



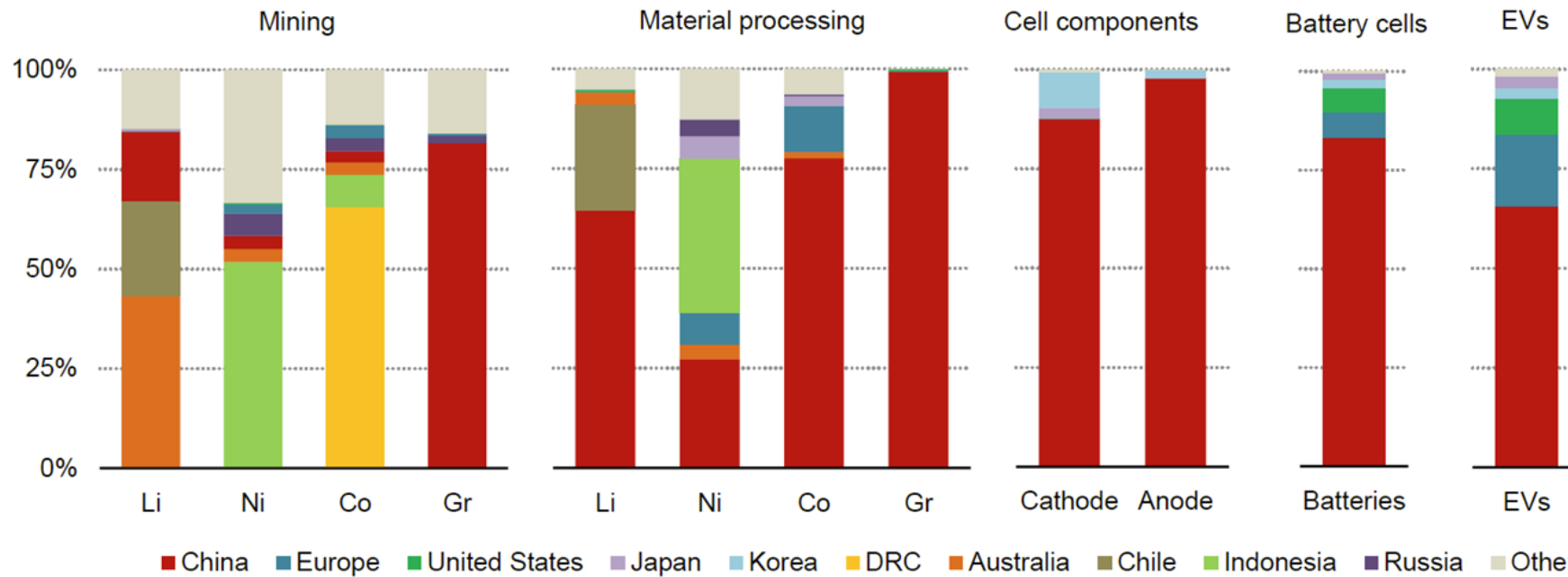
Canada's Critical Minerals Strategy and Opportunities for North American Value Chain Development

November 14, 2024

Midwest-Canada Critical Minerals Workshop

Global Critical Minerals Supply Chains' Vulnerability

- Global **demand forecasts significantly outpace mineral supply** and investment for many Critical Minerals. Several key battery minerals are predicted to be in deficit before the end of the decade.
- There has been limited progress in terms of supply chain diversification, and in fact, **concentration of supply has even intensified in some cases.**



