

Battery Metals Association of Canada

# Recap & Recharge

A Bold Vision for the  
Battery Metals Value Chain

## Strategy

From detailed industry analysis to concrete actions forward, BMAC is mapping out the opportunities for Canada's battery industry.

## Action

Connecting the industry, enhancing its profile and increasing its exposure, BMAC is stimulating collaboration and industry development.

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**SPARTAN  
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Lithium Bank



### Purpose

# Our Bold, *Transformative* Vision:

**In 2042, Canada's battery metals supply chain is a significant contributor to Canada's prosperity and the global energy transition. We know that we'll have been successful if the Canadian battery metals value chain:**

- Is a sought-after supplier of battery metals and of value added, finished goods and exportable technologies that meet our decarbonization needs domestically and supports world markets.
- Sets world-leading ESG standards and transparency for the global industry in responsible and sustainable mining.
- Contributes significantly to the social and economic well-being in the communities we work in and the equity seeking groups we work with.
- Attracts, builds and retains talent through research, development & deployment.
- Serves to build and grow the value chain as a whole to expand opportunities for all.
- Collaborates North American-wide to commit to investment across nations in battery metal/mineral extraction and processing.
- Recycles and reuses materials and components as part of a geographically-optimized circular economy connected to the rest of North America.

Welcome

# Letter from the Executive Director

The past year for BMAC has been one of significant growth. The work accomplished in 2022 is unparalleled at this point in our trajectory and we are thrilled to be continuing the momentum. Never a group to rest on its laurels, we do want to take a moment acknowledge the quality and scope of the projects completed this year. The detailed industry analysis, actions and recommendations for a National Strategy, as well as the strong connections we've built, and continue to build across the industry have provided a solid foundation and clear path forward for 2023.

The opportunities ahead for every aspect of the battery value chain are tremendous. To sufficiently capitalize on these opportunities, we need to share a common vision and collectively focus our efforts. Advancing this common vision, coordinating and collaborating will be a core focus for BMAC and we look to support all members in their journey and help to maximize those opportunities available to them.

***The opportunities ahead are tremendous.***

My thanks to BMAC's Board of Directors for their continued strong engagement and support for our initiatives. And of course, a specific thank you to Liz Lappin for all of her time and dedication not only as a board member but also as past President of the organization. We would not be where we are today without her efforts.

Finally, I would like to thank all of the BMAC members and collaborators for their strong support and contributions to our work. Members are the backbone of any association. Your time and unique insights are invaluable. I look forward to your continued support and working with all of you on the essential work ahead of us.

Best regards,  
Sean De Vries

# Year in Review

**B**

## JANUARY

Roadmap Report: Stakeholder Engagement Sessions  
Technology Showcase: Tailings Waste to Value

**B**

## FEBRUARY

Technology Showcase: Cobalt and Nickel Opportunities

**B**

## MARCH

Technology Showcase: ESG  
Decentralised Energy Canada x BMAC Social

**B**

## MAY

Report Published: *Creating a Bold Transformative Vision*  
VRIC Panel  
Industry Ecosystem Map Launched

**B**

## JUNE

Report Published: *A Roadmap for Canada's Battery Value Chain*  
BMAC Critical Minerals Social at PDAC

**B**

## SEPTEMBER

Sean De Vries joins BMAC as Executive Director  
Robin Boschman joins BMAC Board of Directors

**B**

## NOVEMBER

Technology Showcase: Financing Mechanisms for the  
Canadian Critical Minerals Boom

