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TENÍZ CAPITAL
INVESTMENT BANKING

KAZATOMPROM
NATIONAL ATOMIC COMPANY

The Uranium Renaissance: Kazatomprom Riding the Wave of Global Demand

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The world's largest uranium producer, Kazakhstan's Kazatomprom, is becoming a key element of the global energy infrastructure at a time when a structural uranium deficit and rapidly growing demand for nuclear power—driven by the expansion of data centers and artificial intelligence—are creating long-term opportunities for investors.

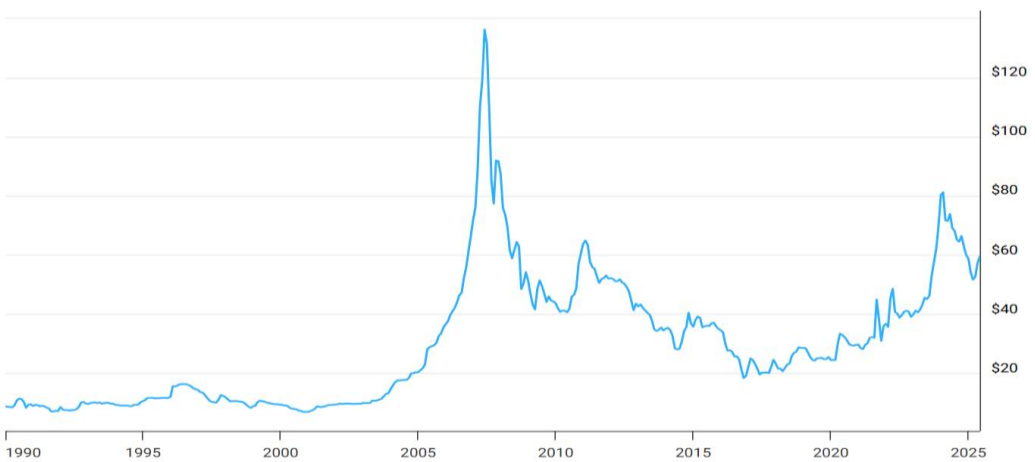
The global uranium market is undergoing a transformation that analysts call the "second nuclear renaissance." After a decade of depression, the price of uranium rose from $18 per pound in 2016 to $80-106 in 2024-2025 — growth of more than 340%. At the same time, the structural deficit between production and consumption persists: mines cover only 74-90% of reactor needs, and secondary sources (reprocessing, stockpiles) are rapidly depleting. Against this backdrop, agreements by tech giants Microsoft, Google, and Amazon to purchase nuclear energy for data centers and commitments by 33 countries to triple nuclear capacity by 2050 are forming a multi-year demand growth cycle.

The uranium market has entered a stage of development characterized by a transition from multi-year surplus to acute deficit. While other energy resources, such as oil and gas, demonstrate falling prices, uranium prices show an upward trend. This is due to the fact that global reactor consumption significantly exceeds primary mine production. If in past decades this gap was covered by secondary sources — reprocessing of old nuclear warheads and accumulated commercial stockpiles — today these reserves are practically exhausted, and new deposits were not developed due to the prolonged period of low prices.

The situation is aggravated by changes in global energy policy. After a period of stagnation caused by the Fukushima accident, the West once again recognizes nuclear energy as a necessary element of energy security and the fight against carbon emissions. New reactors are being actively built around the world, each of which requires a huge volume of fuel for initial loading, creating additional pressure on the market. In addition, new players have emerged on the scene — financial funds that buy up physical uranium and "lock it away" in storage facilities, finally depriving the market of liquidity.

According to analyst forecasts, the current deficit will only grow, as the possibilities for rapidly increasing production are limited by years of underinvestment in the industry. By the end of the decade, commercial stockpiles may be completely exhausted. Historical parallels with the mid-2000s indicate that the current price increase is only the beginning of a massive rally. Uranium has reached a tipping point that could lead to a threefold or even fourfold increase in value in the next few years, making it one of the most promising assets in the energy sector.

Cents for uranium



Kazatomprom: Anatomy of a World Leader

Kazatomprom controls 39-43% of global uranium production — more than the next three producing countries combined. In 2024, the company produced 23,270 tonnes of uranium, providing 21% of global supply. The key competitive advantage is in-situ leaching (ISR) technology, which makes Kazakhstani uranium the cheapest in the world: production cost of $15-20 per pound versus $30-50 for Canadian and Australian competitors.

