

Battery Innovation System of Canada



Main Players

GOVERNMENT ORGANISATIONS

- Natural Resources Canada (NRCan)
- Innovation, Science and Economic Development Canada (ISED)
- Environment and Climate Change Canada (ECCC)

RESEARCH ORGANISATIONS

- National Research Council Canada (NRC)
 - Battery Performance and Safety Evaluation Research Facility
 - Microgrid Testing and Training Facility
 - Energy, Mining and Environment Research Centre – Battery Material Innovation Team
- Natural Sciences and Engineering Research Council of Canada (NSERC)
- University of Calgary, Dalhousie University, University of Waterloo, Western University



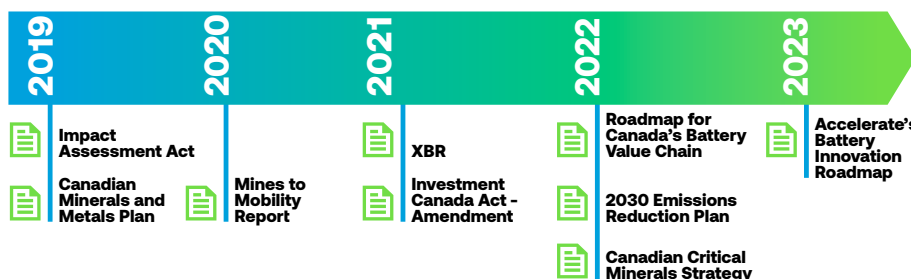
INDUSTRY ASSOCIATIONS & THINK TANKS

- Battery Metals Association of Canada (BMAC)
- Accelerate Canada's ZEV Supply Chain Alliance
- Energy Futures Lab
- The Transition Accelerator
- The Mining Association of Canada
- Energy Storage Canada
- Clean Energy Canada

COMPANIES

- E-One Moli Energy (Batteries)
- E-zinc (Batteries)
- Electra Battery Materials (Materials)
- Electrovaya Inc. (Batteries)
- Li-Cycle Holdings (Recycling)
- Lithion Technologies (Recycling)
- Moment Energy (Energy Storage)
- Nano One (Materials)
- Nouveau Monde Graphite (Components)
- Novonix (Batteries)

Strategic Documents



Policy Goals

2030

- **Zero-emission vehicles (ZEVs):** Regulations requiring 60% of new light-duty vehicle offered for sales; aim of reaching 35% of total medium-and heavy-duty vehicles sales with interim 2030 regulated sales requirements that would vary for different vehicle categories based on feasibility
- **Production:** 1.3M EVs produced domestically, 100GWh capacity in place domestically
- **Greenhouse gas emissions:** Reduction of 40-45% below 2005 levels
- **Recruitment:** The battery value chain created a significant amount of new jobs

2035

- **Zero-emission vehicles (ZEVs):** Regulations requiring 100% of new light-duty vehicle offered for sales; medium-and heavy-duty vehicles regulation to require 100% MHDV offered for sales to be ZEVs by 2040 for a subset of vehicle types based on feasibility
- **Net-zero electricity system**

2050

- **Net-zero emissions**

Country Specific Information

Cars and automotive parts are Canada's second largest export, trailing only behind oil and gas. The energy transition poses significant challenges to both the internal combustion vehicle and the oil and gas industry. For geographical reasons, the US is Canada's most important export market and cooperation partner. To secure Canada's place in the global economy of a net-zero world, Canadian federal government has announced a significant number of clean energy and technology incentives and programmes against the backdrop of the American IRA. The Government of Canada is committed to establishing a sustainable battery innovation and industrial ecosystem. While large-scale cell manufacturing and midstream production remain key challenges, the supply of responsibly sourced critical minerals presents

a great opportunity to become a significant player in the battle against China's dominance. However, Canada is seeking to mine and process lithium, nickel, cobalt, manganese, iron, phosphate, copper, rare earths and graphite domestically, to streamline permitting for new mining projects and to mine value from waste as part of the transition to a more circular economy.

Research Priorities

Next generation batteries + innovative and enhanced battery designs for EVs from material design to battery system design + Li-ion cells + graphite-silicon composite anode + optimizing energy storage (grid) + high-performance batteries, materials and production technology + reduction of GHG during the production process + recycling technology + secondary sources for battery minerals + mining value from waste or reducing mining's environmental footprint

Funding Instruments

TIME	FUND	FOCUS	BUDGET
2011 - Present	Energy Innovation Program (EIP)	Advance clean energy technologies that will help Canada meet its climate objectives, while supporting the transition to a low-carbon economy. The EIP funds research, development and demonstration projects, and other related scientific activities.	Over \$70 million annually
2022 - 2030	2030 Emissions Reduction Plan	Economy-wide measures such as carbon pricing and clean fuels, while also targeting actions sector by sector ranging from buildings to vehicles to industry and agriculture. These measures will drive reductions while creating jobs for workers and opportunities for businesses.	\$9.1 billion
2024 - 2027	Critical Minerals Research, Development and Demonstration (CMRDD)	Investment into the production and processing of critical minerals. The programme aims to scale-up fundamental research to pilot-scale and demonstration projects.	\$2 billion
2024/25 - 2029/30	Strategic Innovation Fund (SIF)	Providing major investments in innovative projects across all sectors of the economy. The Net Zero Accelerator (NZA) is the segment of the SIF that delivers funding to support large-scale investments in key industrial sectors to help Canada achieve net zero, including developing the domestic battery ecosystem.	\$8 billion +
2023 - 2035	Smart Renewables and Electrification Pathways Programme (SREPs)	Smart renewable energy and electrical grid modernization projects.	\$4.5 billion