

INVESTOR PRESENTATION

Feb. 2025

SUPPLYING A CRITICAL
COMPONENT FOR LONG-DURATION
ENERGY STORAGE
FOR DECARBONIZATION

# Forward-looking statement

This corporate introduction contains certain forward-looking statements and information relating to VanadiumCorp Resource Inc. ("the Company") and its operations that are based on the beliefs of its management as well as assumptions made by and information currently available to the Company. When used in this document, the words "anticipate," "believe," "budget," "estimate," "expect," "intends," "potential," "scope", and similar expressions, as they relate to the Company or its management and operations, are intended to identify forward-looking statements.

These forward-looking statements or information relate to, among other things: the Company's future financial and operational performance; the sufficiency of the Company's current working capital, anticipated cash flow or its ability to raise necessary funds; the anticipated amount and timing of work programs; our expectations with respect to future exchange rates; the estimated cost of and availability of funding necessary for sustaining capital; forecast capital and non-operating spending; and the Company's plans and expectations for its property, exploration and community relations operations.

These forward-looking statements and information reflect the Company's current beliefs as well as assumptions made by, and information currently available to the Company and are necessarily based upon a number of assumptions that, while considered reasonable by the Company, are inherently subject to significant operational, business, economic, competitive, political, regulatory, and social uncertainties and contingencies. These assumptions include: cost estimates for exploration programs and production facilities; cost of drilling programs; prices for vanadium, titanium and iron metals remaining as estimated; currency exchange rates remaining as estimated; capital estimates; our expectation that work towards the establishment of mineral resource estimates and the assumptions upon which they are based will produce such estimates; prices for energy inputs, labour, materials, supplies and services (including transportation); no labour-related disruptions at our operations; no unplanned delays or interruptions in scheduled work; all necessary permits, licenses and regulatory approvals for our operations being received in a timely manner and can be maintained; and our ability to comply with environmental, health and safety laws, particularly given the potential for modifications and expansion of such laws. The foregoing list of assumptions is not exhaustive.

Forward-looking statements and information involve known and unknown risk, uncertainties, assumptions, and other factors which may cause the actual results, performance, or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Although the Company has attempted to identify important factors that could cause actual results or events to differ materially from those expressed or implied in the forward-looking statements, there may be other factors which could cause results not to be as anticipated, estimated, described, or intended. Investors are cautioned against attributing undue certainty or reliance on forward-looking statements or information.

Forward-looking statements and information contained herein are made as of the date of this presentation, and the Company does not intend and disclaims any obligation to update or revise forward-looking statements or information, whether as a result of new information, future events, or to reflect changes in assumptions or in circumstances or any other events affecting such statements or information, other than as required by applicable law.

# A new Canadian supplier of the key component for long duration grid-scale batteries

Vast amounts of long-duration energy storage (LDES) are required to decarbonize electrical grids

The Vanadium Flow Battery (VFB) is a leading battery technology for LDES, now being deployed by utilities and renewable energy projects around the world.

VanadiumCorp is now producing vanadium electrolyte, the main ingredient in VFB.

#### Vanadium Electrolyte:

VanadiumCorp's new manufacturing plant in Val-des-Sources, Québec, produces high-purity vanadium electrolytes for VFB manufacturers; a significant expansion path is scoped.

#### Mineral Deposits:

The Company's strategic Lac Doré vanadium-titanium-iron deposit near Chibougamau, Québec, promises decades of stable vanadium supply for the Company's own electrolyte production (contingent on successful development, permitting and financing).

#### Strategy:

Enter the vanadium electrolyte supply chain now, during the lift-off phase of VFB deployment worldwide, followed by our mine production when we have established a significant vanadium electrolyte market share.

## The VanadiumCorp opportunity



VanadiumCorp Resource Inc. ("VanadiumCorp") is a Canadian critical metals company supporting a new generation of long-duration Vanadium Flow Batteries (VFBs) for the decarbonization of electrical grids.

