NWT & NUNAVUT CHAMBER OF MINES

Mineral development in the NWT

- An update for the Rotary Club -

For: Yellowknife Rotary Club – April 28, 2022

By: Tom Hoefer, Executive Director

Key messages

- Update on current NWT mining and its benefits
- NWT's challenges and opportunities
- Where the world is taking mining and why – critical minerals
- Why it's our new NWT opportunity

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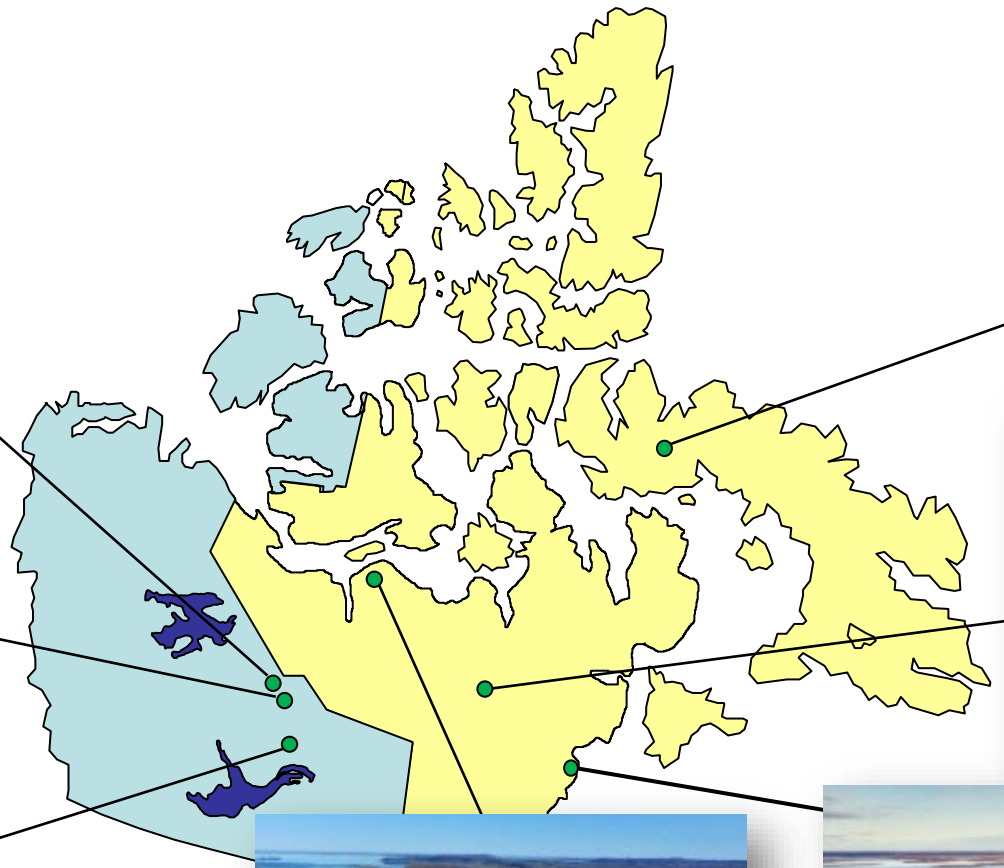
Our current operating mines

NWT Mines



Nunavut Mines

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Why mining is important

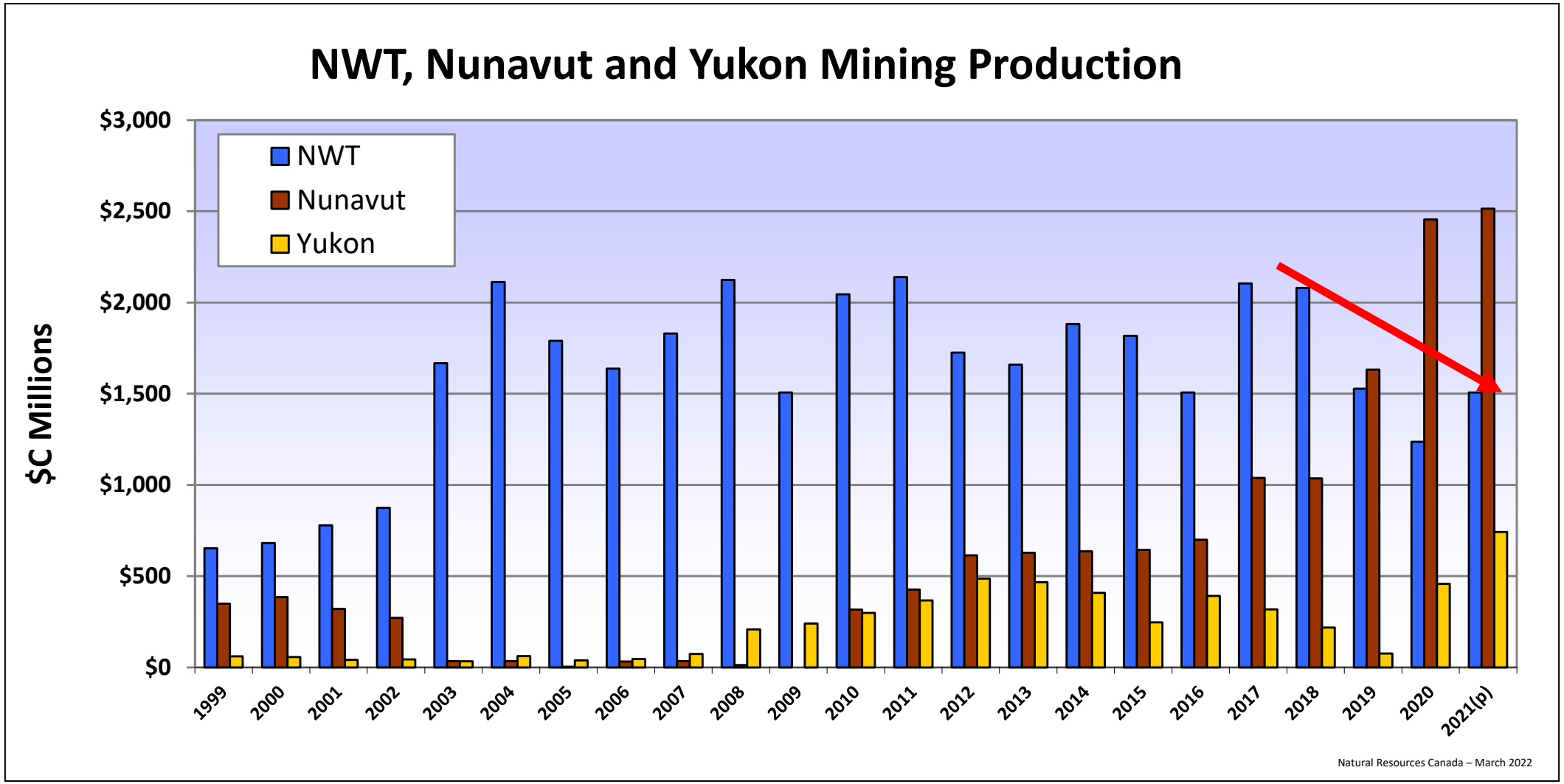
Diamond mines create important socio-economic benefits (1996-2021)

- 66,6000 person-years of employment
  - 47% northern/53% southern
  - 1,210 northern (638 Indigenous) in 2020
- $23 Billion business spend
  - $16 Billion northern ($7B Indigenous) (69% northern)
- $Billions in taxes and royalties to public and Indigenous governments
- $100's million dollars to communities in IBA payments, scholarships, donations, & community wellness projects

Bonus Unreported discovery ~$3Billion: Employee wages are not required to be reported in NWT SEA reports.