Source: International Energy Agency (IEA), 2023



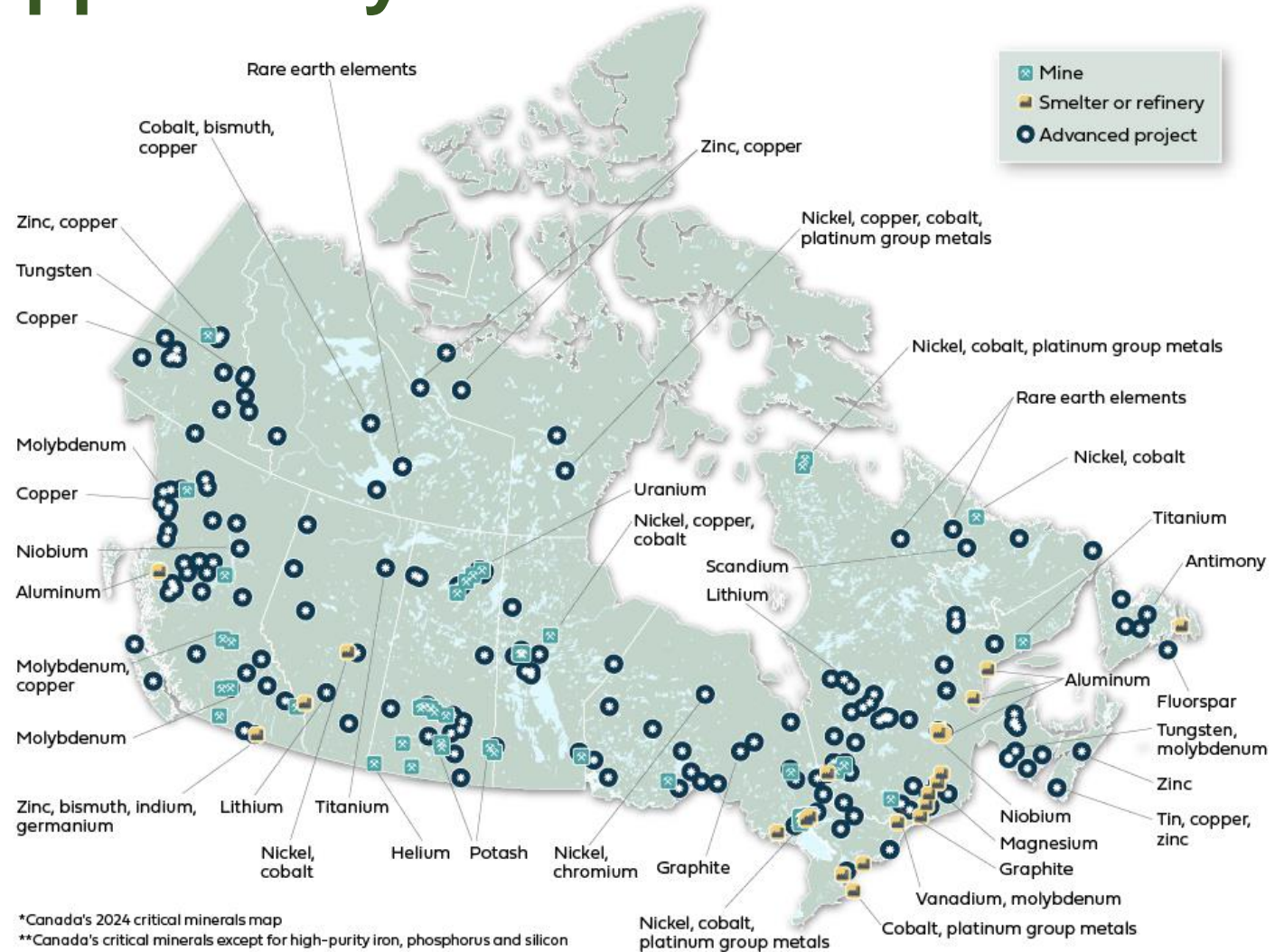
Generational Economic Opportunity

Leveraging Canada's advantages:

- ✓ World-class mineral resource wealth
- ✓ Longstanding mining expertise
- ✓ Extensive technology and manufacturing capabilities
- ✓ Abundant clean energy resources
- ✓ Strong environmental, social and governance (ESG) credentials

Domestic critical minerals can fuel Canadian manufacturing, **employment opportunities**, reduce import dependency, and build economic security.

Focus on 6 priority minerals to develop full Canadian value chains – **from mines to manufacturing** – including recycling waste and end-of-life products



