



World Wildlife Fund Canada  
**Electric Vehicle Survey**  
*September 2012*



**ENVIRONICS**  
R E S E A R C H G R O U P

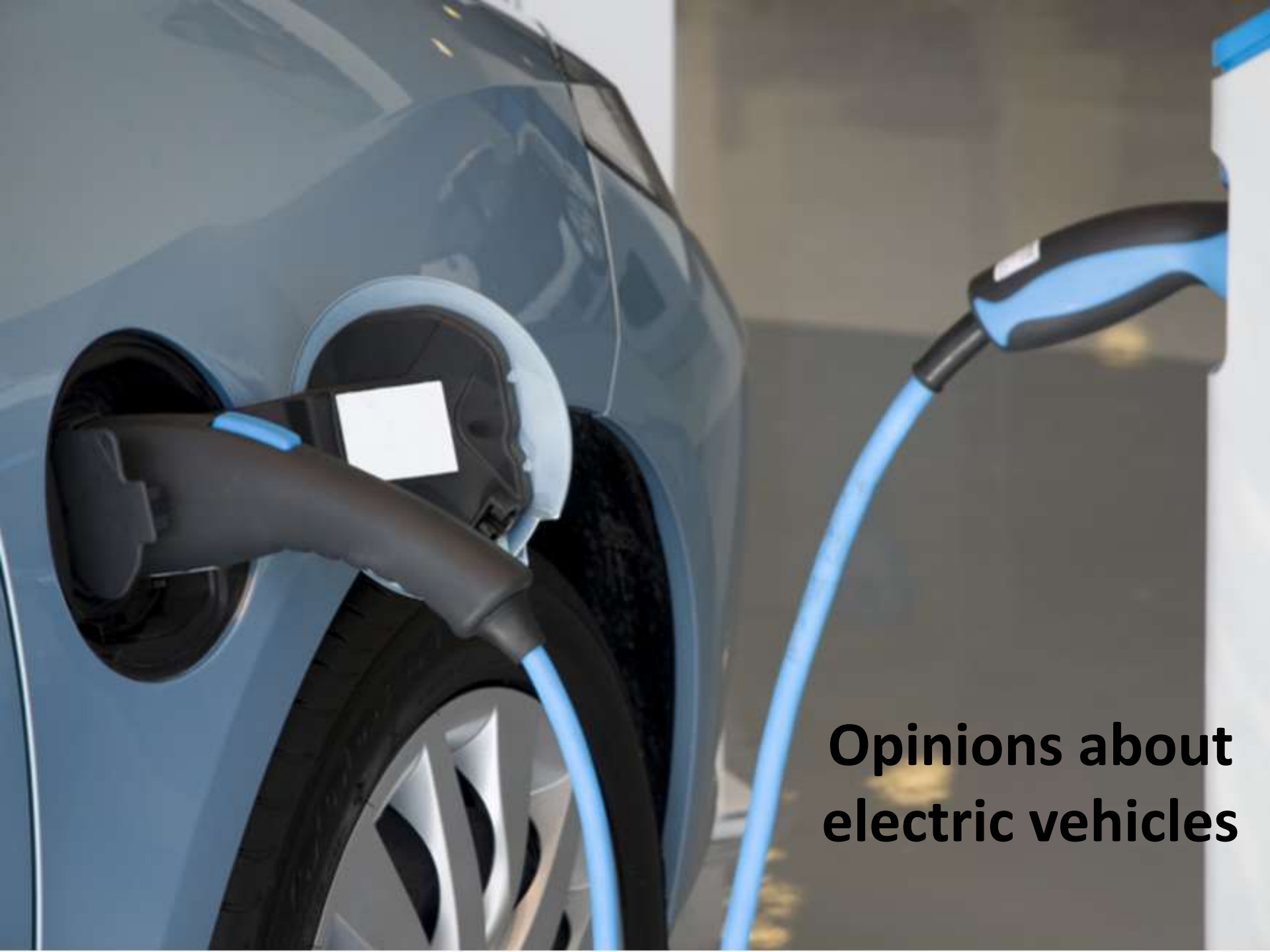
# Research overview

- The objective of the research is to gather benchmark data about Canadians' views towards electric vehicles.
- An online survey was conducted between September 11 – 15, 2012 with 1,000 adult Canadians (18 years+).\*
- Quotas were assigned to ensure the sample's regional, age and gender composition reflects that of the actual population according to the most recently available Census information.

