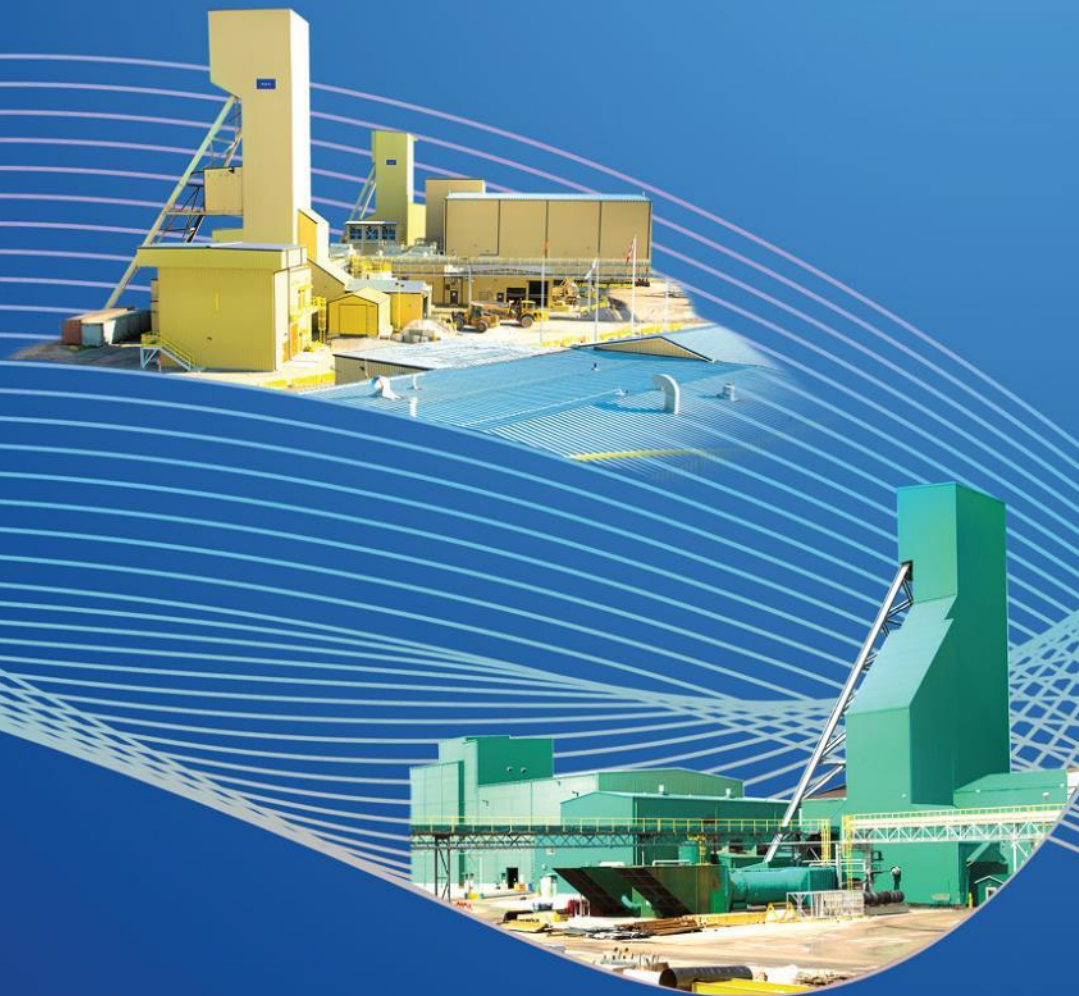


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Investor Presentation



Please note that statements made in this handout, including statements regarding the outlook, company's objectives, projections, estimates, expectations or predictions, contain forward-looking information and statements within the meaning of applicable Canadian and U.S. securities laws. The company cautions that such information and statements involve risk and uncertainty, and that actual results could differ materially from those contained in them. In addition, certain material factors or assumptions were applied in drawing the conclusions or making the forecasts or projections reflected in them. Additional information about the material factors that could cause actual results to differ materially, and the material factors or assumptions that were applied, are contained at the end of this handout.



Rachelle Girard
Vice-President, Investor Relations, Treasury and Tax
306.956.6403
rachelle_girard @cameco.com



Q4, 2022

Financial and outlook information as of February 8, 2023
Mineral Reserve and Resource Estimates as of December 31, 2022



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Company Overview

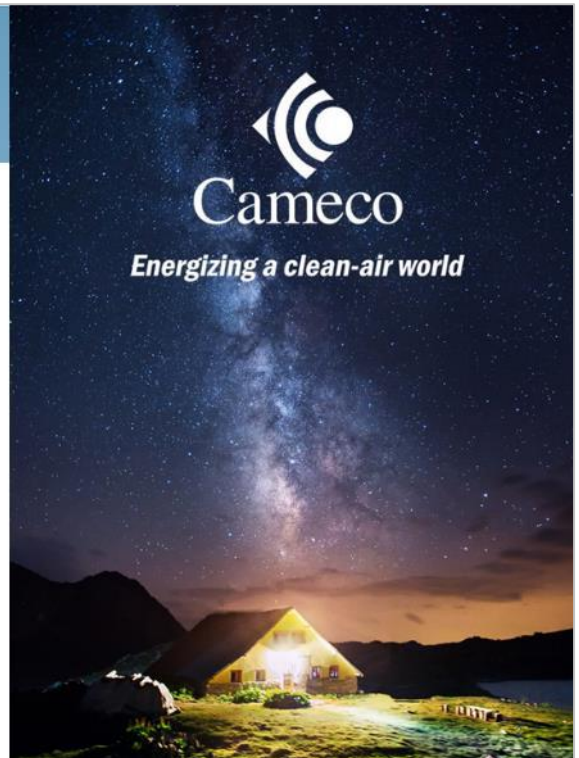
Q4, 2022

Right Vision and Strategy

- Our vision is aligned with the world's growing need for carbon-free energy
- Nuclear power can help avoid some of the worst consequences of climate change
- Our strategy is positioning Cameco to achieve our vision



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Favourable Uranium Market Fundamentals Cameco Strategically Positioned

		
Growing Demand	Uncertain Supply	Cameco is Well-Positioned
<p>Global focus on:</p> <ul style="list-style-type: none"> • Energy security • Electrification • Decarbonization • Country net-zero targets • Company net-zero targets • Infrastructure investments 	<ul style="list-style-type: none"> • Planned supply curtailments • Unplanned supply disruption • Underinvestment in existing capacity • Underinvestment in new capacity • Decreasing secondary supply • Geopolitical and trade policy risk 	<p>Strategy to capture full-cycle value</p> <ul style="list-style-type: none"> • Long-term contract portfolio • Operational flexibility • Tier-one expansion capacity • Idled tier-two capacity • Project pipeline – brownfield • More than mining – invested across the fuel cycle • Risk managed financial discipline

Fourth Quarter 2022

Cameco Corporation

Contract portfolio

- Long-term diversified contract portfolio with customers around the world, average 21 million pounds per year over the next 5 years in sales
- Contracts have provided price protection and exposure to rising prices

Assets

- Tier-one: low-cost, high-grade mines in Canada and JV in Kazakhstan
- Long-time operator, licensed, permitted with significant reserves and resources
- Invested across the fuel chain, investing in digitization and automation

Financial strength

- Strong balance sheet – ability to self-manage risk and execute strategy

ESG

- Over 30 years commitment and performance: focus on health and safety, environment, community and governance

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4

Net-zero Carbon Targets Triple Challenge



Energy Poverty

- Lift 1/3 of the global population out of energy poverty



Thermal Replacement

- Replace up to 85% of grid running on carbon-emitting thermal power with a clean, reliable alternative



Electrifying Industry

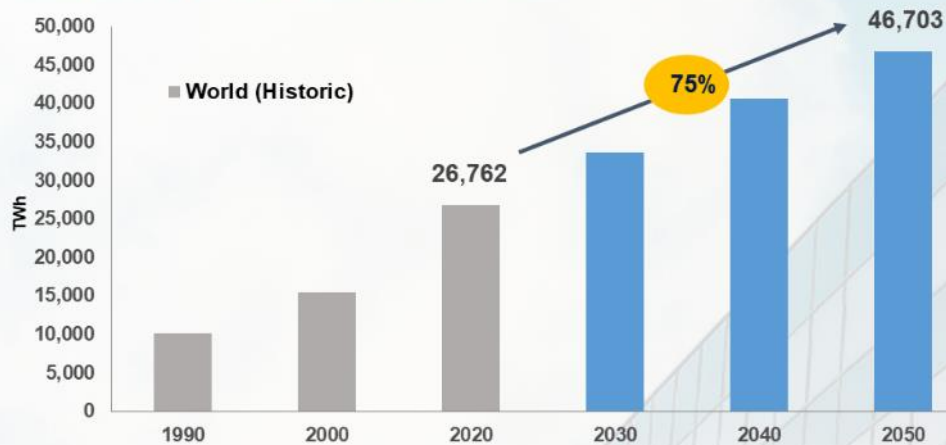
- Electrify industries largely powered by carbon-emitting thermal energy today

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5

Growing Demand for Electricity

By 2050, global demand is expected to increase by 75% from 2020 levels



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Attributes of Nuclear



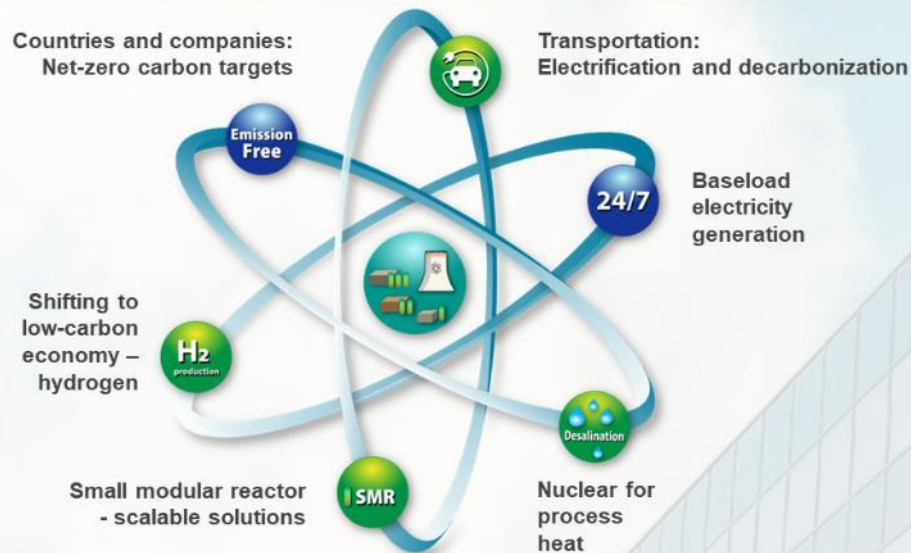
- ✓ Designed to operate for long cycles
- ✓ Strategic inventory to guard against supply disruptions
- ✓ Back-up systems
- ✓ Fewer people required at site
- ✓ Carbon-free
- ✓ Safety
- ✓ Reliability
- ✓ Baseload