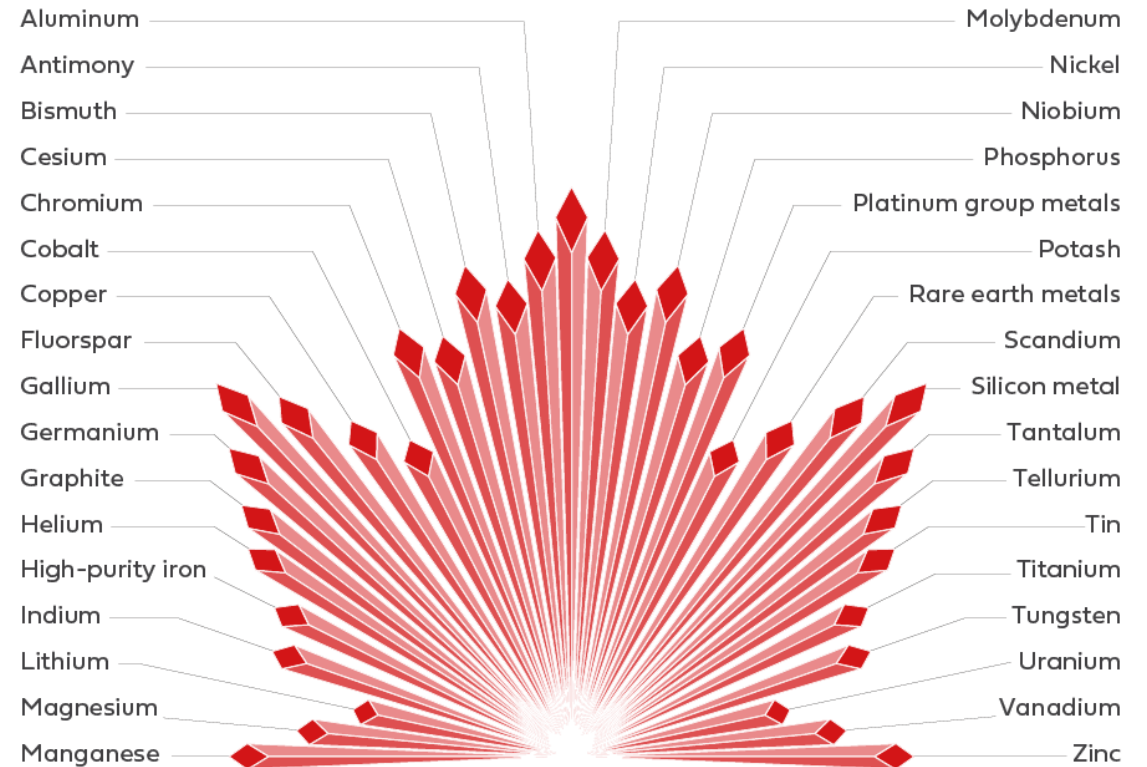
Natural Resources Canada

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Canada's Critical Minerals List

- Canada's updated Critical Minerals List was announced on June 10, 2024, including the original 31 minerals identified in 2021, plus three additional: high purity iron, phosphorous and silicon metal
- To be considered a critical mineral in Canada, a mineral must meet **both** of the following criteria:
 - the supply chain is threatened; and
 - there is a reasonable chance of the mineral being produced by Canada
- It must also meet **one** of the following criteria:
 - be essential to Canada's economic or national security;
 - be required for the national transition to a sustainable low-carbon and digital economy; or
 - position Canada as a sustainable and strategic partner within global supply chains



Critical Minerals Strategy

The **Canadian Critical Minerals Strategy** will increase the supply of responsibly sourced critical minerals and support the development of domestic and global value chains for the green and digital economy

Drive Research, Innovation and Exploration

Investment in exploration through enhanced geoscience data creation, research and analysis

Accelerate Project Development

Accelerate development of Canada's critical minerals mining, processing, component inputs, and recycling projects

Advance Indigenous Reconciliation

Advance Indigenous economic reconciliation, improve access to capital and meaningful participation in critical minerals projects

Grow a Diverse Workforce and Prosperous Communities

Promote the contribution of diverse workers to Canada's green energy transition as part of the critical minerals workforce

Build Sustainable Infrastructure

Build sustainable infrastructure to enable critical minerals development with benefits for local communities

Strengthen Global Leadership and Security

Develop more resilient global supply chains that are protected from market disruption, enhancing Canada's economic security



Investing in Critical Minerals Development

Since Budget 2021, the federal government has provided major investments to **implement the Critical Minerals Strategy**.

RESEARCH AND DEVELOPMENT

\$144.4 million under B2022, and \$47.4 million, under B2021 to support R&D of technologies to support critical mineral value chains



INDIGENOUS ENGAGEMENT AND CAPACITY

\$25 million for early engagement and capacity building



REGULATORY SUPPORT

\$40 million to support northern regulatory processes (CIRNAC)



GLOBAL PARTNERSHIPS

\$70 million to advance Canada's global leadership on critical minerals



INFRASTRUCTURE

Up to \$1.5 billion for infrastructure investments for critical mineral development & Canada Infrastructure Bank to support large-scale infrastructure enabling critical mineral projects

TAX CREDITS

30% *Critical Mineral Exploration Tax Credit* and new 30% *Clean Technology Manufacturing Investment Tax Credit*