Source: Compilation of mines' annual socio-economic agreement data

Mining production – a worrisome NWT diamond trend



- **Strong NWT diamond production for over 20 years. Big COVID decline, now maturing.**
- **Simultaneously, Nunavut production is increasing significantly.**

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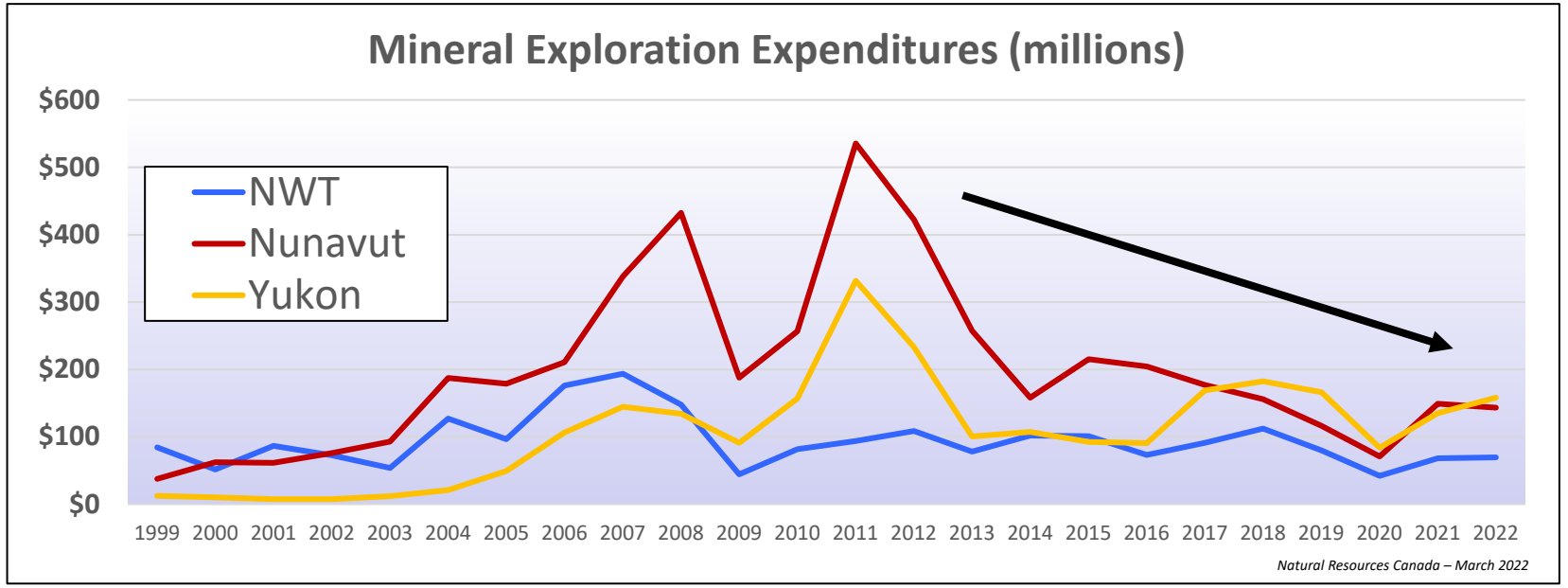
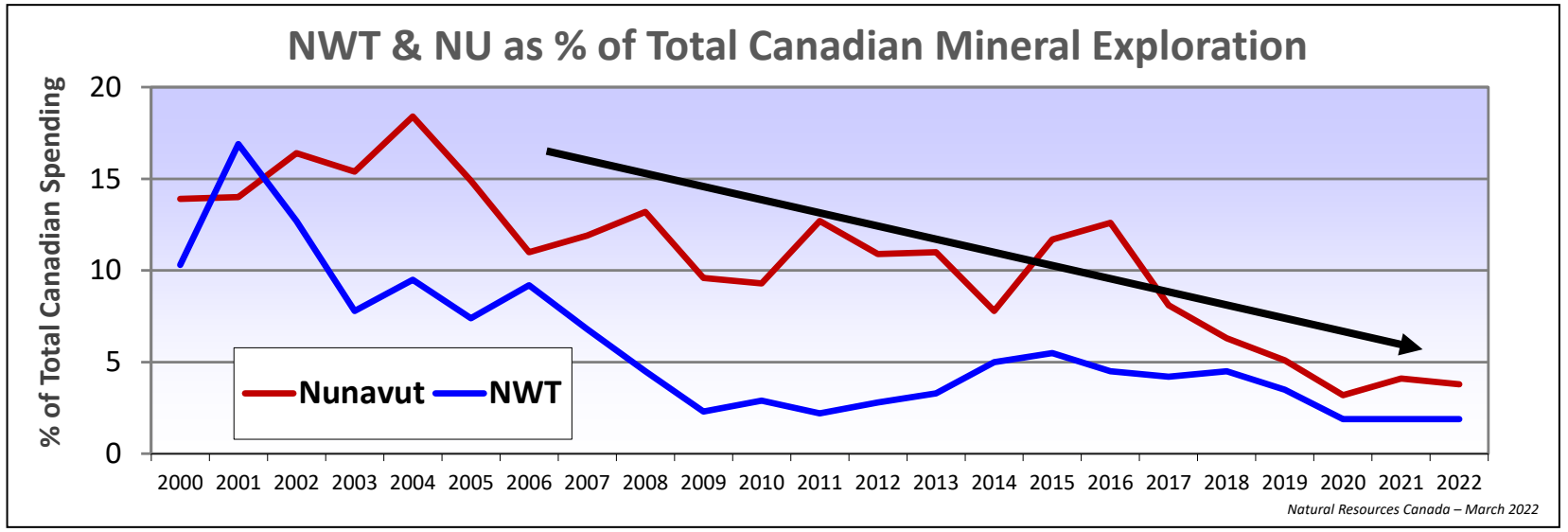
Challenge: Exploration to sustain mining continues to underperform





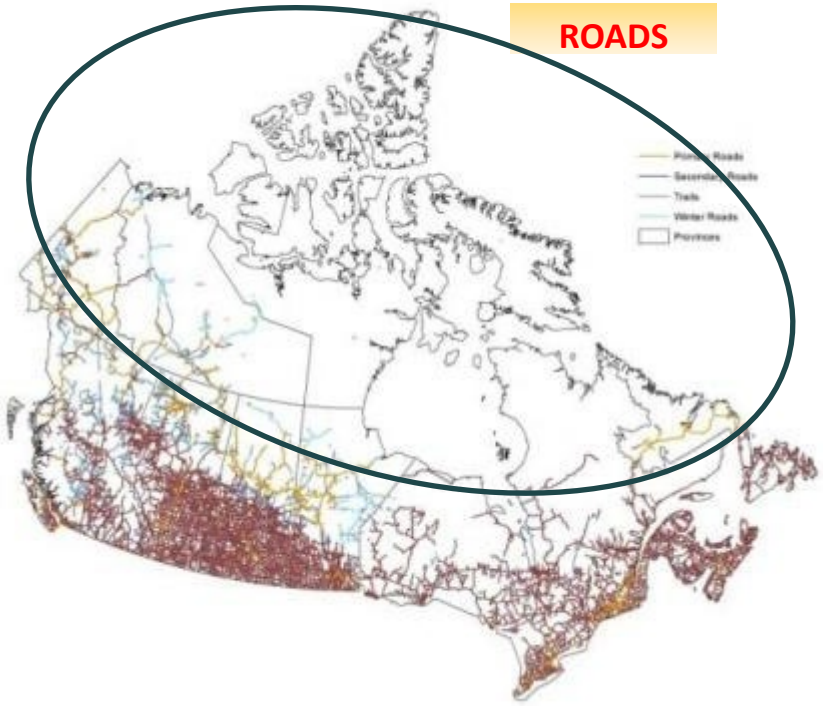
WHY?

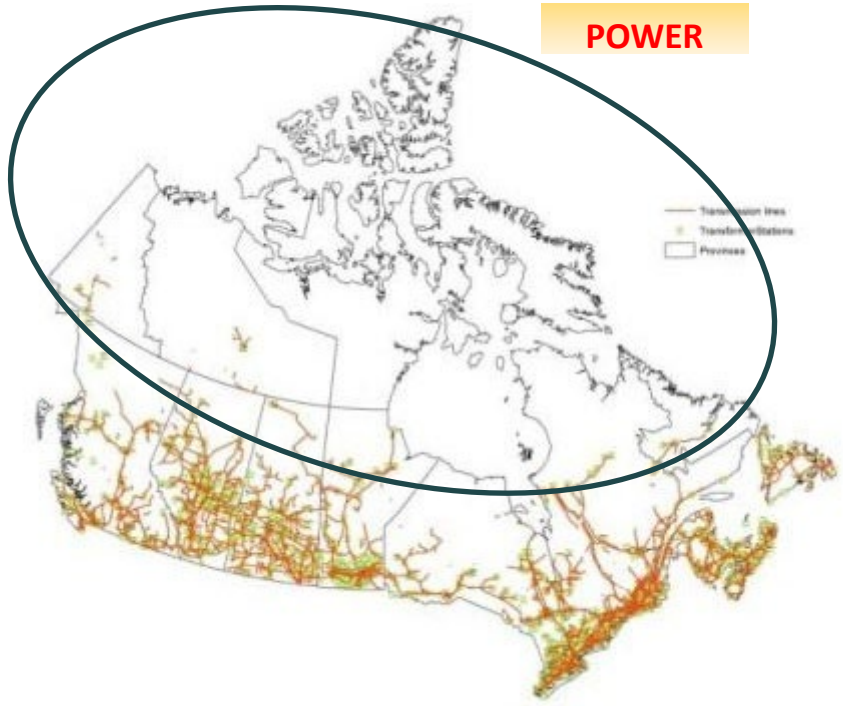
1. Governance
   a. Shrinking access to mineral rich lands (conservation, unsettled land claims, land use planning, etc.)
   b. Complex regulatory processes
2. Higher costs due to Canada's largest and significant infrastructure deficit
3. Higher government incentives in provinces