The company operates 8 of the 10 largest ISR mines in the world, concentrated in two uranium basins — Chu-Sarysu (60.5% of Kazakhstan's reserves) and Syrdarya. Proved and probable reserves according to JORC standards amount to 300.3 thousand tonnes of uranium, ensuring decades of production. In 2024, Kazatomprom received 4 new licenses in the Turkestan region with potential of approximately 70,000 tonnes of uranium.

Financial indicators reflect the favorable market conditions. Revenue grew from $2.2 billion (2022) to $3.5 billion (2024), net profit reached a record $1.6 billion including one-time income from consolidation of the Budenovskoye JV. The company maintains a net cash position, providing financial flexibility for investments.

Strategic Significance of Partners

The structure of Kazatomprom's joint ventures reflects the geopolitical map of the global nuclear market:

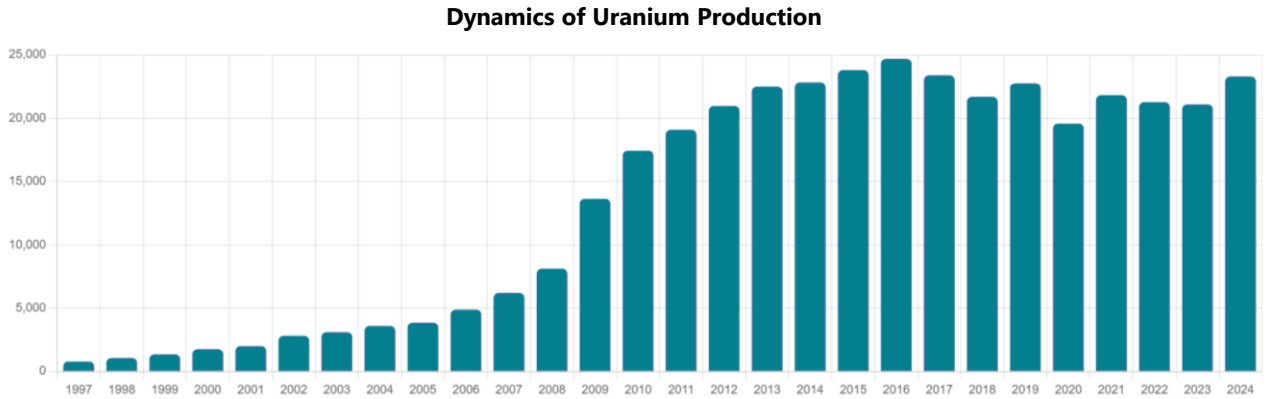
- Cameco (Canada): 40% in Inkai JV (60% owned by Kazatomprom) — one of the largest ISR mines in Kazakhstan
- Orano (France): 51% in KATCO (49% owned by Kazatomprom) — the world's largest ISR operation with capacity of ~4,000 tonnes of uranium per year
- CGN Mining (China): 49% in Semisbay-U JV and 49% in Ortalyk
- Japanese consortiums (Energy Asia, Sumitomo, Kansai and others): participation in Baiken-U (95% owned by Energy Asia), Khorasan-U (20% owned by Energy Asia) and Appak (35% owned by Sumitomo/Kansai)
- Rosatom (through Uranium One): retains stakes in Karatau, Akbastau and Budenovskoye JVs (50% in each). In December 2024, Uranium One sold its stake (49.98%) in Zarechnoye JV to Chinese SNURDC, and also plans to transfer a 30% stake in Khorasan-U to Chinese CGN

This diversification creates both opportunities and risks. The presence of Russian partners caused concern among Western investors in the context of sanctions, however Rosatom is gradually exiting a number of Kazakhstani projects in favor of Chinese buyers. In parallel, Kazatomprom is actively developing alternative transport routes — the Trans-Caspian corridor (TITR) via the Caspian Sea, Azerbaijan and Georgia, bypassing Russian territory. This route has been in use since 2018, and the company has a quota for transporting up to 3,500 tonnes of uranium per year via this direction.

Production Challenges: Sulfuric Acid and Budenovskoye

Despite record financial results, Kazatomprom has faced serious operational problems. In August 2024, the company lowered its production forecast for 2025 from 30,500-31,500 to 25,000-26,500 tonnes — a reduction of 17%, or the equivalent of 13-16 million pounds of U_3O_8. For 2026, the company announced its intention to use the option for a 20% reduction from subsoil use agreement levels.

