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Uzbekistan's Nuclear Gamble and Its Hidden Risks:

As the ruling regime revives its nuclear plans, questions remain whether they truly serve national interests

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This article examines Uzbekistan's renewed push for nuclear energy, tracing the evolution of its agreements with Russia, the lack of transparency in project planning, the geopolitical pressures at play, and the economic and environmental risks involved. It argues that despite official promises, the project may impose far greater costs and vulnerabilities than benefits for Uzbekistan's long-term energy security.

Introduction

Uzbekistan's energy sector is at a crossroads. Once committed to large-scale nuclear power in partnership with Russia, Tashkent shifted its focus toward renewables before once again reviving nuclear ambitions under new agreements with *Rosatom*. The government now frames the construction of a small nuclear power plant as a milestone in the country's modernization and energy diversification. Yet behind the rhetoric lie unresolved questions: Who truly benefits from these projects? Can Russia deliver on its promises under sanctions and war? And most importantly, does nuclear power align with Uzbekistan's national interests when cheaper, faster, and safer alternatives are within reach?

How the Events Unfolded

At the time of writing, an agreement on the construction of a small nuclear power plant (NPP) in Uzbekistan, signed in May 2025 with Russia's Atomic Energy Agency, *Rosatom*, remains in force.[1] Yet the country's path toward nuclear energy began much earlier. The original agreement between Russia and Uzbekistan was concluded on September 7, 2018, and approved by President Shavkat Mirziyoyev a month later, on October 13.[2] It envisaged building a large nuclear power plant with a capacity of 2.4 GW, consisting of two 1.2 GW reactors. Estimated at $11 billion, the project was scheduled for completion by 2028 and was expected to cover about one-fifth of Uzbekistan's electricity demand.

The first site chosen for construction was near Lake Tudakul, on the border of Navoi and Bukhara regions. Later, however, the location was shifted to an area near Lake Aydarkul, straddling the Jizzakh and Navoi regions.[3]

Despite these preparations, the signing of a binding contract and the start of construction were repeatedly delayed. One likely reason was the negative public sentiment in Uzbekistan, still influenced by memories of the Fukushima-1 disaster in Japan and by the subsequent retreat of several countries from nuclear energy. Another factor was the growing interest of Uzbek authorities in renewable sources, which by then had become the cheapest option globally. Starting in 2020, the country commissioned about 4 GW of renewable capacity, raising its share in the national energy mix to 16% by the end of 2024. By 2026, this share is projected to reach 26%. And over the following five years, Uzbekistan plans to add another 25 GW - or 64 billion kWh - of renewable capacity, potentially raising renewables to more than 50% of the energy balance by 2030.[4]

Nevertheless, under what many analysts see as strong pressure from Moscow, Uzbekistan revived its nuclear ambitions. On May 27, 2024, during Vladimir Putin's visit to Tashkent, the two countries signed a protocol amending the 2018 agreement to focus instead on a small-scale nuclear plant.[5] The Russian side was represented by Atomstroyexport, the engineering arm of *Rosatom*. The new project called for a 330 MW facility consisting of six 55 MW RITM-200N reactors - previously used only in nuclear icebreaker vessels. This time, the site was chosen near Lake Tuzkan in the Farish district of Jizzakh region.[6]

Since then, two International Atomic Energy Agency (IAEA) missions have inspected the location and, according to the government, gave approval.[7] The Uzbek authorities have emphasized that no plant can be built without the agency's license, highlighting the growing importance of international oversight.

Under the 2024 agreement, the NPP was to comprise two major components: the "nuclear island," operated by *Rosatom*, and an auxiliary facility with international participation.[8] For instance, China committed to supplying turbines, generators, and dry cooling towers. In February 2025, Uzbekistan announced plans to form an international consortium for the project, with *Rosatom* serving as the lead partner, joined by companies from China, Hungary, and potentially other countries.[9]

The timeline, however, has already slipped. Initially scheduled for phased commissioning between 2029 and 2033, the project has since been delayed by two years.[10] In 2025, officials stated that the first reactor would only be operational in five years, with full completion pushed to 2035.[11] Energy Minister Zhurabek Mirzamakhmudov noted that construction alone requires 60 months, while preparation, design, and regulatory approvals typically add another 60–69 months.[12] Taken together, the process may last up to a decade.