**Vanadium Electrolyte Manufacturing** 





Plant #1: Demonstration-scale production in

Val-des-Sources, Québec

**Plant #2: Engineering-scoped for commercial** 

production near Sherbrooke, Québec

**V-Ti-Fe Mineral Deposits** 



Mineral Resource Asset: Strategic mineral deposit at Lac Doré, Chibougamau, Québec. Not factored for recovery from concentrate, the deposit holds <u>1.49 billion pounds of V2O5 according to the historical NI 43-101 MRE of CSA Global (2020).</u>

# Lithium-ion battery vs Vanadium Flow battery

	Lithium-ion	Vanadium flow		
Service life	5-15 years – far shorter than generating assets	25 years or more – matches generating assets No conflict minerals; vanadium more abundant than copper		
Raw materials supply	Global <b>lithium battery production</b> required for EV transition			
Safety	Increasing awareness of fire risk due to real-world incidents	No fire risk		
No. of cycles	< 250 per year	Unlimited		
Length of cycle	< 4 hours	4-12 hours		

## Vanadium Flow Battery (VFB) design

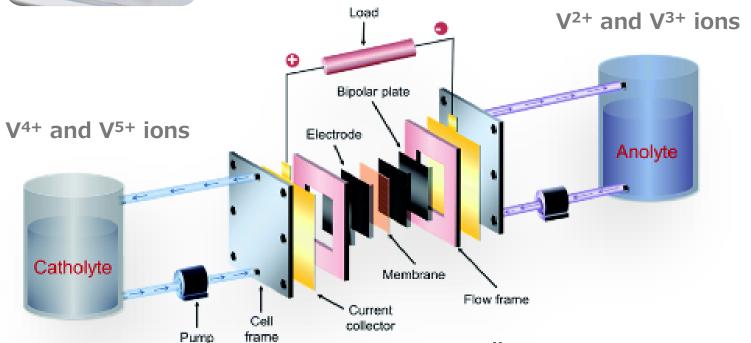
Power cell components are pressurefitted (bolted) and readily dissembled

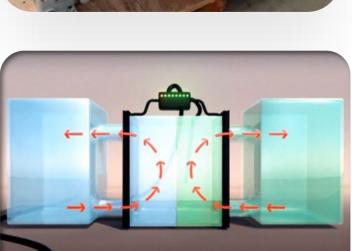
for recycling at end of life



V<sup>2+</sup>, V<sup>3+</sup> V<sup>4+</sup> & V<sup>5+</sup> ions in solution

Delectrik VFB Stack



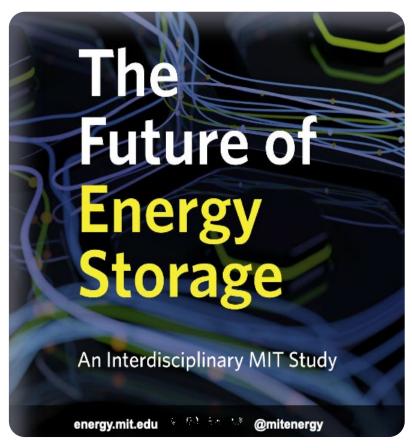




## The VFB is a mature technology



MIT FUTURE OF ENERGY STORAGE REPORT (2022)



"RFBs are an attractive energy storage solution for longerduration applications (>6 hours) due to their unique system architecture, which decouples the energy and power components and allows for low-cost capacity scaling."

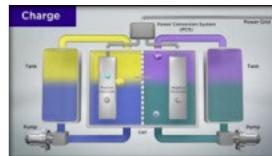
"The technology platform can incorporate a wide array of chemistries, among which the most developed at present is the VFB, which is unique for its ability to perform indefinitely with inexpensive operational maintenance."

Source: ADD MIT LINK

### **Grid-scale VFB**

Hokkaido Electric Power (60MWh)
Project operating since 2022







#### **Project Pillars:**

- High Safety
- Eco-Friendly
- Long Term
- Low cycle-cost
- Easy Operation
- Flexible Design



## **VFB** installations – a record year in 2023

The energy storage super-cycle has begun: Annual additions by 2030 will reach <u>88</u> <u>GW/278 GWh</u>.

