December 3rd, 2024

**C2M2A — Progress Report #11**

Thank you to all for your continued and enthusiastic interest in the Canadian Critical Minerals & Materials Alliance. We are pleased to report on the significant initiatives undertaken since our last Report #10 dated July 15th, 2024.

- EU-Canada Strategic Partnership on Raw Materials Attributing to C2M2A growing influence through your support, C2M2A was identified by the EU as one of 4 Canadian non-governmental stakeholders in a recent RFP to support implementation of the EU-Canada Strategic Partnership on Raw Materials.

- Canadian Gov't EV Tariff Consultation: In response to Federal Government public consultations on potential new measures to advance and defend Canada's economic security interests, C2M2A provided input related to the opportunities and significant trade related challenges facing Canada in establishing the critical material supply chains in support of Canada's economic security and energy transition.

- IEA Critical Minerals Review of Canada: Interviewed by the IEA's Energy Security & Critical Minerals Division, as part of its Critical Minerals Security Programme. The review is touching on effective policy practices on critical minerals, current work and policies on critical minerals supply chains, as well as any existing measures that ensure preparedness and resilience. The discussion touched on industry's take on national critical minerals and mining policies, security measures, infrastructure and workforce, data, innovation, public finance, international engagement, ESG and standards, recycling, geoscience. It is understood that the IEA's report will not be made public.

- Canada's CanmetMATERIALS (CMAT): A final report based on industry input collected from a series of spring workshops was delivered to CMAT by C2M2A. This report included 13 recommendations on how CMAT can most effectively engage industry to better align its research portfolio considering the shifting landscape of the energy transition. Recommendations were consistent with the goal of strengthening Canada's critical materials midstream value chain specific to CMAT's internal capabilities & capacity, partnering with industry, increased utilization of facilities/equipment, and prioritization of specific material streams. CMAT has agreed to share an executive summary of its actions in the coming months.

**Recent Speaking Events & Conferences**

- Rare Earth Mines, Magnets & Motors Toronto (Sept 25th – 27th) -- Hosted by Adamas Intelligence in celebration of its 12th anniversary, brought together executives from across the mine-to-motor supply chain and globe for discussions on the state of emerging supply chains, the outlook for ex-China demand and the implications of evolving geopolitical forces. Key questions to be addressed: implications of new tariffs on EVs and magnets, some of the latest innovations in magnetic materials and motor design and applications (e.g., robotics, drone mobility), outlook for REE-free motors, role recycling will play in the future of supply, and how can policymakers help close gaps in the supply chain.

- CMI Summit III Toronto (Aug 21st & 22nd) -- C2M2A along with members Neo Performance Materials, Cyclic Materials, Appia Rare Earths & Uranium, Peartree Canada and Scandium Canada delivered insightful individual and panel presentations. The Summit focused on market trends & the investment landscape, including creative investment partnerships, and fostering more informed investment decisions in support of critical mineral supply chains.

- COM 2024 - Processing of Critical Materials Symposium Halifax (Aug 19th – 22nd) -- 47 peer-edited papers covering advances in the hydrometallurgical processing of REE, graphite, lithium, nickel, cobalt, manganese, and recycling were presented. Of the 700 registrations, the Critical Materials symposium was the third largest in terms of delegates expressly selecting this symposium when they registered, behind the Advanced Manufacturing/Materials and Extractive Metallurgy symposium. Bravos are to be extended to SGS Canada's Niel Verbaan who spearheaded the successful critical materials symposia for almost a decade. Niels is stepping up to co-chair the overall Conference of Metallurgists come 2025.

- Accelerate ZEV Industry Leaders Workshop Windsor (Oct 16th & 17th) -- C2M2A along with other senior industry leaders representing many segments of the ZEV supply chain attended this workshop. Outcomes aligned strategic actions to advance and connect Canada's emerging zero-emission vehicle industry.