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Nuclear's Low-carbon Advantage Expanding Role for Nuclear



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Increasing Need for Zero-Carbon Energy Source to Meet Growing Electricity Demand



Nuclear Energy is Expected to Play a Critical Role in Future Power Generation



Energy demand is expected to grow at ~2% per year to 2040¹



Fossil fuel retirements due to decarbonization expected to contribute to energy gap that must be filled by other power generation sources



Traditional renewables are projected to provide up to 75% of future energy needs, but cannot support 100% of demand due to their intermittent nature and limitations of batteries²



Nuclear energy is important to help fill the clean energy gap left by fossil fuels and renewables as well as energy storage limitations

Nuclear Meets All Key Power Generation Objectives

	Nuclear	CCGT	Coal	Wind	Solar	Hydro
Baseload	✓	✓	✓	✗	✗	✓
Capacity Factor	✓	✓	✓	✗	✗	✗
Low Emissions ³	✓	✗	✗	✓	✓	✓
Ability to Add Additional Capacity	✓	✓	✗ ⁴	✓	✓	✗ ⁵
Large-Scale Output ⁶	✓	✓	✓	✗	✗	✓
Protected from Fuel Supply Interruption	✓	✗	✗	✗	✗	✓
Average Levelized Cost of Electricity (US\$/MWh) ⁷	~\$40	~\$80	~\$100	~\$70	~\$95	~\$90

Nuclear Energy Represents a Safe, Reliable and Affordable Source of Baseload Carbon-Free Power

¹ IEA World Energy Outlook 2021; ² International Renewable Energy Agency Global Energy Transformation: A Roadmap to 2050; ³ Based on grams of CO₂ emitted per kilowatt-hour produced; ⁴ Coal capacity can be increased but expansion is tempered by policy issues; ⁵ Limited availability of additional sites for large-scale hydro development in most countries; ⁶ Based on output capacity of typical power plants of each type (1,000 MW or higher defined as plants with large-scale output); ⁷ Based on median levelized costs of electricity by plant category from Projected Costs of Generating Electricity 2020, IEA.

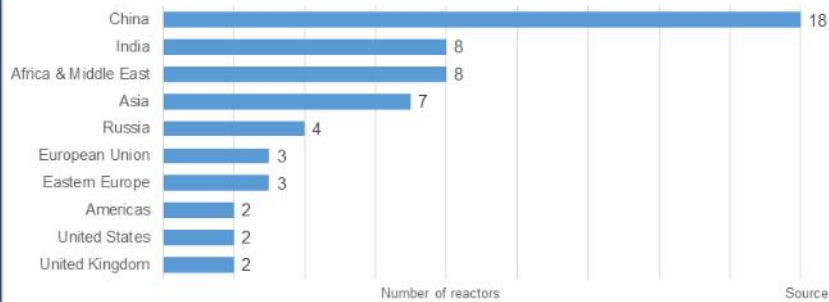
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Uranium Market Future Growth

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reactors under construction



China's reactor fleet



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Uranium Market Fundamentals



Producers

Durable demand:

- Decarbonization & electrification
- ESG focus creating electron accountability
- Traditional demand improving (near, mid, long-term)
- Non-traditional demand (SMRs and advanced nuclear reactors)

Demand from financial investors driven by intrinsic value of clean energy uranium

Risk is shifting to

Uranium Customers

Uncertain supply:

- Low prices caused:
 - Supply curtailment
 - End of reserve life
 - Lack of investment in supply
- COVID & global supply chain challenges

Origin risk: geopolitical & trade policy issues

Development risk: unproven assets, cost inflation & schedule delays from COVID & global supply chains, increasing regulatory and ESG scrutiny, inflation

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Origin Concerns Geopolitical Developments



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Russian Capacity:

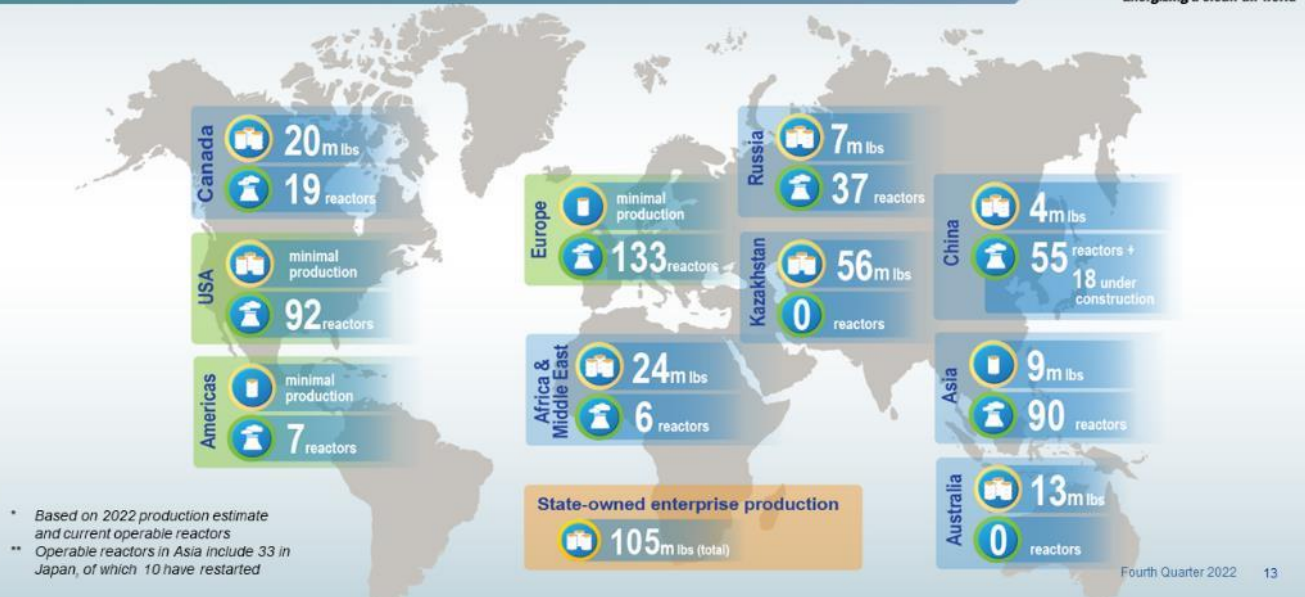
- 14% - Uranium
- 27% - Conversion
- 39% - Enrichment

Source - 2022Q1 UMO, CMO and EMO Data - Base Supply from Russia

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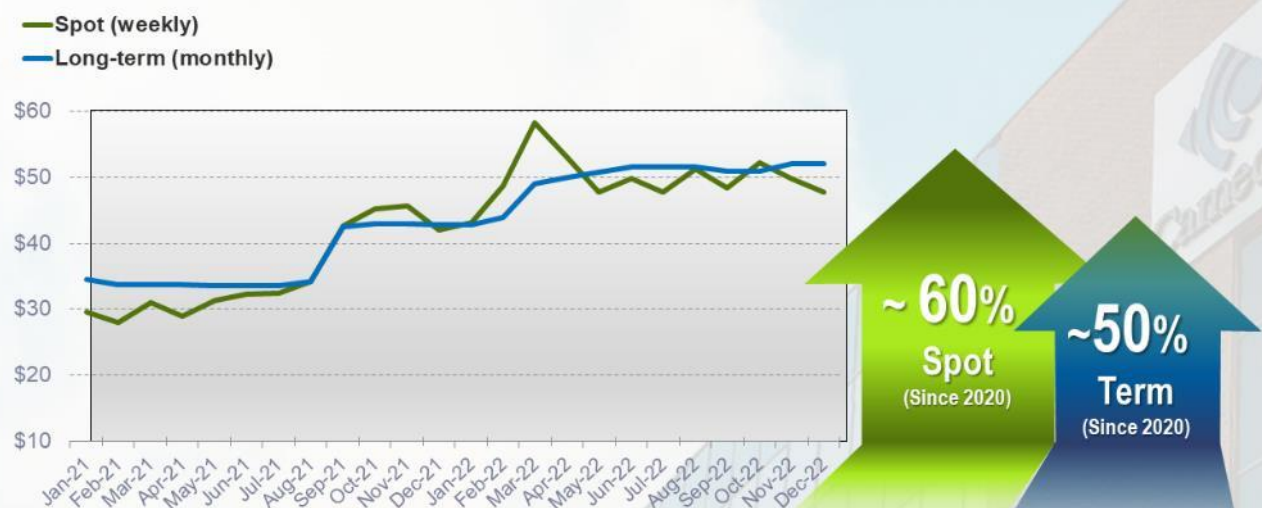
12

Origin Disconnect



Uranium market

2021-2022 Spot Price



Signposts of a Market Shift

Meaningful contracting activity reflected in price and market improvement



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Cameco's Disciplined Strategy of Full-Cycle Value Capture

- Strategically patient long-term contracting
- Balanced portfolio
- Optimize market-related portion of contract portfolio, with focus on protection from commodity volatility



Operationally flexible supply discipline

- Align production with contract portfolio and market signals

Risk-managed financial discipline

- Self-manage risk
- Supports opportunistic investment in nuclear fuel value chain



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Operationally Flexible Supply Key Align Production with Market and Contract Portfolio



Cameco a demonstrated tier-one producer with proven tier-one assets

Spot is NOT the market	Long-term value focus
<ul style="list-style-type: none"> We do not plan production for spot exposure We are typically over-contracted and are net spot buyers, not sellers Contracted sales commitments determine production 	<ul style="list-style-type: none"> Diversified, commercial supply Proven reliable supplier Productive capacity underpinned by contract portfolio Growing contract portfolio & improving pipeline on- and off-market – stretching through 2030s Investing in operational flexibility Financially disciplined