\* As online panels are not random probability samples, margins of sampling error cannot be cited.

# Executive summary

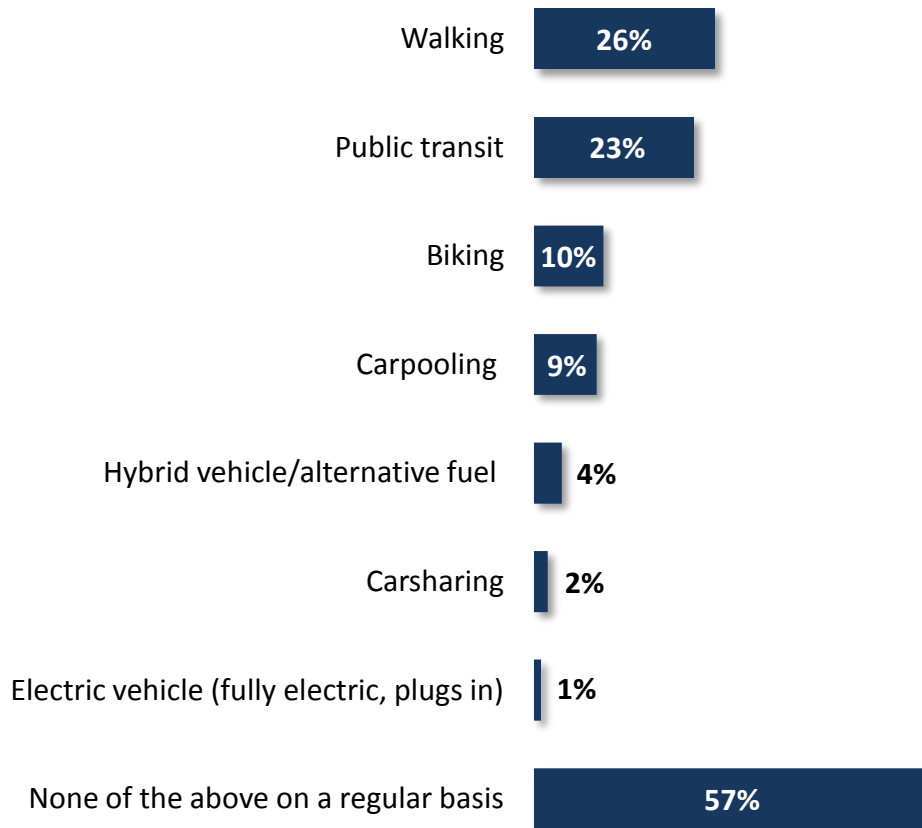
- At this stage, very few Canadians have first-hand experience with electric vehicles, but very few doubt that they will eventually become a viable alternate to conventional vehicles, when infrastructure and technology issues are resolved.
- It is not generally accepted that electric vehicles (EVs) will be a significant way to fight climate change, because there will never be that many on the road. This may be because, while many agree they would be a good solution for urban driving, people may expect to still need conventional vehicles for driving longer distances.
- Many feel EVs are a good solution for urban drivers, and would think more of companies using them in their fleet; the majority agree at least somewhat that EVs will save money in the long run because electricity is cheaper than gasoline.
- Canadians think that purchase price and distance on a charge are top barriers to EV adoption. Many believe there are very few public charging locations, and notable proportions express some level of “range anxiety” (concern about running out of power, or about the time required for battery-charging).
- There is widespread support for government actions to encourage EV adoption.



**Opinions about  
electric vehicles**

# Few Canadians report using electric or hybrid vehicles on a regular basis for their current commute

## Sustainable transportation options regularly used



Close to six in ten Canadians do not use any sustainable transportation methods on a regular basis. Walking and public transit are the most used options. Only small proportions report using hybrid (4%) or plug-in electric (1%) vehicles.

Use of several sustainable transportation options – walking, transit, biking and carpooling – is higher among Canadians aged 18 to 29 and decreases with age. Those aged 60 and over are the most likely to say they do not use any of these options on a regular basis.