1st — Have a clear and cohesive industrial strategy that survives election cycles
2nd — Whole government approach to resource planning and increasing productivity
3rd — Funding and incentives conditional on Canadian content
4th — Federal, provincial & intl coordination as well as regulation incentives that are persistent over time
5th — Consolidation of gov decision making into the office of Future Energy
6th — Industrialization strategy to produce energy transition material(post raw materials)
7th — Longterm workforce strategy
8th — Maintain the momentum by encouraging officials to address the need for "More Canada" and reducing the regulatory barriers to maintain the momentum

- Reaction (RXN) Hub Innovation Summit & Grand Opening Kingston (Oct 2nd & 3rd) – This event brought key stakeholders in the Chem-Tech ecosystem together, including students, cleantech ventures, service providers, investors, government organizations, and technology adopters from across North America. The workshop explored and developed collaborative strategies to be implemented for scaling and adopting Canadian chemical technologies.

- NRCan ESG/Traceability Workshop (Nov 7th) -- The Critical Minerals Centre of Excellence and colleagues at Natural Resources Canada hosted discussion about critical mineral ESG frameworks and traceability in the Canadian and global context.

- OECD Mining Regions Event Sudbury (Oct 11th & 12th) -- C2M2A participated in shaping a panel "Creating Local Business Opportunities Through Midstream Activities" in response to growing recognition that while many regions benefit economically from upstream mining activities, there are clear opportunities (and need) to capitalize on downstream processes such as refining and distribution.

- Ontario Sustainable Energy Association (OSEA) Toronto (Nov 28th) -- Delivered keynote address titled 'Critical Materials & The Energy Transition Opportunities for Canada'

- Rare Earth International Association (REIA): REIA continues to grow its membership (at this report… 82), including several C2M2A members. REIA's outreach includes active participation in and media partners on a wide range of events, recently including UK Magnetics Society's Magnetic Materials and Applications 2024 (MMA24), MSIT Seminar on Rare-Earth (RE) Materials & Magnet Technology (a program for professionals in management and technology to learn about the complete supply chain of magnetic materials – mineral resources, mining, concentration, separating and transforming to oxides and metals, alloying to magnet powders and processing to all types of magnets, and Benchmark Week 2024.

**Upcoming Funding Opportunities & Events**

- NGEN Advanced Manufacturing -- C2M2A in partnership with Accelerate ZEV has applied to NGen for funding to support an Advanced Manufacturing Cluster with the goal of advancing midstream materials production in Canada. Economic clusters are organized groups of businesses, experts, and supporting organizations that work together collaboratively to address shared challenges and opportunities. By combining the perspectives of stakeholders from industry, academia, government, public, and environmental sectors, clusters can be essential drivers of innovation and growth.

- Alberta's Advanced Materials Challenge is offering up to $40 million for scale-up, pilot demonstration, and first-of-kind projects that shape the circular economy and create low emissions products, The funding is intended to increase the competitiveness of Alberta's manufacturing and resource sectors, grow new provincial industries with export potential, and reduce the carbon footprint of material supply chains. The scope of potential technologies listed in the challenge invitation includes 'the processing of critical minerals'. Deadline for submission – Jan 22nd, 2025

- CIM CONNECT 2025 -- Invited to present 'Energy Transition Materials – The Imperative of Establishing Canada's Midstream Processing', set for May 4th - 7th, 2025 in Montreal.

**Media**

- The Northern Miner (July 8th) -- Interview with Ian London, Executive Director, C2M2A
- Globe & Mail Op-ed (Sept 26th) -- Canada needs an industrialization strategy beyond just taking rocks out of the ground
- BNN's Commodities with Andrew Bell (Oct 15th) -- Interview with Marilyn Spink – Opportunities for Canada from the energy transition

- CIM Magazine (Sept 23rd) – Sought comments around SRC's announcements re its REE facilities in Saskatchewan, its first Canadian-based facility to produce rare earth metals and its importance and how it could help curb China's dominance on the market.
- BBC Radio (Oct 23rd) – Interview with Ian London on Business Daily: US election: Cross-border trade