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Uranium Market Fundamentals Full-cycle Value



Great assets necessary but not sufficient for full-cycle value

Spot Market	Long-term Market	Incumbent Producer Advantages
<ul style="list-style-type: none"> Thinly-traded One-time, discretionary volumes <p><i>Productive capacity missing the long-term contracting cycle leads to value-destructive, spot-exposed sales</i></p>	<ul style="list-style-type: none"> Full-cycle value created through long-term contracting Production capacity must be flexible and aligned with contracting cycle Multi-year requirements layered in during periods of above replacement-rate contracting Exposure to greater returns as prices increase and protected for periods of low prices 	<ul style="list-style-type: none"> Utilities prefer proven reliable suppliers - tier-one assets demonstrated not promised Licensed/permitted assets market-aligned with contracting cycle Diversified sources and vertically integrated services Proven ESG performance

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Improving Uranium Market Fundamentals The Next Phase



Contract Portfolio and Pipeline	Operational Readiness and Flexibility
<ul style="list-style-type: none"> • Growing contract portfolio and robust pipeline • About 58 m lbs in long-term uranium and advancing 22 m lbs; 12 m kgU in UF₆ conversion contracts and advancing 5 m kgU since beginning 2022 	<ul style="list-style-type: none"> • Preparing assets for operational readiness and flexibility • Remain aligned with market and contract portfolio • 2024 planned production over 30% below productive capacity* (100% basis)

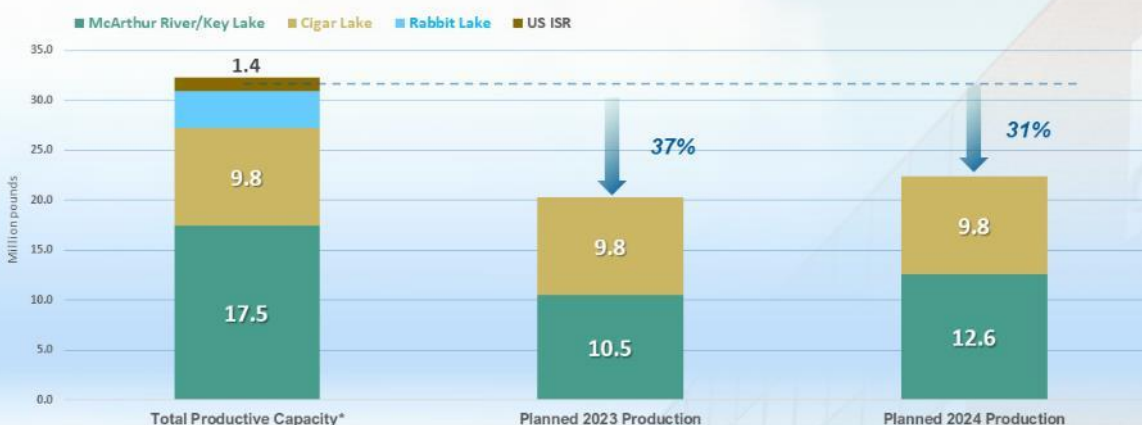
* Productive capacity includes licensed capacity at Cigar Lake and McArthur River/Key Lake, and it includes planned production volumes at Rabbit Lake and our US operations prior to curtailment in 2016.

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Operational Flexibility Our Tier-one Supply Discipline Continues

Productive Capacity vs. Production (our share)



* Productive capacity includes licensed capacity at Cigar Lake and McArthur River/Key Lake, and it includes planned production volumes at Rabbit Lake and our US operations prior to curtailment in 2016.

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Financial Strength Transitioning to Tier-One Run-Rate



Next phase of our supply discipline

- Categorically positive for Cameco
- Expect improving margins and cash flows
 - More tier-one production
 - Fewer spot purchases, ability to pull forward long-term purchases
 - No longer expensing care and maintenance costs or operational readiness costs for McArthur River/Key Lake
 - Market-related portion of contract portfolio exposed to higher uranium prices
 - Uncommitted in-ground inventory
- Enviably balance sheet and positioned to self-manage risk
 - Opportunistic investment in nuclear fuel value chain

Fourth Quarter 2022

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Sustainability Measures of Success



Safe, healthy, rewarding workplace



Industrial Safety

For the fourth consecutive year, a new performance record was set in 2021 with improvements to our Total Recordable Injury Rate.

Supportive communities



Community Economy

Since 2004, Cameco has procured over \$4 billion for services from northern Saskatchewan businesses.

Clean environment



Environmental Performance

Fourteen consecutive years with zero significant environmental incidents. We test over 85,000 soil, water and air samples each year at our North American operations.



A Tiny Footprint

From less than seven square kilometers, our Saskatchewan tier-one operations have the licensed capacity (100% basis) to produce virtually all the uranium used by US nuclear utilities each year in meeting about 20% of total US electricity demand.

100% of our product goes to producing clean, carbon-free, base-load electricity

Fourth Quarter 2022

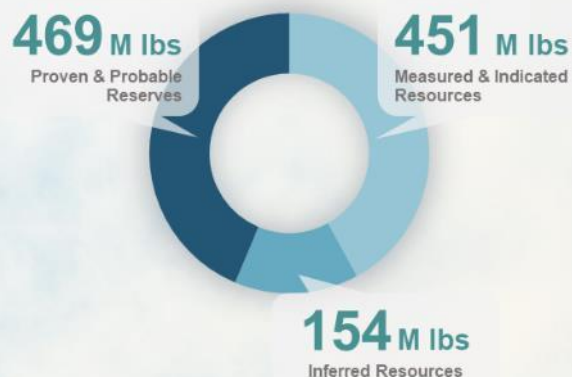
22

Focus on Value

Well Positioned for Future Demand with World-class, Tier-one Assets



Cameco's Share



All values shown, including reserves and resources, represent our share only, unless indicated. Please see Cameco's most recent annual management's discussion and analysis (MD&A) for more information about these reserves and resources.

- ✓ Extensive reserves and resources
- ✓ Diversified supply
- ✓ Decisions driven by contracting success

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McArthur River/Key Lake

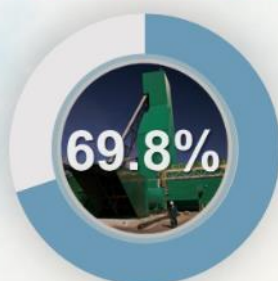
The World's Largest, High-grade Uranium Mine



Proven and Probable Reserves¹
275.0 M lbs

Average grade U_3O_8
6.70%

Cameco's Share



Production

2022 production	0.8 M lbs
2023 forecast	10.5 M lbs
2024 plan	12.6 M lbs

¹ At December 31, 2022

All values shown, including reserves and resources, represent our share only, unless indicated. See Cameco's 2022 annual management's discussion and analysis (MD&A) for more information about reserves and resources.

Fourth Quarter 2022

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Cigar Lake

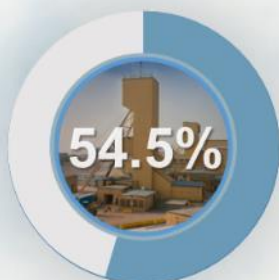
Uranium Grades 100 Times the World Average



Proven and Probable Reserves¹

84.4 M lbs

Cameco's Share²



¹ At December 31, 2022

² Reflects increase in ownership to 54.5% effective May 19, 2022

All values shown, including reserves and resources, represent our share only, unless indicated

See Cameco's 2022 annual management's discussion and analysis (MD&A) for more information about reserves and resources.

Average grade U_3O_8

17.21%

Production²

2022 production **9.6 M lbs**

2023 forecast **9.8 M lbs**

2024 plan **9.8 M lbs**

Fourth Quarter 2022

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Inkai

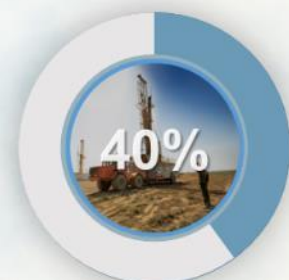
A Significant Low-cost Source of Uranium



Proven and Probable Reserves¹

108.7 M lbs

Cameco's Share



¹ At December 31, 2022

All values shown, including reserves and resources, represent our share only, unless indicated.

See Cameco's 2022 annual management's discussion and analysis (MD&A) for more information about reserves and resources.

Average grade U_3O_8

0.04%

Production

2022 production:
8.3 M lbs (100% basis)

2023 forecast:
8.3 M lbs (100% basis)

Fourth Quarter 2022

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We equity account for our 40% ownership. As such, our share of production is shown as a purchase.

Strong Asset Portfolio

Tier-Two Curtailed Operations

- Rabbit Lake
- US ISR Operations

Advanced Projects

- Millennium
- Yeelirrie
- Kintyre

Fourth Quarter 2022

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Fuel Services Division

Refining, Conversion and Fuel Manufacturing



Blind River Refinery
Port Hope Conversion Facility
Cameco Fuel Manufacturing Inc.