Kazatomprom Uranium Production



The key reason is a deficit of sulfuric acid, a critical reagent for ISR extraction (70-80 kg per 1 kg of uranium). Competition for acid from agriculture and industry, regional shortages and rising prices (from 40,455 tenge/tonne in 2023) forced the company to invest in constructing its own acid plant with capacity of 800,000 tonnes/year (jointly with Italian Ballestra), commissioning of which is expected after 2026.

A separate problem is the Budenovskoye project — a strategic greenfield that was supposed to produce 5,000 tonnes of uranium by the end of 2025. Instead, production was cut to 1,300 tonnes (-67.5%). Reasons: uranium deposits are located almost twice as deep as at other ISR deposits, high carbonate content requires greater acid consumption, delays with project documentation. The situation was complicated by corporate history: in 2022, the sale of a 49% stake by oligarchs to Rosatom structures without the consent of Kazatomprom management led to resignations of top managers.

Global Uranium Market: Structural Deficit

The global uranium market is characterized by a persistent structural deficit that cannot be quickly eliminated due to long development cycles for new deposits (10-15 years from discovery to production). In 2024, reactors consumed approximately 67,000-68,000 tonnes of uranium, while mines produced only 60,213 tonnes. The gap is covered by depletion of utility stockpiles and secondary sources, whose share is projected to decrease from ~50% in peak years to less than 5% by 2040.

Price Dynamics

The spot price of uranium reached $106 per pound in January 2024 — a 17-year high — before correcting to $73-80 by year-end. Long-term contract prices remain steadily above $80/pound — a level that industry experts consider the minimum necessary to stimulate new projects. For comparison: the post-Fukushima bottom was less than $18/pound (2016-2017), while the historical maximum was $136/pound (2007).

Key drivers of price growth in 2023-2024:

- Production cuts by Kazatomprom and Cameco
- Geopolitical uncertainty (sanctions against Russia, coup in Niger)
- Physical uranium purchases by funds (Sprott accumulated 72 million pounds)
- Tech giant agreements for nuclear energy
- COP28 commitment to triple nuclear capacity by 2050

World Nuclear Association Forecasts

According to the Nuclear Fuel Report 2025, uranium demand will grow by 28% by 2030 (to 87,000 tonnes) and more than double by 2040 (to 150,000 tonnes in the base scenario, to 204,000 in the optimistic scenario). The 2040 forecast has been revised upward by 60 GW compared to 2023.

Currently, 69-71 reactors are under construction worldwide with a total capacity of 71 GW — the largest construction boom in recent decades. China leads with 25-29 reactors, followed by India (7), Turkey (4), Russia (5).

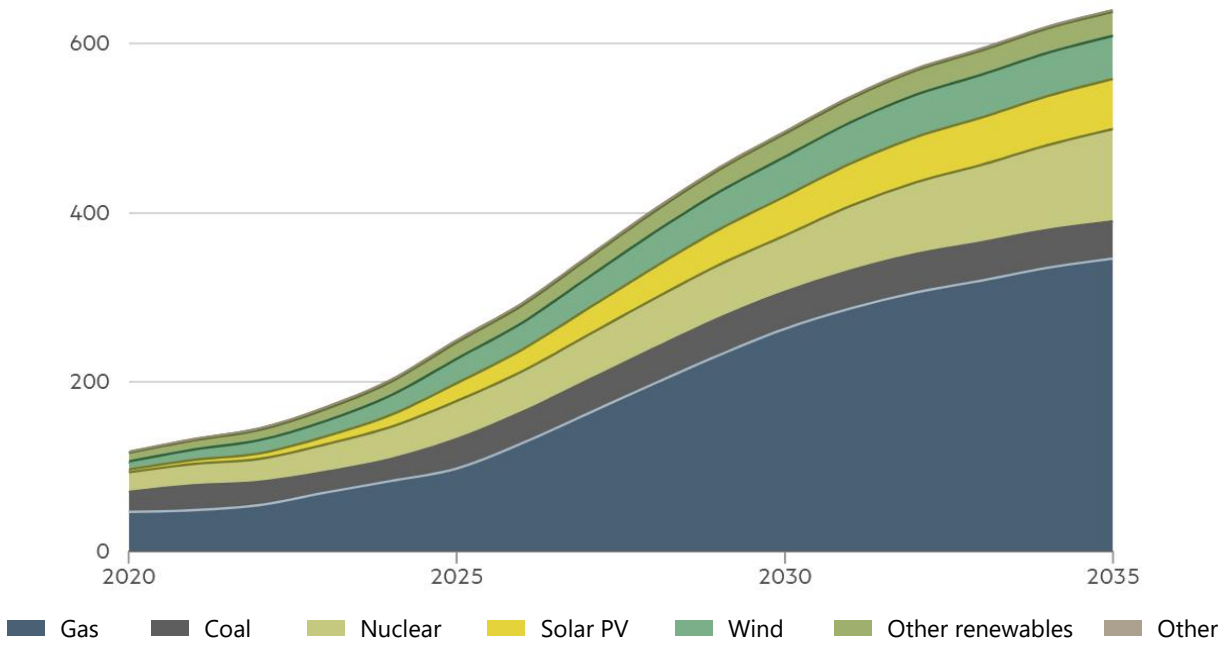
Demand Drivers: From Data Centers to Decarbonization