200

Operating Installations

Of the 800 MWh of VFB projects since 2008, more than 75% were deployed in 2021-2022



42

**Under Construction** 

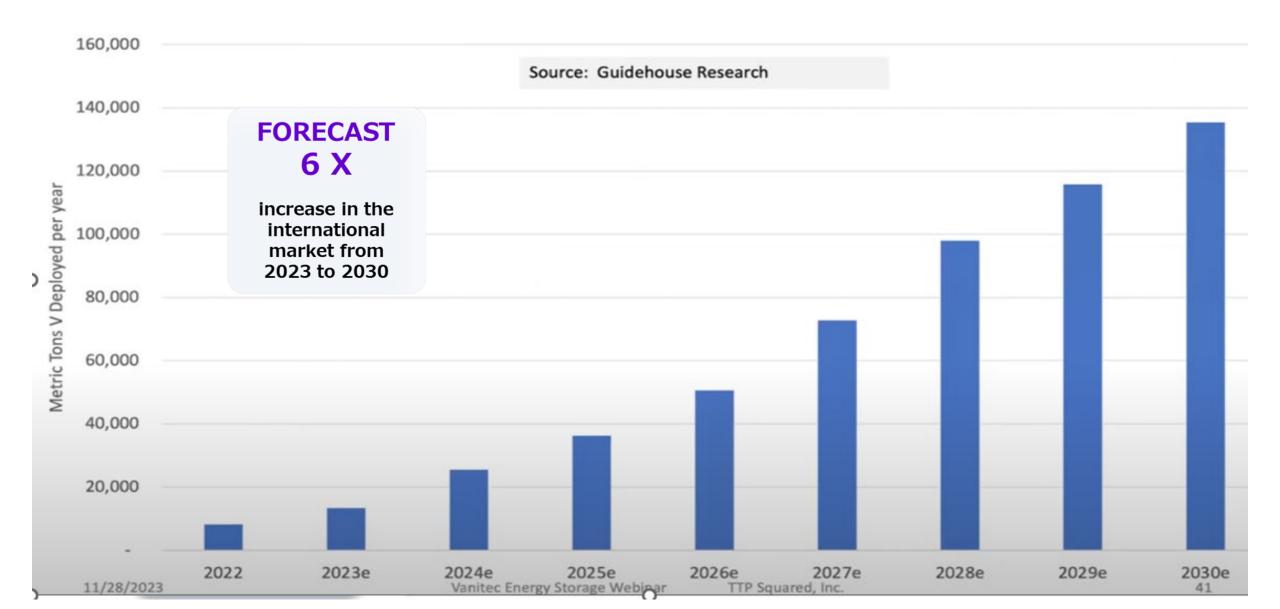
49

**Announced** 

Europe, US and China are the leaders in VFB installations. China announced 3.5 GWh VFB Storage in 2023

# Demand for vanadium for vanadium flow batteries A proxy for vanadium electrolyte demand





## Major manufacturers and electrolyte buyers



Target market: those battery manufacturers with order books of over 200 MWh of yearly energy storage manufacturing (a yearly electrolyte need of 10+ million liters).

VanadiumCorp will also sell to smaller battery manufacturers.















# The VanadiumCorp supply chain strategy





Initiate downstream **electrolyte manufacturing** during VFB lift-off phase



Source competitive market V2O5 as feedstock to produce electrolytes



Grow sales and revenues while capturing market share



Achieve profitability from electrolyte sales and VFB services



Bring Lac Doré V-Ti-Fe deposit on stream, success-contingent on feasibility studies, development, permitting and financing



Achieve economies of scale and ensure reliable supply from



Vanadium electrolyte production

### **Electrolyte production in Val-des-Sources**

Plant No. 1 has launched in Québec, a global center for battery metals and technology



Plant No. 1 Electrolyte production commenced April 2024, less than 12 months from procurement decision

Initial production of up to 300,000 litres/year

Partnering with CIMMS infrastructure in Val-des-Sources

Our engineering design specified C-Tech Innovation Ltd.'s C-Flow™ electrolyzer equipment.