Cameco's Share



Production

2022 production:

13 M kgU

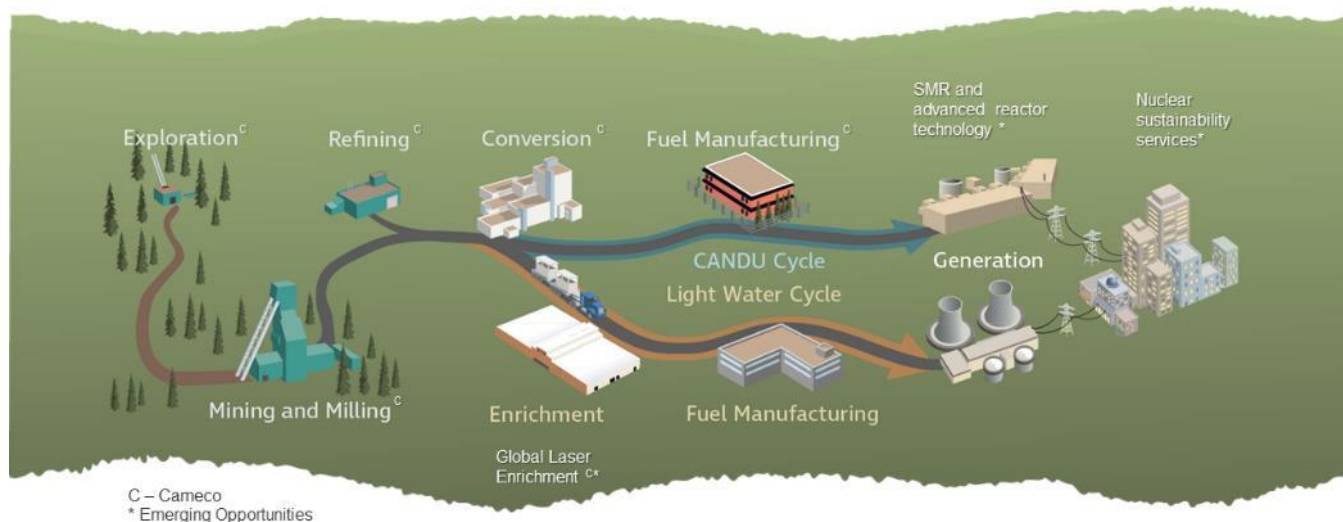
2022 forecast:

13 M – 14 M kgU

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Nuclear Fuel Cycle



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Well-positioned Assets and Portfolio



Tier-one Assets

- Licensed, permitted, long-lived, proven
- Expansion capacity



Tier-two Assets

- Potential value in the future



Exploration portfolio

- Brownfield



Fuel Services

- Invested across the fuel cycle
- And exploring opportunities

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CCO
LISTED
TSX



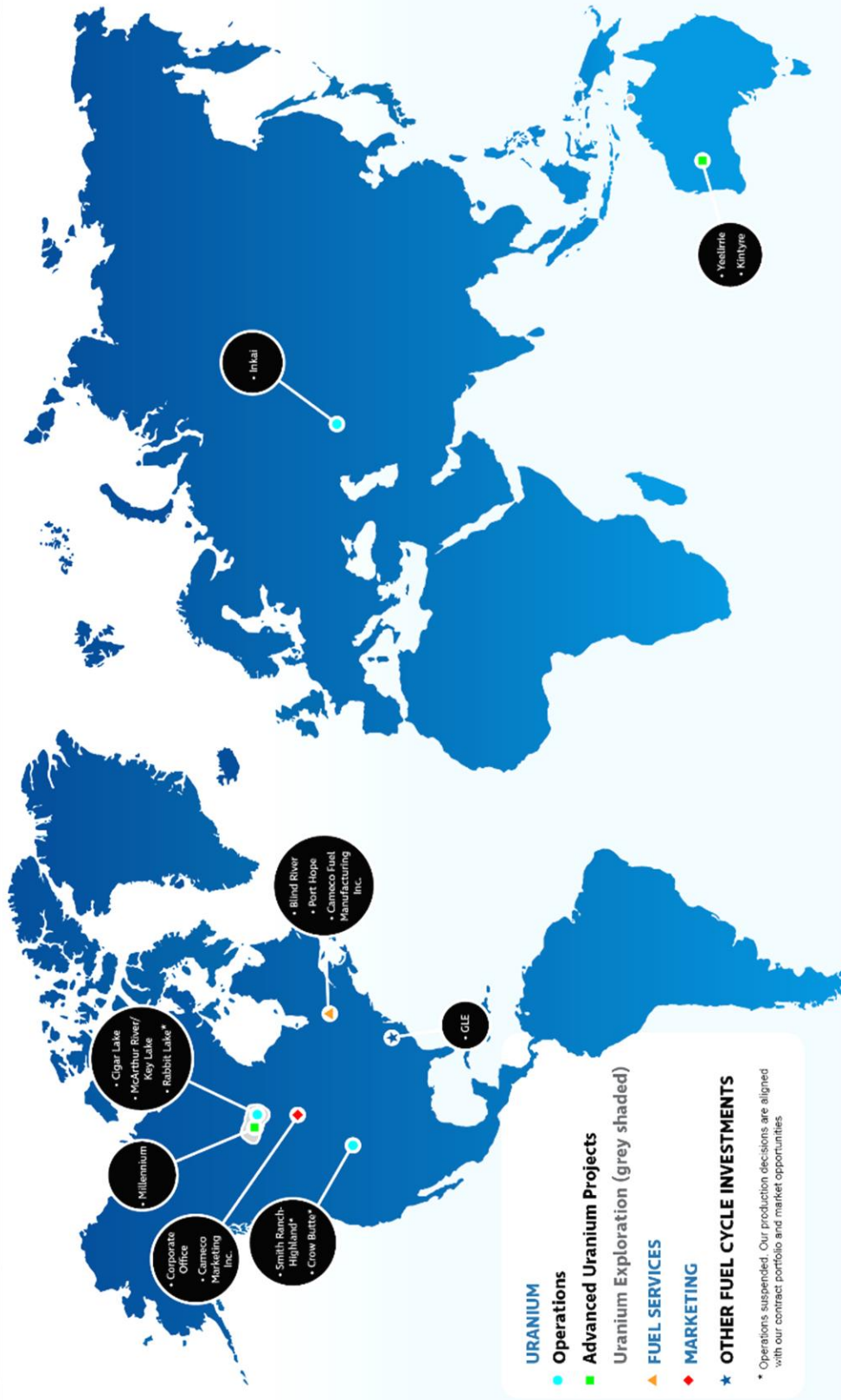
CCJ
LISTED
NYSE



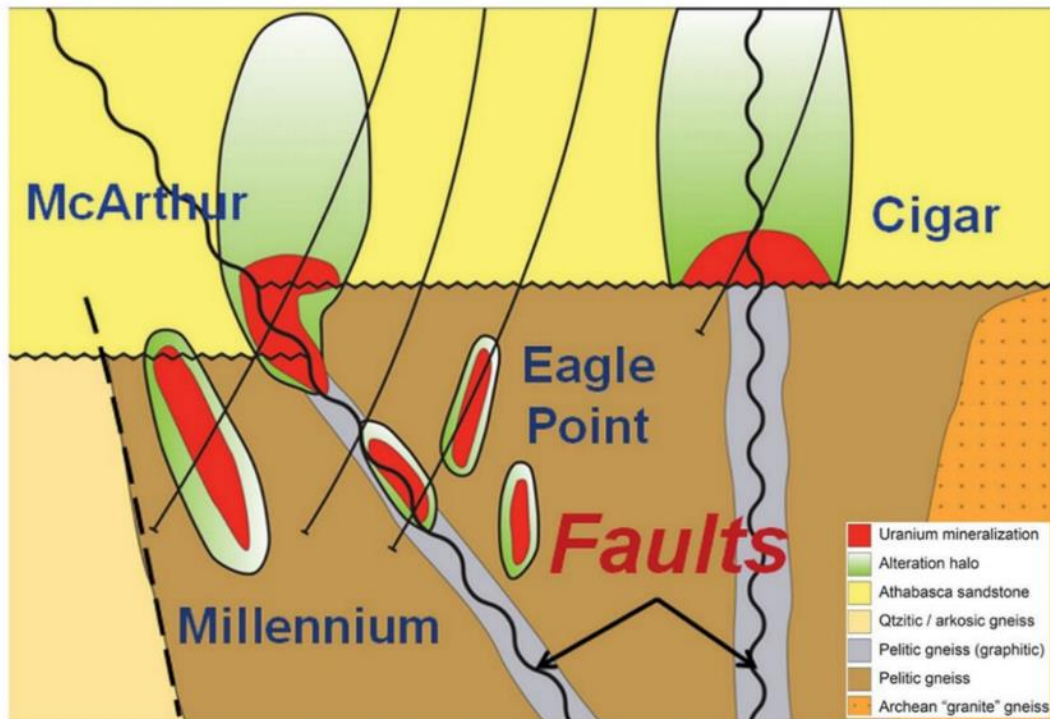
Additional Information, Maps and Reference Figures