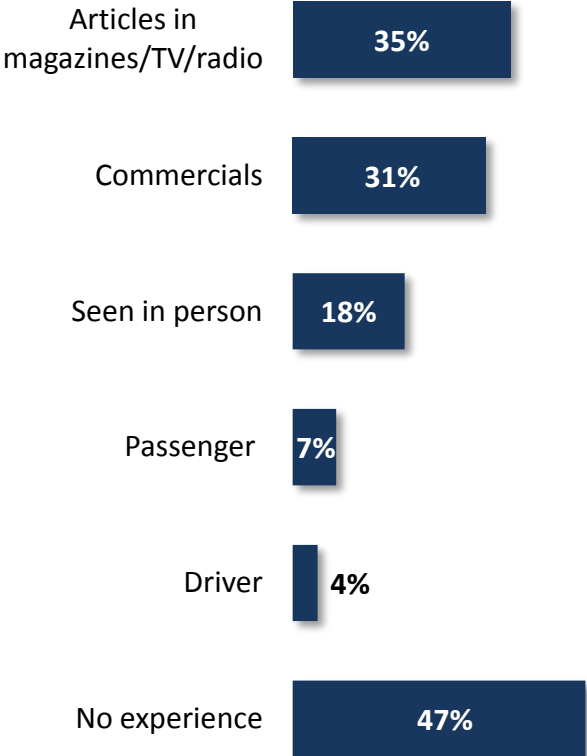
Use of public transit is highest in Ontario (25%) and Quebec (24%) than elsewhere, and men are more likely (27%) than women (18%) to report transit use.

Those who, later in the survey, agree that vehicle emissions are a major contributor to climate change, and those who think that use of EVs would reduce a household's impact on the environment quite a lot or a great deal, are more likely than others to report walking or using public transit but, even among these more environmentally conscious Canadians, only about half regularly use some type of sustainable transportation.

Q1. Which, if any, of the following sustainable transportation options do you use on a regular basis to get to work, school or appointments?

# Canadians are most likely to have had only second-hand experience with electric vehicles, if any

## Experience with electric cars



Close to half of Canadians report having no experience with plug-in electric vehicles and, among those with experience, it is most likely to be second-hand, in the form of reading articles, seeing commercials or just seeing the vehicles themselves. Seven percent report having ridden in one, and four percent say they have driven one.

Reporting experience with EVs is linked to higher levels of education and income, and men are more likely than women to have had any EV experience.

Reading EV articles or seeing commercials is higher in Ontario than elsewhere, and seeing an EV in person is highest in Ontario and Quebec.

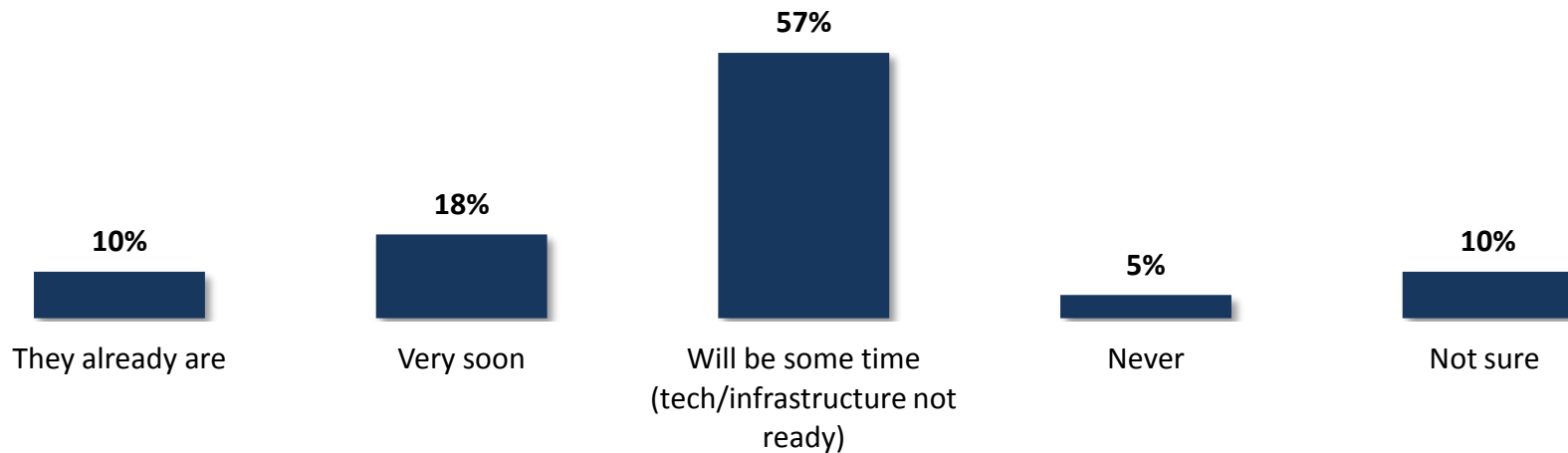
First-hand experience with EVs (riding in or driving one) is higher among younger Canadians (aged 18-29). Having had no EV experience increases with age and is highest among those aged 60 and over.