- Electrolyzer process yields the highest purity, highest value electrolytes
- The Val-des-Sources facility will demonstrate quality to our customers

Initial CapEx of C\$2.2 million.

Funded through equity, equipment loans, and a \$500,000 grant from PRIMA (Québec Government's innovation fund for critical materials)

## Scalable and modular electrolyte process

# The C-Flow™ electrolysis process was chosen for the initial electrolyte plant in Val-des-Sources, Québec

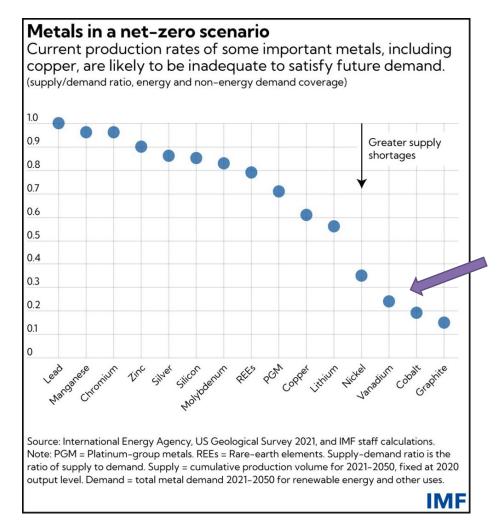
- The main electrochemical reactor is made of modular cells – allowing expansion of this process step
- Key process step having a yield > 95% is using a series of electrochemical cells
- No extra chemical is added during the process ensuring high-purity electrolyte output
- Electrolyte could be recycled with the same process, with no loss to waste and an effective residual value of 100%

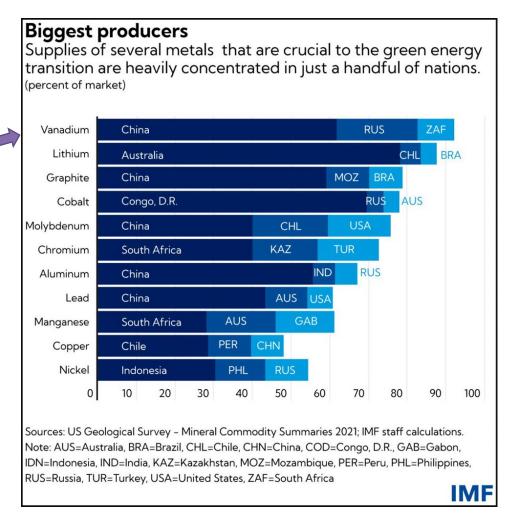


Series of electrochemical cells and their control modules

### Vanadium – A Critical Net-Zero Metal

**According to the IMF**, Vanadium is <u>75% undersupplied</u> and is the <u>world's most regionally</u> <u>concentrated production of Net-Zero metals</u>. China and Russia cannot supply the new demand, which presents a **major opportunity for a Canadian supplier of vanadium**.