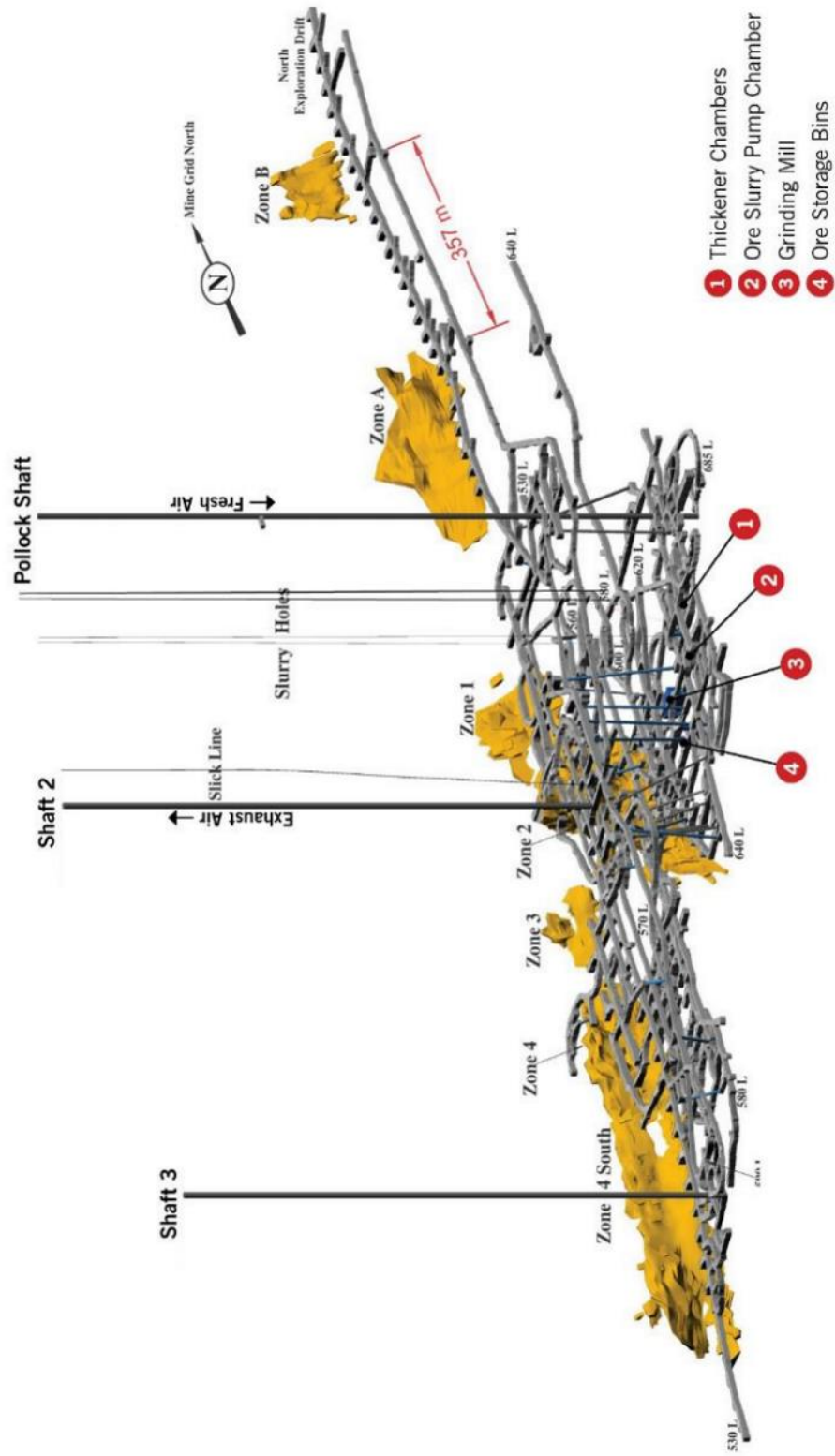
Global Presence Map



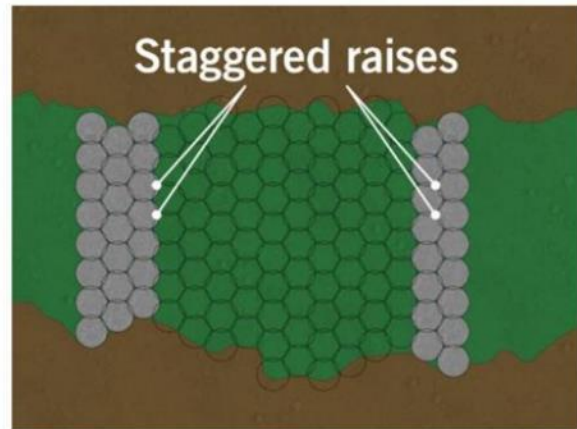
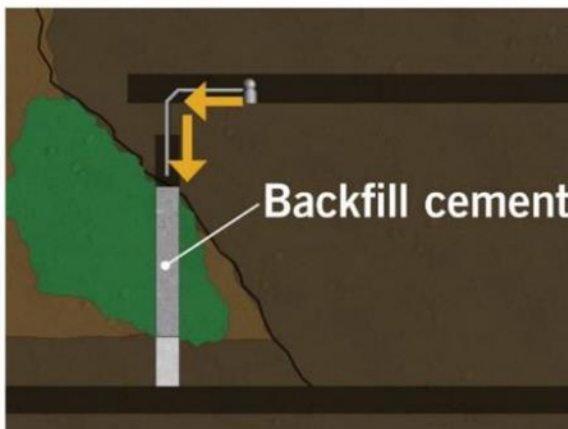
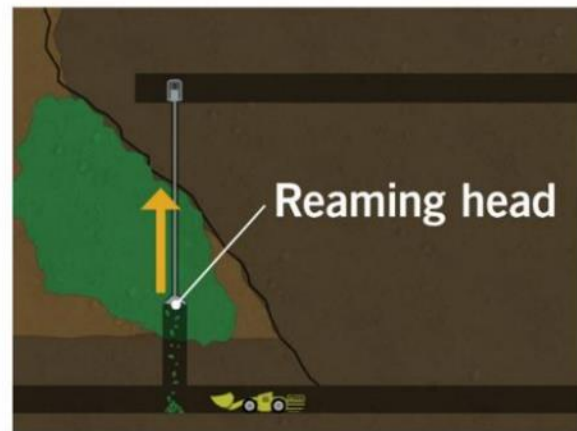
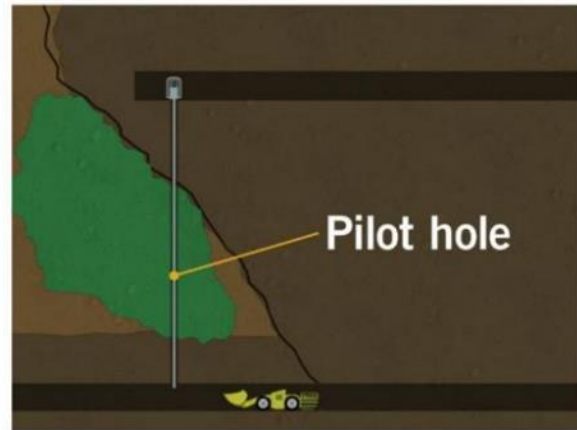
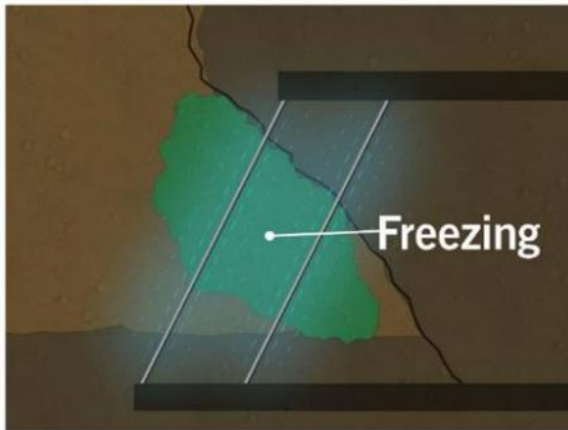
Athabasca Uranium Deposit Model



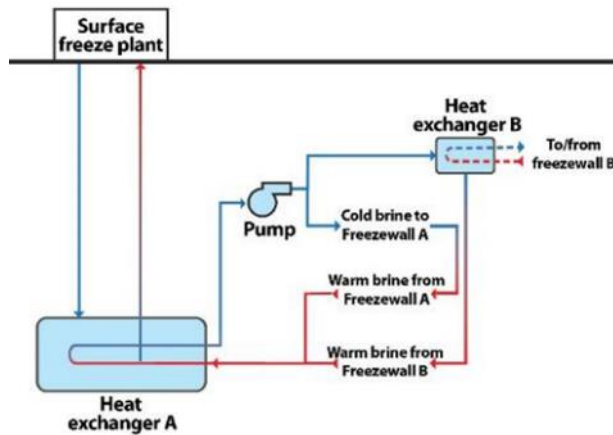
McArthur River - Underground Map



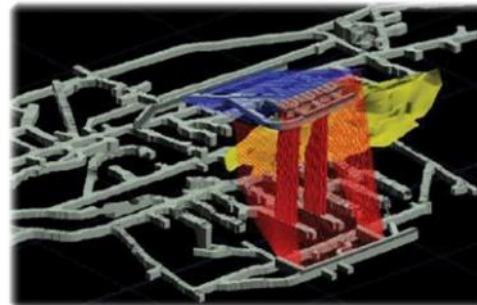
McArthur River - Raise Bore Mining System



