



Corporate Presentation  
March 2023  
(On James Bay niobium project)



# Forward Looking Statements



The reader is advised that the PEA summarized in this presentation is preliminary in nature and is intended to provide an initial, high-level review of the project's economic potential and design options. The PEA mine plan and economic model includes numerous assumptions and the use of Inferred Resources. Inferred Resources are considered to be too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

Certain statements contained in this presentation contains certain may constitute "forward-looking statements". All statements in this presentation, other than statements of historical fact, that address events or developments that the Company expects to occur, are forward-looking statements. Forward-looking statements are statements that are not historical facts and are generally, but not always, identified by the words "expects", "plans", "anticipates", "believes", "intends", "estimates", "projects", "potential", "scheduled" and similar expressions, or that events or conditions "will", "would", "may", "could" or "should" occur including, but not limited to, the statements regarding the Company's strategic plans, its anticipated benefits and the use of proceeds resulting thereof, in particular, future financial results, production targets and timetables, the evolution of mineral reserves and resources, mine operating costs, capital expenditures, work programs, development plans, exploration programs, objectives and budgets, the possible determination of additional reserves, and the Company's eventual success to execute its strategy to focus on building its portfolio of properties. Forward looking statements express, at this date, the Company's plans, estimates, forecasts, projections, expectations or beliefs as to future events and results. Forward-looking statements involve a number of risks and uncertainties, and there can be no assurance that such statements will prove to be accurate. Therefore, actual results and future events could differ materially from those anticipated in such statements. Risks and uncertainties that could cause results or future events to differ materially from current expectations expressed or implied by the forward-looking statements include, but are not limited to, factors associated with fluctuations in the market price of metals, mining industry risks, exploration risks, risks associated with foreign operations, environmental risks and hazards, uncertainty as to calculation of mineral reserves, requirement of additional financing or additional permits, authorizations or licenses, risks of delays in construction and production and other risks referred to in the Company's filings on SEDAR.

Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, including, without limitation, that all technical, economical and financial conditions will be met in order to achieve such events qualified by the foregoing cautionary note regarding forward-looking statements, such statements are not guarantees of future performance and actual results may differ materially from those in forward-looking statements. Factors that could cause the actual results to differ materially from those in forward-looking statements include, but not limited to: niobium prices; access to skilled workers and consultants; mining development and construction personnel; results of exploration and development activities; uninsured risks; regulatory framework and changes; defects in title; availability of personnel; materials and equipment; timeliness of government approvals; actual performance of facilities; equipment and processes relative to specifications and expectations; unanticipated environmental impacts on operations market prices; continued availability of capital and financing; general economic, market and business conditions; and the availability of alternative transactions. Many of these factors are discussed in greater detail in the Company's most recent Management Discussion & Analysis dated August 24, 2020 and Management Discussion & Analysis for the year ended December 31, 2019 dated April 23, 2020, which are available on the Company's profile on SEDAR at [www.sedar.com](http://www.sedar.com). The Company cautions that the foregoing list of important factors is not exhaustive. Investors and others who base themselves on forward-looking statements should carefully consider the above factors as well as the uncertainties they represent and the risk they entail. The Company believes that the expectations reflected in those forward-looking statements are reasonable, but no assurance can be given that these expectations will prove to be correct and such forward-looking statements included in this presentation should not be unduly relied upon. These statements speak only as of the date of this presentation.

# Disclaimer

NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. Unless otherwise indicated, all reserve and resource estimates referred to or contained in this Slide Deck have been prepared in accordance with NI 43-101. These NI 43-101 standards differ significantly from the requirements of the SEC, and such resource information may not be comparable to similar information disclosed by U.S. companies. For example, while the terms “mineral resource”, “measured resource”, “indicated resource” and “inferred resource” are recognized and required by Canadian regulations, they are not recognized by the SEC. It cannot be assumed that any part of the mineral deposits in these categories will ever be upgraded to a higher category. These terms have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. In particular, it cannot be assumed that any part of an inferred resource exists. In accordance with Canadian rules, estimates of “inferred resources” cannot form the basis of feasibility or other economic studies. In addition, under the requirements of the SEC, mineralization may not be classified as a “reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. Certain of the technical reports referenced in this Slide Deck use the terms “mineral resource,” “measured mineral resource,” “indicated mineral resource” and “inferred mineral resource”. We advise investors that these terms are defined in and required to be disclosed in accordance with Canadian NI 43-101 and the Canadian Institute of Mining, Metallurgy and Petroleum (the “CIM”) – CIM Definition Standards on Mineral Resources and Mineral Reserves, adopted by the CIM Council, as amended. “Inferred mineral resources” have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Under Canadian rules, estimates of inferred mineral resources may not form the basis of feasibility or pre-feasibility studies, except in rare cases. Investors are cautioned not to assume that all or any part of an inferred mineral resource exists or is economically or legally mineable. As a reporting issuer in Canada, we are required to prepare reports on our mineral properties in accordance with NI 43-101. We reference those technical reports in this Slide Deck for informational purposes only, and such reports are not incorporated herein by reference.

Under the United States Securities and Exchange Commission’s (the “SEC”) Industry Guide 7 as currently in effect (“Guide 7”), the terms “indicated mineral resource” and “inferred mineral resource” are normally not permitted to be used in reports and registration statements filed with the SEC. Under current Guide 7 standards, a “final” or “bankable” feasibility study is required to report reserves, the three-year historical average price is used in any reserve or cash flow analysis to designate reserves, and the primary environmental analysis or report must be filed with the appropriate governmental authority. Disclosure of “contained ounces” in a resource is permitted disclosure under Canadian regulations; however, the SEC normally only permits issuers to report mineralization that does not constitute “reserves” by Guide 7 standards as in place tonnage and grade without reference to unit measures.

Accordingly, information contained in this Slide Deck contain descriptions of the Company’s mineral deposits that may not be comparable to similar information made public by United States companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder, included Industry Guide 7.



About Us

NioBay  
METALS

# Corporate Overview

- NioBay is a public company developing the world-class James Bay Niobium project and Crevier Niobium and Tantalum Project
- Our vision is to become a niobium producer that applies leading ESGI practices
- NioBay's management team has extensive experience in the niobium space and in Ontario mine permitting and development
- Niobium is considered a Critical Mineral in the USA, the EU and many other countries
- Demand for niobium has been accelerating due to its greening properties

Corporate Structure	
Share Price	\$0.20
Shares Outstanding	71 M
Fully Diluted	83 M
Market Cap	\$14 M
Cash on Hand	\$5 M
52-Week Range	\$0.08 - \$0.38
Major Shareholders	
Osisko Group	24%
Caisse de Dépôt du Qc	9.9%
Management & Directors	5%

# Board of Directors



Jean-Sebastien David, P. Geo. - President,  
CEO and Director

Arianne Phosphate, Osisko, Iamgold,  
Cambior, Louisiana-Pacific.



Dawn Madahbee Leach - Director

General Manager Waubetek Business  
Development/First Nations



Serge Savard - Chairman

Former NHL player, Businessman, Real  
Estate Developer



Raymond Legault - Director

Retired Financial Advisor



Mathieu Savard, P. Geo - Director

President Osisko Mining Inc., Virginia Mines

# Management



Claude Dufresne, P. Eng. - Consultant  
+ 20 years Nb business: Iamgold,  
Camet, Cambior



Marc Pothier, LL.B - VP Legal & Corporate Se  
+ 20 years expertise Mining, Securities,  
Corporate Finance



Anthony Glavac, CPA, CA - CFO  
+ 17 years financial reporting: Osisko  
Metals, Falco Resources, KPMG



Phil Sutherland, Indigenous Advisor  
+ 20 years mine education and engagement

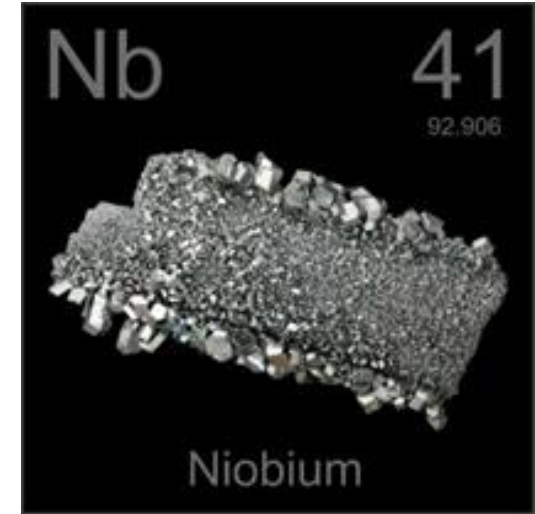


# Niobium A Green Metal

**NioBay**  
METALS

# Niobium

- Niobium is a naturally occurring refractory transition metal with impressive characteristics
- Niobium is used in alloys to make steel usage more efficient
  - Stronger, lighter and corrosion resistant
- Niobium is now being utilized as a battery metal