The Result:

- Other jurisdictions are less risky and expensive and attract the investment

Challenges: Infrastructure deficit creates high costs





- Exploration costs up to 6 x higher than the south
- Mine capital costs up to 2.5 times more
- Mine operating costs 30 to 60% higher

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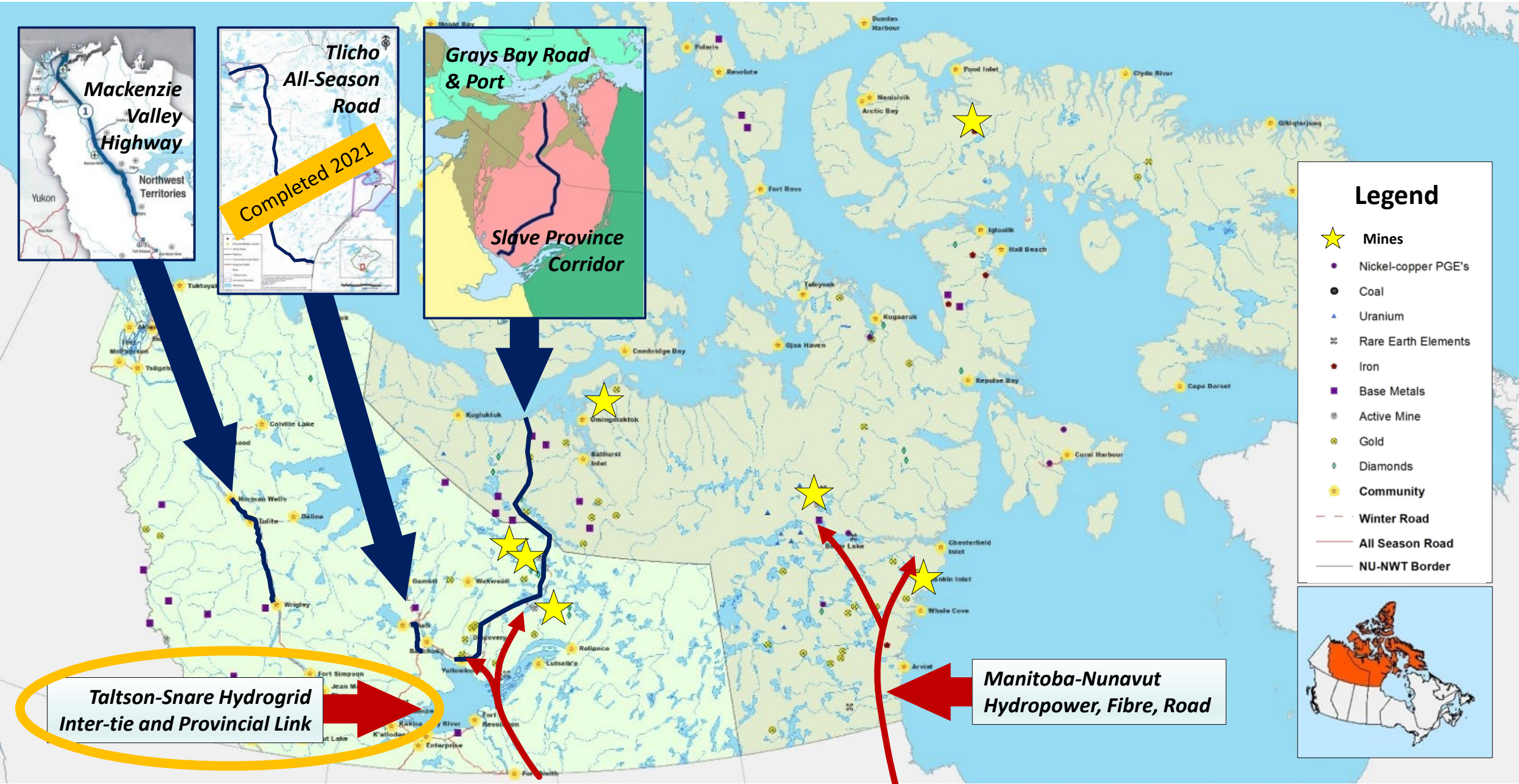
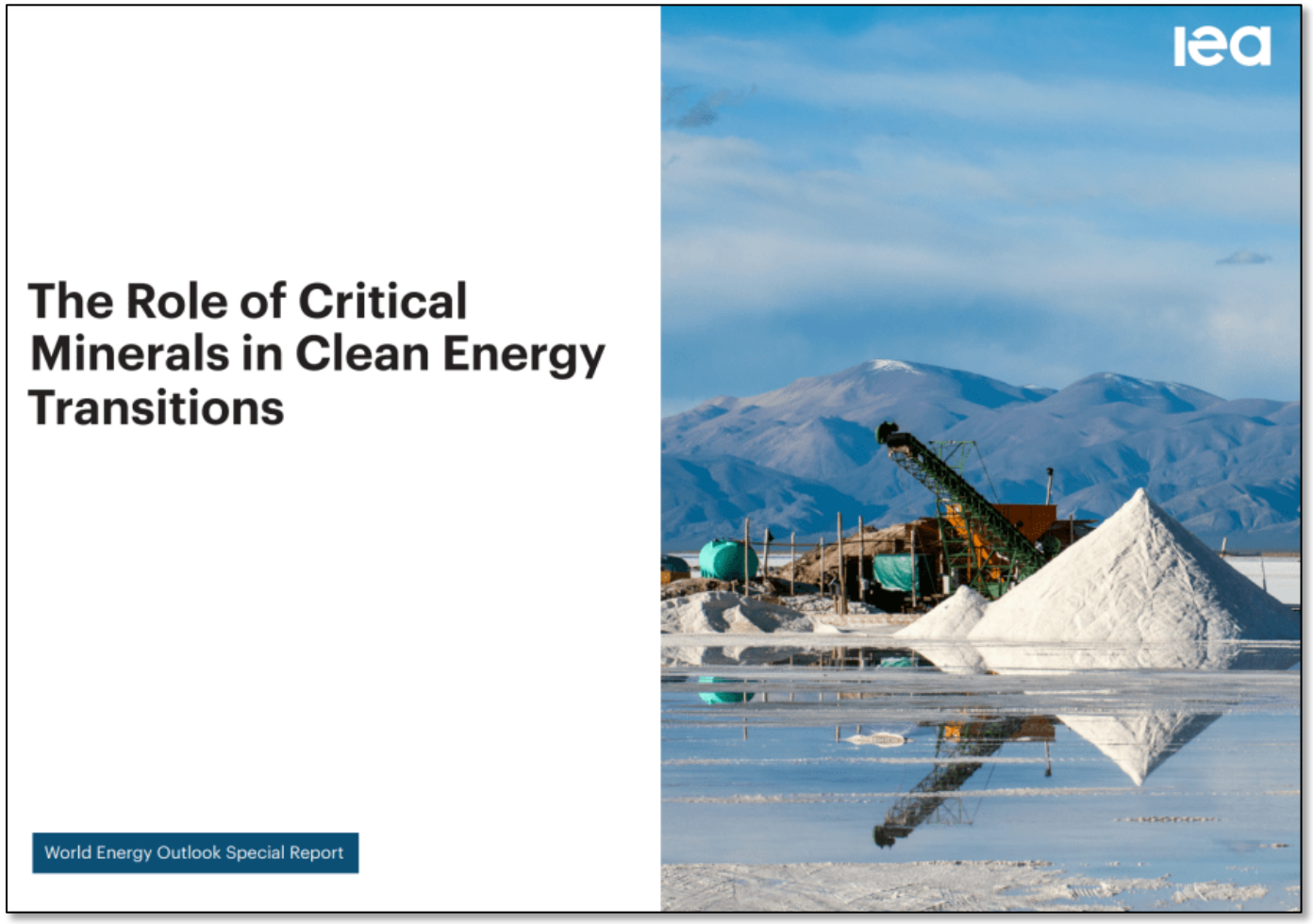
Infrastructure investment would improve access, reduce costs



An Opportunity falls into our lap:
Where the world is taking mining – The Opportunity



- What are critical minerals?
  - metals and non-metals that are considered vital for the economic well-being of the world's major and emerging economies,
  - yet whose supply may be at risk due to geological scarcity, geopolitical issues, trade policy or other factors.
- **Play a key role in energy transition for climate change**

The Role of Critical minerals in Clean Energy Transitions, International Energy Agency

