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# Canadians' Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs)

*Summary*

**Prepared for Natural Resources Canada**

**Supplier: EKOS RESEARCH ASSOCIATES INC.**

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For more information on this report, please contact NRCan at: [nrcan.por-rop.rncan@canada.ca](mailto:nrcan.por-rop.rncan@canada.ca)

*Ce rapport est aussi disponible en français*

Canada 

# Canadians' Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs)

## Summary

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**Supplier name:** EKOS RESEARCH ASSOCIATES INC.

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This research report presents the results of an online survey conducted by EKOS Research Associates Inc. on behalf of Natural Resources Canada. The research involved an online survey of 3,449 Canadians. The survey was conducted across Canada in both official languages. The field dates for the survey were July 16-August 3, 2021.

Cette publication est aussi disponible en français sous le titre : Sensibilisation, connaissances et attitudes des Canadiens par rapport aux véhicules à émission zéro (VEZ).

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# SUMMARY

## A. Background and Objectives

To date the Government of Canada has invested more than \$1B in support of ZEVs, has made long-term commitments to accelerating ZEV adoption, and has committed to a mandatory target of 100 per cent of light-duty vehicles sales by 2035.

As indication of the Government's commitment to achieving these targets, the Strengthened Climate Plan of December 2020 confirmed new investments of \$287M for ZEV vehicle purchase rebates (\$587M total to-date), and \$150M for charging infrastructure (\$460M total to-date), along with a commitment to "work with partners in the year ahead on supply-side policy options".

For the Government to achieve its ZEV targets, awareness, knowledge and public confidence in ZEV technologies have been acknowledged by all stakeholders as critical.

Although various parties in Canada have conducted sporadic consumer surveys over the past decade that seek to measure these factors in the Canadian general public, these have not been designed as baseline surveys to then be repeated consistently over time, so comparison between years of the fast-evolving consumer perspectives on ZEVs cannot be undertaken with scientific rigour.

Consequently, NRCan commissioned EKOS Research Associates to undertake a baseline survey of Canadians examining their awareness, knowledge and confidence in ZEVs. This survey will be repeated on an annual or bi-annual basis, and will provide key performance indicators on the success of efforts to rapidly increase consumer confidence and action on the purchase of ZEV technologies.

## B. Methodology

The research involved an online survey of 3,449 Canadians. The survey was conducted across Canada in both official languages. The field dates for the survey were July 16-August 3, 2021.

Appendix A contains a detailed description of the methodology used in this study.

Appendix B contains the full survey questionnaire.

## C. Key Findings

Survey results reveal that Canadians hold mixed views on electric vehicles and a general lack of knowledge about these vehicles. Canadians strongly believe that ZEVs are beneficial for the environment, but also feel they are expensive and difficult to fuel/charge. Canadians also have limited experience with ZEVs, and little understanding about a range of important issues associated with these vehicles, such as safety, vehicle charging, performance, maintenance costs, and resale value, suggesting these are areas in need of increased ZEV awareness/education initiatives.

### Highlight Results

The following highlight results suggest that although there is interest in ZEVs among Canadians, increased communications efforts will be required to overcome some of the concerns about ZEVs (e.g. charging, reliability, costs to run and maintain), and the general lack of knowledge and exposure to these vehicles among the Canadian public.

- 
- 66 per cent have never ridden in or driven a ZEV (74 per cent in Atlantic Canada).
- 
- 83 per cent would be interested in taking a ZEV for a test drive.
- 
- 25 per cent are very interested in a zero emission vehicle and will definitely consider one when purchasing their next vehicle
- 
- 51 per cent have considered purchasing or leasing a vehicle that runs on electricity
- 
- 34 per cent don't feel there is a ZEV available that meets the needs of their lifestyle.
- 
- 27 per cent cannot name any ZEV makes or models.
- 
- 53 per cent agree that there are too few, if any, publicly available charging stations where they drive (67 per cent in Saskatchewan/Manitoba).
- 
- 46 per cent are unsure whether the repair and maintenance costs for a zero emission vehicle are lower than for a gas or diesel-powered vehicle
- 
- 79 per cent say proven reliability in Canadian climates would make them more likely to consider purchasing or leasing a ZEV.
-

Outlined below are key findings from this study, organized by topic area. The remainder of this report describes survey results in more detail.

### **Intention to Purchase/Lease a Vehicle**

Respondents were first asked if they plan to purchase or lease a new or used vehicle in the next 10 years. Results reveal that two-thirds of Canadians (68 per cent) say they do intend to purchase a vehicle within the next 10 years. When asked in what timeframe they plan to purchase a vehicle, most of these respondents indicated within the next 2-5 years (39 per cent), or within the next 2 years (35 per cent).

Canadians were also asked how many vehicles they currently have in their household. The plurality (42 per cent) indicate they have one vehicle, while a sizeable proportion (35 per cent) say they have two vehicles.

### **Ownership and Intention to Lease/Purchase an Electric Vehicle**

Those who indicated they had a vehicle in their household were asked if they currently lease or own an electric vehicle. Results reveal that only five per cent of Canadians say they currently own or lease a vehicle that runs on electricity; the vast majority (95 per cent) do not.

Those who do not own or lease an electric vehicle were asked if they had considered purchasing or leasing an electric vehicle for their household. Results are roughly split, with a slight majority (51 per cent) indicating that they had considered purchasing an electric vehicle, and 43 per cent indicating no.