## Primary markets



Structures



Wind Turbines



Shipbuilding



Automotive



Superconductors



Aerospace



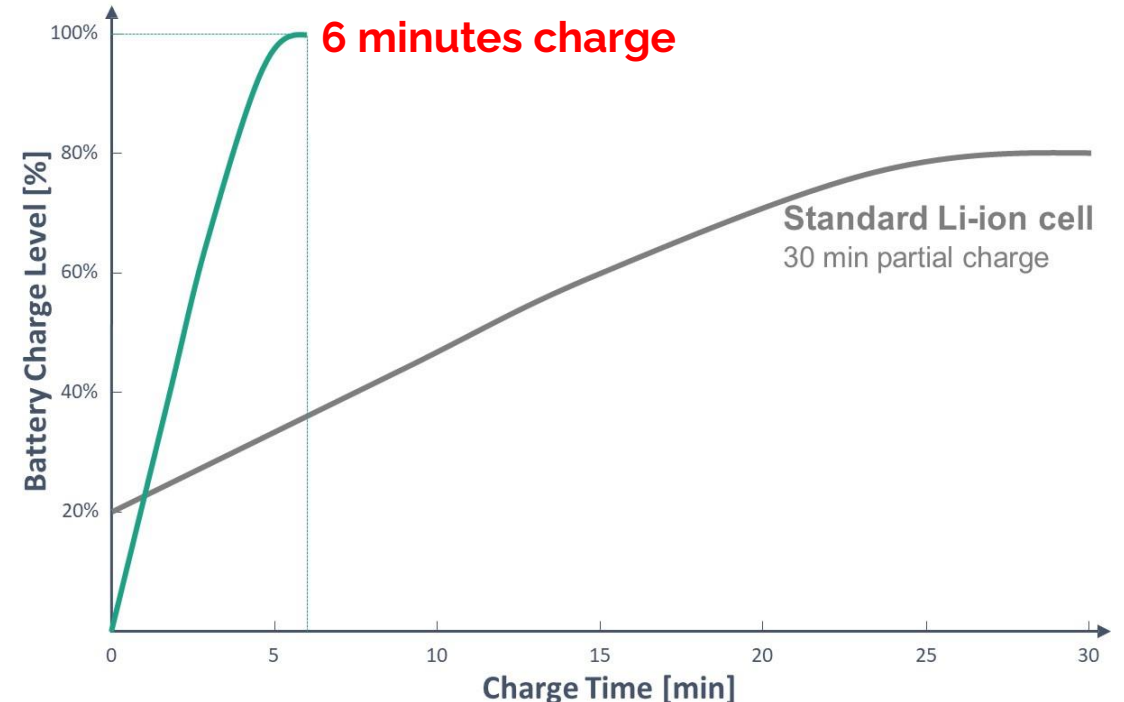
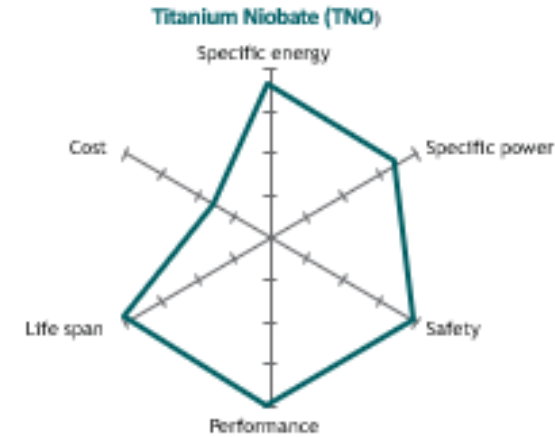
Batteries

Ferroniobium market

Niobium oxide market

# Niobium - A battery Metal

- Niobium-based batteries will revolutionize the Battery market
- Super-Fast charging and discharging rate ( <6 minutes)
- Increased energy density of batteries
  - More power and increased range
  - Improves performance at low temperatures
- More charging cycles (+20,000 cycles)
- Demand for niobium to **increase** 100% by 2030



# Niobium Battery Technology

- Current players

**TOSHIBA**



**CBmm**



nanoOne  
.....

**WILLIAMS** | ADVANCED  
ENGINEERING

# Modern Battery Technology



Lithium Carbon Oxide  
(LCO -  $\text{LiCoO}_2$ )

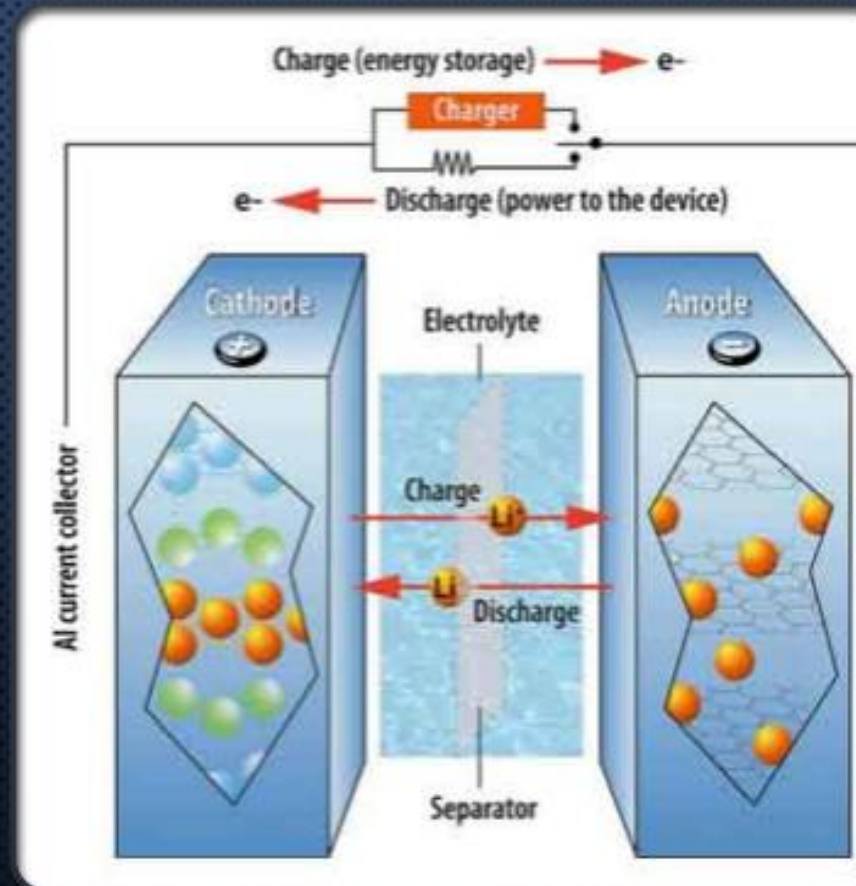
Lithium Niobium Oxide  
( $\text{Li}_3\text{NbO}_4$ )

Lithium Manganese Oxide  
LMO -  $\text{LiMn}_2\text{O}_4$

Lithium Iron Phosphate  
(LFP -  $\text{LiFePO}_4$ )

Lithium Nickel Manganese Oxide  
(NMC -  $\text{LiNiMnCoO}_2$ )

Lithium Nickel Cobalt Aluminum  
(NCA -  $\text{LiNiMnAlO}_2$ )



Carbon Graphite

Lithium Titanium Oxide  
(LTO -  $\text{Li}_4\text{Ti}_5\text{O}_{12}$ )