Artificial Intelligence and Data Centers

The most powerful short-term driver is the explosive growth in data center energy consumption related to AI development. According to the International Energy Agency (IEA), global electricity consumption by data centers will grow from 415 TWh (2024) to 945 TWh (2030) — more than all of Japan consumes today. In the US, data centers already consume 183 TWh (4% of electricity), and by 2030 this figure will double to 426 TWh.

AI is the "main driver" of this growth: while AI currently accounts for 5-15% of data center energy consumption, by 2030 this share will reach 35-50%. Training GPT-4 alone required ~30 MW of capacity, while training GPT-5 is already around 100 MW.

Energy source forecasts



Source: International Energy Agency

Big Tech Nuclear Deals

Tech giants are betting on nuclear energy as a very important source of carbon-free baseload electricity:

- **Microsoft and Constellation Energy:** 20-year agreement to purchase electricity from Three Mile Island (835 MW). Investment of $1.6 billion in restarting the plant by 2027. This is the largest PPA in Constellation's history.
- **Google and Kairos Power:** First corporate agreement in the US for the construction of multiple SMRs (small modular reactors). Goal — 500 MW by 2035 (6-7 reactors). The first reactor — the 50 MW Hermes demonstrator — received NRC approval and will launch in 2027.
- **Amazon and Talen Energy:** Purchase of the Cumulus data center at 960 MW ($650 million) near the Susquehanna NPP. Expanded PPA for 1,920 MW with expected revenue of ~$18 billion. Amazon is investing $20 billion in Pennsylvania data centers.
- **Meta and Constellation:** 20-year agreement for 1,121 MW from Clinton NPP, saving the plant from closure.

China and India: The Asian Boom

China leads the global nuclear expansion. The country operates 58 reactors (60.88 GW) — third place in the world — and is building 27-30 reactors (32-34 GW), leading in construction for 18 consecutive years. Plans call for increasing capacity to 110 GW by 2030 and 200 GW by 2035. In April 2025, 10 new reactors were approved with investments of $27.45 billion. China builds reactors in ~5 years at a cost of ~$2.7 billion — compared to 10+ years and $35+ billion for America's Vogtle.

India plans to nearly triple nuclear capacity from 8.9 GW to 22.5 GW by 2031-32 and reach 100 GW by 2047. The budget allocated ~$2.4 billion for the nuclear program, including development of 5 domestic SMRs by 2033.

COP28 Declaration

At the COP28 climate summit in December 2023, 33 countries signed a commitment to triple nuclear capacity from 375 GW (2020) to ~1,125 GW by 2050. Nuclear energy was recognized for the first time in COP decisions as necessary for limiting warming to 1.5°C. The inclusion of nuclear energy in the EU taxonomy (2023) opened access to green financing for nuclear projects.

Supply Problems: The Perfect Storm

The Kazakhstan Factor

Kazatomprom's production cut of ~10% below planned levels creates a deficit of 10-16 million pounds/year — approximately 6-10% of global consumption. The company may be forced to purchase uranium on the spot market to fulfill contractual obligations.