**B**

## DECEMBER

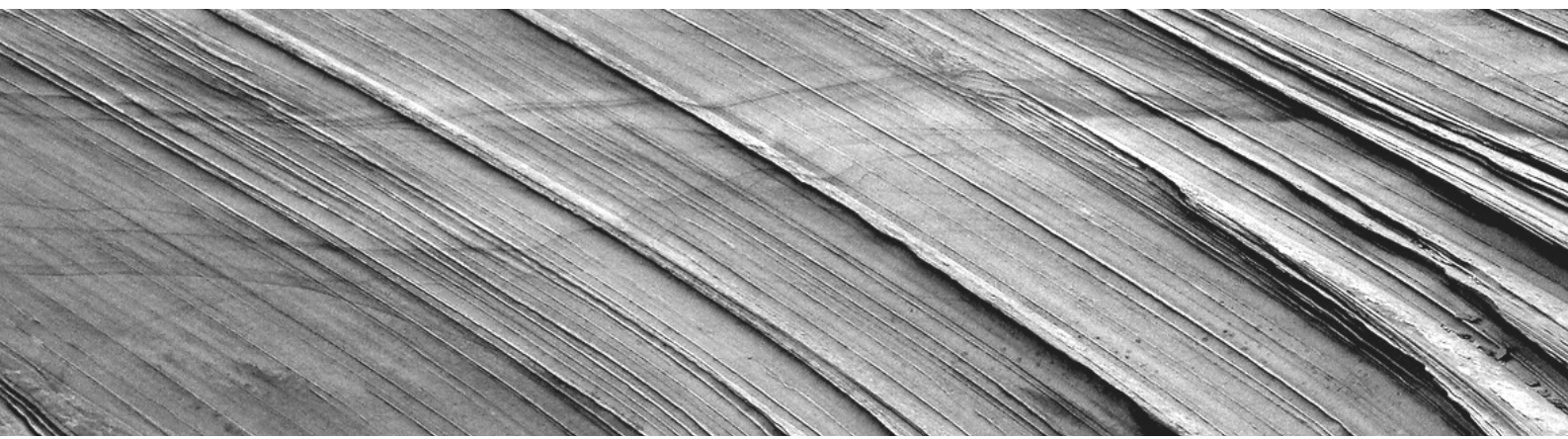
Technology Showcase: Recycling and Upcycling Battery  
Ready Materials



# *How We've Engaged*

Leading and promoting the industry, BMAC  
has participated in...

- BC Centre of Excellence Roundtable - *Vancouver*
- Canadian Battery Task Force Engagement Sessions - *Virtual*
- Cobalt Institute Conference - *Zurich*
- Critical Minerals Summit - *Toronto*
- CSUR Leveraging Energy Assets for Diversification - *Virtual*
- Energy Disruptors Unite Summit - *Calgary*
- Energy Futures Lab 2022 Showcase - *Calgary*
- Future of Mining Americas - *Denver*
- GLOBE Forum - *Vancouver*
- Nordic Circular Summit - *Virtual*
- NRCan-Accelerate Battery Ecosystem Engagement - *Toronto*
- MaRS Climate Impact conference - *Toronto*
- Redefining Electrical Metals Conference - *Calgary*
- Vancouver Resource Investment Conference - *Vancouver*



# 2022 At A Glance

27 Members &  
7 Collaborating  
Organizations

2 Industry  
Stakeholder  
Engagement  
Workshops

2 Industry Leading  
Reports

100+  
Recommendations  
from the Industry  
Roadmap

5 Technology  
Innovation Showcases  
150+ Attendees

33+ Industry SMEs  
Supported

4 Comprehensive  
Metals Strategies

1 Roadmap to a  
National Strategy for  
Canada's Battery  
Value Chain





# BMAC Moving Forward

BMAC has had an incredibly successful 2022, completing some of the most comprehensive research and analysis of the battery value chain in Canada, which has been widely recognized by everyone from industry leaders to regulators. This important foundational work has helped to develop a better understanding of the status, opportunities, and gaps within each segment of the battery value chain in Canada.

This work culminated in the development of two important tools. The first is BMAC's report: *A Roadmap for Canada's Battery Value Chain*. This report highlights critical actions and other recommendations to leverage Canada's resources and industries to support the development of a comprehensive battery metals value chain right across the country. By taking these actions, Canada can secure its place in the North American automotive industry by converting its existing market share to support the burgeoning EV supply chain while also providing the resources necessary to meet the nation's goals for sales of zero-emission vehicles.