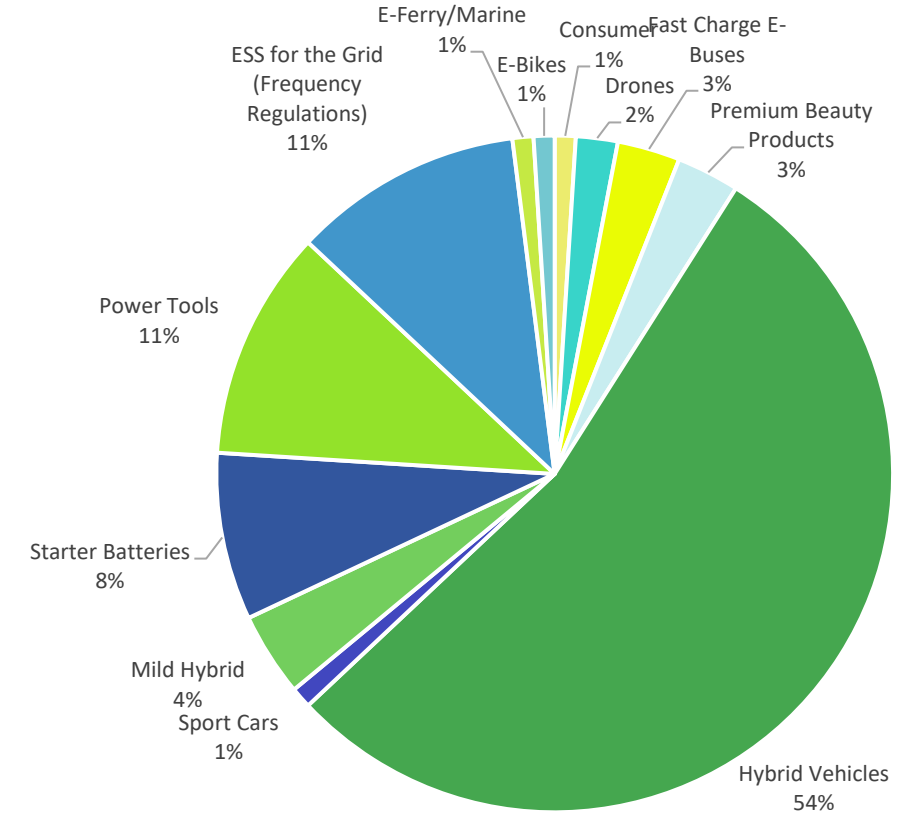
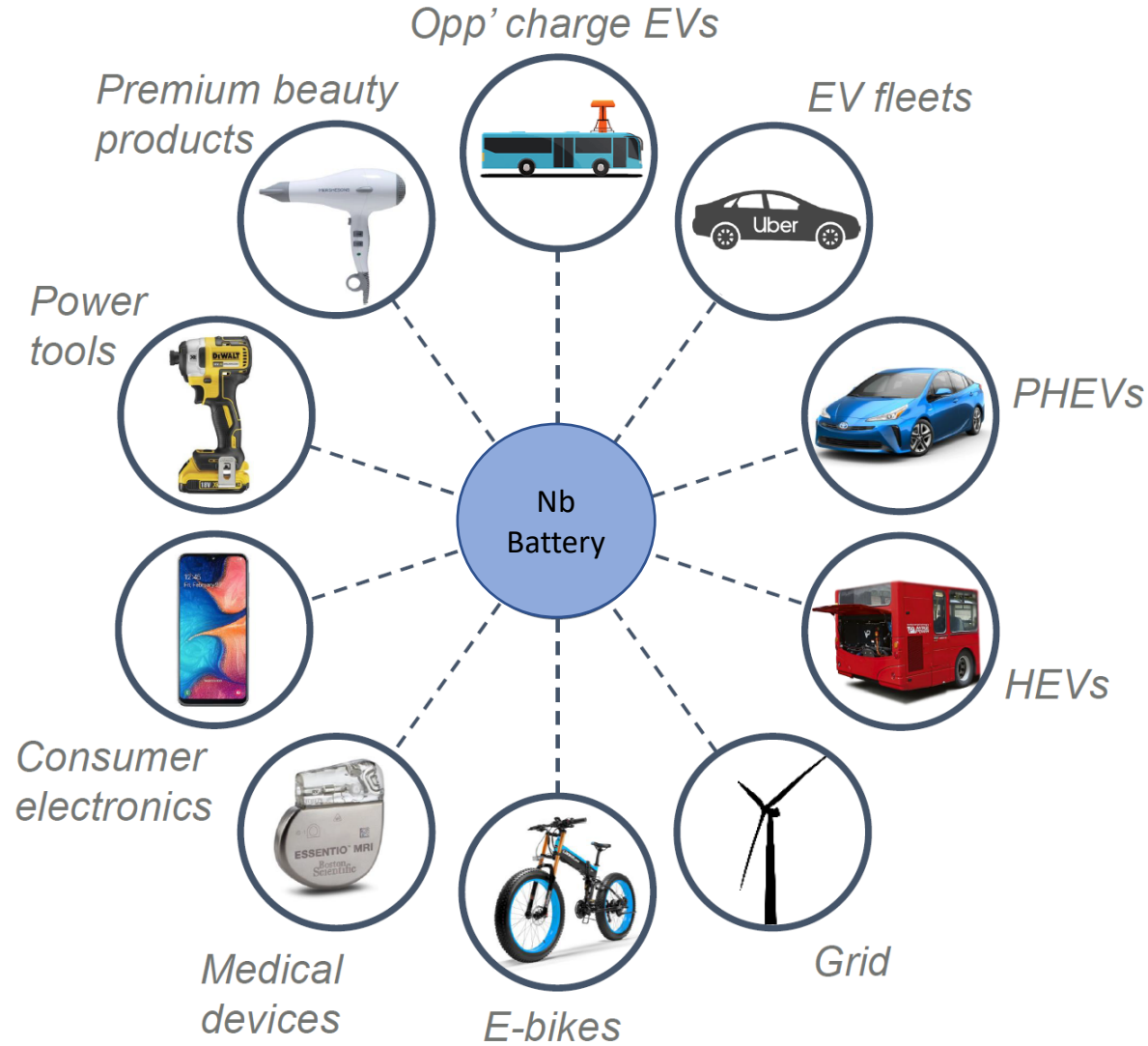
Titanium Niobium Oxide  
(TNO -  $\text{TiNb}_2\text{O}_7$ )