Cameco Problems

The second-largest producer also faced difficulties. In September 2023, Cameco announced a production cut of 3 million pounds at McArthur River and Cigar Lake. The Cigar Lake mine produced 16.9 million pounds in 2024 — below the target of 18 million — due to problems at the McClean Lake processing facility. McArthur River operates at only 40% of licensed capacity (18 of 25 million pounds).

The Niger Crisis

The military coup in Niger (July 2023) paralyzed Orano's operations — the largest Western operator in the country. The SOMAÏR mine has been suspended since October 2024, 1,050 tonnes of concentrate (~€300 million) are blocked due to the border closure with Benin. The license for the Imouraren deposit — one of the largest in the world — was revoked in June 2024. Niger provided ~20% of French uranium.

Long Development Cycles

The NexGen Rook I project in Canada's Athabasca Basin — the largest in the development stage — required 6+ years just for environmental assessment. Even after obtaining permits (expected in 2026), several years of construction are needed. Capital costs — C$2.2 billion. Industry standard: 10-15 years from discovery to production, meaning today's investment deficit creates a supply crisis in the 2030s.

Investment Considerations

Kazatomprom: Stock Valuation

Indicator	Value
GDR Price (LSE: KAP)	$51-58
Market Capitalization	~$14-15 billion
P/E (TTM)	~11x
Dividend Yield	4.2-4.6%
Net Debt/EBITDA	-0.13 (net cash)
52-week Range	$23-65

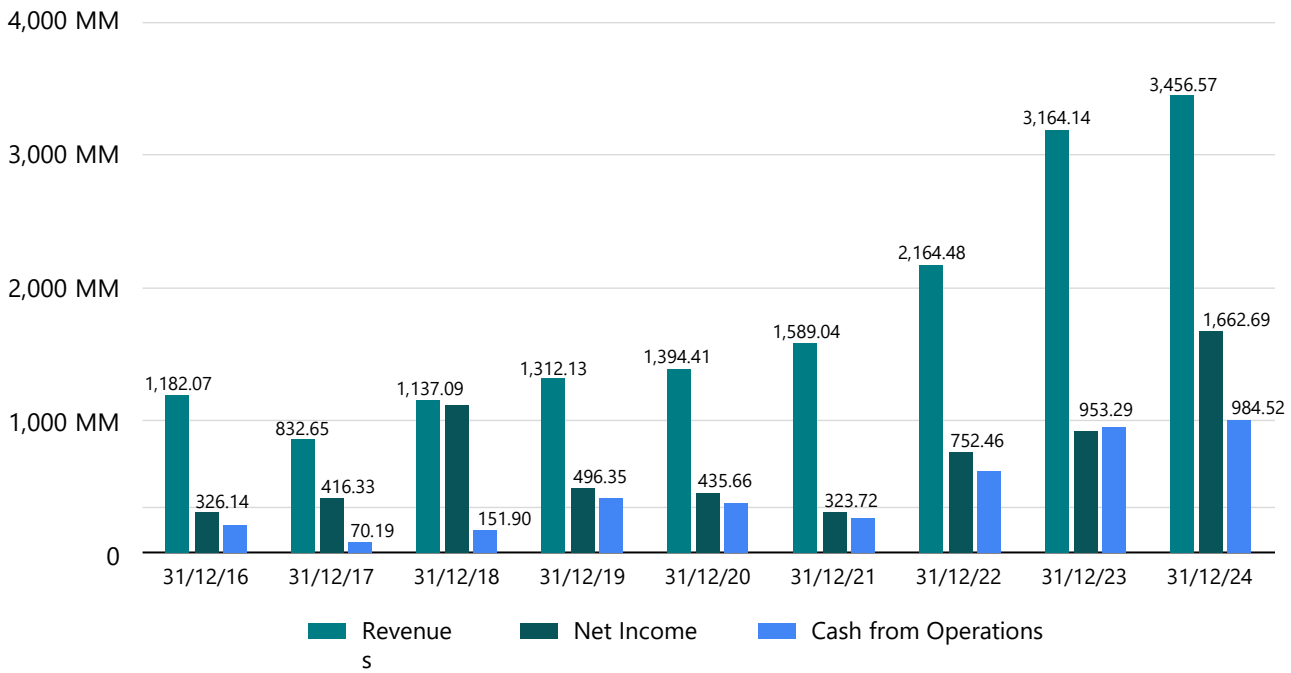
Comparison with Cameco: Kazatomprom trades at a significant discount with P/E of ~11x versus ~52x for Cameco. KAP's dividend yield (~4.5%) significantly exceeds CCO (~0.4%). At the same time, the Kazakhstani company provides 40%+ of global production versus ~17% for the Canadian competitor and has 3.5 times more efficient EBITDA thanks to ISR technology.