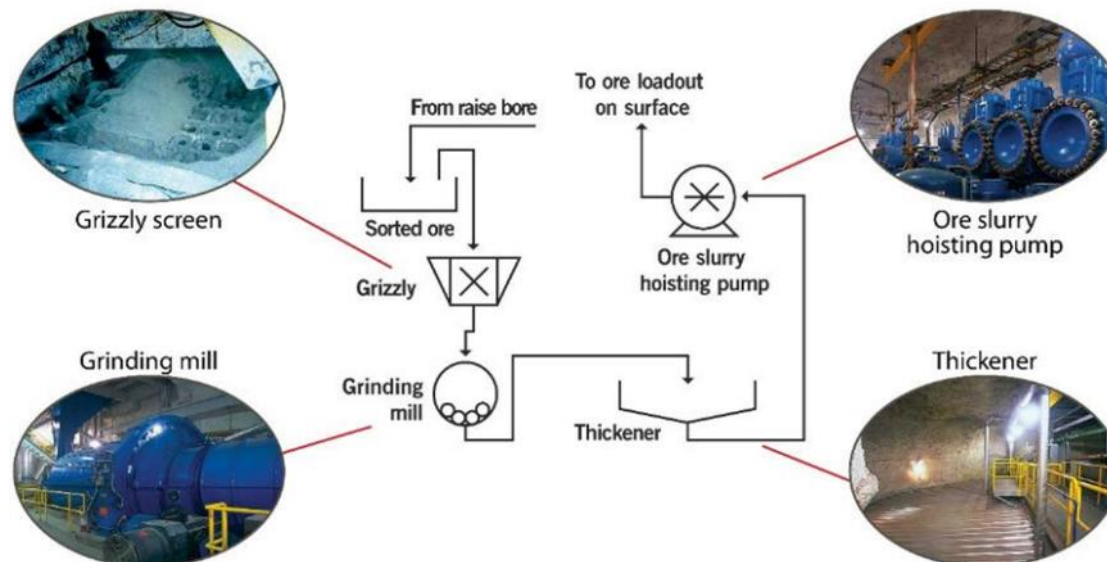
McArthur River - Ground Freezing



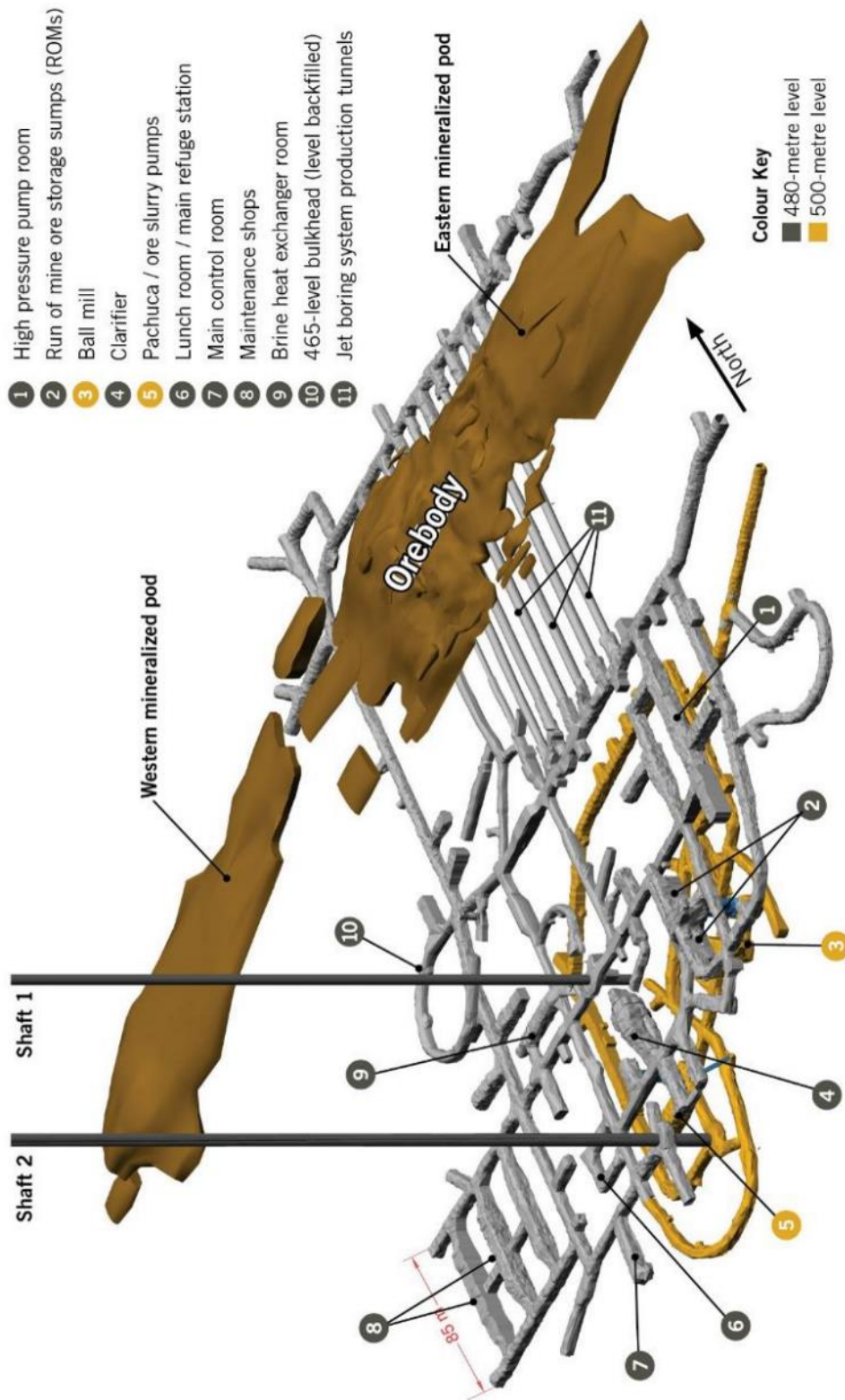
Cathedral freezeway



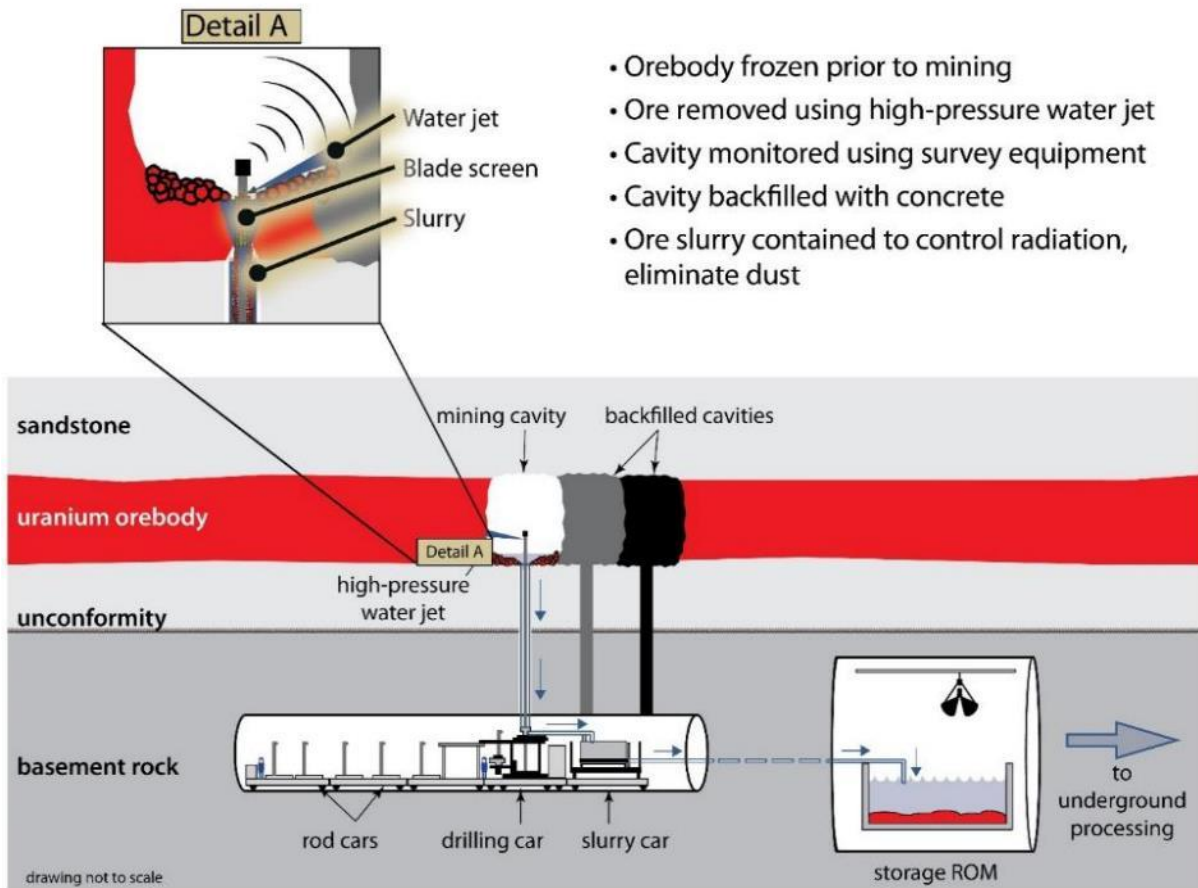
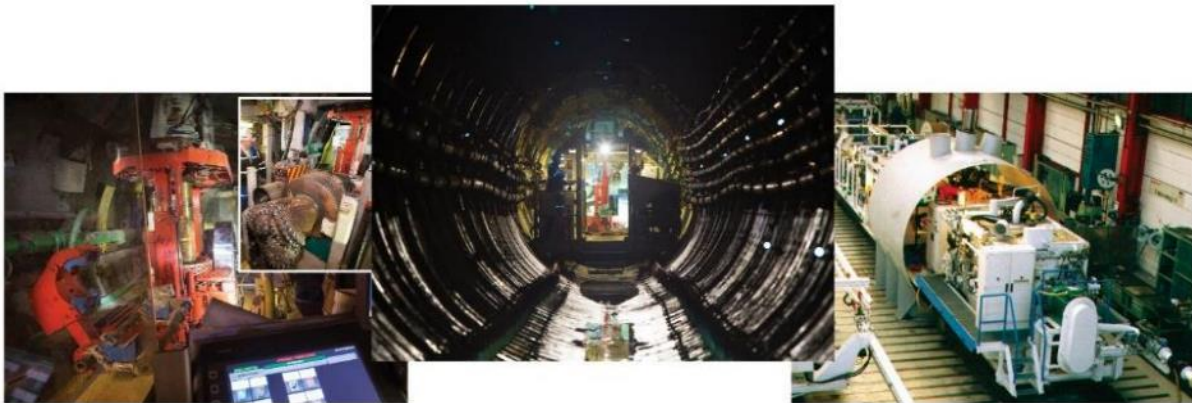
McArthur River - Underground Ore Processing



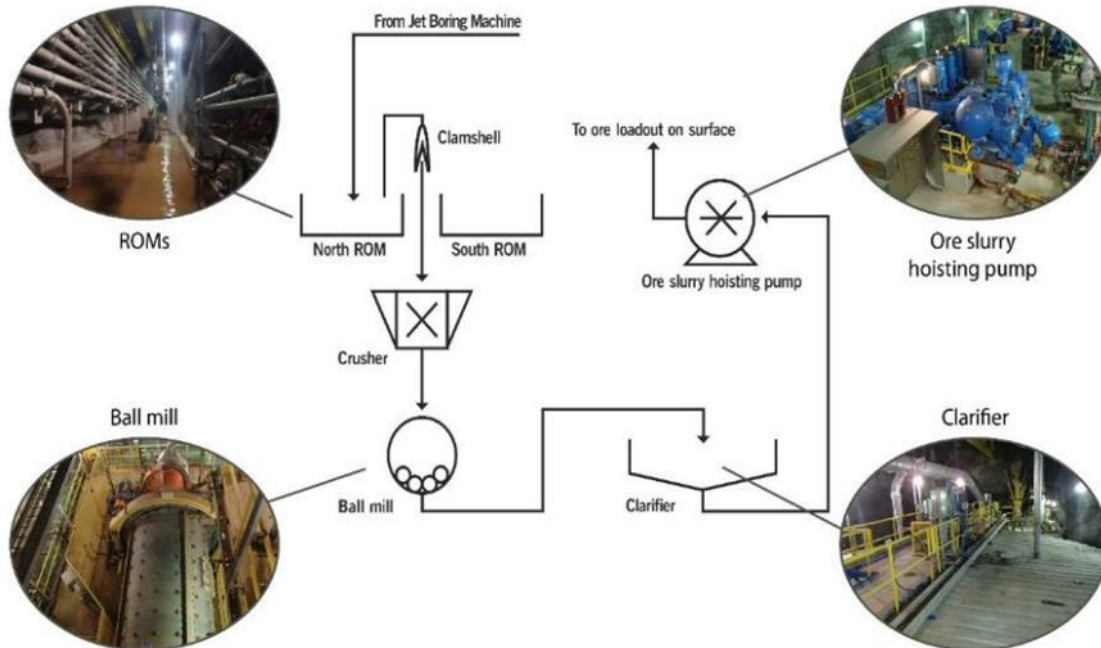
Cigar Lake - Underground Map



Cigar Lake - Jet Bore Mining System (JBS)



Cigar Lake - Underground Ore Processing



Cigar Lake - New Austrian Tunneling Method (NATM)



Advantages

- Adaptive ground support, varies with rock strength
- Smaller amount of area open and unsupported ground at any given time
- Yielding elements absorb stress in a controlled, measured manner