Silicon-Graphite Composite

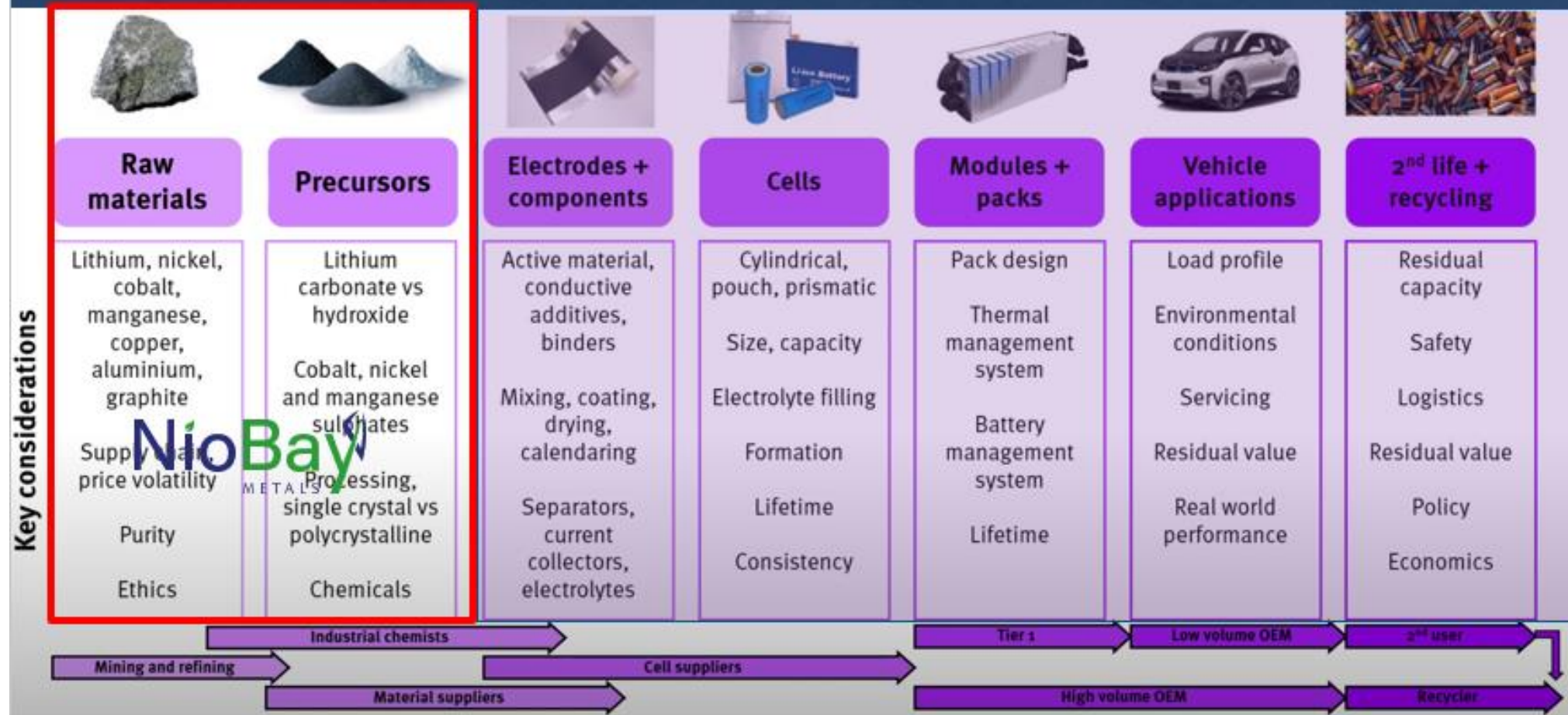
Silicon

Li metal

# Niobium Battery –Market Anode and more



# Battery Industry Structure





## James Bay Niobium Project

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# James Bay Niobium Project

## Description

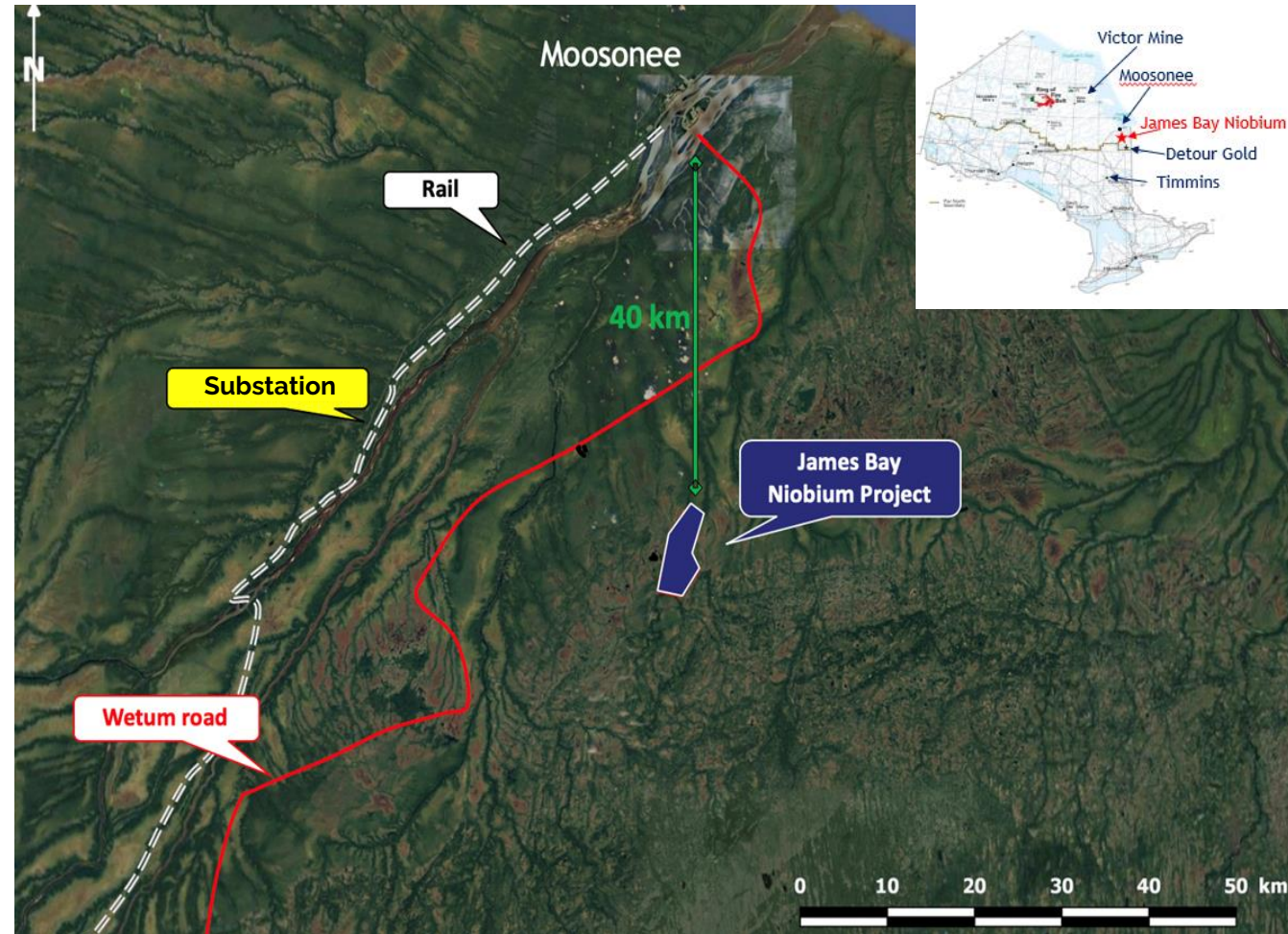
- 42 km south of Moosonee, in the James Bay Lowlands, Ontario, Canada
  - Airport (2 runways, 1.2km & 1km)
  - Rail line from Cochrane
  - Powerline 38 km away
  - Winter Road (Wetum Road) – 12km away
- Located within Moose Cree First Nation Homeland
- Mineralization is open at depth and to the north
- Project is now entering advanced exploration and development stages

## James Bay Resource (2020)

Classification (cut-off 0.3%Nb <sub>2</sub> O <sub>5</sub> )	Tonnes (Mt)	Grade (%Nb <sub>2</sub> O <sub>5</sub> )	Contained Nb <sub>2</sub> O <sub>5</sub> (M kg)
Indicated	29.7	0.53	158
Inferred	33.8	0.52	177
Crown Pillar	7.2	0.50	36

NSR Valued: \$170/t

## Project Map



# James Bay Niobium PEA Highlights

Production limited to <5% world demand

Scenario	Mine Life	Nb Production	Post-Tax NPV <sub>8%</sub>	Post-Tax IRR
Open pit	30 Years	5,470 tpa	C\$1,008 M	27.5%
Open pit & underground	23 years	6,213 tpa	C\$856 M	27.0%
Underground	23 years	6,283 tpa	C\$733 M	21.6%

# James Bay Niobium Economic Impact (open pit or hybride)



- C\$500 M capital investment
- C\$3.8 B operating costs
- C\$300-\$400 M sustaining capital
- C\$7 B GDP impact



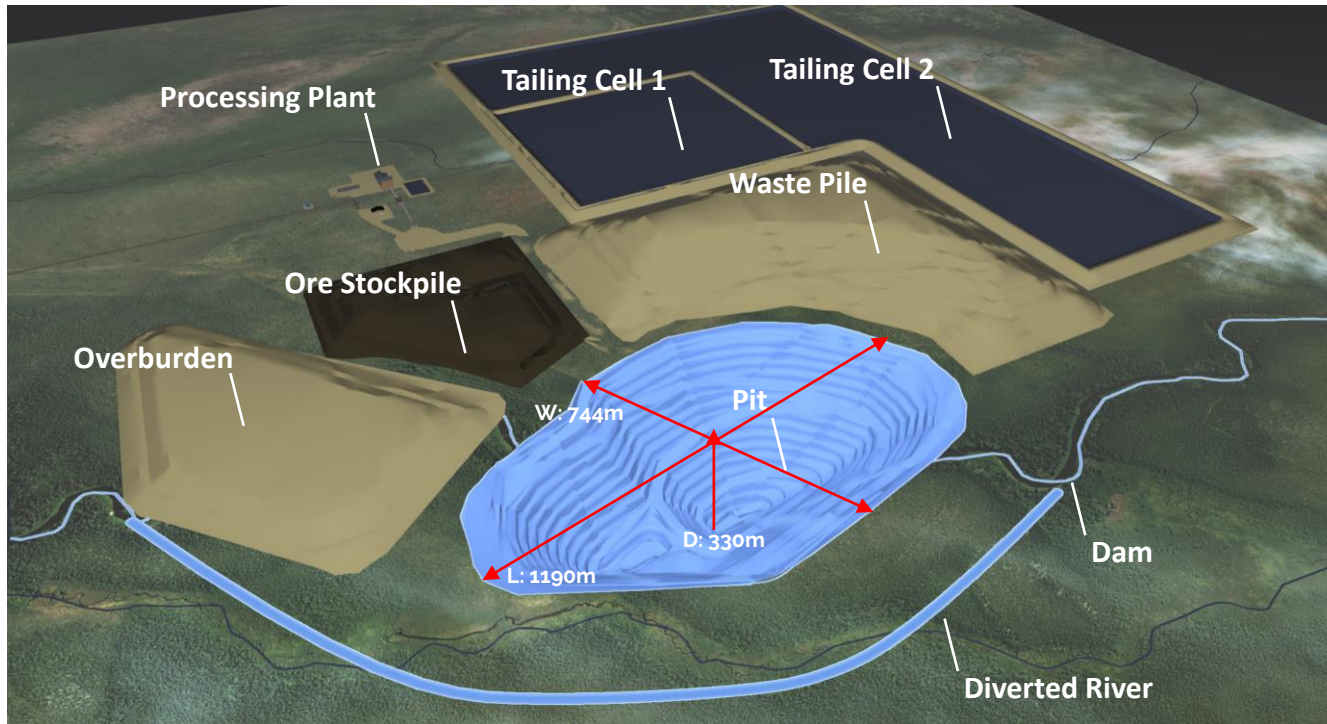
- 400 high-paying jobs
- 23-30 years of mine life
- High potential to extend mine life