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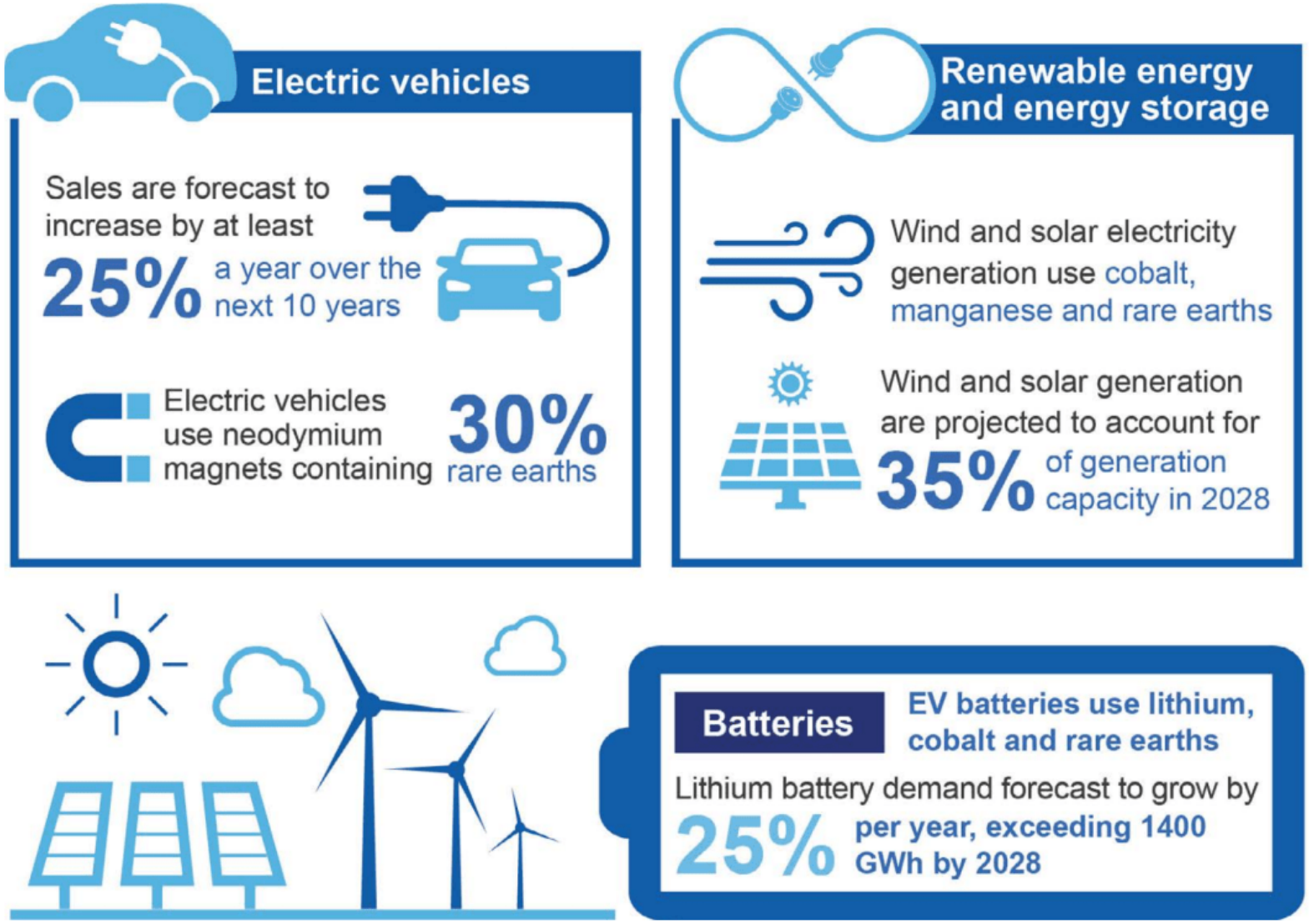
CM's play a key role in energy transition for climate change



Credit: [Outlook for Selected Critical Minerals, Australian Government]

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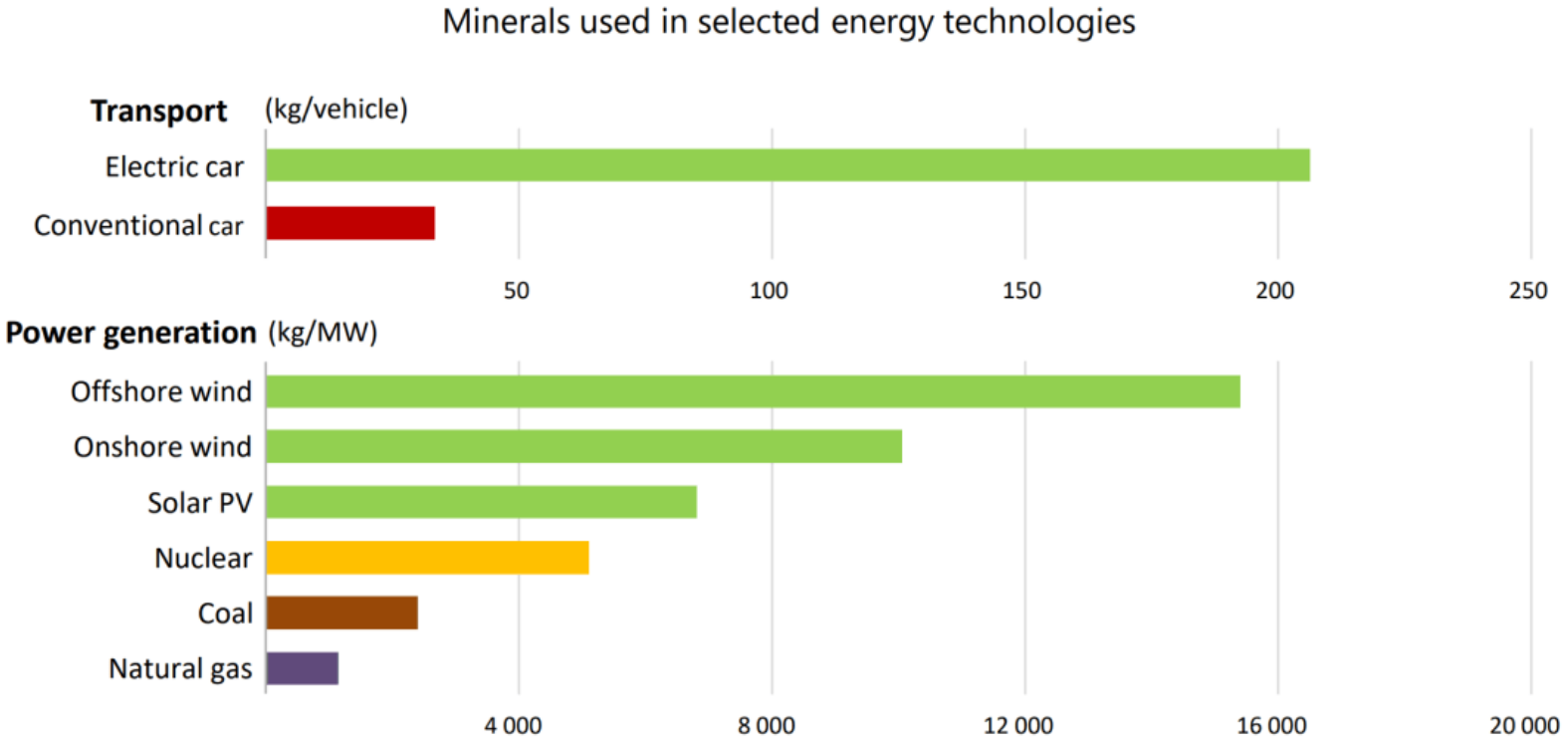
Energy transition requires significantly more minerals

The shift to a more mineral-intensive energy system



A typical electric car requires six times the mineral inputs of a conventional car, and an offshore wind plant requires thirteen times more mineral resources than a similarly sized gas-fired power plant