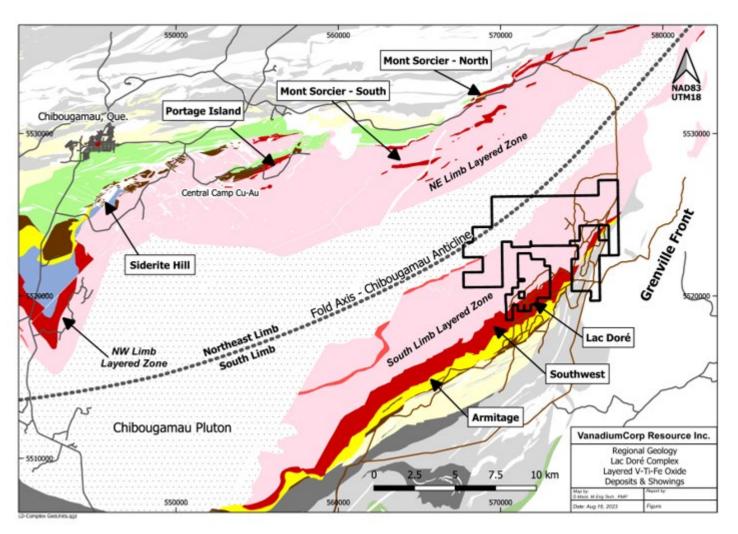


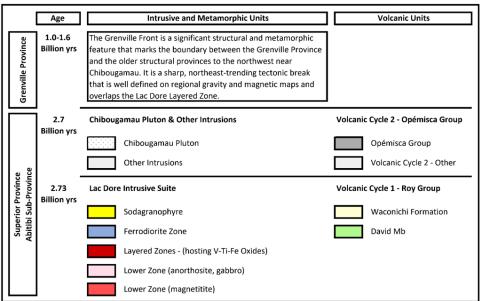
## VanadiumCorp's Nord-du-Québec mineral deposits

- **Location** The Lac Doré and Iron-T projects are located in the Nord-du-Québec Mhatadministrative region, Canada. *Our deposits lie at the same latitude as London, England.*
- **Community Support:** The Lac Doré and Iron-T projects are supported by local communities and Cree First Nations.
- **Grade & Quality** Massive, semi-massive and disseminated magnetite with metal grades rivalling primary vanadium mines. Exceptional metallurgy of the concentrate and low impurities facilitate high recovery.
- **Infrastructure** Lac Doré is near Chibougamau with resource roads, the CN railway, Hydro Québec 161KV power, water, and a new regional airport. The region has an experienced workforce.
- Ownership Lac Doré is 100% owned Uncommitted offtake.
- Incentives The Canadian government now recognizes vanadium, titanium and now high-quality pig iron as critical minerals and are eligible for enhanced taxation incentives for exploration in the latest Federal budget.
- **Development:** Historical NI43-101 mineral resources are undergoing metallurgical testing and economic studies. **Success contingent on permitting and financing, the Lac Doré deposit would be the first developed.**



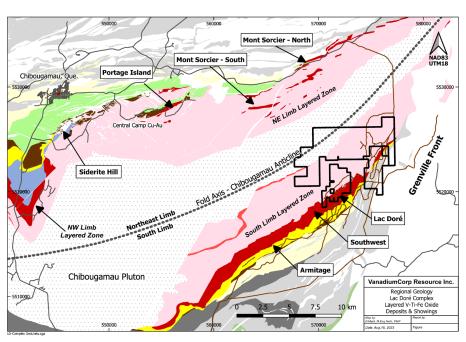
# **Geology of the Lac Doré complex**



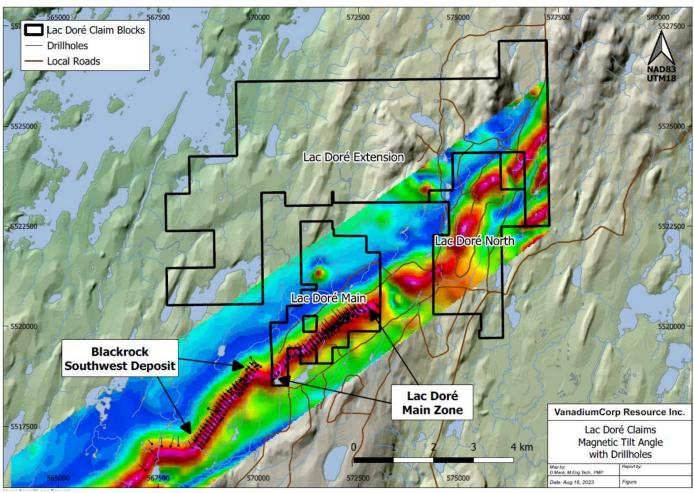


- The Strategic Resources/Blackrock Southwest Deposit achieved Positive Feasibility in March 2023 with a Net Present Value of \$1.9 billion.
- VanadiumCorp's historical Lac Doré NI 43-101 Mineral Resource Estimate is similar in size and grade to the MRE of the Southwest Deposit. Direct comparisons can be made after an economic study is done on the Lac Doré deposit, as well.

# **VanadiumCorp - Lac Doré complex**



- The airborne magnetic signature (right) demonstrates the continuity of the upper magnetite Layered Zone that is host to both the SW deposit and Lac Doré deposit
- Drill spacings for the MREs are similar across the SW and Lac Doré deposits.



