

## **Realizing Opportunities: Critical Minerals in the NWT**

Panel 5, NWT Indigenous Leaders Forum – April 10, 2024 Moderator: Tom Hoefer

## **Creating NWT resource opportunity: a new driver's seat today**

- NWT has established the <u>first agreement of its kind in Canada</u> to share resource management with Indigenous governments, through:
  - An Act: Intergovernmental Agreement on Lands and Resources Management Act
  - A Council: Intergovernmental Council (IGC) on Land & Resource Management
  - A Legislative Development Protocol for resource legislation and regulations
- Today: GNWT and Indigenous Governments share responsibilities for creating resource development legislation and opportunities
- This conference complements this new reality nicely



## **Reminder: Why NWT resource development is important** – 25 years of Diamond Benefits has been a game changer –

Jobs:	33,613 person-years northern with 16,769 Indigenous
Business:	\$18 Billion Northern with \$8 Billion Indigenous
Taxes & Royalties:	\$Billions to public and Indigenous governments
Community:	\$100's million dollars in IBA payments, scholarships, donations, & community wellness projects

Source: GNWT 2022 Socio-Economic Agreement (SEA) Report



Unfortunately, these diamond mining benefits are at risk - Economic Analysis doesn't paint a pretty picture -

## Aging diamond mining and O&G means:

- The economy will be smaller
- There will be fewer jobs
- There will be less disposable income
- Government will have less revenue
- There will be fewer people



Impact Economics, 2024

Problem: We don't have enough new mines discovered to replace even the Diavik mine when it closes in 2026.

## Significant Economic Losses:



## So, what do we have up our sleeves? **Tremendous and world class, largely untapped mineral potential**

..... 50.

Rase Metals

Communities Proposed Mackenzie Valley Highway

Highways

Railway

MEIMN LAKE

MACKAY LAKE

KENNADY NORTH

BAHCHO

KUR MINE

0.25 **ICAMSE** 

LAKED

MACHER MINUT

(THYE LAKE)

**Sackarcheau** 

Other Roads

Winter Roads

**Rare Earth Element** 

Thong All-Season Read Existing Power Line Taltion Hydroelectricity Expansion

Proposed Slave Geologica Province Corridor

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PINE POIN

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INDIAN MOUNTAIN

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## **Speaking to Opportunity: Our Panel expertise today**





Dr. Louise Corriveau Geological Survey of Canada *IOCG Deposit Potential* 

Francis Macdonald Li-FT Power Ltd. *Lithium* 

Jeff Hussey Pine Point Mining Ltd. *Zinc* 



Heather Exner-Pirot Macdonald-Laurier Inst. *The Big Picture* 

## Check your programs for more details on each



## Dr. Louise Corriveau – Geological Survey of Canada DEMCo Ltd. Camsell River property, NWT

 The importance of Iron-Oxide-Copper-Gold (IOCG) deposits to the NWT and Canada, and the exciting potential for Dene-owned exploration and mining company DEMCo in this sector.



Dr. Louise Corriveau Geological Survey of Canada *IOCG Deposit Potential* 7



### Stages of ore deposition in mineral systems with IOCG and affiliated deposits



nada



Canada

## Francis McDonald – Li-FT Power Yellowknife and CALI Lithium Projects

• The new opportunity for lithium



Francis Macdonald Li-FT Power Ltd. *Lithium* 



## HARD ROCK LITHIUM EXPLORATION IN CANADA

**March 2024** 

Lis FT POWER

TSXV: LIFT | OTCQX: LIFFF | FRA: WS0 •www

•www.li-ft.com

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The technical and scientific information in this presentation, related to Company projects in Quebec, Canada has been reviewed and approved by Don Cummings, P. Geo., OGX Member 2183, who is a Qualified Person for the Company under the definitions established by National Instrument 43-101 ("NI 43-101").

The technical and scientific information in this presentation, related to Company projects in Northwest Territories, Canada, has been reviewed and approved by Ron Voordouw, Ph.D., P.Geo, Partner, Director Geoscience, Equity Exploration Consultants Ltd., and a Qualified Person as defined by National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and member in good standing with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG) (Geologist Registration number: L5245).