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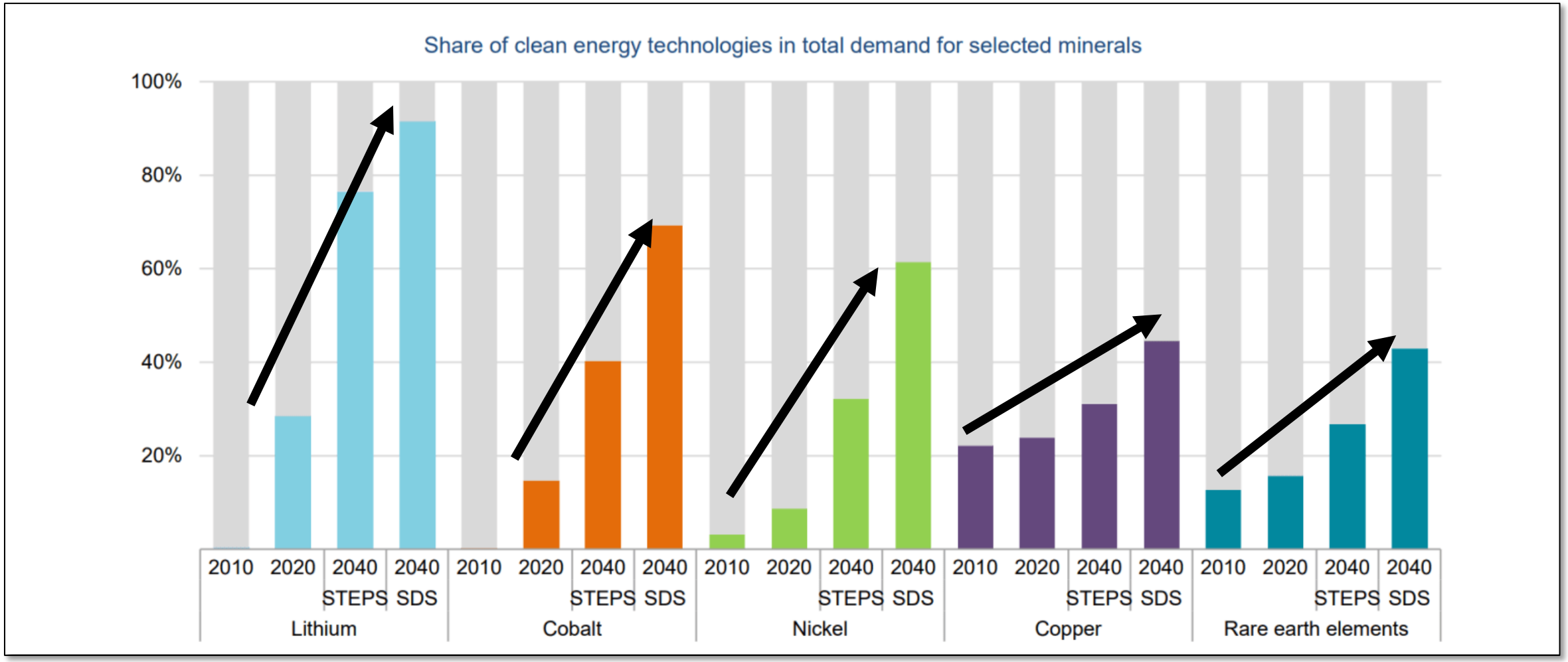
Launch presentation: The Role of Critical minerals in Clean Energy Transitions, International Energy Agency, 2021

Huge growth demand for Energy Transition minerals



The Role of Critical minerals in Clean Energy Transitions, International Energy Agency

- 2040 SDS = Sustainable Development Scenario under Paris Agreement goals

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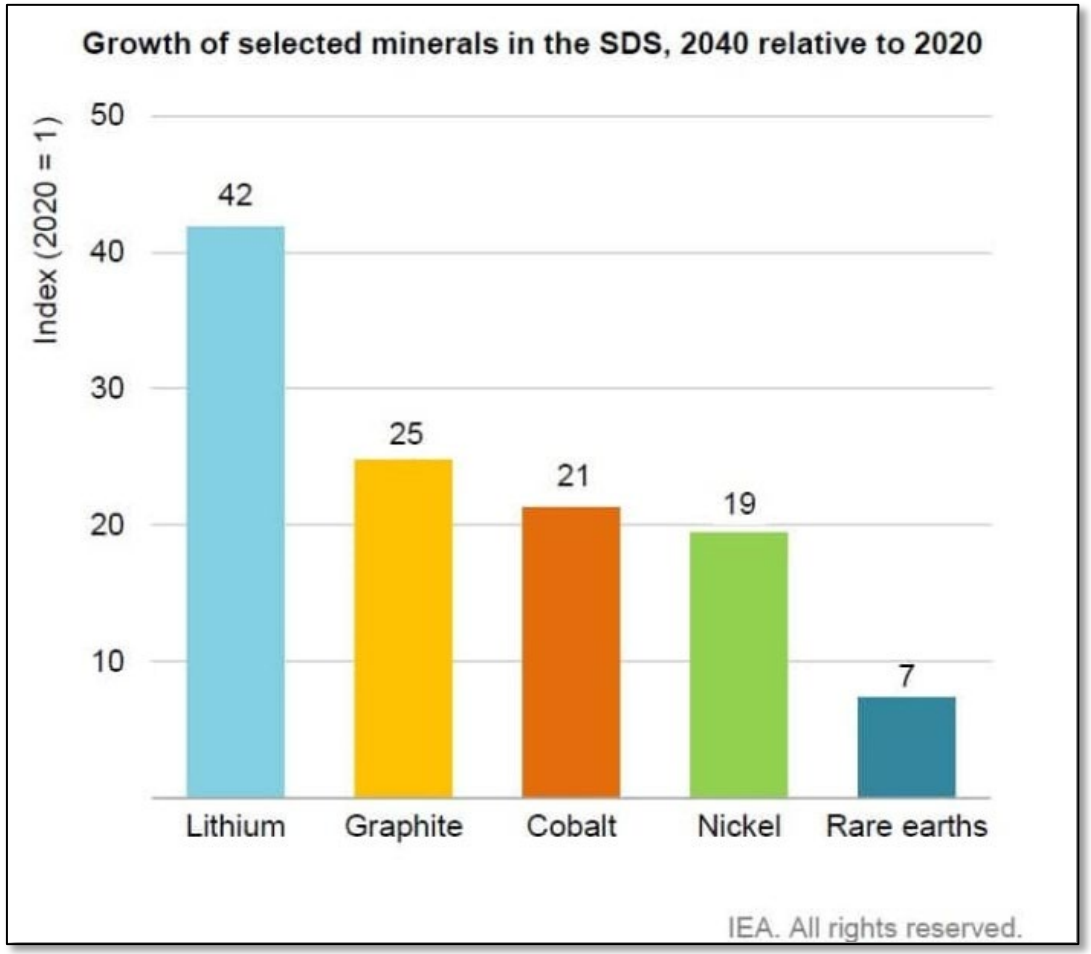
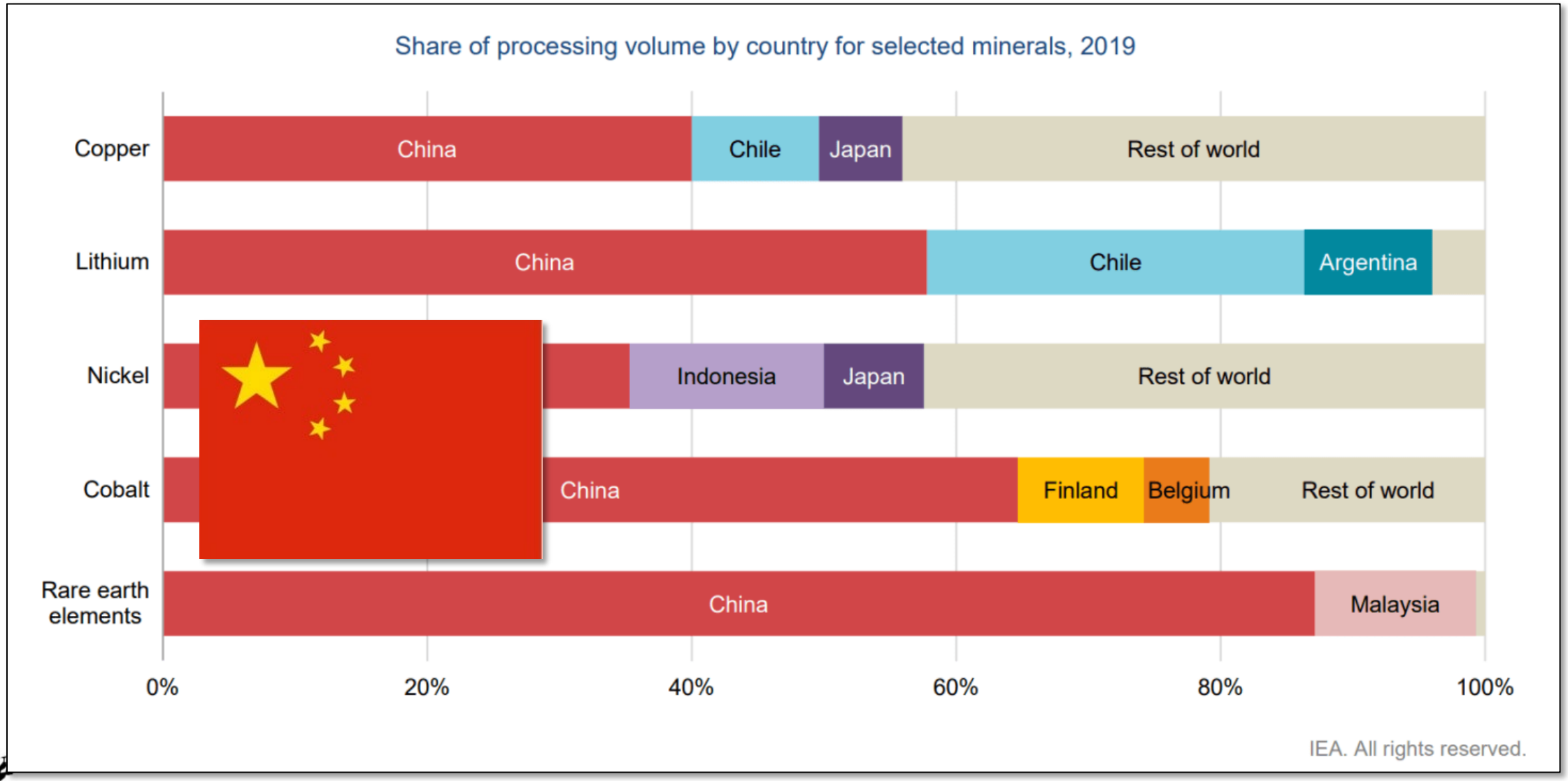
Clean energy needs will “supercharge” critical mineral demand