Results further reveal that 51 per cent of those who had considered purchasing/leasing an electric vehicle say they have not taken any real steps to purchase/lease this type of vehicle. One in three (33 per cent) say they have started to gather information and make inquiries, but have not yet seriously considered an electric vehicle. Only one in seven of these respondents (14 per cent) say they have actually shopped for an electric vehicle.

### **Experience with Zero Emission Vehicles**

Respondents were also asked if they had ever driven or ridden in a zero emission vehicle. Results reveal that most Canadians (66 per cent) have no direct experience with ZEVs.

Those who had not driven or ridden in a ZEV were asked how interested they would be in taking a zero emission vehicle for a test drive. Most say they would be very (39 per cent) or somewhat (29 per cent) interested. A further 16 per cent said they were only a little interested in this idea, and 15 per cent said they were not at all interested.

### **Familiarity and Views on Zero Emission Vehicle Features**

Results reveal that Canadians have limited familiarity with the various aspects of zero emission or electric vehicles. Respondents are most familiar with the environmental benefits of ZEVs (62 per cent indicate they are very or somewhat familiar with the environmental impact of electric vehicles). However, fewer than half say they are familiar with the potential to charge (“fuel up”) the battery at their home (49 per cent), how far a ZEV can go on a fully charged battery (46 per cent), the price of ZEVs (45 per cent), or how the “fueling up” process works when electricity powers a vehicle (43 per cent). Only about one in three express familiarity with the time required to charge the battery, or the availability of consumer information about ZEVs. Even fewer express familiarity with the warranty, resale value, towing capacity, or insurance costs of ZEVs.

Respondents were also asked a number of attitudinal questions about ZEVs. Results reveal mixed views on electric vehicles, and, reinforcing earlier results, a general lack of knowledge about these vehicles (from 14 to 52 per cent of Canadians could not provide a response to the questions asked).

A clear majority of Canadians (63 per cent) believe that zero emission vehicles are too expensive (and only 7 per cent disagree with this idea). However, Canadians also strongly believe that ZEVs are better for the environment than other types of vehicles: six in ten agree that zero emission vehicles contribute significantly to a reduction of greenhouse gas emissions and air pollutants compared to gas or diesel-powered vehicles (61 per cent), and that zero emission vehicles are less damaging to the environment than gas or diesel-powered vehicles (58 per cent).

At the same time, concerns are expressed about charging ZEVs. More than half of Canadians (53 per cent) agree that there are too few, if any, publicly available charging stations where they drive. Fewer than half agree that they can charge a zero emission vehicle at their home (47 per cent), and even fewer agree they can charge a zero emission vehicle at their workplace (18 per cent). In addition, four in ten express concerns that zero emission vehicles can’t travel far enough on a full charge (44 per cent), and that charging a zero emission vehicle at home will significantly increase their monthly electricity bill (42 per cent).

Across many of the other issues examined, most Canadians could not even provide a response. Half of respondents are unsure whether the repair and maintenance costs for a zero emission vehicle are lower than for a gas or diesel-powered vehicle (46 per cent said they do not know), or whether zero-emission vehicles have the same towing ability as conventional vehicles (52 per cent). And a similar proportion could not provide a response when asked whether hydrogen fuel cell electric vehicles are more dangerous than other kinds of vehicles (50 per cent), or whether zero emission vehicles have a poor resale value (52 per cent).

Results further reveal that many Canadians would only buy a zero emission vehicle if the price were about the same as an equivalent conventional vehicle (47 per cent). About one in four (23 per cent) would be willing to pay more for a zero emission vehicle than an equivalent conventional vehicle, and about one in ten indicated they would only buy a zero emission vehicle if the price were lower than an equivalent conventional vehicle.

Respondents were also asked to what extent a range of factors would make them more likely to consider purchasing or leasing a zero emission vehicle. Proven reliability in Canadian climates (79 per cent to a great or some extent), and having access to a charging station at home (77 per cent) were seen as the most important factors in encouraging Canadians to consider purchasing/leasing ZEVs. Equal or greater driving range than a gas or diesel vehicle (77 per cent), a 10-year battery warranty (77 per cent), and rebates/incentives (74 per cent) to cover the price difference between zero emission vehicles and gas or diesel-powered vehicles were also seen as effective in encouraging Canadians to consider ZEVs.

### **Awareness and Support for Government Rebates**

Results suggest Canadians have limited awareness of government rebates for ZEVs. When asked whether they have seen, read or heard about the Government of Canada's vehicle purchase rebates to encourage Canadians to buy zero emission vehicles, a majority (53 per cent) indicate they have not heard of these rebates. And among those who indicated they are aware of these Government of Canada rebates, most (64 per cent) are unsure how to apply for them.

However, despite limited awareness of these rebates, a clear majority of Canadians (69 per cent) support the Government of Canada providing incentives to encourage Canadians to buy zero emission vehicles, while only 18 per cent oppose these federal government incentives and 11 per cent are neutral.

## D. Contract Value

The contract value for the POR project is \$69,049.10 (including HST).

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For more information on this report, please contact NRCan at: [nrcan.por-rop.rncan@canada.ca](mailto:nrcan.por-rop.rncan@canada.ca)

## E. Political Neutrality Certification

This certification is to be submitted with the final report submitted to the Project Authority.

I hereby certify as Senior Officer of EKOS Research Associates Inc. that the deliverables fully comply with the Government of Canada political neutrality requirements outlined in the Communications Policy of the Government of Canada and Procedures for Planning and Contracting Public Opinion Research.

Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, standings with the electorate, or ratings of the performance of a political party or its leaders.

Signed by:



Derek Jansen (Vice President)