In June 2025, further changes were announced: instead of six reactors, only two would be installed, maintaining the same individual capacity of 55 MW. This reduces the plant's total planned output from 330 MW to just 110 MW.[13]

Given these repeated revisions to both scope and schedule, it appears that Uzbekistan's leadership itself is not fully convinced of the wisdom of pursuing nuclear power. Serious questions remain as to whether the current plans truly serve the country's long-term interests.

Questions of Transparency and Accountability

From the outset, Uzbekistan's Atomic Energy Agency (*Uzatom*) was reluctant to disclose the cost of the nuclear project, citing the absence of a completed feasibility study. Only in March 2025 - nearly a year later - did officials announce that the latest two-reactor version of the small NPP would "not exceed $2 billion".[14] To this day, however, the exact cost remains undisclosed.

On June 28, 2024, the head of *Uzatom* promised public hearings on the project, assuring that environmental and safety concerns would be addressed.[15] More than a year later, there is still no evidence that such hearings have taken place.

Lack of transparency is further compounded by Uzbekistan's broader pattern in handling strategic projects: tenders are rarely open and competitive, with key decisions made behind closed doors. The nuclear initiative has followed this same opaque path.

By contrast, neighbouring Kazakhstan has at least held formal tenders in its nuclear energy planning.[16] The absence of even nominal competition in Uzbekistan raises suspicions of corruption which in a project of such magnitude as NPP carries serious risks - ranging from inflated costs to compromised safety standards. When personal enrichment overshadows quality, the consequences can be dangerous and catastrophic in the context of nuclear power.

Miscalculations of Economic Impact

Uzatom Director Azim Akhmedkhadzhaev has argued that by 2040 nuclear energy will account for 25% of global electricity generation, up from today's 9%.[17] Yet this figure appears overstated. Independent forecasts, such as those from Goldman Sachs, suggest

that nuclear will rise only to about 12% by 2040, as renewables expand at a much faster pace.[18] Already in 2024, renewables made up 30% of global electricity production,[19] and 47% in the European Union.[20] This discrepancy suggests that *Uzatom* may be misrepresenting global trends to justify the nuclear push.

Azim Akhmedkhadzhaev also insists that nuclear is cost-competitive with renewables, emphasizing its long lifespan - up to 60 years before major upgrades, and potentially 80 years with modernization.[21] He claims that once the plant breaks even, the cost of nuclear electricity could fall to 1.5–2 cents per kWh, comparable to wind and solar. He further argues that one 330 MW nuclear plant is nearly equivalent to 5 GW of renewable capacity, since nuclear operates roughly 8,000 hours annually compared to 1,800 hours for renewables.[22]

However, this comparison overlooks two critical factors: **cost and time-to-build.** For example, in 2022, the French company Total Eren built a 100 MW solar plant in Uzbekistan in less than a year for $100 million.[23] By contrast, a nuclear plant of roughly equivalent capacity (110 MW, in the current downsized project) would take at least five years to complete and cost about 20 times more. Factoring in both cost and delay, the economic gap widens to nearly 80-fold. Even acknowledging the shorter lifespan of solar plants, the advantage remains strongly in favour of renewables - especially given the rapid progress in electricity storage technologies.

Energy Minister Jurabek Mirzamakhmudov himself has conceded that the two-unit nuclear plant will have little impact on Uzbekistan's overall energy capacity. He frames it instead as a "training project" to prepare specialists for future large-scale reactors.[24] But pursuing a full-size NPP would require even more money and time—no less than a decade for construction and another decade for cost recovery. Over the same 20 years, Uzbekistan's abundant solar potential - nearly 300 sunny days annually - could generate far more electricity and deliver vastly greater economic benefits.

Pressure from Moscow

A key question is whether Uzbekistan's 2018 agreement to build a large nuclear power plant was the result of Tashkent's own initiative or of pressure from Moscow. The suspicion of external pressure is reinforced by the fact that, following the signing, the Uzbek side repeatedly delayed the start of construction and eventually abandoned the idea of a large-capacity NPP.

Six years later, the two sides reached a compromise to build a smaller station with six reactors. Yet once again, Uzbekistan hesitated to move forward, leading to a further revision - reducing the number of reactors, and thus the plant's total capacity, by two-thirds.