**Standards Initiatives**

- Standards Council of Canada (SCC) and the CSAGroup with the engagement of experts based across Canada continue to represent Canada's interests in advancing current and anticipated global critical materials standards:
  - ISO/TC 298 - Rare Earths: The 8th annual plenary & Working Group meetings were convened in Denmark (hosted at Grundfos, a leading pump manufacturer on November 12th & 13th, attended in-person and virtually by representatives from 18 countries. ISO 298 has published 12 standards with another seven under development. The UK has offered to host the 2025 plenary.
  - ISO/TC 333 – Lithium: The next Plenary & Working Group meetings are scheduled for December 2nd & 3rd, to be hosted by BSI in London, England. This ISO initiative has 21 Participating member countries (including Canada) with 15 standards under development. The current agenda offers a full agenda for the eight Working Groups. Canada has offered to host the 2025 meetings with further details to follow.
  - ISO/TC 345 – Critical materials other than lithium & rare earths: This relative new ISO Technical Committee, with its inaugural Plenary Meetings \, with 16 Participating members, was held in mid May. The discussion focused on its Strategic Business Plan and nearer-term material priorities. The plenary also received nine preliminary proposed standards topics, however, they have yet to be formally submitted. ISO/PC 348 - Sustainability & critical materials: The Inaugural plenary meetings was convened Germany on Oct 30th, included hybrid participation. Canada was well represented by Glenn Keays (ERM), Ben Chalmers & Pierre Gratton (MAC) and David Sanscartier (SRC). Based on the wide range of divergent comments received across its 17 Participating Members, the scope and approach to this initiative are to be reframed over the next several months.
  - IWA 48 – 2024 ISO Framework for implementing environmental, social and governance (ESG) principles: C2M2A participated IWA 48 consultations over the summer. The final guidance was launched at the recent COP29. The ISO IWA 48 framework is available at no charge with an eye on facilitating SME's adoption.

**Recent Member Highlights**

- **Neo Performance Materials** entered into a loan agreement with Export Development Canada ('EDC') for a term loan of up to US$50 million to finance its on-going construction of the sintered magnets facility in Estonia, expected to be completed in 2025. The new facility, located near Neo's existing rare earth separation plant operations is expected to produce 2,000 metric tons per year, with plans for future growth. Sintered magnets are used in applications such as traction motors for electric vehicles and generators for wind turbines.

- **SGS** is recognized as one of the world's leading testing, inspection and certification organizations, with a particular expertise in critical material processing here in Canada. SGS recently unveiled three essential services to support Corporate Sustainability Reporting Directive (CSRD) compliance and advance Environmental, Social, and Governance (ESG) reporting and disclosures. SGS Canada's David Anonychuk also serves as co-Chair of the Critical Minerals Council (CMC) under the auspices of the Canadian Chamber of Commerce. The CMC is focused on advancing business leadership on resource extraction, processing, usage, export, and recycling. The CMC's efforts help inform critical minerals related policy through continuous engagement, research, and thought leadership.

- **Kingston Process Metallurgy (KPM) –** In addition to providing their Chem-Tech advisory services to a global customer base, Boyd Davis has also been heavily relied upon for his expertise and guidance to RXN HUB's leadership in their efforts to reach this opening milestone, as shown in the photo above.

- **North American Helium** (NAH) recently announced that its 9th helium purification facility is now operational in southwest Saskatchewan. The Company's success has reached $0.5 billion in Saskatchewan. It was only a year ago that NAH completed construction of, and successfully brought onstream, its 7th helium purification facility adjacent to the Company's then new discovery wells drilled in 2022 and 2023.

- **Saskatchewan Research Council (SRC)** announced that it is ahead of schedule and produced rare earth metals at a commercial scale at its under-construction Rare Earth Processing Facility in Saskatoon. Using in-house developed, state-of-the-art, semi-automated technology in metal smelting, SRC's facility is ready to produce 10 tonnes of neodymium-praseodymium (NdPr) metals per month, with purities greater than 99.5 per cent, aiming to produce 40 tonnes of REEs per month by the end of Dec 2024. SRC also received Federal Government funding of $16 million with a goal of expanding SRC's critical mineral capabilities and technologies and establishing a rare earth processing hub.