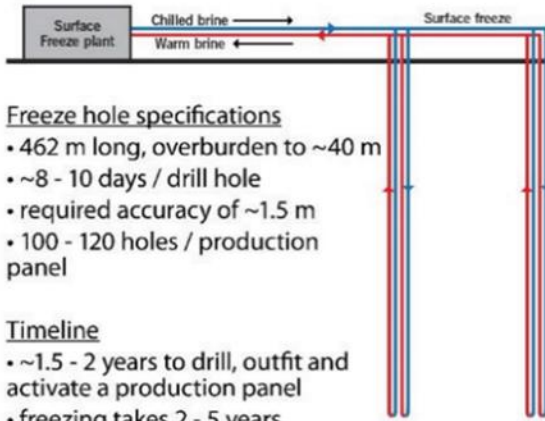


Comparison

- Overall time to develop a cross cut similar to tunnel boring
- NATM advance rate is slower, but setup and finish steps are faster
- Costs are similar between the two methods



Cigar Lake - Surface Freezing

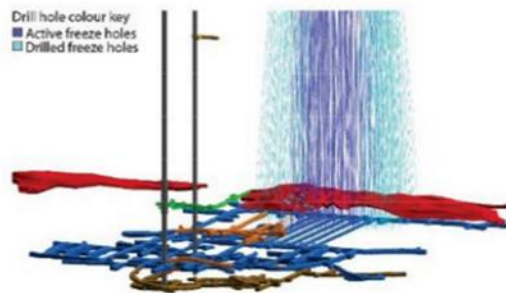


Freeze hole specifications

- 462 m long, overburden to ~40 m
- ~8 - 10 days / drill hole
- required accuracy of ~1.5 m
- 100 - 120 holes / production panel

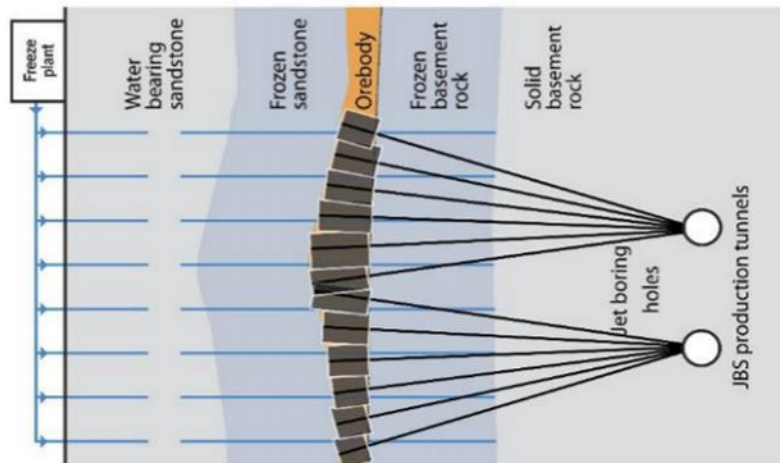
Timeline

- ~1.5 - 2 years to drill, outfit and activate a production panel
- freezing takes 2 - 5 years, depending on hole spacing and ground conditions

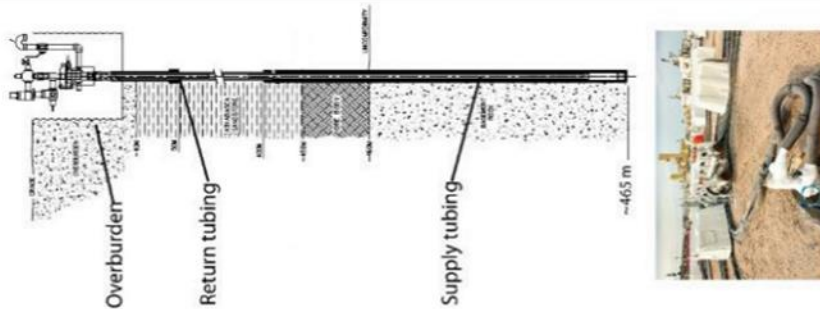


Cigar Lake - Surface Freezing Detail

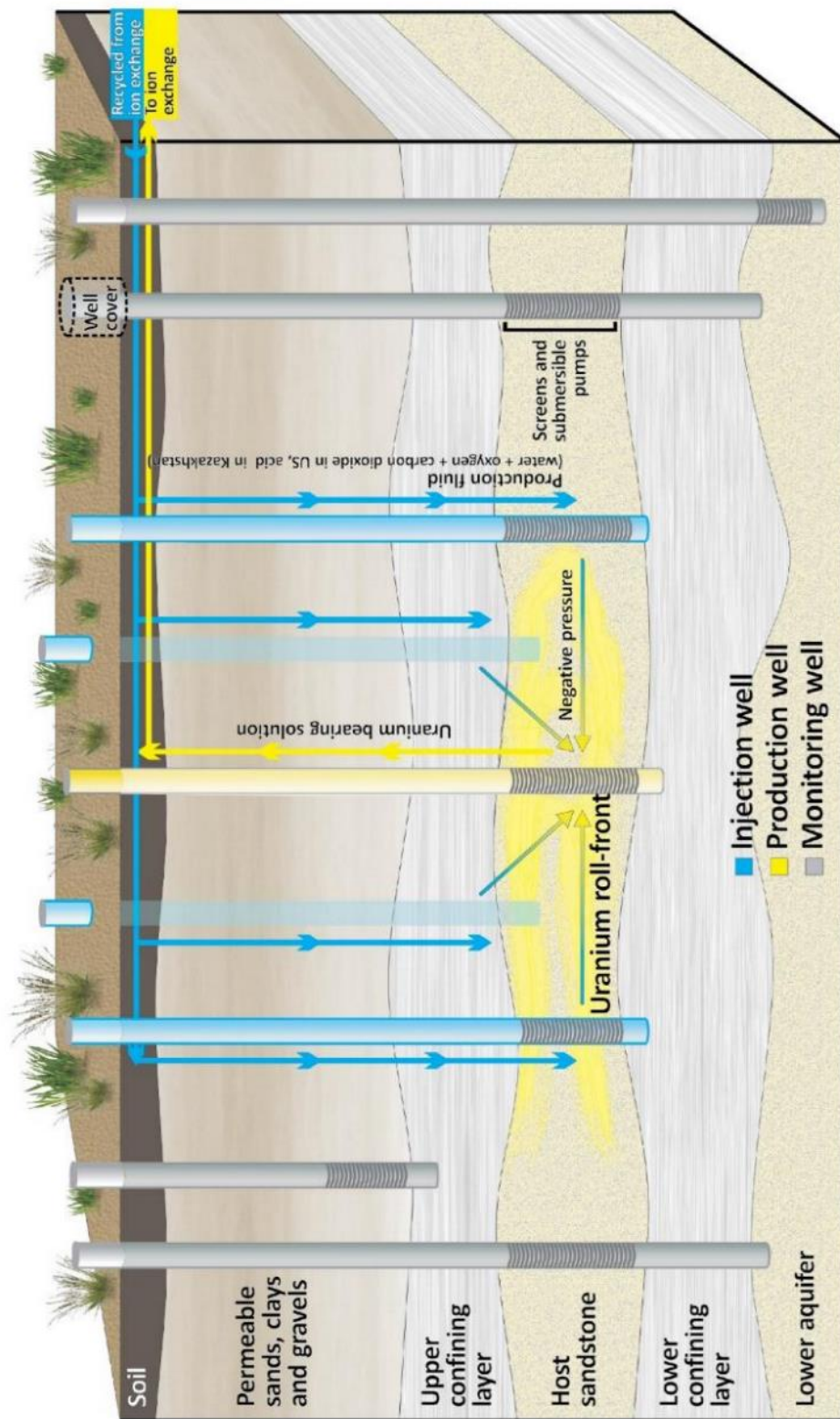
Surface freeze cross section



Freeze hole detail



In-Situ Recovery Process



Mineral reserves

As of December 31, 2022 (100% – only the shaded column shows our share)

PROVEN AND PROBABLE

(tonnes in thousands; pounds in millions)

PROPERTY	MINING METHOD	PROVEN			PROBABLE			TOTAL MINERAL RESERVES			OUR SHARE RESERVES	METALLURGICAL RECOVERY (%)
		TONNES	GRADE % U ₃ O ₈	CONTENT (LBS U ₃ O ₈)	TONNES	GRADE % U ₃ O ₈	CONTENT (LBS U ₃ O ₈)	TONNES	GRADE % U ₃ O ₈	CONTENT (LBS U ₃ O ₈)	CONTENT (LBS U ₃ O ₈)	
Cigar Lake	UG	308.9	16.25	110.7	99.1	20.19	44.1	408.0	17.21	154.8	84.4	98.8
Key Lake	OP	61.1	0.52	0.7	-	-	-	61.1	0.52	0.7	0.6	95
McArthur River	UG	2,138.3	7.00	329.9	530.7	5.47	64.0	2,669.0	6.70	394.0	275.0	99
Inkai	ISR	253,647.2	0.04	218.3	71,803.1	0.03	53.5	325,450.3	0.04	271.8	108.7	85
Total		256,155.6	-	659.7	72,432.9	-	161.6	328,588.5	-	821.3	468.8	-

(UG – underground, OP – open pit, ISR – in situ recovery)

Note that the estimates in the above table:

- use a constant dollar average uranium price of approximately \$53 (US) per pound U₃O₈
- are based on exchange rates of \$1.00 US=\$1.26 Cdn and \$1.00 US=490 Kazakhstan Tenge

Our estimate of mineral reserves and mineral resources may be positively or negatively affected by the occurrence of one or more of the material risks discussed under the heading *Caution about forward-looking information* beginning on page 31, as well as certain property-specific risks.

Please see our mineral reserves and resources section of our most recent annual information form for the specific assumptions, parameters and methods used in the estimate of Cigar Lake, McArthur River, and Inkai mineral reserves.

Metallurgical recovery

We report mineral reserves as the quantity of contained ore supporting our mining plans and provide an estimate of the metallurgical recovery for each uranium property. The estimate of the amount of valuable product that can be physically recovered by the metallurgical extraction process is obtained by multiplying the quantity of contained metal (content) by the planned metallurgical recovery percentage. The content and our share of uranium in the table above are before accounting for estimated metallurgical recovery.

