

# Ontario Critical Minerals Strategy

BEV In-Depth Mines to Mobility

May 31, 2023

# Critical Minerals in Ontario

- Ontario's vast mineral wealth is perfectly suited to feed global supply chains for innovative technologies like electric vehicles and battery storage.
- When green technology products reach the market made with Ontario minerals, trading partners know that Ontario is a jurisdiction that is attractive to invest in, with world class standards for ethical business practices, environmental standards, and productive relationships with First Nation communities on all mineral development projects.
- Our goal is to elevate and secure Ontario's place as a globally competitive jurisdiction that is ready to meet increasing global demand for critical minerals. Ontario's vast mineral wealth, along with its competitive business climate, highly skilled work force, and incentives for innovation, position it to become a leading supplier of responsibly sourced minerals.


# Ontario's Critical Minerals Strategy

- Launched in March 2022, the Critical Minerals Strategy will:
  - Secure the province's position as a reliable supplier of responsibly sourced critical minerals.
  - Unlock Ontario's critical minerals exploration and development potential.
  - Build economic development opportunities with Indigenous partners.
  - Invest in geoscience and the mineral exploration sector.
  - Improve Ontario's regulatory framework.
  - Generate investment and increasing Ontario's competitiveness while supporting the transition to a cleaner, sustainable global economy.

# Ontario's Critical Minerals Strategy

The past year of working together, the actions in this strategy have begun to support building a more resilient economy across the six pillars.

**1**  
Enhancing geoscience information and supporting critical minerals exploration



**2**  
Growing domestic processing and creating resilient local supply chains



**3**  
Improving Ontario's regulatory framework



**4**  
Investing in innovation, research and development



**5**  
Building economic development opportunities with Indigenous partners



**6**  
Growing labour supply and developing a skilled labour force



# Critical Mineral Production Highlights

- The value of critical mineral production in Ontario was \$5.7 billion in 2022.
- **This an increase of \$1.6 billion (41%) over 2021.**
- Senior mining companies, including Vale and Glencore are investing heavily in new mine projects and mine expansions.
  - Vale Copper Cliff Expansion - **\$945M**
  - Glencore Onaping Depth - **\$1.3B**

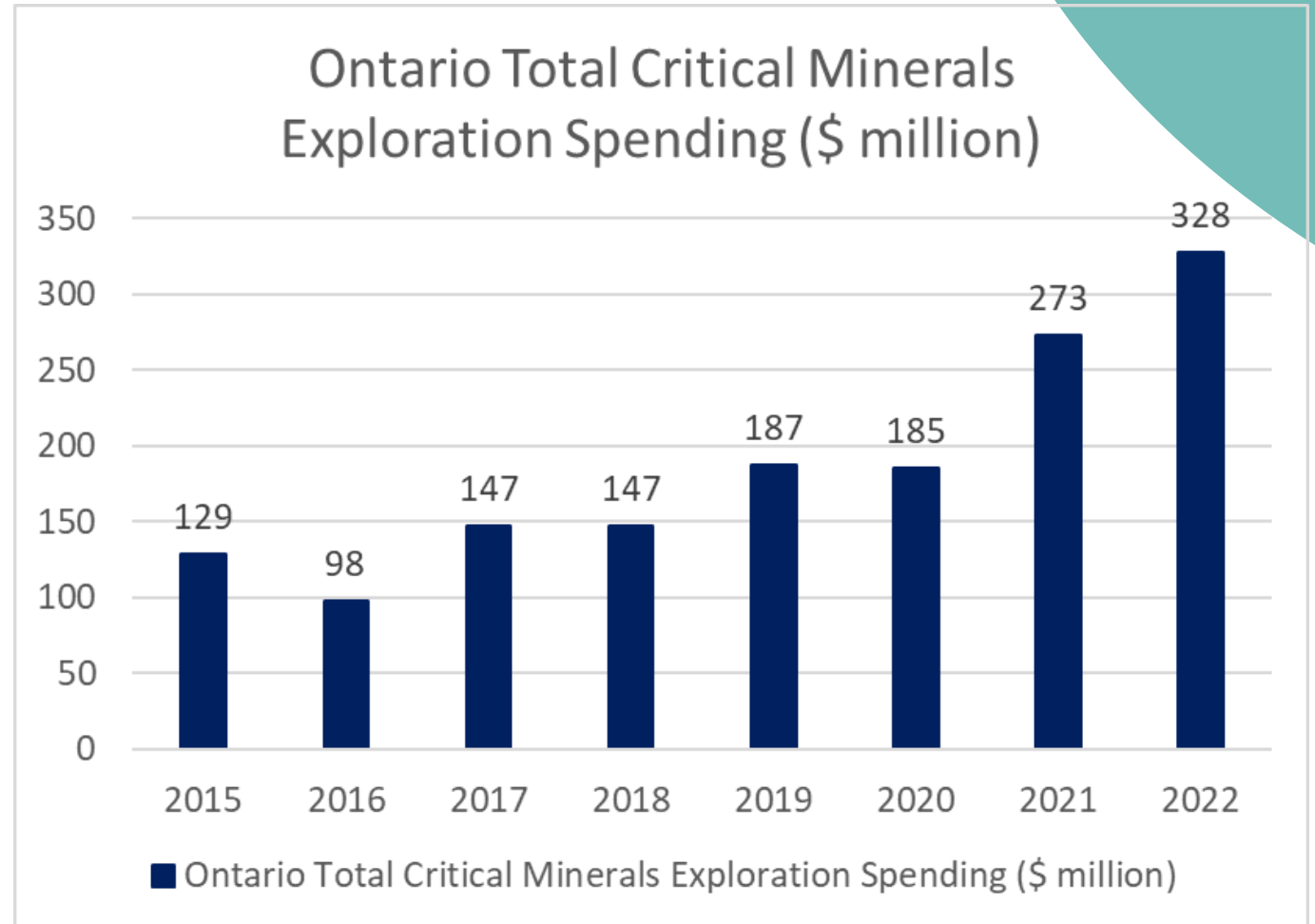
## Ontario's Critical Mineral Production (by value in 2022)