- **Cyclic Materials** -- The Ontario-based recycling company is continuing to create a circular supply chain for REEs and other critical materials. It successfully closed an oversubscribed USD $53 million equity raise and announced the signing of a collaboration agreement for the recycling of electric motors containing REEs with SYNETIQ, the U.K.'s leading integrated vehicle salvage and recycling company. The motors to be supplied by SYNETIQ include drive motors in hybrid and electric vehicles, as well as auxiliary motors present in all vehicles.

- **Scandium Canada** filed patent application for aluminium-scandium alloys for 3D printing Scandium Canada Ltd. Filed with the United States Patent and Trademark Office of a provisional patent entitled "Aluminum alloy powders for additive manufacturing. In addition to advancing its Crater Lake scandium and rare earth project, Scandium Canada has developed two aluminum scandium (Al-Sc) alloys and their powders, specifically for additive manufacturing applications (e.g., 3D printing) in collaboration with Ontario's McMaster University.

- **Commerce Resources** completed its locked-cycle test ("LCT") program on the Ashram Deposit's simplified flotation-only beneficiation flowsheet and has demonstrated significant improved grade and recovery results compared to the prior bench-scale test program. A locked-cycle test is an iterative laboratory-scale batch flotation test which recycles the tailings material between flotation stages to best simulate a continuous closed-circuit operating process plant. Commerce also welcomed experienced mining executive Ross Carroll as its new CEO.

- **Defense Metals** announced the successful closing of a non-brokered bridge financing of secured convertible notes raising $4 million, the proceeds of which will enable the completion of its the Prefeasibility Study ("PFS") for the Wicheeda Rare Earth Element Project, carry out scenario analyses, evaluate possible optimization of processes, and conduct further testing. The PFS will be substantially completed by the end of the year, with the results published in Q1 2025. Defense Metals plans to immediately launch into the Definitive Feasibility Study ("DFS"),

- **Avalon Advanced Materials** recently completed its Preliminary Economic Assessment ("PEA") for its Lithium Hydroxide Processing Facility project in Thunder Bay, Ontario. The PEA considers a design

capacity for the annual production of 30,000 tonnes of battery-grade lithium hydroxide. The PEA demonstrated the Project's compelling economic viability.

- **Peartree** is a Canadian securities dealer and investment fund manager advancing over $500 million annually for resource exploration and mine development in a uniquely Canadian structure which results in as much as $2.00 of capital deployed for every $1.00 invested. PearTree's platform offers triple benefit -- reduced issuer dilution, reduced cost of share ownership, and enhanced governance within a Canadian regulatory environment ensuring that invested capital is deployed on site for specific purpose.

- **Appia Rare Earth & Uranium** continues to strategically position and capitalize on the increasing demand for rare earth elements and uranium, resources essential for electric vehicles, wind turbines, and advanced renewable electronics. Appia is advancing multiple rare earths and uranium projects in mining-friendly regions, including Goiás State, Brazil, the Athabasca Basin in Saskatchewan, Canada and Northern Ontario, Canada.

**Membership**

Thank you to C2M2A members and collaborators for your strong support. C2M2A continues to represent members at key industry events, engage the industry through workshops, webinars and networking events, and support the development of Canada's critical materials supply chain. If you share this vision for a strong and sustainable critical materials sector, across the multiple supply chains, please, join us. https://c2m2a.org/membership/

In closing, 2024 has proven to be an exciting year in the critical material space. With the anticipated geopolitical and trade dynamics anticipated for 2025, one can rest assured, next year will certainly present opportunities and challenges. Here's to the healthy and successful industrialization & commercialization of Canada's critical materials sector. We also extend our best wishes for a healthy, happy, safe and prosperous 2025 to you and yours.

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