- C\$718 M federal taxes
- C\$479 M provincial taxes
- C\$226 M mining taxes

# Scenario 1 – Open Pit (Not desired by the community)

## Surface Infrastructure – with river diversion



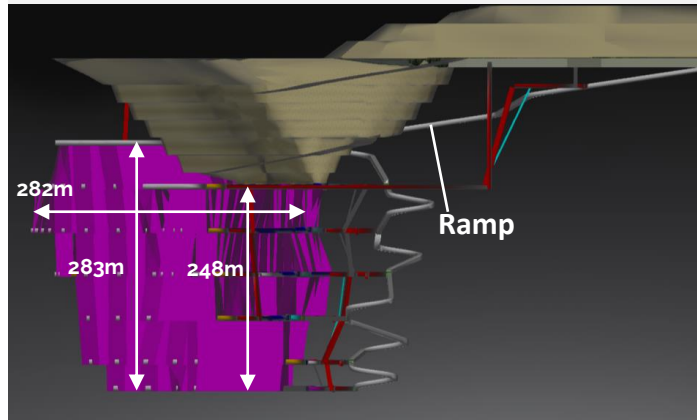
## Scenario 1 Features:

- Pit
  - Length: 1190m
  - Depth: 330m
  - Width: 744m
- Overburden Slope: 26°
- Rock Slope: 45°

# Scenario 2 – Open Pit & Underground

(A good scenario if we don't want to open other quarry plant for roc and gravel)

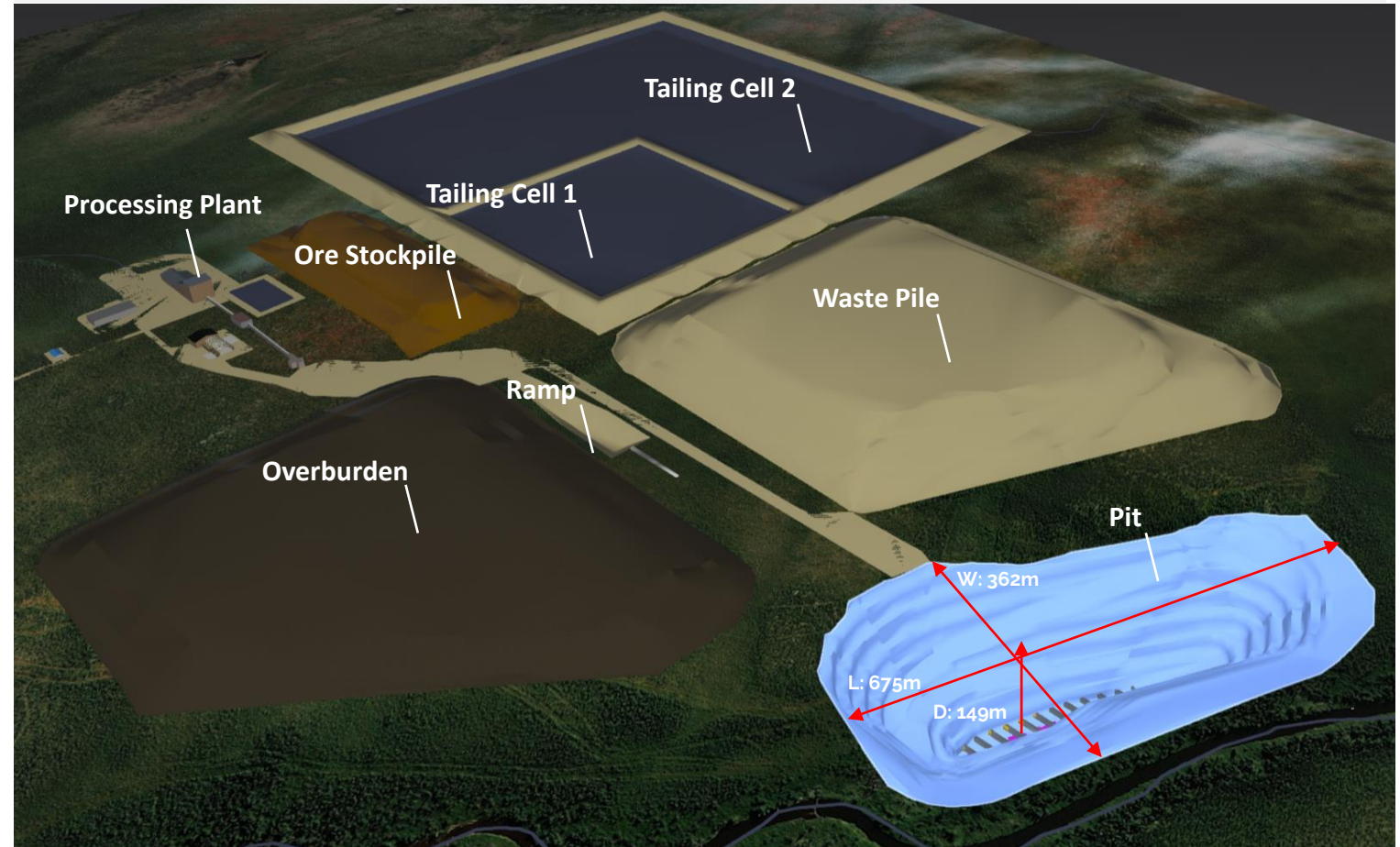
## Underground Infrastructure



## Scenario 2 Open Pit Dimensions

- Pit
  - Length: 675m
  - Depth: 149m
  - Width: 362m
- Overburden Slope: 26°
- Rock Slope: 45°

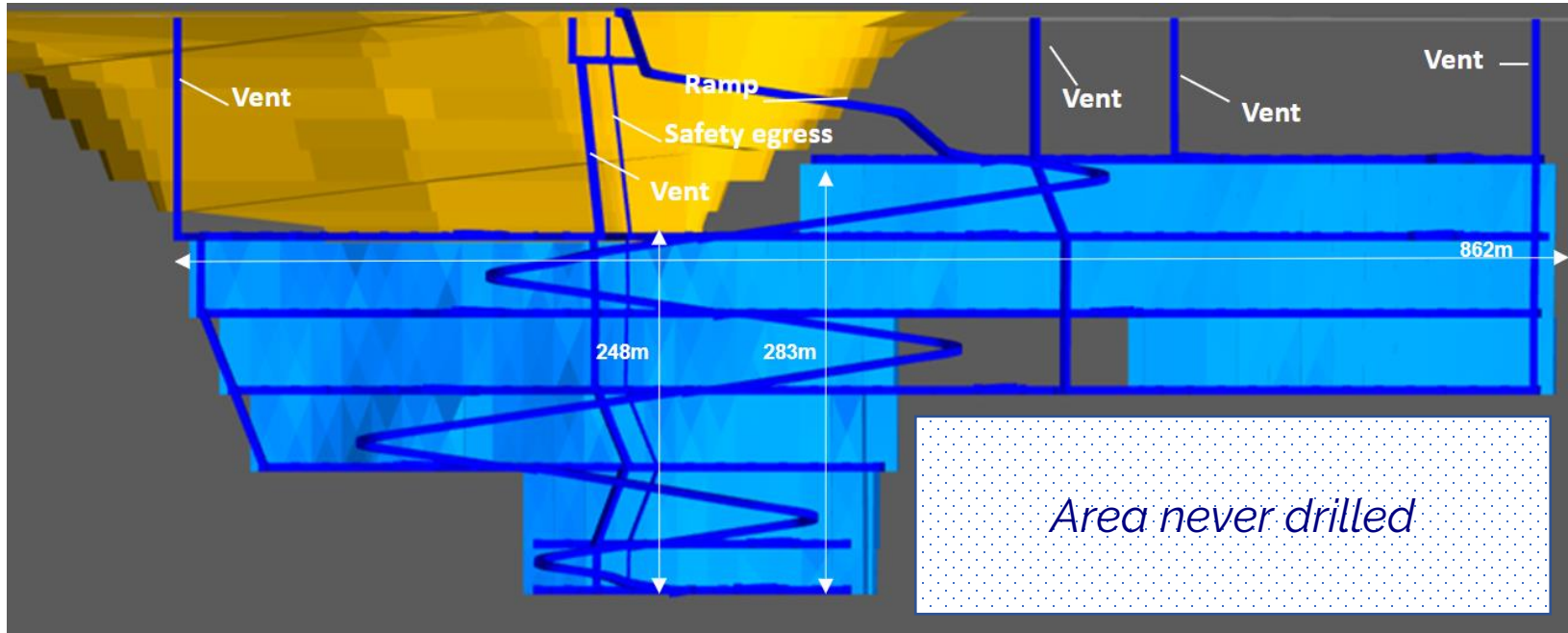
## Surface Infrastructure



# Scenario 2 – Open Pit & Underground

(Best scenario to minimize the foot print)