Meanwhile, Russia renewed its push for a large NPP. In June 2025, the Russian Ministry of Economic Development announced – prematurely - that Tashkent had ostensibly agreed to build not only a small plant but also a large one, with two VVER-1000 reactors and the possibility of expanding to four. The announcement was quickly deleted from the ministry's website, apparently after objections from the Uzbek side.[25] In reality, the parties had agreed only to explore the possibility of adding a two-unit, $6 billion large NPP.[26] The ministry's haste to present this as a done deal can be read as an attempt to pressure

Tashkent, banking on the assumption that President Mirziyoyev would not dare contradict Moscow once the claim was made public.

Such tactics are consistent with *Rosatom*'s messaging. In April 2025, its director Alexey Likhachev remarked: "Not if, but when the leadership of Uzbekistan returns to the topic of a large NPP, we will already have proposals ready".[27] His wording – "not if, but when" - conveyed an open confidence that Russian pressure would eventually prevail.

Russia has also found allies within Uzbekistan. *Uzatom* director Azim Akhmedkhadjaev has increasingly positioned himself as a supporter of building a large NPP, echoing arguments that are weakly substantiated. Whether this reflects conviction or convenience is unclear, but it has made him appear less as an independent regulator and more as a lobbyist for Russian interests.

These efforts seem to be bearing fruit. On August 8, 2025, during a review of nuclear sector developments, President Mirziyoyev instructed officials to begin working on a project for a large-capacity NPP. This move brings Uzbekistan a step closer to reviving its original nuclear ambitions - likely under continued Russian influence.

Azim Akhmedkhadjaev has since declared: "We will try to build a larger station and implement a larger system in the shortest possible time".[28] This rhetoric reflects an authoritarian tradition of promising rapid, ambitious achievements – "*Bajaramiz!*" ("We will do it!") - often at the expense of safety and quality. Uzbekistan's experience with the Sardoba reservoir, which collapsed disastrously due to rushed and substandard construction, stands as a sobering reminder of the risks.

Interestingly, Akhmedkhadjaev's own statements on reactor safety have shifted. Initially, he claimed that the small NPP design was "reference" - meaning tested in practice, since its reactors had previously been used in nuclear icebreakers.[29] Later, however, he conceded that these stations are not reference designs after all.[30] In fact, Uzbekistan's small NPP would be the first export project of its kind worldwide.

This contradiction is striking given that, in March 2025, Akhmedkhadjaev himself insisted that Uzbekistan would not become a testing ground for experimental reactors.[31] Yet only three months later, the number of planned units was reduced from six to two - likely reflecting doubts about the technology's reliability. These doubts were reinforced by developments in Russia itself, where a similar project in Yakutia was postponed from 2028 to 2030.[32]

Sanctions and *Rosatom*'s Ability to Deliver

The delays in completing the small-capacity NPP in Yakutia may well be linked to Western sanctions against Russia over its war in Ukraine. These restrictions have limited Moscow's access to key technological components, undermining the reliability of nuclear projects. If true, this raises questions about Russia's ability to meet its obligations in Uzbekistan - not only for a small NPP but even more so for any future large plant.

Financial constraints caused by sanctions have also become evident. In July 2025, workers at *Rosatom*'s Akkuyu NPP project in Turkey went on strike over unpaid wages, highlighting the company's growing difficulties despite the fact that *Rosatom* itself is not under direct sanctions.[33] The disruption of supply chains and a lack of access to SWIFT, however, have already affected negatively projects abroad.

Further risks stem from the ongoing war itself. Ukrainian drone strikes have increasingly targeted Russia's industrial facilities, threatening the production and delivery of sensitive components. Such disruptions could directly affect *Rosatom*'s capacity to fulfil its commitments in Uzbekistan too.

Environmental Risks

Every nuclear power plant requires an effective cooling system, which is why they are usually built near major rivers or lakes - exposing these waters to potential radioactive contamination. In Hungary, for instance, the Danube is used for cooling. By contrast, Central Asia faces severe water scarcity, making protection of its limited water resources more critical than energy gains.

Uzatom has sought to reassure the public by promising to minimize risks through the use of dry cooling towers, to be supplied by Hungary and China. These towers are supposed to reduce reliance on evaporative water cooling. Yet, it remains unclear whether they will entirely eliminate the need for water from Lake Tuzkan.