INNOVATIVE PROJECTS

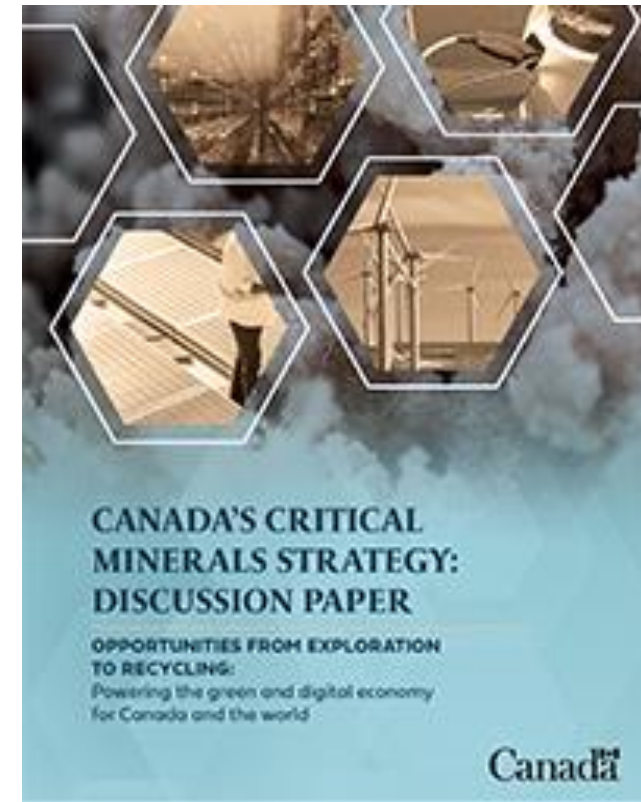
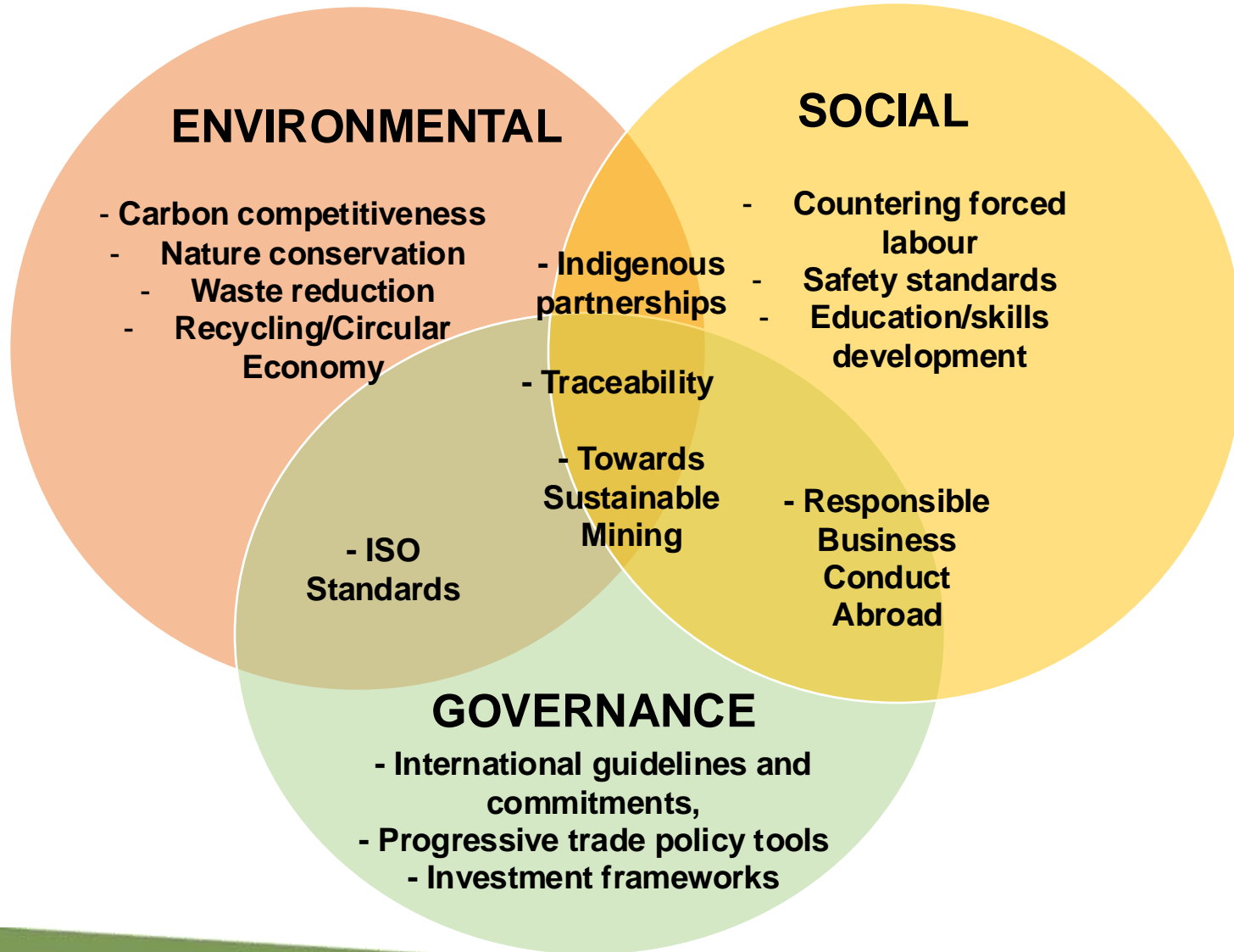
\$1.5 billion to support manufacturing, processing, and recycling applications