- Paris Agreement goals will require significant increased demand for critical minerals for electric vehicles, battery storage, solar and wind energy, etc
  - 42 times the lithium required
  - 25 times graphite
  - 21 times cobalt
  - 19 times nickel
  - 7 times rare earth elements

International Energy Agency, 2019: https://cleanenergynews.ihsmarkit.com/research-analysis/energy-transition-demands-a-critical-minerals-supply-chain-tra.html

Concern: China has dominance in critical minerals processing



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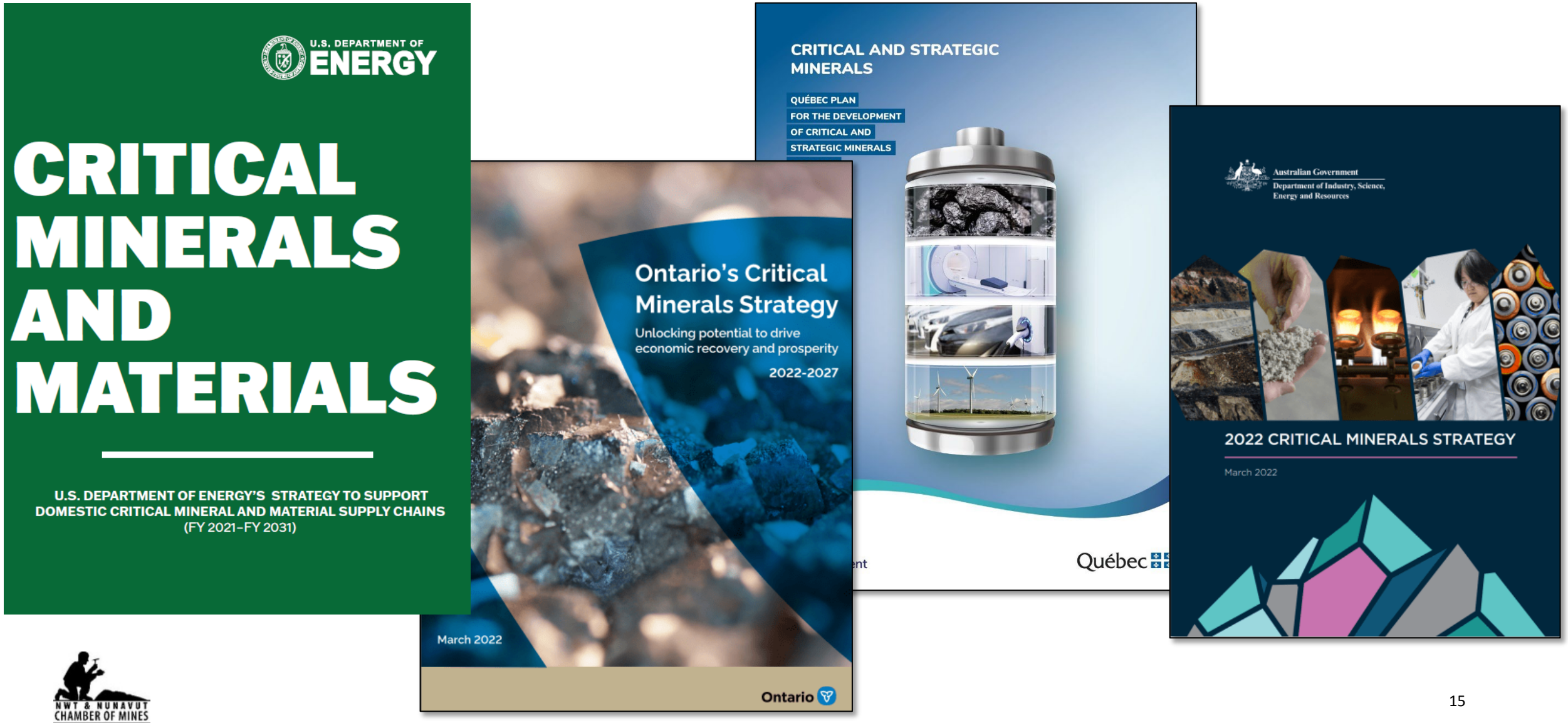
The Western World is taking action to create its own supply



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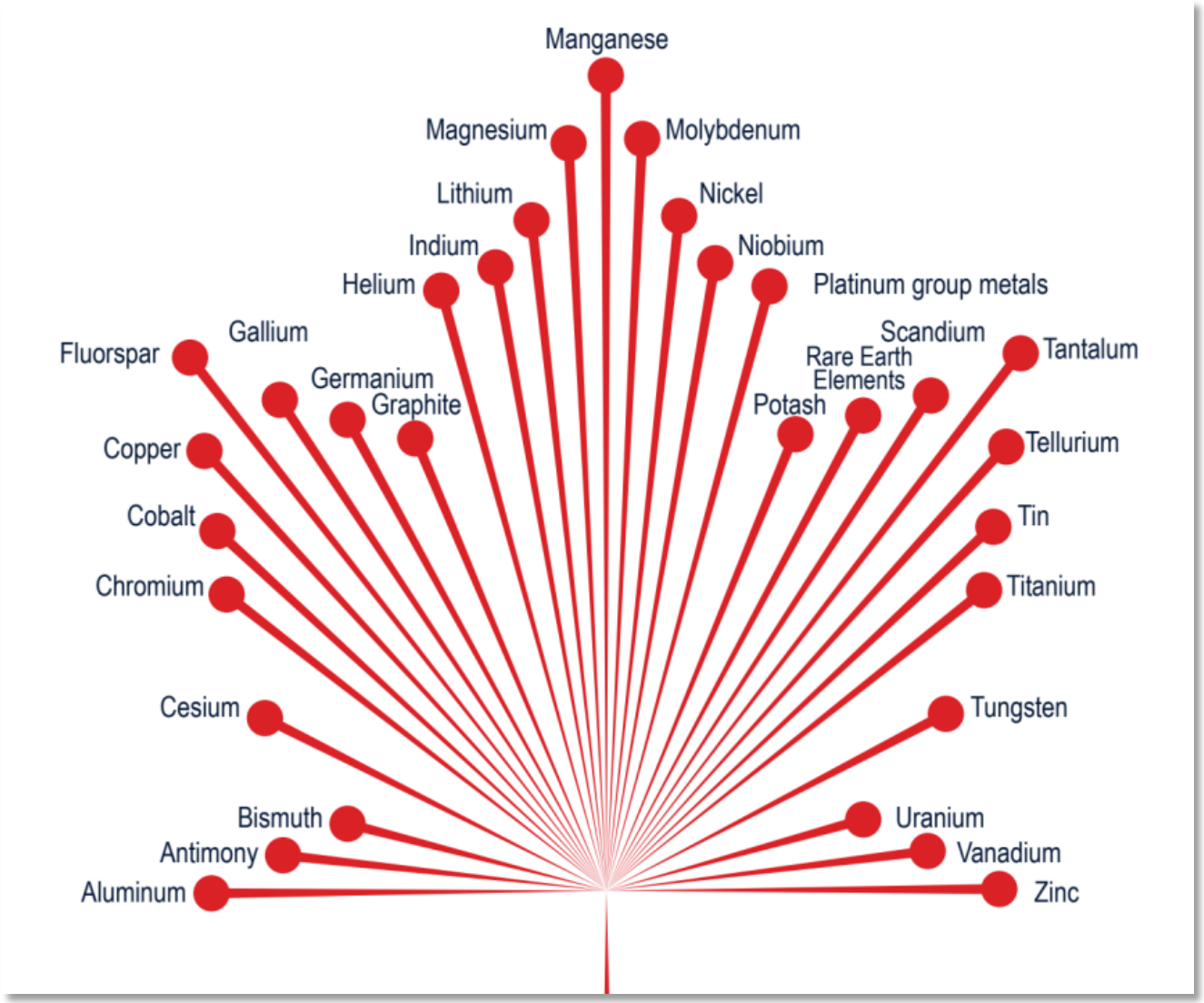
Canada is creating its own Critical Mineral Strategy

