

Battery Innovation System of Canada



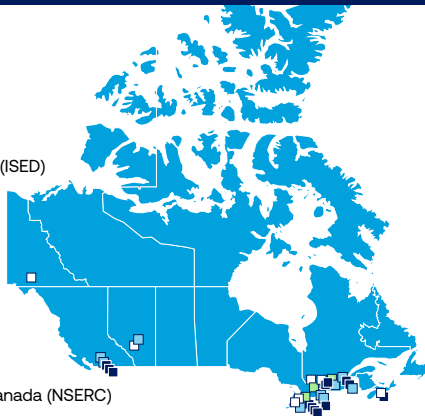
Main Players

GOVERNMENT ORGANISATIONS

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

RESEARCH ORGANISATIONS

- Hydro-Québec
- 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)
- Rare Earth Processing Facility
- Saskatchewan Research Council – Rare Earth Processing Facility
- Canadian Battery Innovation Centre (Dalhousie University), Ontario Battery and Electrochemistry Research Centre (University of Waterloo), Battery Innovation Centre (University of British Columbia), Western Canada Battery Consortium (University of Calgary), Volt-Age Electrification Initiative (Concordia University), Ontario Tech University, McMaster University



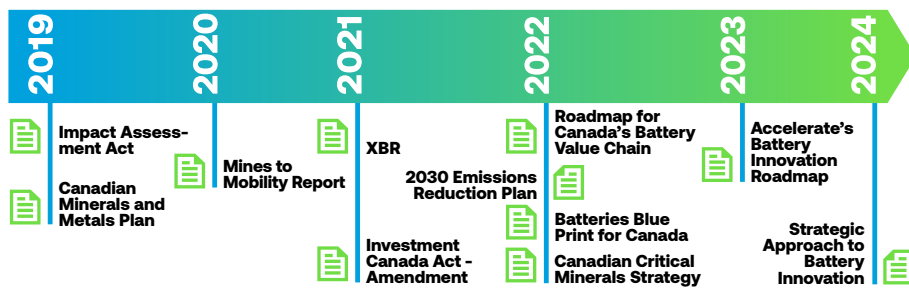
INDUSTRY ASSOCIATIONS & THINK TANKS

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

COMPANIES

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

Strategic Documents



Country Specific Information

Canada is strategically positioned in the global battery value chain, leveraging abundant natural resources, a strong automotive sector, and a well-established research and innovation system. Committed to being a key player in battery technology with responsible sourcing of critical minerals enhancing its competitive edge, Canada is seeking to strengthen its role in a resilient global battery value chain by addressing large-scale cell manufacturing and refining processes. Battery production and innovation is supported across the value chain and along technology readiness levels by a robust network of public, private, and academic institutions across Canada. While large-scale cell manufacturing and midstream production remain key challenges, the supply of responsibly sourced critical minerals presents

a great opportunity. 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 batteries 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 + accelerated materials discovery using self-driving labs

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
- 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**

Funding Instruments

TIME	FUND	FOCUS	BUDGET
2011 - Present	Energy Innovation Program (EIP)	The EIP funds research, development and demonstration projects related to advance clean energy technologies.	Over \$70 million annually
2022 - 2030	2030 Emissions Reduction Plan	Economy-wide measures such as carbon pricing and clean fuels, addressing buildings, vehicles, industry and agriculture.	\$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)	The Net Zero Accelerator (NZA) is the part of the SIF that supports major industrial sectors and battery ecosystem development to help Canada achieve net zero.	\$8 billion +
2023 - 2035	Smart Renewables and Electrification Pathways Programme (SREPs)	Smart renewable energy and electrical grid modernization projects.	\$4.5 billion
2023 - 2034	Investment Tax Credits: Clean Technology and Manufacturing	Refundable tax credits that incentivize private sector capital investment into manufacturing and deployment of various types of clean technology	Funding depends on the incentives uptake