PUBLIC GEOSCIENCE

\$79.2 million to help find the next generation of critical mineral deposits



Responsible Sourcing Framework

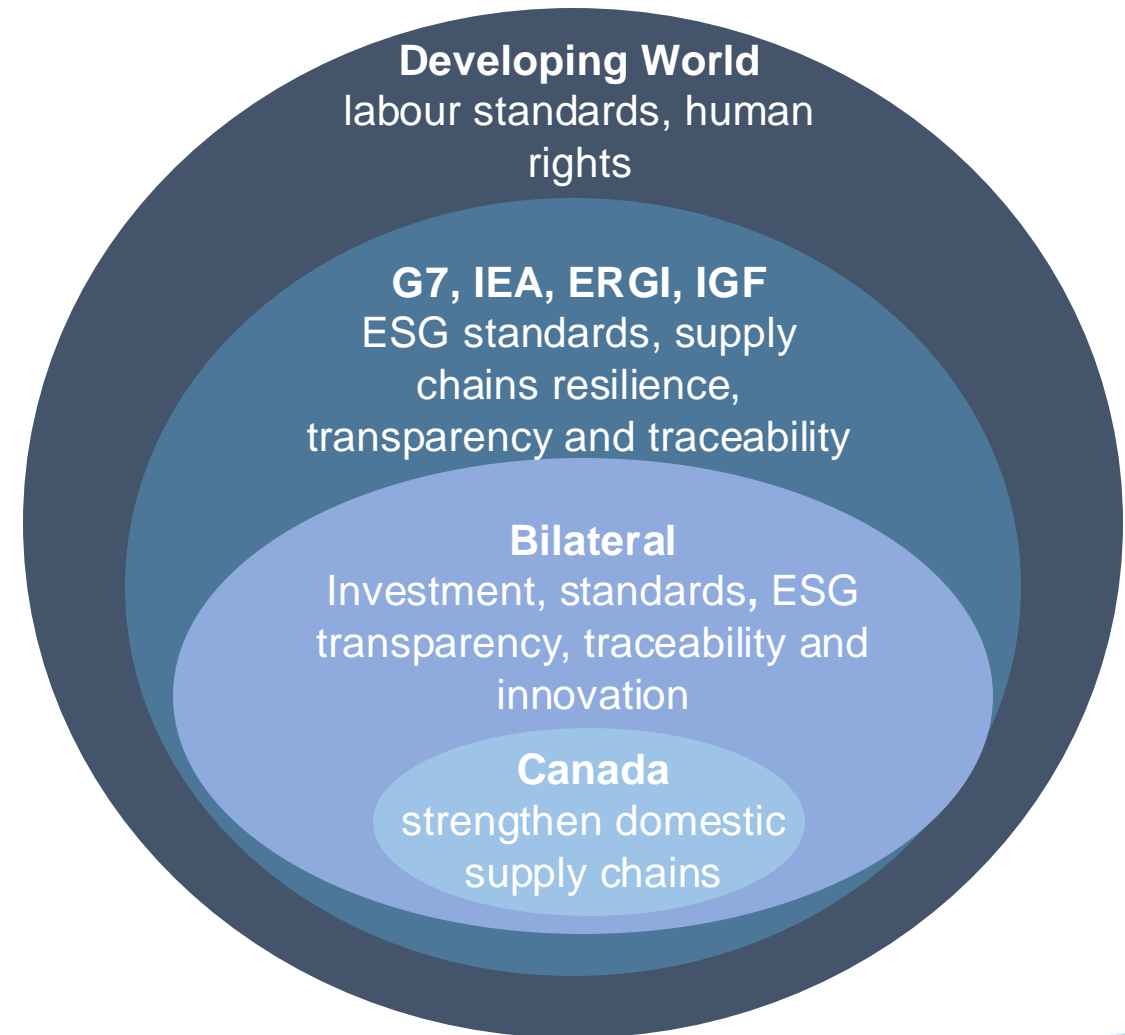


Canada's Critical Mineral Strategy will capitalize on and advance Canada's ESG credentials along the value chain