## Why Lithium? What is it, why should we care?

Climate change  $\rightarrow$  Green Energy Transition  $\rightarrow$  Renewable Energy & Storage

#### Lithium demand is driven by electric vehicle sales



<sup>\*</sup>Includes new BEV and PHEV sales Source: Rystad Energy's Energy Transition Solution, February 2024

A Rystad Energy graphic

#### Not enough lithium supply to meet demand



Demand Supply Balance, MT LCE



## Lithium in Canada and NWT





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## Lithium Cost in 2035



#### Lithium carbonate C1-C3 cost curve - 2035 28.000 26,000 Non-Integrated Spodumene C1 Brine C1 24,000 Non-Integrated Spodumene C2 Brine C2 22,000 Non-Integrated Spodumene C3 📕 Brine C3 20,000 JSD/MT-LCE (real 2023 18,000 Integrated Spodumene C1 Others C1 16,000 Integrated Spodumene C2 Others C2 14,000 Integrated Spodumene C3 Others C3 12,000 10,000 8,000 6,000 4,000 2,000 0 1,500,000 2.000,000 2.750.000 3,000,000 500.000 1.000.000 1250000 1,750,000 2,250,000 2500000 750.000 325 3.500.000 0 Silver Peak Greenbushes Kachi Yichun Others Hombre Muerto Zeus Grota do Cirilo Zabuye, Tibet Georgia Lake Olaroz Cauchari Sonora Huagiao Dagang PPG GSL/Oaden Jiangxi Special Qinghai Pioneer Dome Bikita Clayton Valley Sal de Vida (Century) Manna Pastos Grandes Wešt Tijnaier (HXR) Separation Rapids Hombre Muerto North Tres Quebradas (30) Rose Xinfang, Shiziling Kathleen Valley Sal de Oro Mariana Vulcan Project Salar del Rincon West Tijnaier (CITIC) Kamativi Yiliping Thacker Pass Bonnie Claire Goulamina Hombre Muerto West Jadar Diablillos Baishuidong & Shuinanduan Bougouni Wolfsberg Sabi Star Arcadia NAL and Authier East Taijnaier, Qinghai Rhvolite Ridge Manono Moblan Arizaro James Bay SW & Lanxess Kitchen (CTR) Mibra Dahonaliu Portugal Centenario Ratones Karibib Jiajika Zulu Xiniiand Xiangyuan Wodaina Yichun Tantalum (414) Whabouchi Ngungaju Salton Sea (BHE) Pilgan Mt Marion Cinovec Falchani Kaustinen Clayton Valley (Pure Energy) Lijiagou Jianxiawo Zinnwald Mt Holland Maricunda Mina do Barroso

#### Note:

CI costs includes mining, processing, reagents, transport, loading & storage, G&A, energy, labor, maintenance other costs where relevant 0

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Salar de Átacama (SQM) | Clearw North Carolina

San Jose

Clearwater

Salar de Atacama (Albemarle)

- For non-integrated hard-rock operations, the cost of feedstock to lithium carbonate is included 0
- Excludes by-product credits, extraordinary items, royalties and interest costs

- In 2035, spodumene producers will be the most expensive sources of lithium
- If a mine is not producing by this time it probably won't be built high operating costs + high capital costs (due to location in northern Canada) will make economics unattractive
- Existing mines that have participated in the "build-out" of the EV supply chain (i.e. from 2020-2035) will have harvested most of the profits
- The earlier a mine gets into production, the better chance it has of being a long-life operation due to payback of capital expenditures and marginal profits thereafter
- **NEED TO AIM FOR PRODUCTION** BY 2030 IN ORDER TO BE AN ATTRACTIVE INVESTMENT

## The Economic Future of the NWT





*Current timeline for mine closures* 

#### Table 10

Relative Contribution of the Resource Sector (Direct and Indirect Employment and Income)

	Employment Taxfilers (%)	Employment Income (%)	Total Income (%)
Yellowknife	7.8%	15.7%	13.4%
Rest of NWT	3.9%	10.1%	7.9%
Northwest Territories	5.9%	13.5%	11.1%

- Mining has been a critical component of the NT economy for many years.
  - 27% of GDP in 2022
- Impending mine closures have the potential to change the fabric of the NWT as we know it.

- The timelines for success in the global lithium market align with the timelines for mine closures in NWT
  - Skilled labour force available for lithium mining just as Li-FT's projects could come online
- We need to work together as partners to make the timing transition work.