## Underground Cross-Section South View



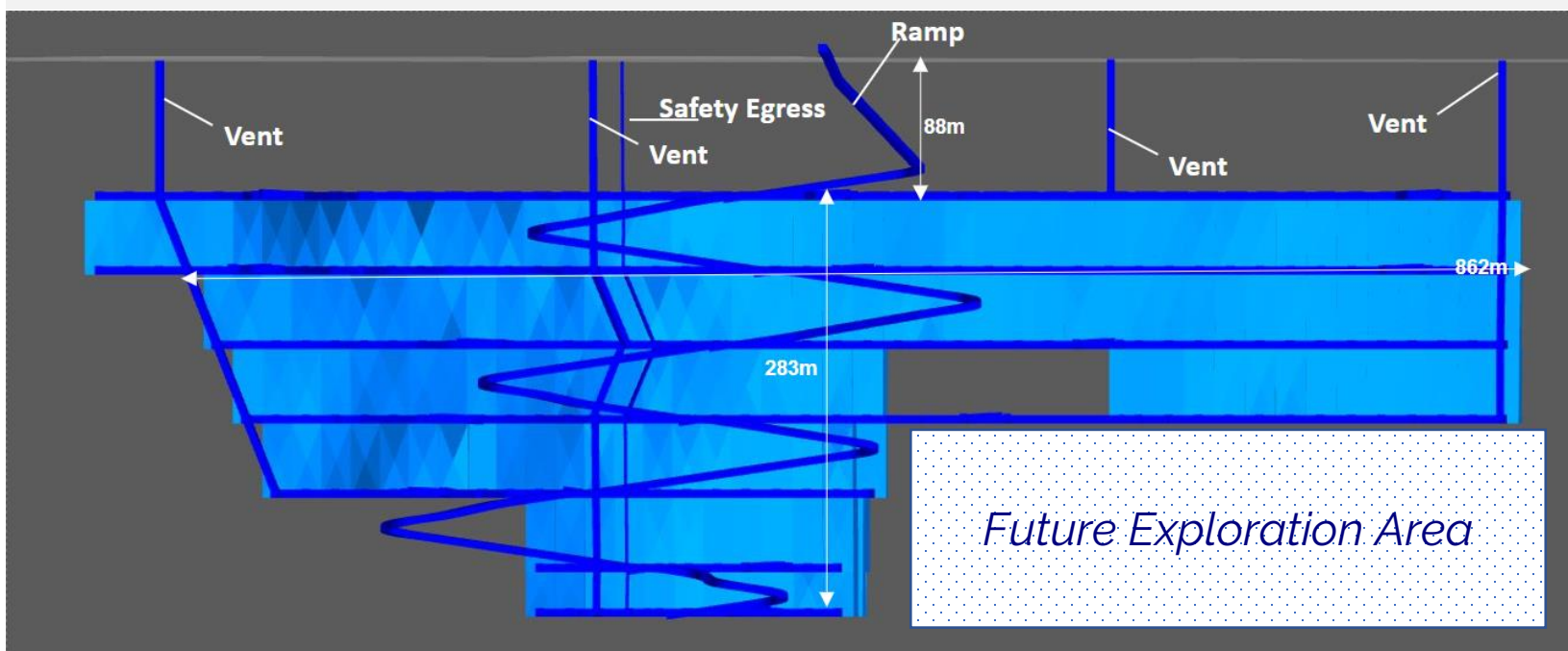
## Scenario 2 Underground Dimensions

- West Section – 88m from surface
- East Section – 143m from surface
- Length: 862m
- Depth: 248-283m
- Width: 282m

- We will have to open some quarry to provide rocks for construction
- We will left the ore at surface

# Scenario 3 – Underground (ramp)

## Underground Cross-Section South View



## Scenario 3 Underground Dimensions

- West Section – 88m from surface
- East Section – 88m from surface
- Length: 862m
- Depth: 248-283m
- Width: 282m