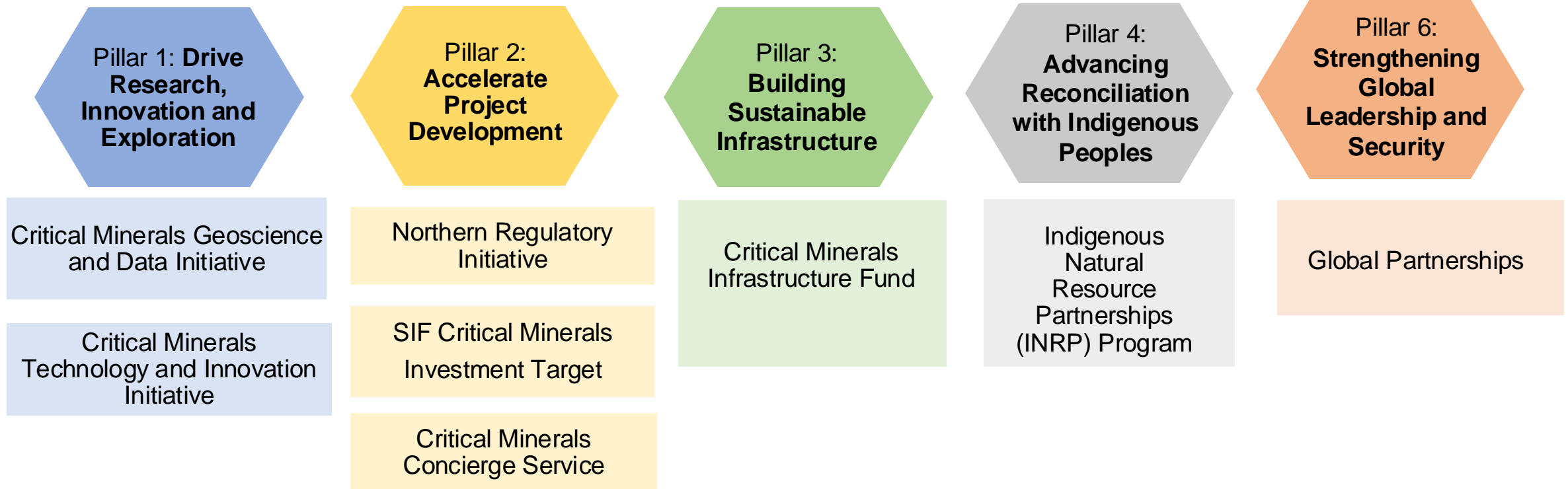


Strengthening Canada's Global Leadership and Security

- **Capitalize on resource endowment as a strategic partner with allies:**
 - Reliable supplier
 - Strong ESG performance
 - Carbon competitive
- **Advance national interests**
- **Enhance protection of Canada's economic security and improve critical mineral supply chain security.**
- **Work bilaterally and through multilateral fora to build on strengths:**
 - Advance innovation
 - Secure investment and market access
 - Establish investment standards
 - Build secure, transparent supply chains
 - Drive ESG and traceability standards
 - Ensure focus on labour and governance



Results to Date



Canada-U.S. critical mineral value chains are deeply integrated

- Bilateral mineral trade between Canada and the U.S. valued at ~\$104.5 billion in 2023
 - Imports from U.S. valued at \$41 billion in 2023
- U.S. top country by value for Canadian-owned Mining Assets abroad – accounting for 20.8% of the total or C\$44.7 billion in 2022 – 300+ Canadian companies developing projects in U.S.



Canada-U.S. Bilateral Cooperation on Critical Minerals

- Joint Action Plan on Critical Minerals Collaboration, signed 2020
- Multilateral cooperation
- Alignment on value chain approach to re-shoring critical mineral value chains
- Addressing non-market practices and protect workers and critical sectors
- Canada a “domestic source” under *Defense Production Act*