## The problem is TIME

- Average timeline from discovery to production is ٠ 15 years
- We are in a GLOBAL RACE to get lithium deposits • into production
- Countries in Africa are bringing resources to ٠ market within a 1-2 year permitting timeline
- Brazil also has much more favourably timelines on permitting (e.g. Groto do Cirolo-Sigma Lithium)



Slightly longer lead times for open pit mines\*



#### Discovery, exploration, studies Construction decision Construction to startup

Longer lead times in Canada, Russia, Chile increase global average





## We CAN solve these problems!

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Δ	Inticipated Schedule	<b>20</b>	<b>23</b>	' 04	<b>20</b> 2	2 <b>4</b> ' 02	' 03 '	04	202	25	' 03	' 04	<b>20</b> 2	2 <b>6</b> ' 02 '	03	04	<b>202</b>	27 ' 02 '	03 ' 0	<b>20</b>	<b>28</b> ' 02	' 03	' 04	<b>202</b>	2 <b>9</b> ' 02 '	' 03
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#### 1 Exploration

- Confirm historical results.
- Bring resource to inferred and then to indicated levels.

#### **(2)** Economic Studies

- Develop a Preliminary Economic Assessment
- Conduct Prefeasibility and Feasibility Studies

#### **(3)** Baseline Data Collection

Collect environmental and socioeconomic data to support EA

#### **(4)** Environmental Assessment

- Evaluate potential effects and mitigation strategies
- **(5)** Permitting
  - Establish Land Use Permit and Water Licence Conditions

## Summary



- We are in a GLOBAL RACE to get lithium resources to market
- Keep in mind that the critical minerals space is a GLOBAL MARKETPLACE. We are not just competing against Canadian projects, but against the world
- TIME is critical there is a chance that the resources stay in the ground if not brought into production in the next 7-10 years
- Timing of LIFT's Yellowknife Lithium Project aligns well with the sunset years of the diamond mines we have an
  opportunity in front of us to keep prosperity from mineral resources in the NWT alive for another cycle
- We need buy-in for critical minerals projects from all stakeholders:
  - Indigenous governments
  - Communities
  - Regulatory bodies
  - Territorial/Federal governments
  - Industry
- We CAN bring resources to market if we work together!

## CONTACT

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## Jeff Hussey, Pine Point Mining Limited Pine Point Project, NWT

• A new opportunity for zinc at Pine Point



Jeff Hussey Pine Point Mining Ltd. *Zinc* 



# PINE POINT MINING LIMITED

Developing one of Canada's premier pastproducing zinc assets.

**LOCATION:** South shore of Great Slave Lake, between Hay River to the west and Fort Resolution to the east.

**OBJECTIVE:** To produce zinc and lead concentrates by 2030

**INFRASTRUCTURE:** Power substation connected to the Talston Hydroelectric dam, paved highway access, & 100 kilometres of viable haulage roads.

www.pinepointmining.com



#### Intro | Pine Point Project



**PINE POINT** 

MINING LIMITED

#### **Pine Point | Introduction**



- Acquired project in Q1 2018
- 6 years of definition drilling approximately 50 deposits for a total of 163 km of drilling
- The MRE for the upcoming FS is underway.
- 2023 Pine Point Mining Limited Joint Venture with Appian Natural Resources Fund III a private equity fund
- \$75M to fund the project to a Final Investment Decision
- Finishing trade-off studies prior to launching the Feasibility Study by mid-year
- Construction (~500 jobs) Target Date 2028; Production (~400 jobs) 2030

#### Pine Point | 2024 Community Engagement

- 2017 Established an Exploration Agreement with Katlodeeche First Nation
- 2019 Signed 2 Collaboration Agreements with Deninu Kue First Nation and NWT Metis Nation
  - Allowed us to increase the project area and incorporate all the known historical deposits to increase the resource base to enhance economic studies
- IBA Framework Agreement meetings are ongoing
- Looking to assist Indigenous Parties access Federal Capital to build capacity for business
- Present "Preliminary Project Description" to communities and gather feedback in 2024;
- Traditional Knowledge and Cultural Studies to be delivered in advance of submission of the DAR
- ► Initiate Socio-Economic Agreement ("SEA") with GNWT
- Continue to engage and build relationships with communities....





#### Pine Point | 2024 Community Engagement



- Through the process of Impact Benefit Agreement negotiations with impacted indigenous communities, we:
  - are seeking Indigenous community interests in participating in business opportunities associated with the project.
  - want to create value opportunities for each community that is impacted.
  - are interested in hearing about creative ways to build or enhance capacity in local indigenous communities on the south side of Great Slave Lake.