# Niobec



# Project Development



## 2020 Milestones



## 2023/2024 Objectives

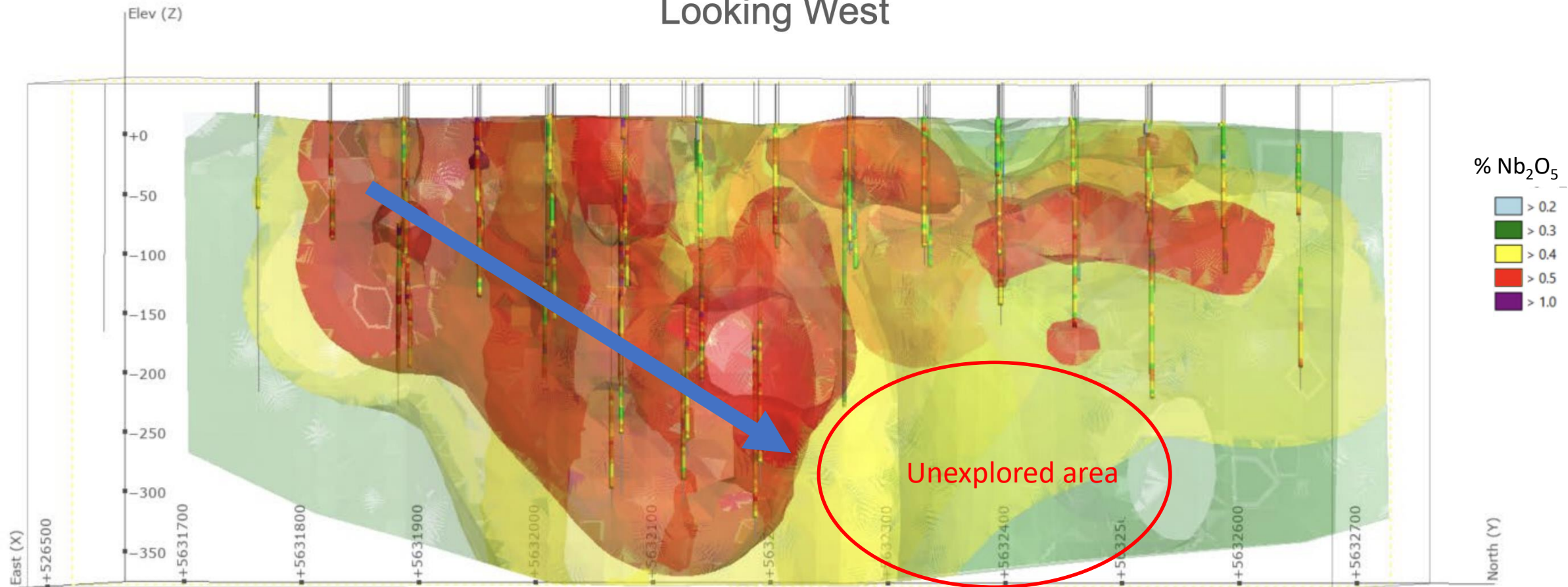


3 on 30 done

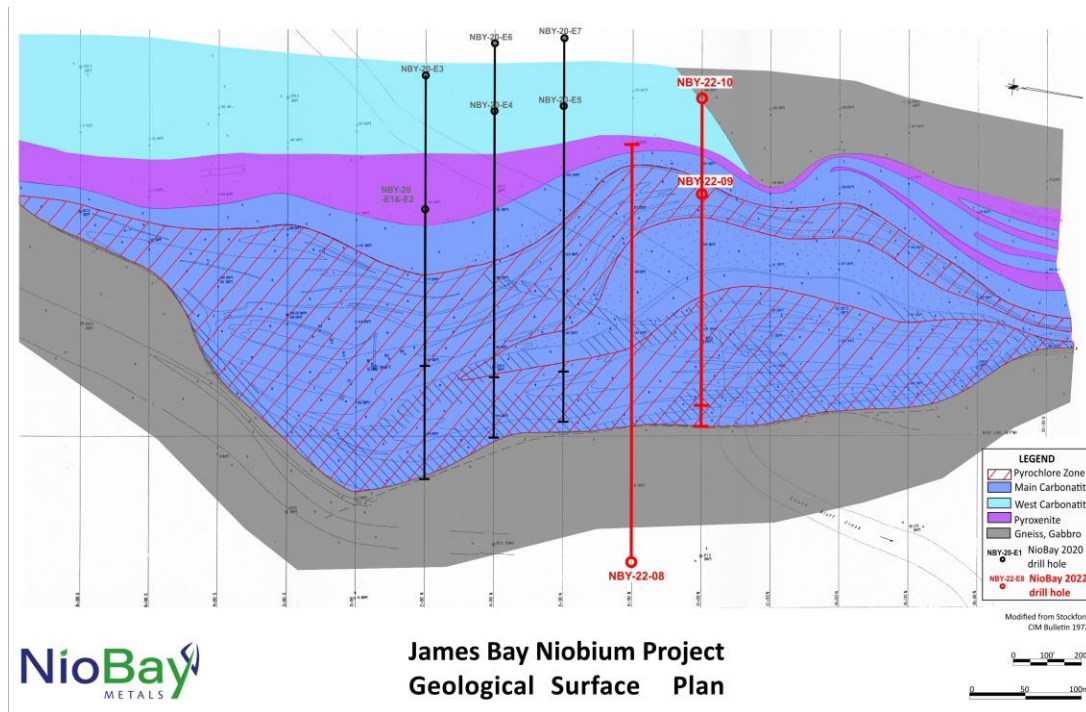
Started  
In progresss

# Trend Analysis

Looking West



# 2022 drill results



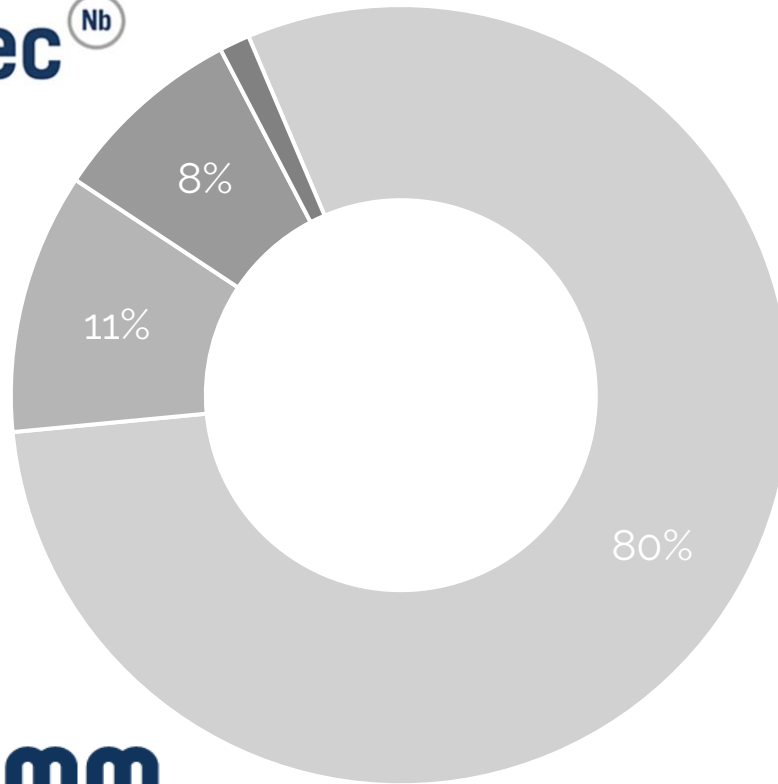


# Niobium & The Market



# Niobium Supply

Niobec<sup>Nb</sup>



 **CBmm**

Capacity 100,000 tpy Nb

+500M t @ 2.5% Nb<sub>2</sub>O<sub>5</sub>

Cost: <10\$/kg Nb (price setter)

