



Demonstrating Canada as the Most Sustainable & Traceable Battery Supply Chain Globally

Project Concept

Context

The Canadian mining sector is uniquely positioned to enable and lead the energy transition through its abundant and conflict-free critical mineral resources, its manufacturing capabilities, low carbon power, and safe and inclusive practices. The energy transition and associated end-use markets will increasingly demand sustainably-sourced minerals and batteries, for which Canada can demonstrate itself as the leading provider.

Canada has already established itself as a leader in both EV and battery manufacturing with operations or facilities in development that cover the majority of the associated supply chain across the country with low carbon emissions and strong environmental social performance.

To enable access to markets, investment, and the development of a secure and sustainable Canadian battery supply chain, Optel, Delphi, Norda Stelo, and the Battery Metals Association of Canada are advancing an initiative that demonstrates the superior life-cycle greenhouse gas and broader ESG footprint of a predominately Canadian-made Nickel Manganese Cobalt (NMC) battery. The Canadian Critical Minerals Centre of Excellence has confirmed support for this initiative with seed funding spread over three years. However in order to complete a more thorough level of analysis and communicate more results effectively, about double this amount is required. At this point the project team is seeking Canadian industry participation to advise the approach and desired outcomes with in-kind hours or modest financial support to ensure the desired impact of this initiative is achieved. Any contribution will be giving access to participants to all results, methodologies used, GHG calculation (Scope 1, 2 and 3), overall results and performance of their own organization in the Canadian ecosystem. Please note that any information provided will remain confidential and will not be disclosed publicly, unless specifically authorized.

Vision & Objective

The vision of this project is to create new, Canadian-based, sourcing opportunities and marketing-related information to Canada's battery supply chain leaders while securing Canada's position as the leader in ESG performance of EV battery production globally.

The objective of this initiative is to quantify, track and trace the GHG and ESG metrics while enabling the establishment of a Canada-centric EV battery supply chain. The ultimate outcome will be a solution and model that is built upon over time, with an increasing number of data sources, to strengthen and build a Canadian-centric supply chain through increasingly improved performance with high transparency and traceability.

Value Proposition

The outcome of this initiative will be a unique platform to transparently communicate the GHG and ESG performance of operations embedded within a Canadian-centric EV supply chain. This will:

- Demonstrate, and provide important insights into, the GHG and ESG performance of a Canadian based EV supply chain while facilitating security of supply and identifying further opportunities for improvement;
- Provide a new platform with higher levels of transparency and visibility with performance-related data that will enable access to markets including meeting the 2027 EU Battery Passport;
- Strengthen relationships that can support the growth of a secure Canadian-centric battery supply chain while:
 - Facilitating development of critical mineral mining, mid-stream processing, and manufacturing businesses, operations, and sectors in Canada.
 - Enhancing Canadian industry's trade position related to EV (battery) supply chain through increased investment and high-value exports;
- Incrementally facilitate development of a green premium for both critical minerals and a battery itself, including developing more liquidity in green minerals futures contracts;
- Improve reputation and/or avoid future reputational damage;
- Facilitate access to new investment dollars and potential future Canadian federal and provincial government financial support
- Support comparative analysis of other, poorer performing, supply chains.

Input from industry participants on the design of the initiative will further strengthen the overall value proposition.

Project Overview Description

The project is intended to be carried out over 3 years where it will quantify, visualize, and trace the product carbon footprint and broader ESG performance of a Canadian-centred NMC battery supply chain. NMC has been selected given its current market dominance, associated Canadian involvement across the supply chain, and existing risks associated with transparency and GHG/ESG performance associated with international sourcing. Two unique features of this initiative are:

- i. Tracing and visualizing supply chain data using Optel's Optchain traceability tool¹
- ii. Piloting high resolution asset/equipment level data for 1-2 mining operations in Norda Stelo's integrated asset integrity and carbon management tool, Stelar.²

The core activities of the initiative include:

- Supply chain industry engagement (steering committee and advisory committee)
- LCA (Life-cycle Assessment) system design and development including materiality assessment

¹ <https://www.optelgroup.com/en/optchain/>

² <https://www.stelar.ai/en/home>



- Will consider broader North America supply chain opportunities and involvement but seek to focus on Canada
- Will incorporate new, lower impact, Canadian technologies involved with mining and mid-stream activities
- Supply chain traceability system deployment using Optel's Optchain traceability tool
- Facility level data gathering including, for select facilities, asset/equipment level data, data integration with Optchain as well as Norda Stelo's Stellar asset integrity and carbon management tool
- LCA system modelling and reporting
- Comparative LCA data research
- Critical review as per ISO 14040 standards
- Communication of results

The project is broken into three phases:

Phase 1: Battery supply chain characterization and GHG LCA system development and preliminary modeling according to existing best practices such as the ISO 14040 and the GHG rulebook. Preliminary GHG results along with development of methodology to incorporate ESG.

Phase 2: More detailed data collection and GHG modelling ensuring adherence to the WBCSD PACT framework³. Research and incorporation of ESG data to the extent possible. Detailed GHG and preliminary ESG results generation.

Phase 3: Final result with visualization in Optchain platform as well as action plan for advancing the framework to further develop a Canadian battery supply chain while increasing value of outputs. Includes a final report with executive summary and separate methodology guidebook.

Note that the ability to perform all activities, and the level of depth for any given activity, will depend on total budget available.

Request & Next Steps

The project team is initially seeking early input to ensure the design of this initiative maximizes value for each participating company. There are three core requirements to advance this initiative:

- i. Guidance and input to ensure value proposition is maximized
- ii. Data from across the supply chain, including at least one mining operation to provide asset level energy/GHG data
- iii. Financial support

To achieve these requirements, two levels of participation are proposed:

³ World Business Council on Sustainable Development Partnership for Carbon Transparency:
<https://www.wbcsd.org/actions/partnership-for-carbon-transparency-pact/#:~:text=The%20Partnership%20for%20Carbon%20Transparency,emission%20data%20across%20value%20chains.>



Tier 1 – Financial Contributor - Full access and decision making: Steering committee participation to direct and guide the initiative.⁴ Access to all outputs and data.⁵ Financial contribution over a three year period with a maximum of ten Tier 1 participants. Includes two steering committee meetings a year.

Tier 2 – In Kind Contribution - Limited access: In-kind contribution of time to provide input as well as data. Access to executive summary only. Participation as an advisor in portions of Steering Committee meetings. Maximum of 5 Tier 2 participants with representation across the supply chain.

Note several companies across the supply chain have expressed interest with active discussions. We are seeking to finalize commitments by the end of 2024. At this time we are looking to connect with a select group of interested industry partners to explore the possibility of participation.

We thank you for your consideration,

Optel, Delphi, Norda, and BMAC.

⁴ Voting procedures can be established where any consensus is not achievable.

⁵ Note some facility level data, if not all, will need to be aggregated to avoid sensitivity concerns.