

How Do Canadian Policies Align With Zero-emission Vehicle Adoption: An Analysis Of The Lifecycle Timeline And Transitional Needs

Daniel Gunitskiy | Supervised by Dr. Laurel Besco



INTRODUCTION

The Canadian government has proposed the mandated zero-emission vehicle sales targets, requiring that at least 20% of new vehicles sold in Canada be zero emission by 2026, at least 60% by 2030, and 100% by 2035.[1] This aggressive policy-driven demand is accompanied by federal and provincial incentives, strategic research and development, and charging infrastructure development.[1] However, the entirety of the automotive industry and the variability between the operation of traditional internal combustion engines and zero-emissions vehicles are not directly addressed. The automotive industry and the adjacent infrastructure have remained structurally the same for nearly 120 years, while similar in exterior and function, zero-emission vehicles and internal combustion vehicles require different manufacturing processes, fueling, maintenance, and end-of-life disposals.[2] The feasibility of a successful transition is not solely dependent on demand, but also on the adjacent supporting infrastructure and their services become essential for zero-emission vehicle implementation.[2] Given the potential discrepancy between demand and supporting infrastructure, ensuring equally aggressive regulations for the entirety of the automotive industry is required.

RESEARCH QUESTION & OBJECTIVES

The primary goal of this study is to develop a thorough understanding of the relationship between present Canadian policy and the requirements for a zero-emission vehicle transition. Furthermore, this study lends a particular focus on the variance between zero-emission vehicles and their internal combustion counterparts. For the design of the study, the above question was broken down into three:

1. How do zero-emission vehicles vary from their internal combustion counterparts?
2. What are the possible challenges and obstacles of zero-emission vehicle adoption?
3. Are there Canadian regulations and plans which apply to zero-emission vehicle adoption?
 - a. Are the possible challenges and obstacles addressed through Canadian regulation or plans?
 - b. If not, where are the gaps in policy that hinder an industry-wide adoption?

METHODOLOGY

Literature Review: To identify the variability between zero-emission vehicles and adjacent industries, and to identify potential obstacles to adoption.

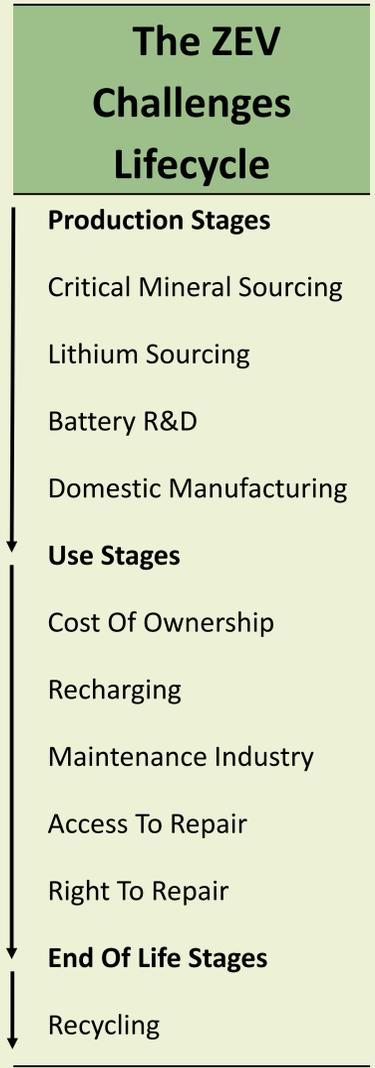
Policy Scan: To review Canadian policies, legislations, and plans to distinguish any policy gaps between actualized zero-emission vehicle needs.

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IDENTIFIED POLICY GAPS

-  **Supply Chain Standardization:** Canadian EV Supply chain impact is neglected, and not regulated for due diligence. A discrepancy with international trade partners.
-  **Recycling:** ZEV batteries do not fall under the existing recycling and producer responsibility acts, such as the RPPRA, 2016.
-  **Access to Repair:** Rural repair infrastructure is not considered. Rural technicians are not supported through funding or education.
-  **Right to Repair:** A Voluntary agreement Canadian Automotive Service Information Standard (CASIS) does not include access to new manufactures and EV technology. The mandated replacement Bill C-224, has yet to pass.
-  **Maintenance:** Safety licensing regulations have not changed to focus on high-energy systems. Trade schools are not regulated to implement ZEV curriculum; current available programs don't apply for student loan programs.

CONCLUSION

ZEV mandates will bring Canadian markets one step closer to a full automotive transition. Many ZEV lifecycle stages have received policy attention such as charging, production, and cost incentives. The definitive differences between ZEV and ICVs require government intervention. Yet it is evident that there are policy gaps that are not reflective of the true needs of ZEVs and ZEVs adjacent industries.

Relevant Policies, Legislation and Programs	Production Stage	Use Stage	End of Life
Canadian mineral and metal plan, 2020 (CMMP)[3]	X	X	
Constitution Act, 1867[4]	X		
Pan-Canadian Geoscience Strategy (PCGS)[5]	X		
The Ontario's Critical Minerals Strategy 2022–2027 (OCMS)[6]	X		
The Canadian Environmental Protection act, of 1999 (CEPA)[7]	X		
The Natural Resources and Extractives Supply Chain Policy Advisory Groups (Voluntary) [8]	X	X	X
Strategic Innovation Fund[9]	X	X	X
The Net Zero Accelerator Fund[10]	X	X	X
The Scientific Research and Experimental Development Program[11]	X	X	X
The Accelerated Capital Cost Allowance[12]	X		
From Mines to Mobility[13]		X	
Industrial Research Assistance Program[14]		X	
Canada Job Grant[15]		X	
Canadian Free Trade Agreement (CFTA)[16]	X	X	
Canada-United States-Mexico Agreement (CUSMA)[17]		X	
The Incentives for Zero-Emission Vehicles (iZEV) Program[18]		X	
Extended Producer Responsibility (ERP)[19]			X