In addition to the Roadmap Report, BMAC continued its mapping efforts by developing the interactive Industry Ecosystem Map, which details each segment of the battery value chain and the organizations operating within it. And for each organization highlighted, there is further information on their specific scope of operations and any connections they may have to others in the value chain.

But understanding the state of the industry and opportunities is only the first step and now it is time to action these items and facilitate the industry's development. And while a number of key actions and recommendations have already been identified, probably the most critical element is the development of the chemical midstream processing capabilities within Canada as a way to anchor the supply chain and drive demand for raw materials, while also providing a reliable supply of materials for downstream manufacturing.

**What must be done today to build a Canadian battery metals industry that will be a significant contributor to Canada's long-term prosperity?**



***"The best way to advance these priority actions, grow an ecosystem, and further refine an industrial strategy, is by setting collective targets and increasing coordination."***

To support this initiative, BMAC's objectives for 2023 will focus on conducting further analysis of the needs and opportunities to facilitate the build out of a Western battery value chain hub. Following a similar process to that undertaken during the development of the Roadmap Report, we will engage stakeholders and perform industry analysis. Using these findings to guide our process, BMAC will identify where the opportunities are for a Western hub, and what actions are required to capitalize on those opportunities.

We will also look to not only update the ecosystem map but also further develop it with additional sources of information and other enhancements to maximize the usage and value that tool provides to many stakeholders including government, industry collaborators and investors that are looking for a readily accessible and informative snapshot of the industry.

Of course, as part of all this work, BMAC will continue our efforts to promote and raise awareness for the critical minerals, the processes and capacity required to build a sustainable battery industry across Canada.

This will include the further development of metals strategies to those already outlined in the Roadmap Report, as well as helping to coordinate and support the industry, addressing common challenges we encounter along the way.

We are also looking forward to hosting our first annual BMAC conference in 2023, to gather industry thought leaders, share innovative ideas on industry developments and connect on associated work.

With so much in its focus for 2023 and beyond, BMAC's overall goal will continue to be maximizing opportunities for the industry and by facilitating coordination and connection between different industry players, helping develop a complete battery value chain right across Canada.



## Recap & Recharge

# New

# Members

## Cassels

The rising demand for electric and hybrid vehicles, as well as other battery-related applications, is leading to substantial growth in all aspects of the battery production supply chain - a trend that is forecast to continue over the next several years. This, in turn, has been a catalyst for the development of battery metals that supply the raw materials for battery production, including lithium, copper, nickel, cobalt, manganese, and graphite, among others.

Cassels holds an industry-leading position as legal advisor in the battery metals sector in Canada, acting for some of the largest and most advanced companies in the Canadian market and with expertise in the financing and development of projects throughout the world.



GLC is a publicly traded lithium brine exploration and development company with focused land holdings in Southwest Saskatchewan. GLC's multi-faceted business model involves the consolidation, delineation, exploitation and ultimately development of our opportunity base to fulfill our vision to build a best-in-class, environmentally responsible, Canadian lithium producer supporting the global energy transition shift.

"Our business plan calls for the Company to be a significant participant in the upstream sector of the battery supply chain industry," commented Gregg Smith, President & CEO. "North America is on a fast track to catch-up to the historically dominated Asian battery supply chain industry. Working with and alongside BMAC and its members, GLC intends to be a full partner in this fundamental movement for the benefit of all stakeholders."

## Recap & Recharge

### New Members



Innova Hydrogen is an Alberta based company developing its proprietary HIP methane pyrolysis technology for the generation of low emission hydrogen fuel, and pure solid carbon in the form of graphite. Graphite has been identified as a critical mineral for Canada and is a vital component for the battery manufacturing ecosystem.