- 31 minerals essential to Canada's economic security
- Required for Canada's transition to a low-carbon economy
- A sustainable source of critical minerals for our partners

- NWT is working on its own *Critical Minerals Action Plan*



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Canada's recent budget is very bullish on critical minerals

Federal budget proposes $3.8B to support Canada's critical minerals industry

Finance Minister Chrystia Freeland delivers the 2022 Federal bu

Trudeau presses for Canada to become a critical mineral powerhouse

ROBERT FIFE > OTTAWA BUREAU CHIEF
BILL CURRY >
OTTAWA
PUBLISHED DECEMBER 16, 2021

FINANCIAL POST

Canadian miners cheer Ottawa's $3.8-billion critical minerals budget plan

'This is a game-changer'

REUTERS

Reuters
Ernest Scheyder and Steve Scherer

2022 • 3 minute read • 5 Comments

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The NWT's Critical Minerals Opportunity

- NWT Opportunities
  - The NWT has **23 Critical Minerals** with significant occurrence and potential for more discoveries.
  - 4 critical mineral mining projects are advancing:
    - Nechalacho – Rare Earth Elements
    - NICO – Cobalt, Bismuth, Copper (Gold)
    - Pine Point – Zinc (Lead)
    - Prairie Creek – Zinc (Silver, Lead)
  - And we have one currently closed critical mineral mine:
    - Cantung – Tungsten, Copper

Map courtesy NWT Geological Survey)

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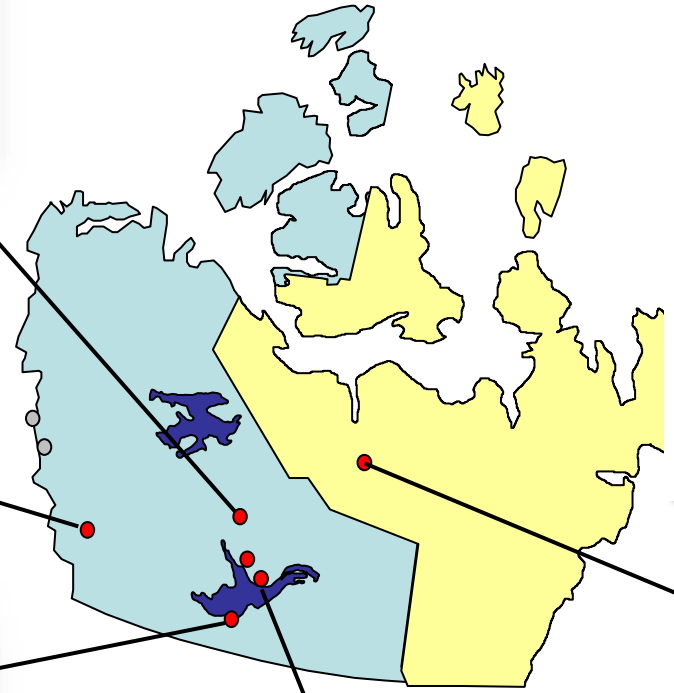
5 Advancing mining projects – 4 are for Critical Minerals



Canada's first REE mine

Over $2 Billion investment

- 5 projects advancing to investment and mining decisions
- 4 in NWT all **contain critical minerals**: rare earths, zinc, cobalt, copper, bismuth
- 1 in Nunavut is gold

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Canada’s First Rare Earth Elements Mine – Nechalacho, NWT

- Owner: Australia's Vital Metals subsidiary Cheetah Resources
- Open pit mine with optical processing
- **Constructing Canada’s first REE extraction facility in Saskatchewan**
- First phase capital costs: C$50 Million; expansion planned
- Focused on non-China buyers including Norway, with **supply chain identified now to German electric motor and car manufacturers**
- Operations began in 2021 – **significant long-life potential**

Proposed NICO cobalt, gold, bismuth, copper mine, NWT

- Owner: Fortune Minerals Limited
- Open pit and underground – 20 year mine life
- Start commissioning 2025
- **Construct processing plant in Alberta**
- Capital cost: C$775 million
- Workforce: 220 in NWT & 85 in AB
- Construct all-season road to new Tlicho Highway

"Fortune's new refinery is exactly the type of job creating, diversifying investment we envisioned with our mineral strategy and action plan."

Jason Kenney
Premier of Alberta

Rendering of proposed NICO pit, mill and camp site in the Northwest Territories

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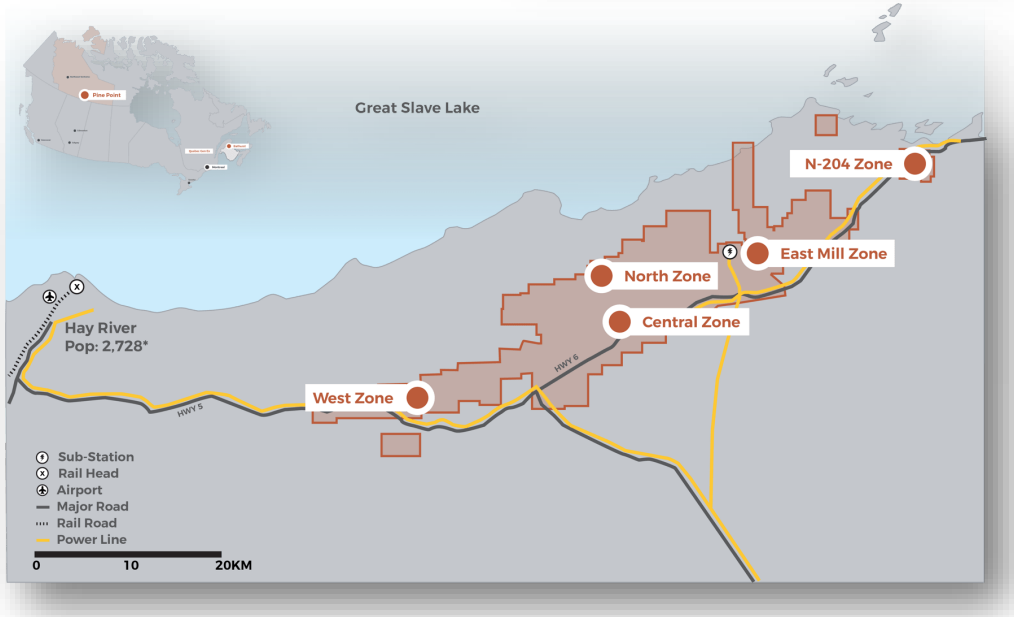
Pine Point Zinc/Lead Development Project, NWT

- Owner: Osisko Metals Incorporated / Pine Point Mining Ltd.
- Brownfield site: previously mined 1964 to 1988
  - Existing infrastructure (road, rail, power)
  - 100 km of haul roads saves project $100 million
- PEA Capital Cost Estimate: C$555 million
  - Construction could begin 2024; Operations 2026
- Open pit and underground mining
  - 10 open pit deposits mined in sequence
  - Exploration potential is significant
- 10-year mine life, average 450 jobs
- Potential to be a “Top 10” global zinc mine



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Proposed Prairie Creek zinc, silver, lead mine, NWT

- Owner: Norzinc Ltd. (and subsidiary Canadian Zinc), listed on TSX
- Pre-production cost – $368 million (significant existing mine infrastructure in place), including $90 million for **184km access road** from mine to Liard Highway
- Annual operating costs in NWT ~ $100 million; significant benefits to local and regional communities, IGOs, government and employment
- One of world's premier Zinc-Lead-Silver deposits: 3rd highest grade
- 20-year mine life with opportunity to extend
- Workforce: >600 construction; >300 operation
- 3 years construction; production 2025
- Strong ESG plan
  - Enables use of Liquefied Natural Gas
  - No tailings; 100% paste and backfill
  - 100% water recycling from process plant

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A Yellowknife bonus? Goose gold mine project, Nunavut

- Owner: Sabina Gold & Silver Resources
- Construction underway; first gold 2025
- Mine life 15 years (Goose property alone, with additional deposit potential)
- Capital cost: C$610 million (already raised)
- Open pit & underground (highest grade undeveloped open pits in the world)
- Marine laydown area completed; new airstrip, underground drifting underway, camp, etc.
- **Close to NWT: How much benefit can we attract?**