Caution About Forward-Looking Information

Statements contained in this handout include statements and information about our expectations for the future. When we discuss our strategy, plans and future financial and operating performance, or other things that have not yet taken place, we are making statements considered to be forward-looking information or forward-looking statements under Canadian and U.S. securities laws. They represent our current views and can change significantly. These statements are based upon a number of material assumptions, which may prove to be incorrect. Actual results and events may be significantly different from what we currently expect because of the risks associated with our business. We recommend that you review our most recent annual and any subsequent quarterly management's discussion and analysis for more information about these assumptions and risks. You should also review our current annual information form, which includes a discussion of other material risks that could cause actual results to differ significantly from our current expectations. Forward-looking information is designed to help you understand management's current views of our near and longer-term prospects, and it may not be appropriate for other purposes. We will not necessarily update this information unless we are required to by securities laws.

Examples of forward-looking information that may appear in this handout include: our expectations regarding future world electricity consumption and costs; our expectations regarding the demand for nuclear energy, the anticipated number of new reactors and the benefits of nuclear power; statements regarding uranium supply, demand, consumption, production, long-term contracting, prices and market conditions, the reasons for those expectations and the risks associated with them; our ability to respond to changing market conditions; our plans and outlook; production forecasts and other expectations regarding our uranium properties and our fuel services division; mineral reserve and mineral resource estimates; the outcome of litigation or other disputes, including disputes with tax authorities; and our market position and prospects for increasing shareholder value.

The material risks that could cause actual results to vary include: uranium prices decline due to reduced demand for nuclear energy or other causes; we are not successfully able to manage our costs, risks and operations; we are adversely affected by changes in currency exchange rates, interest rates, royalty rates, or tax rates; our production costs are higher than planned; necessary supplies are not available, or not available on commercially reasonable terms; our estimates of production, purchases, costs, cash flow, decommissioning, reclamation expenses, or our tax expense prove to be inaccurate; we are unable to enforce our legal rights under our existing agreements, permits or licences; we are subject to litigation or arbitration that has an adverse outcome; there are defects in, or challenges to, title to our properties; our mineral reserve and resource estimates are not reliable; there are unexpected or challenging geological, hydrological or mining conditions at uranium properties; we are affected by environmental, safety and regulatory risks, including increased regulatory burdens or delays; necessary permits or approvals from government authorities cannot be obtained or maintained; we are affected by political risks; we are affected by a widespread health crisis, terrorism, sabotage, blockades, civil unrest, social or political activism, accident or a deterioration in political support for, or demand for, nuclear energy; we are impacted by changes in the regulation or public perception of the safety of nuclear power plants; government regulations or policies that adversely affect us, including tax and trade laws and policies; our uranium or other suppliers or purchasers fail to fulfil commitments; development, mining or production plans are delayed or do not succeed for any reason; the risk our estimates and forecasts prove to be inaccurate; the risk our strategies are unsuccessful or have unanticipated consequences; we are affected by natural phenomena, including inclement weather, fire, flood and earthquakes; operations are disrupted due to problems with facilities, the unavailability of reagents, equipment, operating parts and supplies critical to production, equipment failure, lack of tailings capacity, labour shortages, labour relations issues, strikes or lockouts, underground floods, cave-ins, ground movements, tailings dam failures, transportation disruptions or accidents, or other development and operating risks.

We have made material assumptions regarding: our ability to manage our costs, risks and operations; sales and purchase volumes and prices for uranium and fuel services; trade restrictions; that counterparties to our sales and purchase agreements will honour their commitments; the demand for and supply of uranium; the construction of new nuclear power plants in various

countries and the relicensing of existing nuclear power plants not being more adversely affected than expected by changes in regulation or in the public perception of the safety of nuclear power plants; our ability to continue to supply our products and services in the expected quantities and at the expected times; production levels; costs, including production and purchase costs; the success of our plans and strategies; market conditions and other factors upon which we have based our plans and outlook; spot prices and realized prices for uranium; tax rates and payments, royalty rates, currency exchange rates and interest rates; the successful outcome of any litigation or arbitration claims; our decommissioning and reclamation expenses; the reliability of our mineral reserve and resource estimates; our understanding of the geological, hydrological and other conditions at uranium properties; the success of development, mining and production plans; our and our contractors' ability to comply with current and future environmental, safety and other regulatory requirements, and to obtain and maintain required regulatory approvals; and operations not being significantly disrupted as a result of a widespread health crisis, political instability, nationalization, terrorism, sabotage, blockades, civil unrest, breakdown, natural disasters, governmental or political actions, litigation or arbitration proceedings, the unavailability of reagents, equipment, operating parts and supplies critical to production, labour shortages, labour relations issues, strikes or lockouts, underground floods, cave-ins, ground movements, tailings dam failure, lack of tailings capacity, transportation disruptions or accidents, or other development or operating risks.

General Disclaimer

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Important information for US investors

We present information about mineralization, mineral reserves and resources as required by National Instrument 43-101 – Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators (NI 43-101), in accordance with applicable Canadian securities laws. As a foreign private issuer filing reports with the US Securities and Exchange Commission (SEC) under the Multijurisdictional Disclosure System, we are not required to comply with the SEC's disclosure requirements relating to mining properties. Investors in the United States should be aware that the disclosure requirements of NI 43-101 are different from those under applicable SEC rules, and the information that we present concerning mineralization, mineral reserves and resources may not be comparable to information made public by companies that comply with the SEC's reporting and disclosure requirements for mining companies.

Qualified persons

The technical and scientific information discussed in this presentation for our material properties (McArthur River/Key Lake, Cigar Lake and Inkai) was approved by the following individuals who are qualified persons for the purposes of NI 43-101:

MCARTHUR RIVER/KEY LAKE

- Greg Murdock, general manager, McArthur River, Cameco
- Daley McIntyre, general manager, Key Lake, Cameco
- Alain D. Renaud, principal resource geologist, technical services, Cameco
- Biman Bharadwaj, principal metallurgist, technical services, Cameco

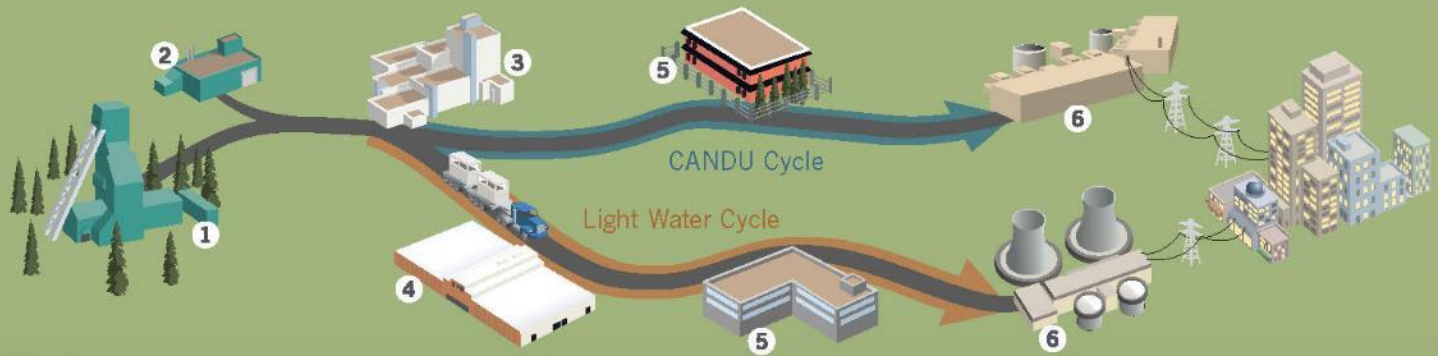
CIGAR LAKE

- Lloyd Rowson, general manager, Cigar Lake, Cameco
- Scott Bishop, director, technical services, Cameco
- Alain D. Renaud, principal resource geologist, technical services, Cameco
- Biman Bharadwaj, principal metallurgist, technical services, Cameco

INKAI

- Alain D. Renaud, principal resource geologist, technical services, Cameco
- Scott Bishop, director, technical services, Cameco
- Biman Bharadwaj, principal metallurgist, technical services, Cameco
- Sergey Ivanov, deputy director general, technical services, Cameco Kazakhstan LLP

The nuclear fuel cycle



1 Mining

Once an orebody is discovered and defined by exploration, there are three common ways to mine uranium, depending on the depth of the orebody and the deposit's geological characteristics:

- *Open pit mining* is used if the ore is near the surface. The ore is usually mined using drilling and blasting.
- *Underground mining* is used if the ore is too deep to make open pit mining economical. Tunnels and shafts provide access to the ore.
- *In situ recovery (ISR)* does not require large scale excavation. Instead, holes are drilled into the ore and a solution is used to dissolve the uranium. The solution is pumped to the surface where the uranium is recovered.

1 Milling

Ore from open pit and underground mines is processed to extract the uranium and package it as a powder typically referred to as uranium concentrates (U_3O_8) or *yellowcake*. The leftover processed rock and other solid waste (*tailings*) is placed in an engineered tailings facility.

2 Refining

Refining removes the impurities from the uranium concentrate and changes its chemical form to *uranium trioxide* (UO_3).

3 Conversion

For light water reactors, the UO_3 is converted to uranium hexafluoride (UF_6) gas to prepare it for enrichment. For heavy water reactors like the CANDU reactor, the UO_3 is converted into powdered *uranium dioxide* (UO_2).

4 Enrichment

Uranium is made up of two main isotopes: U-238 and U-235. Only U-235 atoms, which make up 0.7% of natural uranium, are involved in the nuclear reaction (fission). Most of the world's commercial nuclear reactors require uranium that has an enriched level of U-235 atoms.

The enrichment process increases the concentration of U-235 to between 3% and 5% by separating U-235 atoms from the U-238. Enriched UF_6 gas is then converted to powdered UO_2 .

5 Fuel manufacturing

Natural or enriched UO_2 is pressed into pellets, which are baked at a high temperature. These are packed into zircaloy or stainless steel tubes, sealed and then assembled into fuel bundles.

6 Generation

Nuclear reactors are used to generate electricity. U-235 atoms in the reactor fuel fission, creating heat that generates steam to drive turbines. The fuel bundles in the reactor need to be replaced as the U-235 atoms are depleted, typically after one or two years depending upon the reactor type. The used – or spent – fuel is stored or reprocessed.

Spent fuel management

The majority of spent fuel is safely stored at the reactor site. A small amount of spent fuel is reprocessed. The reprocessed fuel is used in some European and Japanese reactors.

Energizing a clean-air world