"Innova Hydrogen is looking forward to working with the BMAC and its members to provide a robust supply of locally generated graphite to ensure a strong battery material value chain within our country" says Chris Bayley, Chief Project Officer at Innova. "Our graphite is ethically sourced, is not energy intensive to produce, and is ultra low emission relative to conventional graphite supplies, while also generating clean hydrogen fuel to support the energy transition."



Prairie Lithium is excited to be developing the resources and technology required to supply a strong battery metals value chain in Canada. We look forward to working with BMAC in the upcoming year on new initiatives to enhance the battery metals industry across the country.

Situated in the heart of the resource-rich Williston Basin in Saskatchewan, Canada, we believe our knowledge of lithium hydrochemistry is second to none. With expertise in hydrogeology, chemistry, engineering and operations, Prairie Lithium is working to position itself as a leader in lithium development across the Williston Basin and beyond.

**Join the sector's leading organizations  
shaping Canada's battery industry.**

Visit our [Membership](#) page for details  
about joining the BMAC community!



# Recap & Recharge

## New Members



In Rockwell Automation we integrate control and information across the enterprise to help industrial companies and their people be more productive. It is the way that we bring The Connected Enterprise® to life, allowing us to improve the quality of life by making the world more productive and sustainable. We are committed to enabling the next generation of smart manufacturing including the Energy transition Minerals and Battery Industry leveraging our industry knowledge and global partner network.

At Rockwell Automation, we are expanding human possibility™. We know how to connect the imaginations of people with the potential of machines to make the world work better. More intelligent, connected, productive and sustainable.

## Membership Benefits

- B** Connect & collaborate with industry thought leaders through BMAC events & activities
- B** Shape the vision & strategic direction of the burgeoning battery industry across Canada through concrete strategy & actions
- B** Contribute to & leverage the strength & learnings of the entire ecosystem from exploration to recycling
- B** Influence the strategic development of Canada's battery ecosystem
- B** Highlight your organization as an industry leader & demonstrate its commitment to the green energy transition

## Recap & Recharge

TSXv : LBNK  
OTC : LBNKF

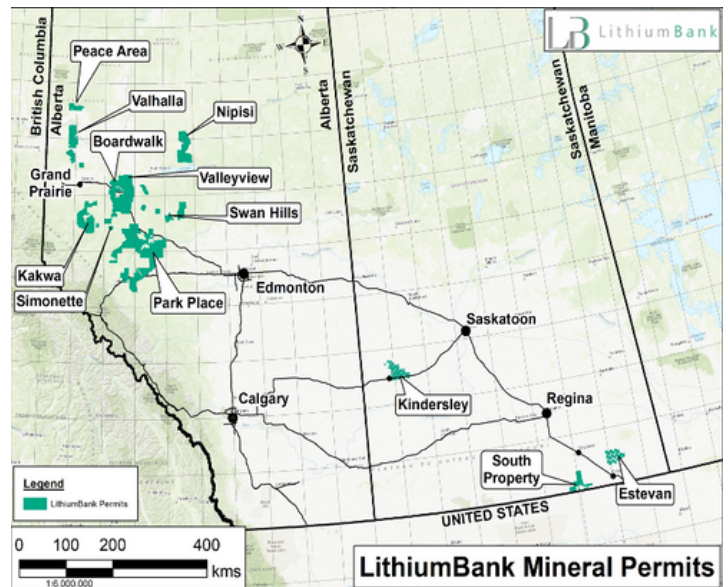
[www.LithiumBank.ca](http://www.LithiumBank.ca)

## Sponsors



Over  
**4**  
Million

Acres of Mineral Titles  
Across Western Canada



### Boardwalk



- 572,237 Acres of Mineral Titles
- 393,000 t LCE Indicated
- @ 71.6 mg/L Li
- 5,808,000 t LCE Inferred
- @ 68.0 mg/L Li
- North America's Largest Contiguous Elemental Lithium Land Package
- **PEA expected Q1 2023**

### Park Place



- 1,602,209 Acres of Mineral Titles
- Historical Brine Samples Ranging from 76 mg/L to 130 mg/L
- LithiumBank Will Continue to Make Announcements as Exploration and Development Continues
- **PEA expected Q3 2023**

**2**  
**Flagship**  
**Properties**

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## Recap & Recharge

### Sponsors



Spartan Controls is the leading provider of digital and plant automation, valves, measurement and process control technology, solutions, and services in Western Canada.