#### CSA Global (2020) Lac Doré – Historical Mineral Resource Estimate

Table 17: MRE	E at Lac Doré with an e	ffective date o	f 27 October 2020	(*recovery not applied to	V <sub>2</sub> O <sub>5</sub> in concentrate)
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	Classification	Mt	V <sub>2</sub> O <sub>5</sub> (%)	Fe (%)	TiO <sub>2</sub> (%)	Magnetite (%)	V <sub>2</sub> O <sub>5</sub> (kt)	Fe (Mt)	TiO <sub>2</sub> (Mt)	V <sub>2</sub> O <sub>5</sub> (Mlb)
Head Grade (In situ)	Measured	23.98	0.5	33.7	9.9	34.5	128	8.1	2.4	280
	Indicated	190.96	0.4	26.3	6.7	23.4	837	50.2	12.8	1,850
	Measured + Indicated	214.93	0.4	27.1	7.1	24.6	965	58.3	15.2	2,120
	Inferred	86.91	0.4	28.0	7.6	25.9	387	24.4	6.6	850
	Classification	Magnetite concentrate (Mt)	V <sub>2</sub> O <sub>5</sub> in concentrate (%)	Fe in concentrate (%)	TiO₂ in concentrate (%)		V <sub>2</sub> O <sub>5</sub> in concentrate (kt)	Fe in concentrate (Mt)	TiO <sub>2</sub> in concentrate (Mt)	V <sub>2</sub> O <sub>5</sub> in concentrate* (MIb)
Magnetite Concentrate	Measured	8.27	1.2	62.0	9.4		100	5.1	0.8	220
	Indicated	44.70	1.3	62.0	8.5		578	27.7	3.8	1,270
	Measured + Indicated	52.82	1.3	62.0	8.7		678	32.8	4.6	1,490
	Inferred	22.52	1.2	62.0	9.2		277	14.0	2.1	610

#### Notes:

- Mineral Resources are estimated and reported in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves adopted 10 May 2014.
- Sum of individual amounts may not equal due to rounding.
- Geological and block models used data from 41 drillholes drilled by VanadiumCorp in 2013 and 2019, in addition to 44 drillholes and 33 surface channel samples completed previously and verified through twinning or resampling in 2019–2020.
- The drill database was validated prior to estimation, and drillholes were flagged with interpolation domains (P1, P2-LOW, P2-A, P2-PART, P2-B, P2-HW, P3), composited to 1.5 m intervals, and capped for anomalously high and low-grade values. QAQC checks included insertion of blanks, CRMs, pulp duplicates and umpire assays performed at a second laboratory.
- Head grades and densities were interpolated onto 10 m x 10 m x 10 m blocks using OK, owing to intercalations of high and low magnetite within broadly mineralized intervals, a high-grade or low-grade indicator was used, and separate interpolations carried out for high-grade or low-grade samples, with the proportion of high-grade mineralization within each block also interpolated using OK.
- All the estimates were validated visually using sections and 3D visualization, and using swath plots, comparison of averages in drillhole and blocks, and global change of support.
- Magnetite contents and concentrate grades were calculated using regression formulae deduced from Davis Tube results.
- Resource classification was done using wireframes digitized using kriging variance as a reference and correspond to Measured Resources having drillholes spacing <40 m,</li>