The greater unresolved issue is nuclear waste management. According to the agreement, spent fuel will be shipped to Russia for reprocessing, with some reusable components returned to Uzbekistan. However, this clause could easily become a political lever. Should Moscow seek to pressure Tashkent, it could withhold waste management commitments under pretexts of its own choosing. In that case, Uzbekistan would be forced to store radioactive waste domestically, creating long-term economic and environmental hazards. Given Russia's aggression against Ukraine and threats toward Kazakhstan's territorial sovereignty, such tactics cannot be ruled out.

Risks of Cost Overruns

Rosatom's track record abroad suggests that cost inflation is not only possible but likely. The Akkuyu NPP in Turkey - originally priced at around $20 billion for 4.8 GW of capacity - was, by mid-2025, already estimated by Moscow at $24–25 billion.[34] Similarly, Russian Deputy Prime Minister Roman Sklyar warned that the cost of *Rosatom*'s planned NPP in Kazakhstan, initially projected at $10–12 billion, could rise by 50% over the next decade due to inflation.[35]

Uzbekistan should therefore anticipate a similar scenario: the final bill for its nuclear plant is almost certain to exceed the initially agreed amount, with the burden ultimately borne by the Uzbek economy and population.

Conclusion

When evaluating the benefits of a nuclear energy program under Uzbekistan's geographic, economic, and political conditions, two main criteria stand out:

1. **Overall value of nuclear energy** for Uzbekistan as such, regardless of which foreign operator is chosen.
2. **Risks of partnering with Rosatom** as the main operator, should the government continue pursuing nuclear energy.

Paradoxically, the Uzbek government chose its operator first, and only afterward began discussing whether the country actually needs nuclear energy. In 2018, the decision to build a large nuclear power plant was made without public debate. A genuine discussion emerged only later, in 2024, when plans shifted to a smaller-scale NPP. This backward order of decision-making highlights the impulsive and voluntaristic style of President Mirziyoyev's leadership in making strategic choices.

If Uzbekistan's true national interests were prioritized, the central question would be: what matters more—an additional 5–6 megawatts of electricity, or safeguarding water resources, whose availability is rapidly declining due to climate change, population growth, and projects such as Afghanistan's Kosh-tepa Canal? Given Uzbekistan's acute vulnerabilities, the choice is clear: safeguarding water security outweighs the pursuit of nuclear power, which only endangers these fragile resources.

From an economic standpoint, the nuclear program is equally questionable. While renewable energy is expanding rapidly both globally and within Uzbekistan - offering cheaper, faster, and safer solutions - the nuclear project suffers from delays, soaring costs, environmental risks, and geopolitical dependence. These challenges are magnified by Uzbekistan's entrenched corruption, which increases the likelihood of violations of technological standards and consequent crisis situations. This kind of scenario is already happening in the country's gas production sector, also significantly controlled by Russian interests, considering the release of hydrogen sulphide at a gas field in the Boysun district and, as a result, tragic deaths.

Thus, in the absence of full transparency, accountability and dialogue with society, Uzbekistan's nuclear adventure may leave the country with more vulnerabilities than prospects for successful national development.

In considering an operator for nuclear projects, the foremost concern should be the risks to national sovereignty posed by entrusting control to a state driven by neo-imperial ambitions. Taking into account the Kremlin's completely obvious desire to dictate its will to other post-Soviet countries, especially the war it unleashed in Ukraine (and before that in Georgia and Moldova), technological dependence on Russia in matters of construction and operation of nuclear power plants will inevitably become another lever of political pressure on the leadership of Uzbekistan.

President Shavkat Mirziyoyev is currently faced with a choice: to give the go-ahead for the construction of a large nuclear power plant in the country in addition to a small one, and then one or two more, or to delay the issue indefinitely in order to avoid pressure from Moscow, and in the meantime, to concentrate financial resources on implementing plans to bring the share of renewable energy to 54% of the country's energy balance, a task that can be accomplished in the same time frame as the construction of a small nuclear power plant with its meagre economic effect compared to renewable energy.

In essence, Mirziyoev is deciding whether Uzbekistan will preserve its sovereignty or voluntarily bind itself hand and foot to obligations to energy projects that are clearly expensive and disadvantageous for the country.