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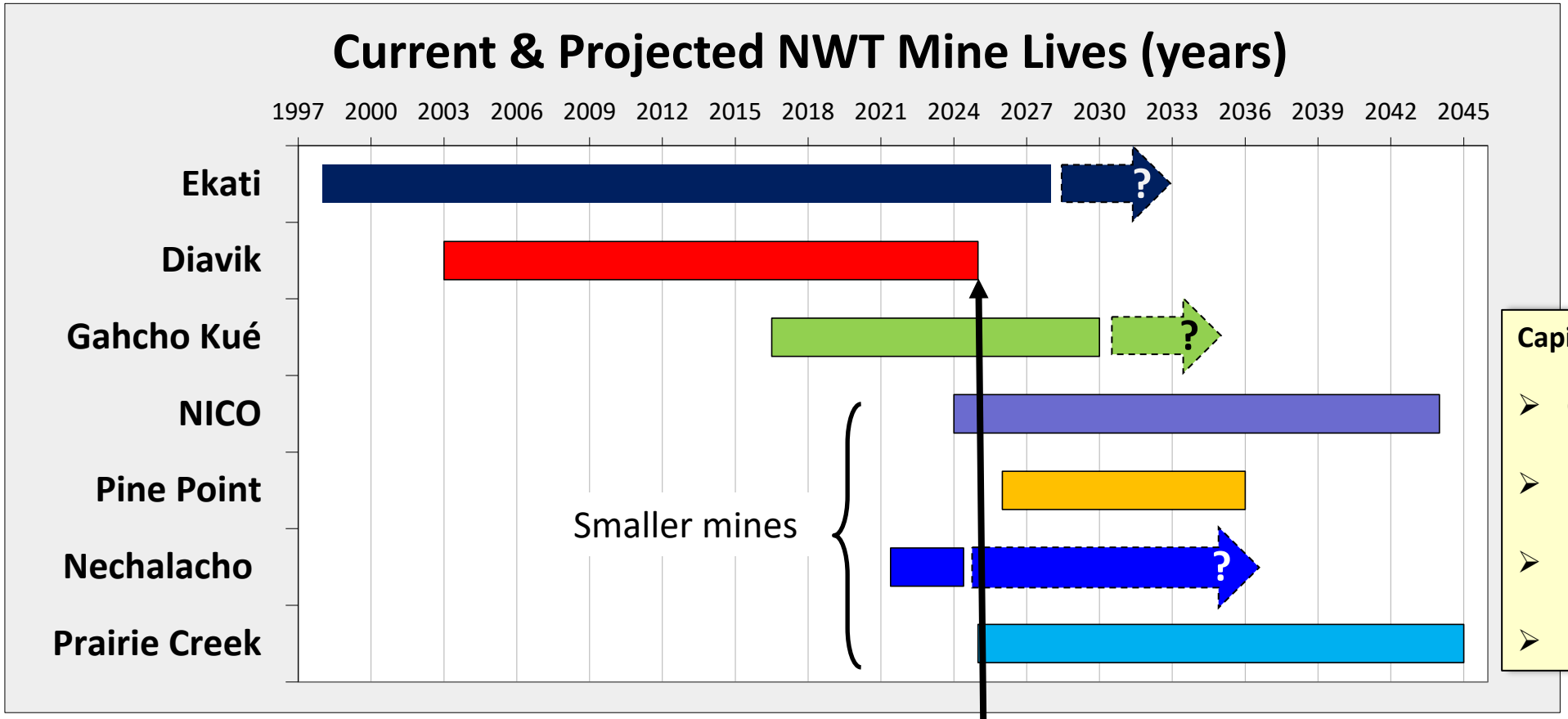
Critical mineral mines could help sustain NWT's mining benefits



Capital Investment

- C$775 million
- $555 million
- No capex yet
- $368 million

Diavik Closure in 2025 will see a significant economic loss in jobs, business, taxes

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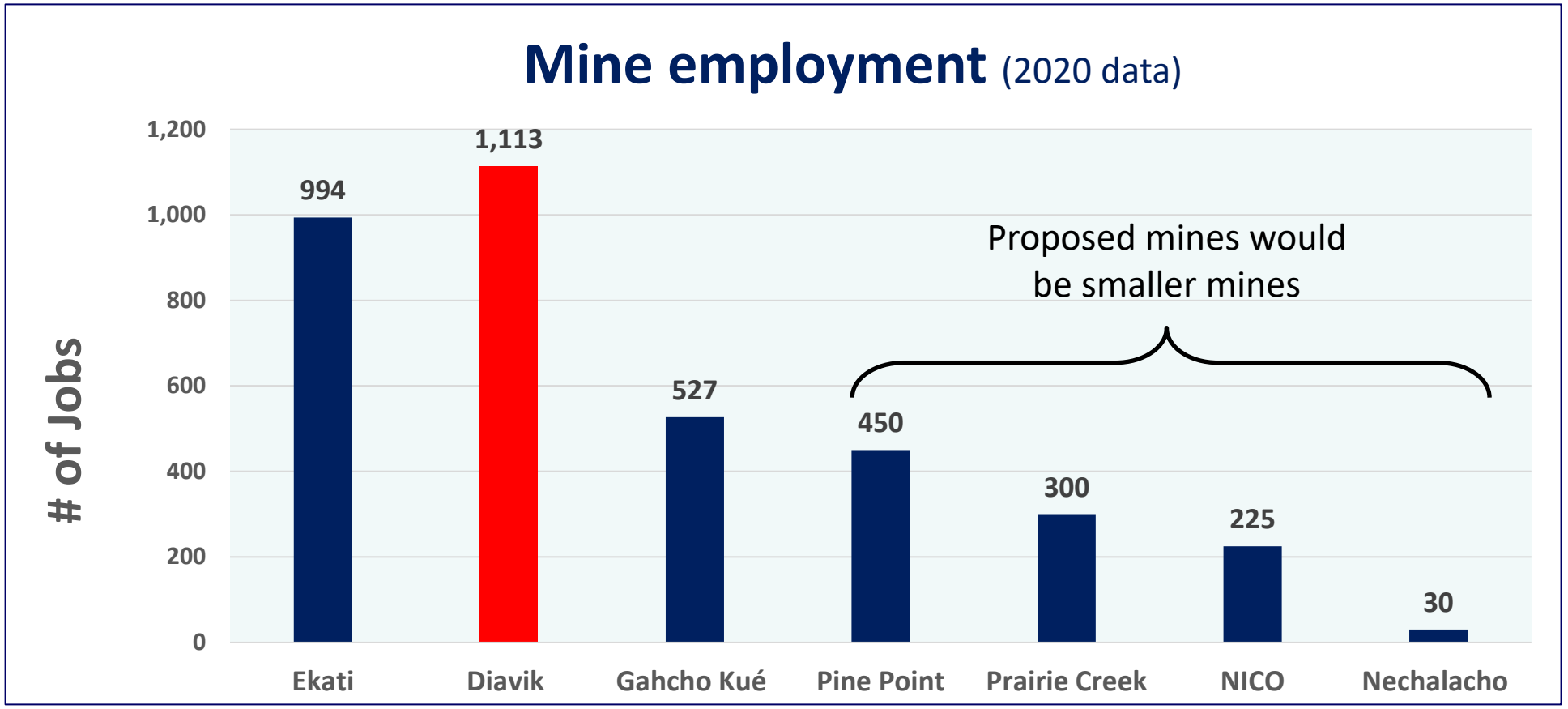
But … 4 critical mineral mines would not fully replace Diavik



- Just as employment is smaller, business spending by these smaller mines will likely be smaller than Diavik's
- Note proposed mines are not slam dunks: can still be affected negatively by markets, regulatory hurdles, infrastructure challenges, etc.

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Mining 101: Governments need to help as Resource Partners

- Governments own the mineral resources NOT companies
- They invite companies to come do what they cannot do themselves:
  - Find, raise and bring money to invest,
  - Absorb significant risks (only 1:1,000 odds of success), and
  - Apply expertise to find, develop and convert public resources into public benefits.
- As the resource owner, and the inviter, Governments have a role in helping their industry become successful in creating public benefits.

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Where we are asking governments for help

- Our pre-budget ask of Canada and what they gave:
  - ✓ Reduce regulatory complexity
  - ✓ Provide project specific infrastructure support
  - ✓ Provide critical minerals supply chain support
  - ✓ Provide regional infrastructure in roads, hydropower, ports
  - ✓ Support Indigenous economic reconciliation throughout
  - ✓ Create a “North of 60” Mineral Exploration Tax Credit of 40%

- Hallelujah! Federal Budget 2022 supports virtually all those concepts.
- The NWT now needs Canada to follow up with actions in the North.

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Remiss if I didn't tell you …

- Critical minerals are important to our future, without a doubt
- However, frankly <u>all minerals</u> are critical to our NWT economy and deserve support, including diamonds, gold, silver, etc.
- Thankfully, we have a number of additional and welcome investors that continue to persevere and finance exploration and development activities
  - Thanks to GNWT and CanNor too for providing exploration assistance
- A rising tide of governments' support would lift all boats