Araxa, Brazil



Capacity 8,500 tpy Nb

50M t @ 1% Nb<sub>2</sub>O<sub>5</sub>

Cost: +12\$/kg Nb,

Catalao, Brazil

Niobec<sup>Nb</sup>

Capacity 7,000 tpy Nb

+75M t @ 0.56% Nb<sub>2</sub>O<sub>5</sub>

Cost: 19\$/kg Nb

Quebec, Canada

**Others**

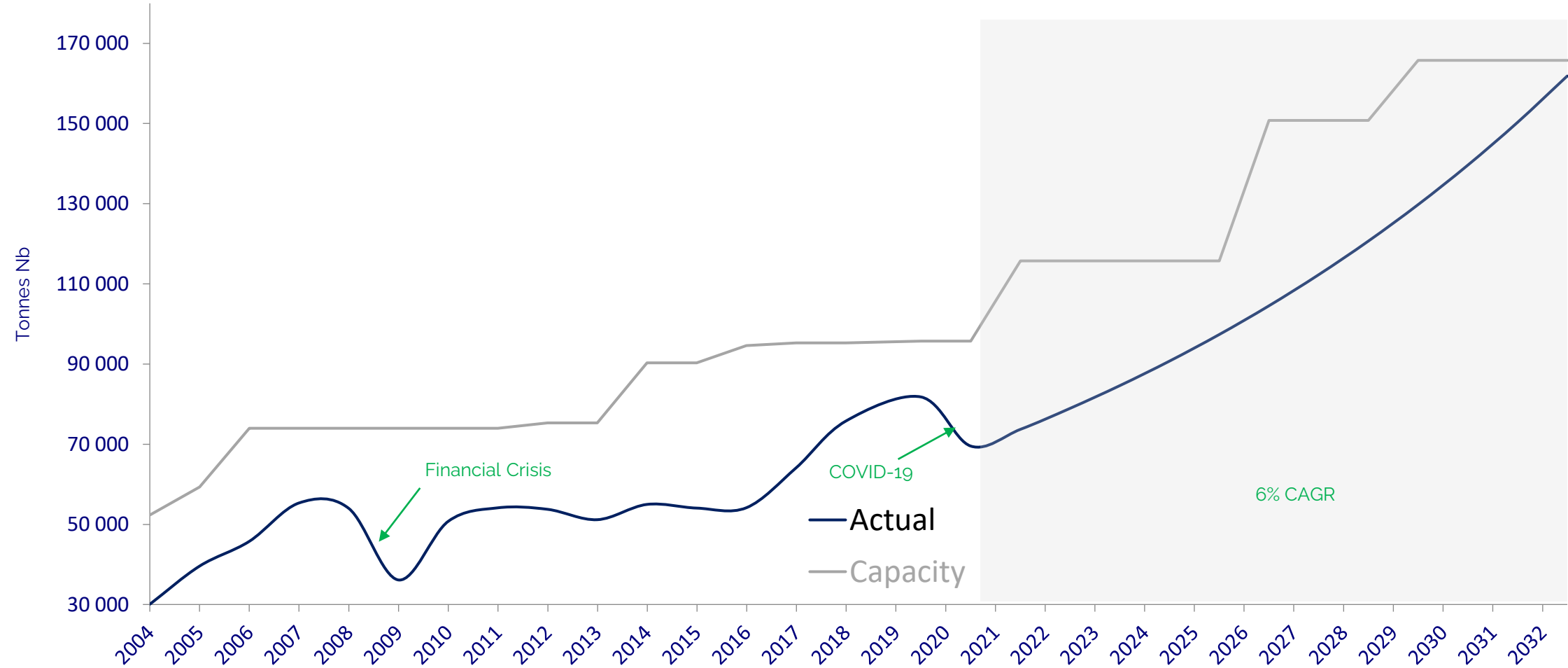
Capacity estimated 1,500 tpy

Poorer quality

Raw material from coltan

# Niobium Demand

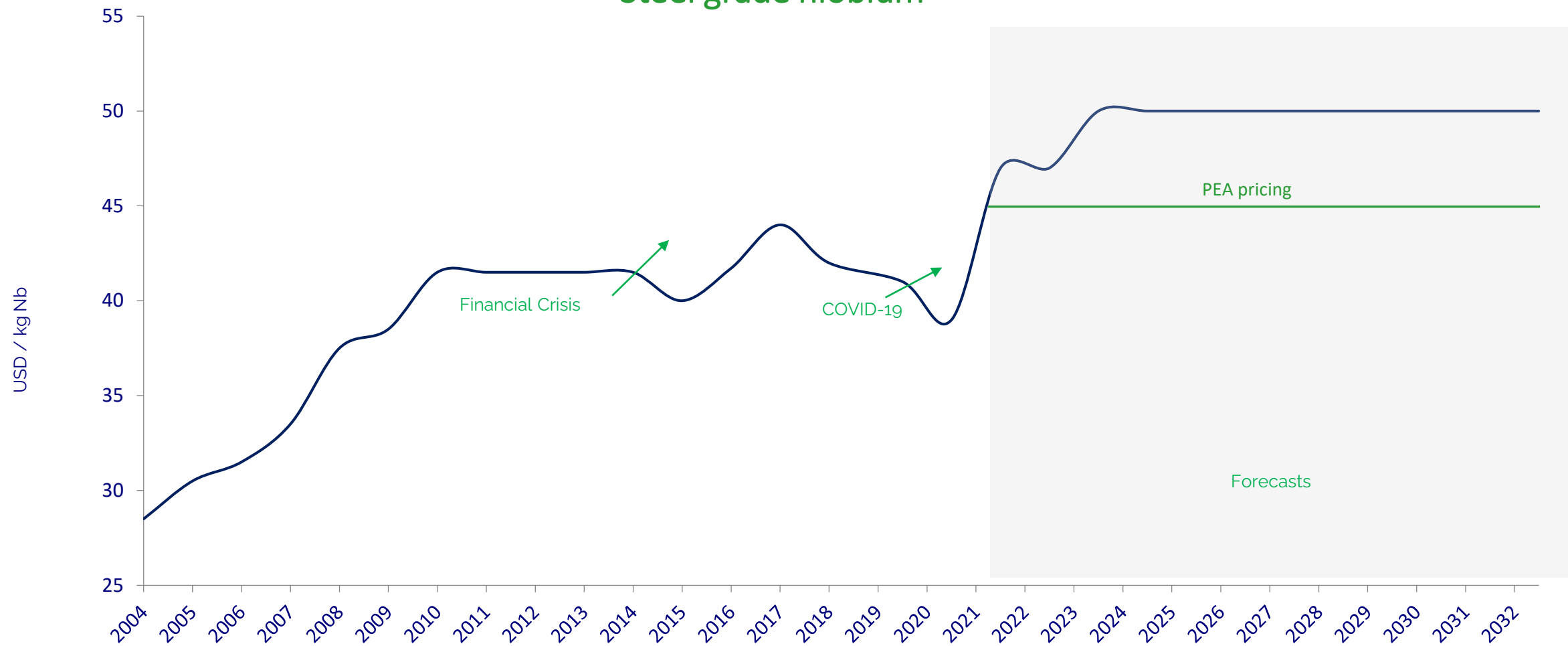
## Steel Grade Niobium only



Source: HIS Markit / Company forecasts

# Niobium Prices

## Steel grade niobium

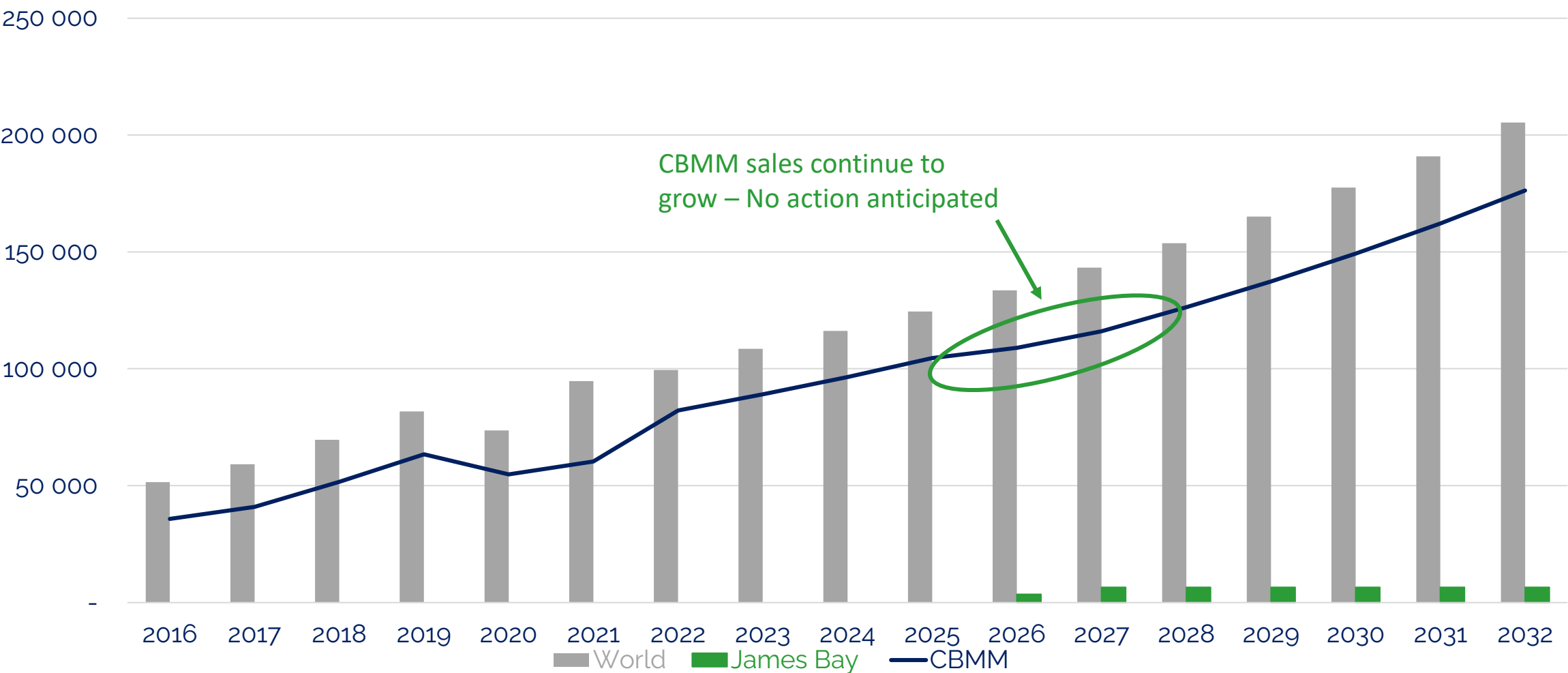


Source: HIS Markit / Company forecasts

# Marketing Strategy

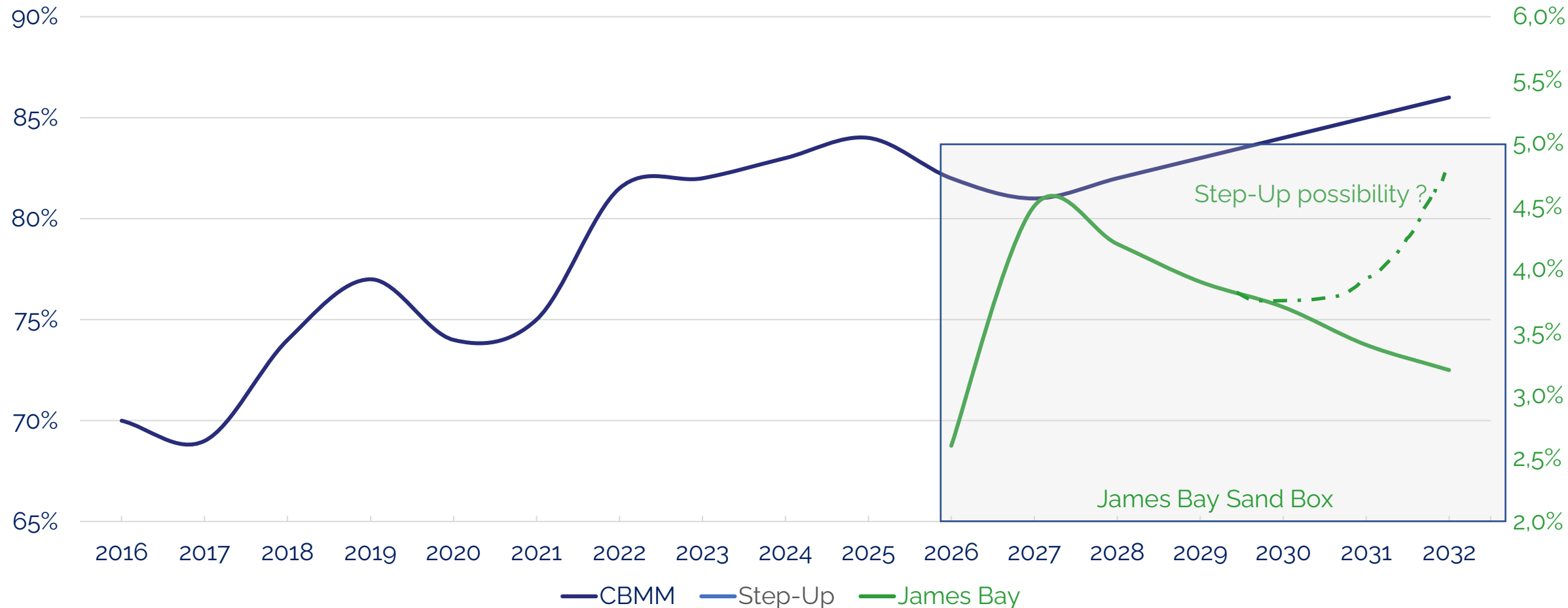
Sale FeNb (t Nb)

James Bay Project aims to produce 5% of world supply



# Marketing Strategy

Looking to become the NEXT producer with 5% market share





Jean-Sebastien David, P.Geo. MPM.  
President, CEO & Director  
NioBay Metals Inc.

[jsdavid@niobaymetals.com](mailto:jsdavid@niobaymetals.com)

**NioBay**  
METALS