build NPPs.

Russia denounces the agreement with Sweden on nuclear accident notification

On June 24, the Russian government announced its denunciation of the Agreement on Early Notification of a Nuclear Accident and Exchange of Information on Nuclear Installations, signed in 1988 between the USSR (succeeded by Russia) and Sweden.

The agreement is linked to the IAEA Convention on Early Notification of a Nuclear Accident adopted in 1986 and covers incidents at nuclear reactors, nuclear fuel cycle facilities, radioactive waste management facilities, as well as during the transport and storage of nuclear fuel or radioactive waste, and the use of radioisotopes for agricultural, industrial, and medical purposes and scientific research in these areas.

Under the terms of the agreement, Russia and Sweden committed to exchange information at least once a year on the operating regimes of their NPPs and storage facilities for fresh and spent nuclear fuel. For Sweden, this applied to installations across the entire country, while for Russia it covered facilities located within 300 kilometers of the borders of Leningrad and Murmansk Regions and the Republic of Karelia.

The Russian Ministry of Foreign Affairs stated that Sweden's failure to meet its obligations was the reason for the denunciation: in 2021, Stockholm unilaterally ceased providing such information, while Russia continued to comply. In March 2024, Russia sent Sweden a request for the information required under the agreement regarding its facilities but received no response. The decision also took into account what Moscow described as the unfriendly policy of the Swedish government.

The denunciation will take effect one year after Sweden is formally notified.

Another batch of spent nuclear fuel removed from Andreeva Bay storage facility

On June 5, Rosatom reported that the 22nd batch of spent nuclear fuel (SNF) had been removed from the storage facility at Andreeva Bay in Murmansk Region.

The SNF storage facility at Andreeva Bay, commissioned in 1961 on the basis of a former naval technical base, housed fuel from nuclear power installations of submarines. Since 2017, SNF has been removed from the site and hazardous facilities at the base have been gradually decommissioned. Why Rosatom chose to issue a separate announcement about this particular shipment is unclear. Possibly the report was connected to the fact that in early summer, members of Rosatom's Public Council were shown the work being carried out at Andreeva Bay.

From Andreeva Bay and two other sites in Murmansk Region—Sayda Bay and the settlement of Gremikha—waste is transported aboard the Rossita, a vessel operated by Atomflot and specially built for hazardous cargo. The ship was constructed in the 2000s under a joint Russian-Italian intergovernmental project on the dismantling of nuclear submarines and the management of nuclear waste and SNF.

Initially, the site contained more than 100 reactor cores—about 22,000 assemblies (the exact number is unknown). Of these, 14,000 have already been removed. Since 2019, the pace of shipments has gradually decreased as the share of substandard assemblies has grown (for example, jammed assemblies or those with detached reactor core cladding), increasing preparation time and radiation exposure for workers. Complete removal is expected to be finished by 2033.

In December 2024, Rosatom announced the completion of SNF removal from the Northern Fleet's naval technical base at Gremikha. That same month, Russia denounced the international framework agreement on the Multilateral Nuclear Environmental Programme in the Russian Federation and its related protocols, concluded in the early 2000s. A key part of this cooperation had been the environmental rehabilitation of the former naval bases at Andreeva Bay and Gremikha.



A transport packaging container being loaded into the hold of the special-purpose vessel Rossita.
Credit: Rosatom

Commentary by Bellona. Alexander Nikitin:



As for Russia's denunciation of the agreement with Sweden on early notification of nuclear accidents and the exchange of information on nuclear installations, this is not the first such agreement Russia has withdrawn from. Bellona has written about and given interviews regarding Russia's withdrawal from the Multilateral Nuclear Environmental Programme in the Russian Federation (MNEPR), which involved many countries, including Norway. (See interview "Bellona's Alexander Nikitin on the unraveling of environmental agreements with Russia"). For military and political reasons, these agreements are indeed not functioning at the moment, but before the war they played – and may again in the future play – an important role in organizing joint projects in the field of nuclear and radiation safety.

In 2025, Rosatom reported for the first time on the situation at Andreeva Bay. This may indeed be linked to the fact that representatives of Rosatom's Public Council visited the site at the beginning of the summer. For Bellona, this information is significant, since nearly 30 years ago the organization's nuclear project began with Andreeva Bay.

For some reason, Rosatom placed particular emphasis on the fact that the batch of SNF removed from Andreeva Bay was the 22nd, although the figure itself is of little value without additional context. Each shipment contained a different number of assemblies. Therefore, the key indicator is not the number of the batch, but the actual number of spent fuel assemblies removed from storage.

In Bellona's view, SNF was in fact not removed from Andreeva Bay in 2023–2024, possibly because international funding for the project ceased with the start of the war. At present, Bellona is preparing a working paper on the elimination of Russia's nuclear legacy, which will provide a more detailed analysis of the removal of SNF from Andreeva Bay storage facilities and other projects.

Russia strengthens nuclear partnerships with Burkina Faso, Mali, and Malaysia

On June 19 in St. Petersburg, an agreement on cooperation in the peaceful uses of nuclear energy was signed between the Government of the Russian Federation and the Government of **Burkina Faso**. The document establishes a legal framework for cooperation in nuclear and radiation safety regulation, the production and use of radioisotopes in industry, medicine, and agriculture. The agreement also provides for the development of joint projects in radiation technologies and nuclear medicine, as well as the training and retraining of specialists for Burkina Faso's nuclear sector. It follows a roadmap on nuclear cooperation signed on March 26, 2024, and a memorandum of understanding on peaceful nuclear energy cooperation signed on October 13, 2023.