#### **Pine Point | Critical Minerals**



- Critical Mineral Strategy for the energy transition is forecasting a Super Cycle of demand.
  - For zinc it has not translated into an increase in price yet.
  - As it is for Copper, low Zinc Inventories and demand forecasted higher demand for the mid to long term
  - The wild card is deflation in China reducing demand and geopolitical uncertainty...
- Why is Zinc on the Critical Mineral List?
- Zinc is mainly used for galvanization, to protect metal from rusting
- Concrete construction globally produces 8% of greenhouse gases.
- If the rebar in concrete construction is galvanized it can increase infrastructure life from 50 years to 100-200 years, reducing the need to replace it and avoid using more concrete...

## Dr. Heather Exner-Pirot, Macdonald-Laurier Institute Critical Mineral Challenges



Heather Exner-Pirot Macdonald-Laurier Inst. *The Big Picture* 





## **Race for Resources?**

Dr. Heather Exner-Pirot Director, Natural Resources, Energy and Environment Macdonald-Laurier Institute Special Advisor, Business Council of Canada April 10<sup>th</sup>, 2024



## We need 6x more minerals to reach net zero





Source: S & P

Global, 2023

## But mineral capex is not keeping up

Financial year for BHP Group and Fortescue Metals Group Ltd., ends June 30, and for Vedanta Ltd. March 31.

Capex by highest spending miners, 2010-25

Capex = capital expenditure; e = estimate; f = forecast.

Source: S&P Global Market Intelligence.

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# Global mining production peaked in 2019

Fig. 1: World mining production 1984 - 2021 by groups of minerals (without construction minerals, in Million metr. t)



Source: World Mining Data 2023





# In northern Canada, diamond mines closing, gold maturing, copper and rare earths shut in

#### **Territorial Economic Growth**

(average annual real GDP growth, per cent)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

# Other than Casino, no significant mines

planned



	Energy	Mining	Forest	Total
2023 Inventory Totals	343 (\$474B)	129 (\$93.6B)	21 (\$4.6B)	493 (\$572B)
Newfoundland and Labrador	20 (\$21.9B)	7 (\$2.8B)	1 (\$0.02B)	28 (\$24.7B)
Prince Edward Island	7 (\$0.5B)			7 (\$0.5B)
Nova Scotia	10 (\$8.6B)	5 (\$0.7B)		15 (\$9.3B)
New Brunswick	4 (\$3.6B)	1 (\$0.6B)	2 (\$0.1B)	7 (\$4.3B)
Quebec	29 (\$19.8B)	30 (\$21.6B)	6 (\$3.0B)	65 (\$44.4B)
Ontario	20 (\$34.9B)	30 (\$17.1B)	2 (\$0.2B)	52 (\$52.2B)
Manitoba	27 (\$1.5B)	3 (\$0.6B)		30 (\$2.1B)
Saskatchewan	13 (\$6.5B)	8 (\$12.6B)	3 (\$1.0B)	24 (\$20.0B)
Alberta	114 (\$158B)	4 (\$2.7B)		118 (\$160B)
British Columbia	89 (\$183B)	30 (\$27.9B)	6 (\$0.3B)	125 (\$212B)
Yukon	2 (\$0.06B)	5 (\$4.4B)		7 (\$4.4B)
Northwest Territories	5 (\$2.8B)	5 (\$2.0B)	1 (\$0.02B)	11 (\$4.8B)
Nunavut		1 (\$0.6B)		1 (\$0.6B)



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# Arctic Boom?



- There is no Arctic boom! Annual GRP growth = <1%
- Climate change does **not** make the Arctic more accessible for purposes of resource development (melting permafrost, bergy bits and growlers, storms, unpredictability, winter night)
- Sea ice is only one of many barriers to Arctic development. More impactful are distance to market, lack of labour and infrastructure, extreme conditions, and high regulatory burdens
- Commodity prices are absolutely the biggest driver of Arctic development
- For North American oil and gas, there are better prospects in shale and oil sands. But with a commodities boom, the Arctic may yet heat up
- SMRs, airships and fibre connectivity may be drivers
- We actually need Arctic resources! But need to actively promote them.



## Thank you! heather.exner-pirot@macdonaldlaurier.ca



## **Discussion: Critical Minerals in the NWT**

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