For 60 years, Spartan has supported customers with high performance automation solutions, industry expertise, lifecycle support and technical training – delivering value Customers want. Spartan brings value to all process industries, including Metals & Mining, Chemical, Pulp and Paper, Municipal Water, Power, Agriculture, Food & Beverage, as well as the Oil & Gas industries. Spartan has supported the development of several key Western Canadian industries from pilot to large scale production. We see great opportunity in this emerging Battery Metals industry and its role in global decarbonization.

Spartan and its partner, Emerson, are engaged in the entire Battery Metals value-chain. This includes being a trusted automation partner to many, well-established Critical Mineral companies, as well as actively supporting emerging industries, including Lithium-Brine extraction.

Combining Spartan's 700,000+ square feet of infrastructure across 14 locations in Western Canada, with access to Emerson's Impact Partner Network spanning the rest of North America; Spartan and its partners support the Battery Metals ecosystem with technology products and solutions from plant floor instrumentation through to fully digital, data rich, enterprise environments.

*"Spartan is proud to continue to sponsor BMAC as battery metals are critical to the energy transition. We look forward to supporting this growing sector as emerging companies commercialize their technologies, and the ecosystem evolves."*

Cory Brace, Metals & Mining Industry Leader, Spartan Controls





Recap & Recharge

Who's Who

# Ecosystem Map

## *Expanding our Community and contribution to the Battery Ecosystem.*

Developing a strong and enduring battery value chain across Canada requires many different components – from exploration and mining to end-of-life recycling and material recovery, and every step in between. It also requires a considerable amount of planning, coordination and collaboration amongst the industry and across the different segments.

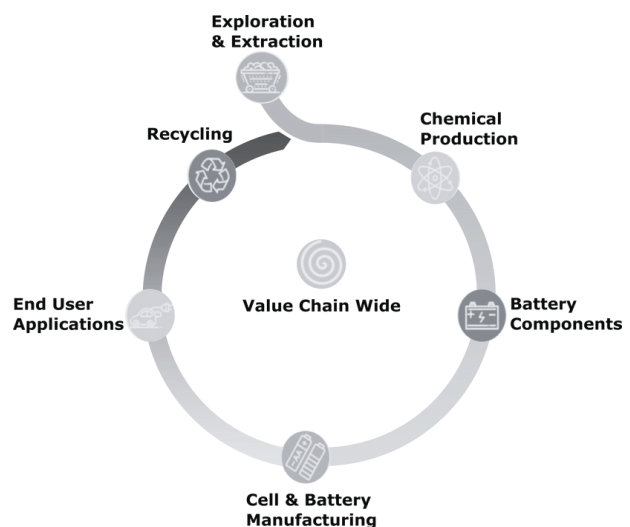
BMAC developed the Industry Ecosystem Map to provide a resource that not only identifies the organizations operating within Canada's battery value chain, but also identifies which value chain segment they operate within, including the many connections across and between the value chain.

The ecosystem map provides a powerful tool, not only for those in the industry looking to identify potential suppliers and downstream partners, but also for investors, researchers, regulators, and other stakeholders looking to understand the scope of Canada's battery value chain.

With the level of interest the ecosystem map has already received, it is clear this has been a valuable tool for the industry.

As such, BMAC is working on a revised version of the map which will include additional information and features, such as project and TRL stages, commodity chemistry, forecasted rates of production and more. Stay tuned for the upgraded version of the ecosystem map to be released in 2023.