	\$ million
Copper	1,926
Nickel	1,883
Platinum Group Elements	1,644
Zinc*	177
Cobalt	96

\* estimated

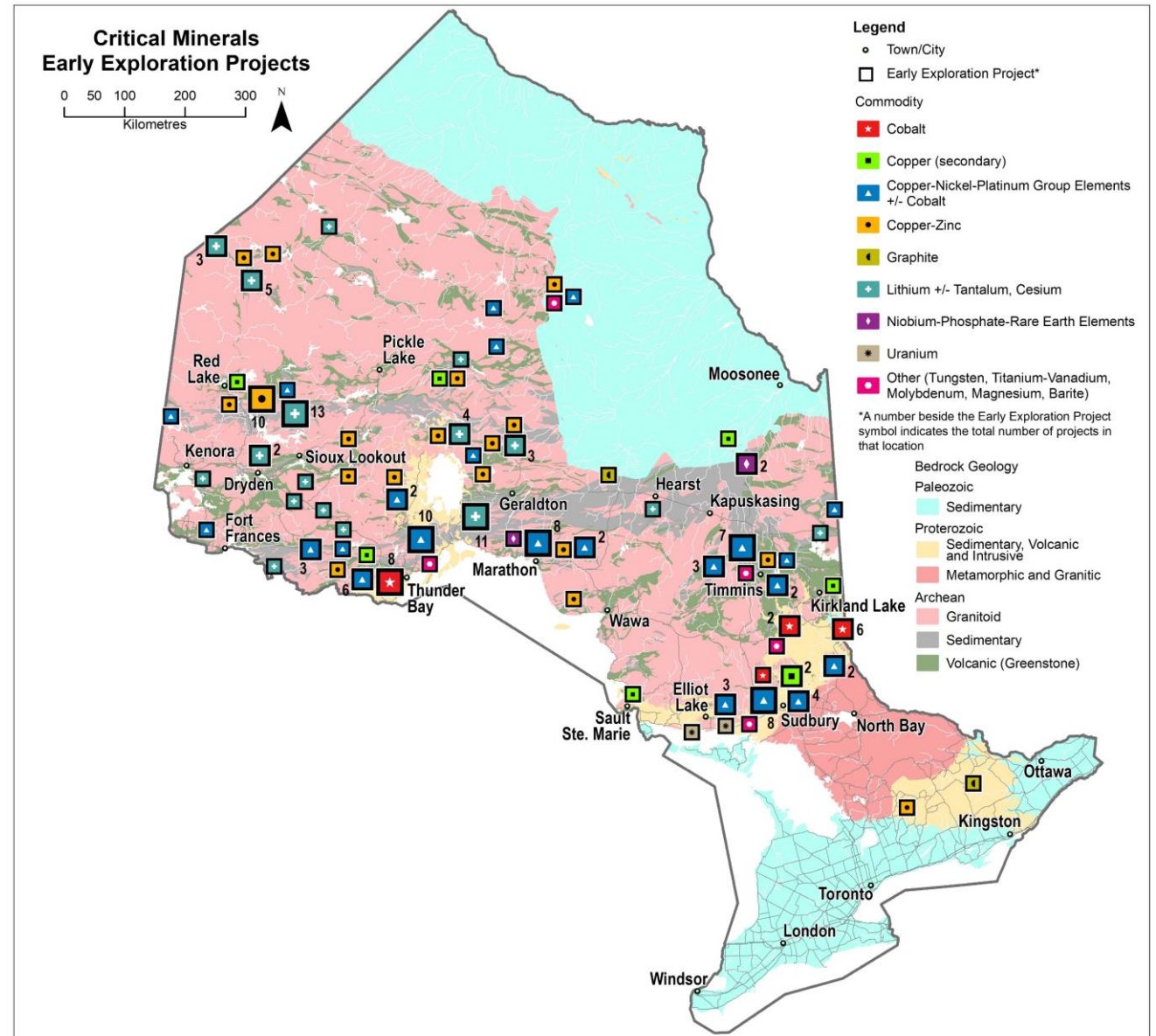
# Critical Mineral Exploration Spending

- **The value of critical minerals exploration expenditures grew by \$55 million in 2022, an increase of 20% over 2021.**
- Most of the \$55 million increase can be attributed to accelerating investment in lithium exploration.
- Ontario critical mineral exploration expenditures were \$328 million in 2022 and accounted for 33% of all exploration expenditures in Ontario.
- This includes expenditures of \$219 million for base metals (nickel, copper, zinc) as well as \$108 million for other critical minerals (lithium, cobalt, rare earth elements, etc.)



# Critical Minerals Early Exploration Projects (April 2023)

- Ontario saw a **46% increase in critical minerals exploration project activity** over 2021.
- Currently, there are approximately 187 critical minerals exploration projects reporting activity in Ontario, increasing from 128 in 2021
- 364% increase in lithium exploration projects** with 51 lithium exploration project reporting activity, up from 11 in 2021.





# Mining Innovation

- Technological innovation is a key driver of mineral productivity and growth.
- The mining industry has rapidly evolved into a high-tech industry.
- Ontario's mining industry is a leader in cleantech applications such as BEVs and mine waste remediation.
- Ontario is looking ahead to develop the solutions that will secure our position now and into the future such areas as:
  - Mining at depth
  - Critical mineral processing (e.g. lithium)
  - Extraction of residual metals from mine wastes
  - Recycling spent EV batteries
- To support innovation and commercialization in the battery supply chain, Ontario is supporting the creation of a Regional Technology Development site in Northern Ontario through the Ontario Vehicle Innovation Network (OVIN).