- Indicated Resources having drillhole spacing between 40 m and 100 m, and Inferred Resources having a drillhole spacing >100 m.
- Mineral Resources are reported using a "net value" cut-off, calculated assuming an open pit mining operation and extraction of saleable vanadium pentoxide flake from the magnetite concentrate via the salt-roast process. The calculation assumes a V<sub>2</sub>O<sub>5</sub> price of US\$7/lb, 85% recovery of magnetite to the concentrate, 75% recovery of vanadium in the roast/leach extraction process, and costs of US\$3/t ROM (mining), US\$15/t concentrate (magnetite concentrate production), US\$55/t concentrate (roast/leach), US\$2/t ROM (G&A), and US\$1.5/t ROM (tailings disposal). A net value equal to zero was used for reporting.
- Mineral Resources are constrained by a pit shell optimized with the software SimSched using the above parameters and including a cost of US\$3/t for waste rock extraction and assuming maximum pit slope angles of 45°.
- Adrian Martinez, P.Geo (ON), OGQ Special Authorization, CSA Global Senior Resource Geologist, is the independent Qualified Person with respect to the MRE.
- Recoveries of V<sub>2</sub>O<sub>5</sub>, Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub> to the magnetite concentrate are variable.
- Mineral Resources are constrained by claim boundaries.
- VanadiumCorp is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing or political factors that might materially affect these MREs.
- These Mineral Resources are not Mineral Reserves as they do not have demonstrated
  economic viability. The quantity and grade of reported Inferred Resources in this MRE
  are uncertain in nature and there has been insufficient exploration to define these
  Inferred Resources as Indicated or Measured; however, it is reasonably expected that
  the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral
  Resources with continued explorations.

Table 17 is from the NI 43-101 Technical Report by CSA Global and includes an MRE by Longridge & Martinez (2020). See the Company's website for the full report.

This MRE is a historical estimate, being over 4 years old now. Notably, no drilling or sampling has been conducted since then, and major assumptions contained in the report remain similar.

A magnetic separation stage of processing yields a magnetite concentrate comprising 25% of the Head Grade yet recovers 70% of the in-situ  $V_2O_5$ , 56% of the iron, and 30% of the  $TiO_2$ .

Not factored for the metallurgical recovery from concentrate, the MRE contains: 1.49 billion lbs. of V<sub>2</sub>O<sub>5</sub> in concentrate.

Additional drilling is needed to confirm the 610 million lbs. of  $V_2O_5$  in the Inferred Resource category.

Studies are pending on recovering  $V_2O_5$ ,  $TiO_2$ , and Fe from the ilmenite minerals in the tails of the magnetic separation stage from Lac Doré.

## **VanadiumCorp strategic timeline**



2024

2025

2026

2027

2028

2029

#### PLANT 1 - LIFT OFF

Val-des-Sources, Québec

- Secured \$500,000 grant financing from PRIMA-Québec
- Production commenced in April 2024
- Production of up to 300,000
   litres/year capacity after full process
   optimization
- Target gross revenue \$1.8 m/ year from production
- Funded through equity, loans, and a grant from PRIMA (Québec Government critical materials agency)

Initial CAPEX of \$2.2 m

#### PLANT 2 - INDUSTRIAL

Scoping: Sherbrooke Plant 2 - Phase 1:

- 4 million litres/year is scoped for installation with an estimated CapEx of approximately \$20.0 m
- Targeted for 2026, pending a full engineering study in Q4 2024

Scoping: Sherbrooke Plant 2 - Phase 2:

 Doubling of the capacity of the Commercial Plant to 8 million litres litres/year in 2027 with an additional CapEx of \$15.0 m

Scoping: International Phase 3:

Four additional electrolyte lines, each of 4 million litres/year are scoped at:

- USA 8 million litres/year \$35 m, in stages.
- EU 8 million litres/year \$35 m, in stages.

Total additional CAPEX scoped to 2028: \$105 m

#### MINE DEVELOPMENT

Lac Doré, Chibougamau, Québec

- The historical MRE cites 1.49 billion pounds of V2O5 for electrolytes in Measured and Indicated Resources
- Bring mine into initial production, success contingent on a Positive Feasibility Study (PFS)
- Generate Revenues from sales of V,
   Ti, and Fe

Scoping of a forty (40) year production life

#### **GROW ELECTROLYE MARKET SHARE**



# Management team

**Mr. Dupuis. P. Eng , CEO** is a highly respected engineering professional with 52 years of experience in the design, finance, construction, and operation of major world process plant projects. He specializes in process technologies for battery metals, such as lithium and vanadium, and has extensive experience working with industry joint ventures and government collaborations.