References:

[1] Gazeta.uz, June 27, 2024, https://www.gazeta.uz/ru/2024/06/27/nuclear-power-station/

[2] Gazeta.uz, June 28, 2024, https://www.gazeta.uz/ru/2024/06/28/nuclear-power-station/

[3] Spot.uz, August 28, 2025, https://www.spot.uz/ru/2025/08/28/uz-atom/

[4] Gazeta.uz, February 11, 2025, https://www.gazeta.uz/ru/2025/02/11/nuclear-power-station/

[5] Gazeta.uz, June 20, 2025, https://www.gazeta.uz/ru/2025/06/20/big-npp/

[6] Gazeta.uz, June 28, 2024, https://www.gazeta.uz/ru/2024/06/28/nuclear-power-station/

[7] Gazeta.uz, October 7, 2024, https://www.gazeta.uz/ru/2024/10/07/nuclear-power-station/

[8] Gazeta.uz, October 15, 2024, https://www.gazeta.uz/ru/2024/10/15/nuclear-power-station/

[9] Там же.

[10] Gazeta.uz, June 28, 2024, https://www.gazeta.uz/ru/2024/06/28/nuclear-power-station/

[11] Gazeta.uz, March 19, 2025, https://www.gazeta.uz/ru/2025/03/19/uzatom/

[12] Gazeta.uz, October 7, 2024, https://www.gazeta.uz/ru/2024/10/07/nuclear-power-station/

[13] Gazeta.uz, June 20, 2025, https://www.gazeta.uz/ru/2025/06/20/big-npp/

[14] Gazeta.uz, March 24, 2025, https://www.gazeta.uz/ru/2025/03/24/aes-price/

[15] Gazeta.uz, June 28, 2024, https://www.gazeta.uz/ru/2024/06/28/nuclear-power-station/

[16] Gazeta.uz, March 23, 2025, https://www.gazeta.uz/ru/2025/03/23/small-nuclear-power-station/

[17] Gazeta.uz, February 11, 2025, https://www.gazeta.uz/ru/2025/02/11/nuclear-power-station/

[18] Goldman Sachs, 12 June, 2025, https://www.goldmansachs.com/insights/articles/is-nuclear-power-set-for-a-revival

[19] The Guardian, 8 May, 2024, https://www.theguardian.com/environment/article/2024/may/08/renewable-energy-passes-30-of-worlds-electricity-supply

[20] Eurostat, 19 March 2025, https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250319-1

[21] Gazeta.uz, March 24, 2025, https://www.gazeta.uz/ru/2025/03/24/aes-price/

[22] Там же.

[23] Gazeta.uz, May 25, 2022, https://www.gazeta.uz/ru/2022/05/25/fes/

[24] Gazeta.uz, October 7, 2024, https://www.gazeta.uz/ru/2024/10/07/nuclear-power-station/

[25] Gazeta.uz, June 15, 2025, https://www.gazeta.uz/ru/2025/06/15/nuclear-power-stations/

[26] Gazeta.uz, June 20, 2025, https://www.gazeta.uz/ru/2025/06/20/big-npp/

[27] Gazeta.uz, June 15, 2025, https://www.gazeta.uz/ru/2025/06/15/nuclear-power-stations/

[28] Gazeta.uz, August 9, 2025, https://www.gazeta.uz/ru/2025/08/09/aes/

[29] Gazeta.uz, March 23, 2025, https://www.gazeta.uz/ru/2025/03/23/small-nuclear-power-station/

[30] Gazeta.uz, June 20, 2025, https://www.gazeta.uz/ru/2025/06/20/big-npp/

[31] Gazeta.uz, March 23, 2025, https://www.gazeta.uz/ru/2025/03/23/small-nuclear-power-station/

[32] Gazeta.uz, June 20, 2025, https://www.gazeta.uz/ru/2025/06/20/big-npp/

[33] Azattyq, August 20, 2025, https://rus.azattyq.org/a/uzbekistan-i-kazahstan-rassmotreli-seysmicheskuyu-bezopasnost-ploschadok-dlya-stroitelstva-aes/33508128.html

[34] Ozodlik, October 17, 2024, https://rus.ozodlik.org/a/33161290.html

[35] Ibid.