# Critical Minerals Innovation Fund

- **\$5 million** fund to strengthen the critical minerals sector by supporting projects that will stimulate investments in Ontario's critical minerals supply chain and protect the province's economic interests.
- Eligible projects must fall under at least one or more key priorities:
  - Battery supply chain
  - Deep exploration and mining
  - Recovery of minerals
  - Other innovative projects that support the critical minerals sector
- Provides companies with up to **50% of project costs (to a max. of \$500,000)** to support projects involving research, development and/or commercialization of innovative technologies, techniques, processes and solutions helping increase exploration, mining, development, production and processing of critical minerals within Ontario

# Highlights of First Intake

- Fund launched November 24, 2022 and closed January 27, 2023
- 30 applications received
- 13 projects approved including:
  - Frontier Lithium - to develop innovative lithium processing techniques to feed battery supply chain
  - Vale Canada - to develop bioleaching techniques for reprocessing tailings to extract nickel and cobalt from mine waste for battery supply chain
  - Ring of Fire Metals - to test feasibility of repurposing and storing all tailings materials underground in the form of backfill in mine workings.
  - EV Nickel - to demonstrate that bioleach extraction and recovery of battery metals such as nickel and cobalt is a lower cost, low carbon footprint process.
  - Carbonix - to help refine the process for converting mining waste, petroleum coke and other byproducts into high-energy-density graphite for use in battery anode and cathode supply chains.
- Remaining 8 projects to be announced at a later date.

Thank you

Questions?