**Kristien Davenport President, Director** has been the Company's President since December 2024, after joining in 2023. With 24 years of experience in business development and corporate communications, she specializes in strategic partnerships and investor relations. Her background includes work with innovative technologies at Ballard Power Systems and in the natural resources sector. As a seasoned professional, Kristien guides the execution of the Company's business plan, financing strategies, and marketing initiatives.

**Kathleen Martin Corporate Finance & Corporate Secretary, Director** has joined the board to provide guidance with respect to corporate governance and execution of Vanadiumcorp's go-forward financing plans. Ms. Martin brings decades of experience in capital markets, corporate finance, and corporate governance. Ms. Martin was formerly a licensed investment advisor, a director of public and private companies, and an independent corporate finance consultant for over 20 years.

**Tony Giuliano, CFO** is a seasoned, multilingual professional finance executive with extensive experience with both Canadian- and US-listed public companies and privately-held companies. He holds a Chartered Professional Accountant (CPA/CA) designation and has 40 years of post-graduate experience. He demonstrates a progressive career advancement with operational expertise in financial management, controls, and transactions.



# **Independent directors**

**Andre Gauthier, P. Eng, P.GEO, MSC** has over 47 years of experience in the Mining Exploration field and has worked in over 35 countries. He has a BSC in Geology Eng. and an MSC from UQAC (Chicoutimi, Quebec) and is an active member and leader of many mining and professional organizations (Canada, Peru, UAE, and China). Since 2020, Andre has been leading Eval Minerals, a private company that is involved in mineral investments and advisory services.

**Brian Gusko** holds an MBA from the University of Calgary and has attended the European Summer School of Advanced Management. With over 15 years of experience in capital markets, he has successfully helped raise more than \$75 million for various enterprises. He has served on the boards of several private companies. Mr. Gusko has facilitated the interlisting of over ten companies on the Frankfurt Stock Exchange and has assisted numerous firms in accessing the German capital markets. In his most notable go-public transaction, he guided a company to its public listing on the Canadian Securities Exchange (CSE), where it achieved a market capitalization exceeding \$200 million at the time of listing.



# **Advisory Board**

**Dr. Gilles Champagne is an Electrochemical / VRFB Engineer** with over 25 years' experience driving innovations to market. Dr. Champagne's key role will lead development of new vanadium energy technologies for VanadiumCorp. He has held several positions in mature and early-stage companies in Canada, the US and Europe, structuring organizations, directing technical activities and managing teams that develop and build energy storage products and analytical equipment. Dr. Champagne's previous position was VP Engineering and Development at Imergy Power Systems Inc. in Silicon Valley, which was developing a unique high efficiency, stationary energy storage battery using innovative vanadium "V/V" flow battery technology. Under his leadership, Imergy delivered its first commercial shipment of vanadium based ESP units to India Telecom customers.

**Mr. John Hewlett** has strategically invested in the resource and venture markets for the past 40 years. He is well known for his practical approach to direct investment and project development. His network covers a wide array of retail and strategic contacts from the mining, technology, and accredited investment communities.

**Mr. Sokhie Puar** has over 30 years in the public markets and has worked in various capacities with companies in the mining, oil and gas, technology, education, and clean energy sectors since 2001. Mr. Puar holds a diploma in Mechanical Engineering Technology and a diploma in Business Administration from the British Columbia Institute of Technology. Mr. Puar sits and has sat on boards of many public and private companies including the board of Governors of Southpointe Academy, an independent school located in Tsawwassen, B.C., where he Chaired the Governance Committee.

## VanadiumCorp company profile

- Incorporated in the Province of British Columbia, Canada (under the *Business Corporations Act* )
- Registered in Québec Ressource VanadiumCorp
- Listed on TSX Venture Exchange under "VRB", Frankfurt Börse under "NWNA", and US OTC markets under "VRBFF"
- Common shares issued and outstanding as of Jan. 2025:
   10.16 million



Contact: Kristien Davenport

**President, Director** 

Cell: 778-688-2860

kdavenport@vanadiumcorp.com

Or

Kathleen Martin

**Corporate Finance and Corporate Secretary, Director** 

afinance@telus.net

ww.vanadiumcorp.com