Bilateral Co-funding through DPA Title III and Critical Minerals Strategy

FORTUNE MINERALS

NICO Cobalt-Bismuth Project

 US\$6.4 million DPA funding

 US\$5.6 million under Canada's Critical Minerals Strategy

ELECTRA BATTERY MATERIALS

Cobalt Sulfate Facility

 US\$ 20 million DPA funding

 US\$ 3.6 million CMRDD funding + earlier investments in 2024 and 2020

LOMIKO METALS

La Loutre Graphite Project

 US\$ 8.3 million DPA funding

 US\$ 3.6 million CMRDD funding

NANO ONE MATERIALS

Battery Materials

 US\$ 12.9 million DPA funding

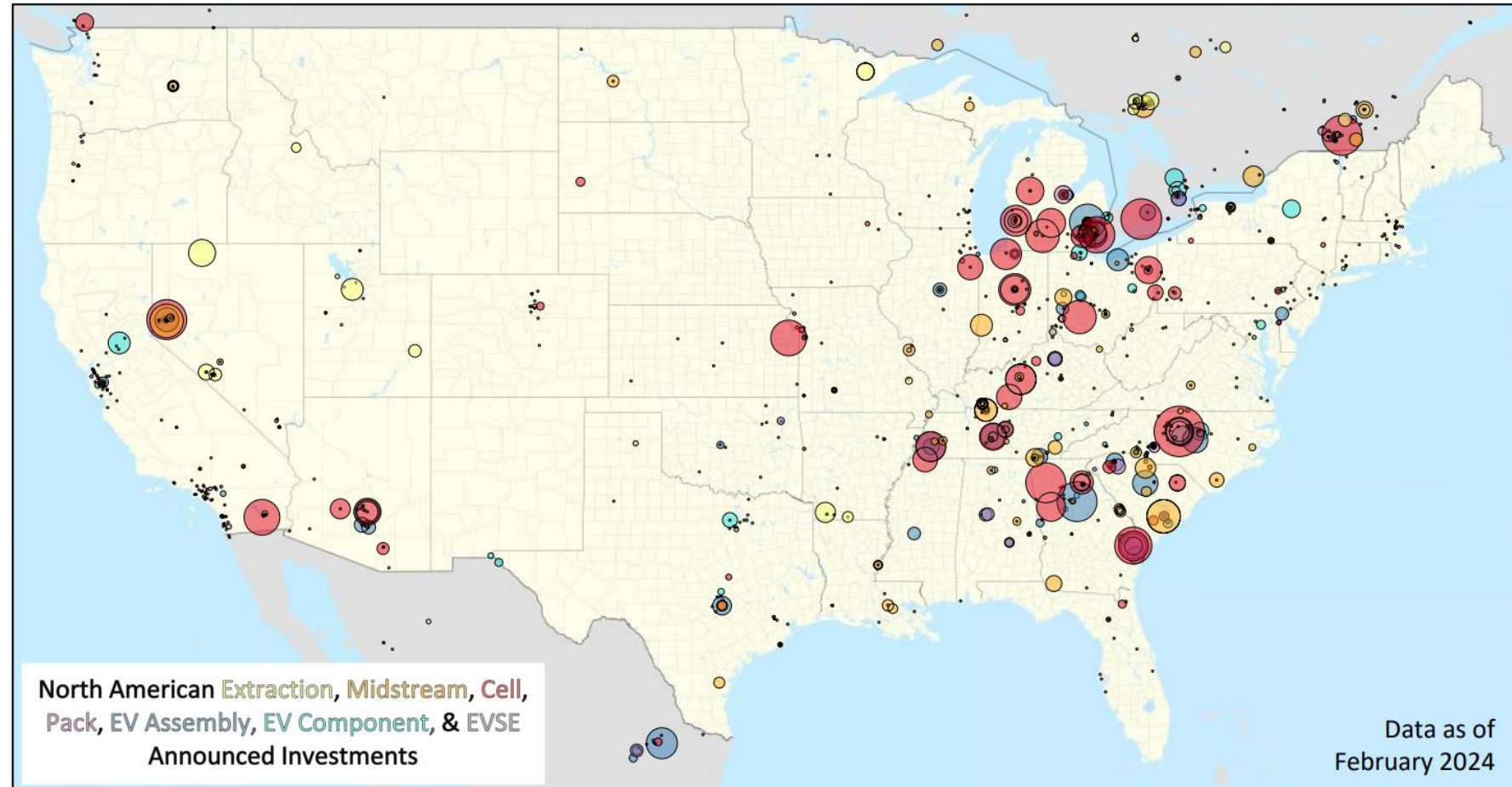
 US \$7.4 million from Sustainable Technology Development Canada (STDC)



Battery and EV supply chain investment in North America grew to more than \$250 billion by the end of 2023

Including in US Midwest States by automakers, battery and battery materials makers