Risks

- Russian exposure: 40% of capacity in JVs with Uranium One; transport through Russia; enrichment depends on Russian capacity
- Production problems: Sulfuric acid deficit and Budenovskoye delays may continue until 2026-2027
- Tax pressure: MET increases from 6% (2024) to 9% (2025) and to 18% (2026+) for large volumes
- Geopolitics: Landlocked country with limited transport options

Revenue, profit and operating cash flows of Kazatomprom

KAP (National Atomic Company Kazatomprom JSC)



Why There Is No Alternative to Kazatomprom: Analysis of Global Supply

The key investment thesis for Kazatomprom goes far beyond current financial indicators: there simply are no projects in the world capable of replacing Kazakhstani volumes in the next 20 years. This statement is based not on marketing rhetoric, but on cold analysis of the global uranium project pipeline.

The Mathematics of Deficit: What the Numbers Say

According to the World Nuclear Association, after 2030, if new capacity is not brought online, production at existing mines will significantly decline. Current production of ~60,000 tonnes per year could fall to ~48,000-50,000 tonnes by 2040 — even under optimistic scenarios. Meanwhile, demand will grow from 67,000 tonnes (2024) to 87,000 tonnes (2030) and 150,000-204,000 tonnes (2040). The gap between supply and demand could amount to 50,000-140,000 tonnes annually by 2040.

Grant Isaac, CFO of Cameco, publicly stated that the market "is not pricing in" the end of production at Cigar Lake in 10 years and at McArthur River in 15-20 years. He used the word "panic" to describe the possible reaction of utilities to upcoming supply constraints. These two mines provide more than 18,000 tonnes of annual production — almost 25% of global production outside of Kazakhstan.

Global Pipeline: The Illusion of Choice

Analysis of all major uranium projects in the world at the development stage reveals a critical problem: none of them can come close to Kazatomprom's volumes.

NexGen Rook I / Arrow (Canada): The largest project in development. Resources: 337 million pounds U_3O_8. Planned production: 10,000-13,000 tonnes. Capital costs: C$2.2 billion Canadian dollars. Status: permits expected in 2026, construction will take 4+ years. First production: no earlier than 2030-2031. The project went through 6+ years of environmental assessment alone. Even with perfect execution, NexGen will yield ~15,000 tonnes/year — less than 65% of Kazatomprom's volumes alone.

Global Atomic Dasa (Niger): Resources: 30,000 tonnes. Planned production: approximately 2,000 tonnes/year. Status: construction continues, but geopolitical risks after the 2023 coup remain high. The project will provide less than 3% of global demand.

Paladin Langer Heinrich (Namibia): Restarted in 2024 after 6 years of care and maintenance. Target production: 2,700 tonnes/year. Already faced operational problems — 2025 floods forced withdrawal of the production forecast. The mine will provide ~4% of global supply.

Husab (Namibia): Owned by CGN (China). One of the largest in the world: 6,800 tonnes/year design capacity. But this is an existing mine, not a new project. Production goes mainly to China.

Cameco Millennium (Canada): Resources: 47.5 thousand tonnes. Status: Cameco withdrew its environmental assessment application in 2014. The project is "nowhere close to the development planning stage." Minimum 10-15 years to production under an optimistic scenario.

USA (ISR projects): Ur-Energy Lost Creek, Energy Fuels, enCore and others. Combined capacity: ~6.3 thousand tonnes/year. Actual production in 2024: 307 tonnes. Even at full utilization, all American ISR projects together will yield less than 10% of Kazatomprom's volumes.

The Uniqueness of Kazakhstan's ISR Geology

ISR technology can only be applied under specific geological conditions: a porous uranium horizon for solution passage and dense impermeable layers above and below for control. More than 65% of the world's uranium reserves suitable for ISR extraction are concentrated in Kazakhstan. This is not a political advantage — this is geology.

Kazatomprom's production cost: $10-14/pound (C1 cash cost) and $13-15/pound (all-in). For comparison: Canadian underground mines — $30-50/pound, Australian open pits — $25-40/pound, American ISR — $35-45/pound. Under any price scenario, Kazatomprom remains profitable.