The Industry Ecosystem Map is a free online tool. So if you are looking for more information on Canada's battery value chain and the organizations operating within in, BMAC has you covered. To view the ecosystem map, visit our [Resource & Reports](#) page.



# Our Community

Members, Collaborators and Partners



2023 – 2024

# Key Initiatives

- Engage stakeholders to provide insight on Indigenous perspectives and opportunities for inclusion in Canada's Battery Hubs
- Establish battery metal working groups and develop detailed battery metal strategies
- Coordinate a working group to map out opportunities for a battery hub in the West
- Complete a full economic analysis and recommendations for the development of the Western Battery Hub
- Complete an analysis on circular strategies to improve efficiencies within the value chain and maximize metals recovery
- Develop enhanced functionality, features and incorporate additional data points into the ecosystem map
- Host the first annual in-person BMAC battery event

**Your voice is critical.**

Join us to engage in  
these important initiatives!



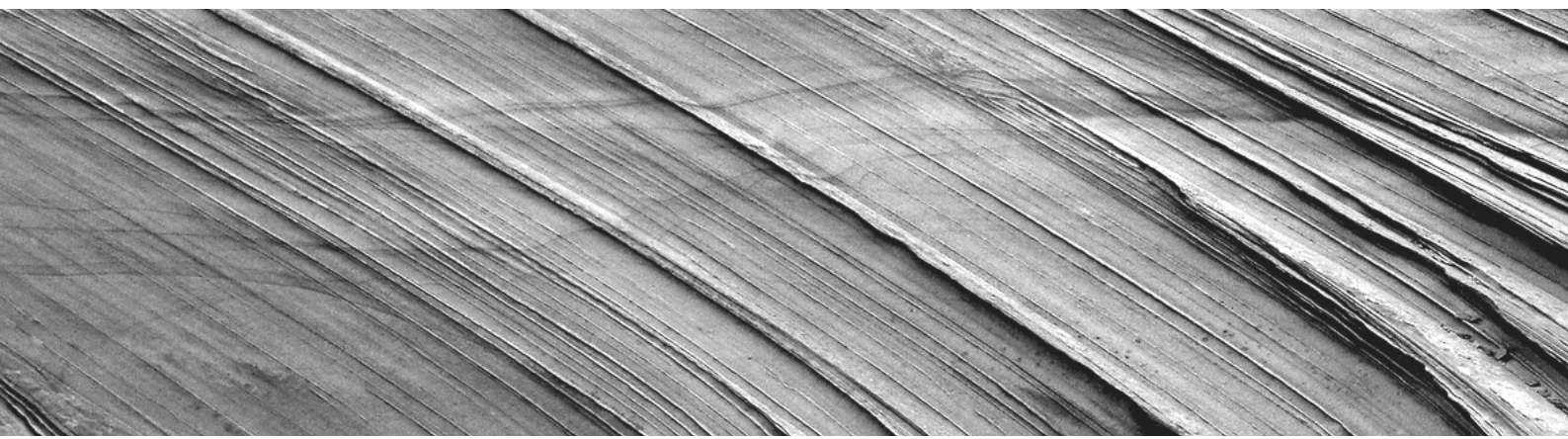
# Directors & Staff

## Board of Directors

Chair	Eric Pelletier, Geologist, Matrix Solutions Inc.
Treasurer	Matt Beck, Senior Director, Delphi Group
Past President	Liz Lappin, CEO, Common Good Mining
Director	David Redford, Partner, Cassels Brock & Blackwell LLP
Director	Robin Boschman, Director, External Relations, E3 Lithium
Director	Mitchell Smith, President & CEO, Director, Global Energy Metals Corp

## BMAC Staff

Sean De Vries, Executive Director  
Alexandra Fischer, Membership & Marketing





Battery Metals Association of Canada

# Recap & Recharge

# BMAC

**Battery Metals  
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