On June 23 in Moscow, a similar agreement was signed with the Government of the **Republic of Mali**. A roadmap and memorandum of understanding with this country had likewise been signed in March 2024 and October 2023.

On June 27 in Moscow, Rosatom Director General Alexey Likhachev met with **Malaysia's** Deputy Prime Minister and Minister of Energy Transition and Water Resources, Fadillah Yusof, to discuss prospects for cooperation in nuclear energy.

Later, on August 8, Likhachev commented that following the August 6 meeting between the President of Russia and King of Malaysia Sultan Ibrahim, Russia and Malaysia had begun work on an intergovernmental agreement for the supply of floating nuclear power plants (FNPPs). According to the Rosatom head, the Malaysian side is currently selecting specific electricity transmission technologies. The project does not involve building a nuclear power plant in Malaysia or transferring a reactor unit, but rather the creation of FNPPs and the direct sale of electricity "from the board" to Malaysia's consumer grid.

Rosatom's projects abroad in brief

Iran. On June 6, Ebrahim Rezaei, a member of Iran's parliamentary commission on national security and foreign policy, announced that Iran had signed a contract with Russia to build eight nuclear reactor units in the country. According to him, four of them will be located in Bushehr.

Rosatom is building the Bushehr NPP in Iran. Unit 1 was commissioned in 2011. Construction of Units 2 and 3 began in March 2017, with commissioning initially planned for 2024 and 2026. First concrete for Unit 2 was poured in November 2019.



Tianwan NPP, China.
Credit: China National Nuclear Corporation

Tianwan and Xudapu NPPs, China. On June 6, Petrozavodskmash, Rosatom's mechanical engineering division, shipped an emergency core cooling system (ECCS) tank for Unit 4 of the Xudapu NPP (China). To date, Rosatom's machinery plants have manufactured 95% of the contracted equipment for the four reactor units under construction at China's Tianwan and Xudapu NPPs. Petrozavodskmash has shipped, among other items, main circulation pipelines, reactor coolant pump casing, safety system equipment, and much more. By the end of 2025, all equipment for the nuclear island is expected to be completed.

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

Uzbekistan. On June 20, Rosatom and the Agency for the Development of Nuclear Energy under the Cabinet of Ministers of the Republic of Uzbekistan (Uzatom) signed an agreement to study the possibilities for implementing a large-scale nuclear power plant project in Uzbekistan. The document outlines the main conditions for a potential project involving the construction of two VVER-1000 reactor units, with the option to expand to four units.



Rooppur NPP Units under construction, Bangladesh.
Credit: Rosatom

Rooppur NPP, Bangladesh. On June 24, tightness and strength tests of the containment of the reactor compartment of Unit 1 were completed. Immediately afterward, the plant will proceed to a series of hot functional tests, namely involving the primary circuit coolant heated to nominal parameters and the generated steam.

On July 17, hot functional testing of the Unit 1 reactor began. At this stage, the reactor installation is heated up and the performance of key components—pumps, pipelines, and heat exchange equipment—is verified under these conditions.

Akkuyu NPP, Turkey. On July 1, Bloomberg reported, citing Anton Dedusenko, Chairman of the Board of Directors of Rosatom's subsidiary Akkuyu Nuclear, that Rosatom is in talks with Turkish and foreign investors on the sale of a 49% stake in the Akkuyu NPP, valued at $25 billion.

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



Akkuyu NPP under construction, Turkey.
Credit: Akkuyu Nuclear

In 2018, Rosatom had already attempted to sell a stake, but the effort failed when a consortium of Turkish companies—Cengiz Holding AS, Kolin Insaat Turizm Sanayi ve Ticaret AS, and Kalyon Insaat Sanayi ve Ticaret AS—pulled out of the deal, citing an inability to agree on commercial terms.

On July 23, media reported that protests had erupted at the Akkuyu NPP construction site in Turkey due to months-long wage arrears. Protesters clashed with local gendarmerie, which used batons, tear gas, and water cannons to disperse the demonstration.

Rosatom stated that the wage delays were caused by blocked funds and the actions of "unfriendly countries." "*We have all become hostages of the behavior of unfriendly countries, which by dubious methods are engaging in unfair competition with the advanced projects of Russian nuclear specialists*," Rosatom said.

Reports of protests are not new: in March 2024, workers at the construction site held demonstrations over unpaid wages, demands for improved working conditions, and enhanced safety measures at the site.

On August 4, Rosatom Deputy Director General for Economics and Finance Ilya Rebrov announced that Rosatom is preparing to issue Atomenergoprom JSC bonds denominated in Chinese yuan and Islamic bonds (sukuk) to attract foreign financing for the Akkuyu NPP construction project.

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

On July 10, installation of the third tier of the inner containment was completed at Unit 2 of the El Dabaa NPP.

Tanzania. On July 30, Mantra Tanzania (a subsidiary of Uranium One Group, part of Rosatom) commissioned a pilot uranium processing plant at the Mkuju River Project in Tanzania. At the Nyota deposit in the south of the country, technological methods of uranium processing are being tested. Based on the collected data, a facility with a capacity of up to 3,000 metric tons of uranium per year will be designed. Construction is scheduled to begin in the first quarter of 2026, with commissioning planned for 2029.



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