Additional advantage: deployment speed. Kazatomprom brings an ISR mine to commercial production in 18 months from the start of construction. The global average for ISR is 3 years. For underground mines — 10-15 years.

Depletion of Competitors' Flagship Assets

Cameco openly acknowledges the time constraints of its flagship assets:

- Cigar Lake: 8.1 thousand tonnes/year at peak. Entering the second phase with expected decline in production by 2035. Complete depletion — early 2030s.
- McArthur River: 11.4 thousand tonnes/year licensed capacity, actual production approximately 6 thousand tonnes. Ground freezing problems have already reduced the 2025 forecast. Depletion — 2039-2043.
- Rabbit Lake: On care and maintenance since 2016. Requires a new tailings facility for restart. Timeline uncertain.

Kazatomprom acknowledges that half of its current projects will be exhausted within 10 years. However, the company owns the industry's largest resource base — nearly 300,000 tonnes of attributable reserves — and can expand it with relatively limited investment thanks to its status as national operator.

The Time Gap: Why Deficit Is Inevitable

Critical fact: 10-20 years pass from discovery of a deposit to first production. Even with immediate contracting by utilities at incentive prices, new projects will deliver supplies in 5-7 years minimum. Most significant projects require 10-15 years from exploration to production.

This means: the supply deficit in the 2030s is already programmed. It cannot be eliminated by any political decisions or investments — the physical constraints of time are insurmountable. Utilities that have not contracted long-term supplies today will face an acute deficit in 5-10 years.

In this context, Kazatomprom is not just the largest producer. It is the only producer in the world capable of flexibly increasing volumes (thanks to ISR) and having a resource base to sustain production over a 20+ year horizon. An alternative — in the literal sense — does not exist.

Executive Summary

The global uranium market has entered a phase of structural supply deficit that cannot be resolved through higher prices or accelerated investment over the next 10–15 years. Following a decade of chronic underinvestment, primary mine supply continues to fall structurally short of reactor demand, while secondary sources—commercial inventories and reprocessing—have been largely depleted. As a result, the supply shortfall is time-embedded rather than cyclical in nature.

By 2030, global uranium demand is expected to increase by approximately 28%, and to more than double by 2040. This growth is driven primarily by large-scale reactor construction in China and India, the reintegration of nuclear power into Western energy policy, and a sharp rise in electricity demand from data centers and artificial intelligence infrastructure. Nuclear energy is once again emerging as a critical source of carbon-free baseload power, a trend reinforced by long-term power purchase agreements signed by Big Tech companies (Microsoft, Google, Amazon, Meta) and by commitments from 33 countries to triple nuclear capacity by 2050.

Supply is structurally incapable of responding adequately to this demand. The development of new uranium projects typically requires 10–20 years, while the global project pipeline is effectively depleted. Major alternative projects (NexGen, Global Atomic, Paladin, and U.S. ISR projects) are either too small in scale, too early in development, or exposed to elevated geopolitical and operational risks. None is capable of replacing Kazakhstan's production volumes within any realistic time horizon.

Against this backdrop, Kazatomprom occupies a unique and effectively irreplaceable position in the global uranium supply chain. The company controls 39–43% of global uranium production, holds the largest resource base in the industry, and benefits from the lowest cost structure globally due to its in-situ recovery (ISR) mining technology. More than 65% of the world's ISR-amenable uranium resources are geologically concentrated in Kazakhstan—representing a fundamental geological advantage rather than a political one.

Kazatomprom's near-term operational challenges—including sulfuric acid shortages, delays at the Budenovskoye project, and reduced production guidance—reinforce the structural supply deficit rather than undermine the investment thesis. These constraints remove approximately 6–10% of global supply and materially increase the likelihood that utilities will be forced to compete for limited uranium volumes at progressively higher prices. Importantly, the company's financial position remains robust, characterized by a net cash balance, high margins, and substantial dividend capacity.

The core investment conclusion is clear: the market continues to treat uranium as a cyclical commodity, whereas in reality it has entered a long-duration structural bull market driven by physical supply constraints and sustained multi-decade demand growth. Within this framework, Kazatomprom represents a rare example of a systemically critical producer for which no comparable global alternative exists over the next two decades.

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