Source: Argonne National Laboratory, March 2024



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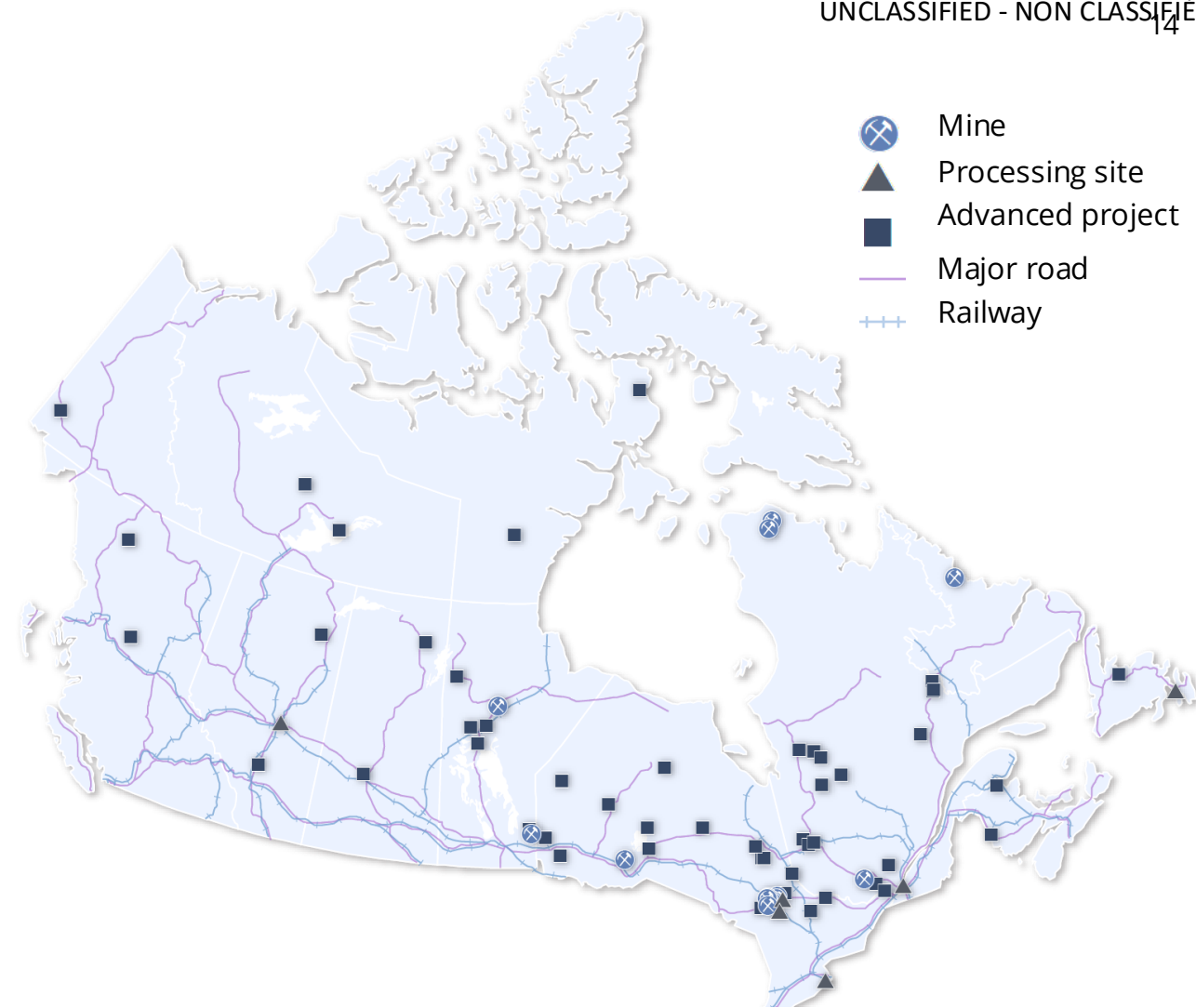
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Canada has all the minerals and metals needed for North American EV battery supply chains

	Production (Thousand Tonnes)	Reserves (Thousand Tonnes)		Total	# of Active Advanced Projects
		At mines	At advanced projects		
Nickel	159	2,066	12,506	14,572	15
Cobalt	5	75	488	563	3
Graphite	3	42	5,894	5,936	7
Lithium Oxide	179	246	2,184	2,430	18

Source: Natural Resources Canada, Statistics Canada, company reports and USGS. Preliminary 2022 figures. Notes: Lithium reserves are reported as Li₂O and production is estimated. Active advanced projects are those that are not on hold or suspended, and that have mineral reserves or resources (measured or indicated), the potential viability of which is supported by a preliminary economic assessment or a prefeasibility/feasibility study.



Source: Natural Resources Canada. Displayed are active processing facilities (e.g. smelters and refineries), mines and advanced projects for nickel, cobalt, graphite and lithium. Advanced projects are those with mineral reserves or resources (measured or indicated), the potential viability of which is supported by a preliminary economic assessment or a prefeasibility/feasibility study.



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Rare earth elements in Canada

- REE supply chain dominated by China both in terms of mined production and refined REE supply.
- 15.2 million tonnes of rare earth oxides - Canada's known reserves and resources (measured and indicated) 2023
- 9 advanced REE mining projects
- REE separation and processing capacity and magnet recycling capacity in Canada



In Summer 2024, the Saskatchewan Research Council's Rare Earths Processing Facility produced rare earth metals at a commercial scale in Summer 2024 – making Saskatchewan the first and only jurisdiction to do so in North America.



Canada is a key partner for US Midwest States in the development of EV and battery value chains

#1 in the world for
global lithium-ion battery
supply chain

**Clean, non-emitting
electricity at
affordable rates**



**Access and
connectivity to
markets and
supply chains
world-wide**



**Industry Leadership in
Responsible Sourcing
Commitments &
ESG Standards**



**Supportive
governments -
funding programs and
incentives**



Canada and the U.S. are partners in developing resilient, secure North American value chains for critical minerals



TESLA

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CONTACT

Camille Boulianne

Senior Policy Advisor

Critical Minerals Centre of Excellence
Natural Resources Canada

Camille.Boulianne@nrcan-rncan.gc.ca

Avista Hodayun

Senior Policy Advisor

International Affairs and Trade Division
Lands and Minerals Sector
Natural Resources Canada

Avista.Hodayun@nrcan-rncan.gc.ca

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