Having any EV experience is also linked to agreeing that vehicle emissions have an major impact on climate change, or to thinking that switching to an EV would result in a notable reduction of a household's impact on the environment.

Q2. What is your experience with electric cars? By electric cars, we mean ones that **plug in to electric outlets**, not hybrids with a gas engine that can also charge a battery.

# The majority of Canadians think EVs are not yet a viable alternate to conventional vehicles, but do not doubt they will be eventually

## When will electric vehicles will be a viable alternate?



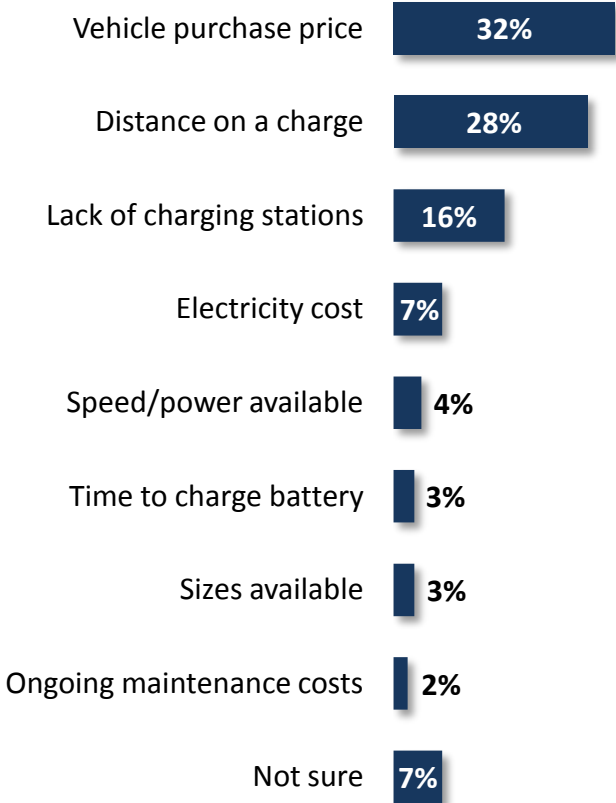
A majority of Canadians (57%) think that EVs are not yet “ready for prime time” as an alternative to conventional vehicles, due to the need to resolve some technology and infrastructure issues, but only a very small percentage think they never will be viable. About three in ten think that EVs are already viable or soon will be; one in ten are not sure when, or if, they will be ready.

Quebec residents are the most likely to say that EVs already are (14%) or soon will be (22%) viable alternatives. That EVs are ready now or will be very soon is the opinion of somewhat higher proportions of younger Canadians and men.

Thinking that EVs will require more time is highest among those aged 60 and over. Saying they will never be viable is a minority view in all groups, but is somewhat higher among those who think EVs would have a low or no impact on a household’s environmental footprint, or who disagree that vehicle emissions are a major source of climate change in Canada.

# Purchase price and the distance that can be travelled on a charge are considered the main barriers to wider adoption of EVs

## Biggest barrier to electric vehicle adoption



When asked to indicate which of a number of potential drawbacks they consider to be the biggest barrier to more people switching to electric vehicles, Canadians are most likely to point to the purchase price and how far they can travel on a charge. One in six indicate the lack of charging stations. Other considerations, including time to charge the battery, are thought to be major barriers by fewer people.

It is notable that just under one in ten people point to the electricity cost for charging the battery, which is higher than the proportions who think the major obstacle is the either power or the size of EVs, or the time it takes to charge the battery. The message on how inexpensive EVs are to charge is not yet coming through.

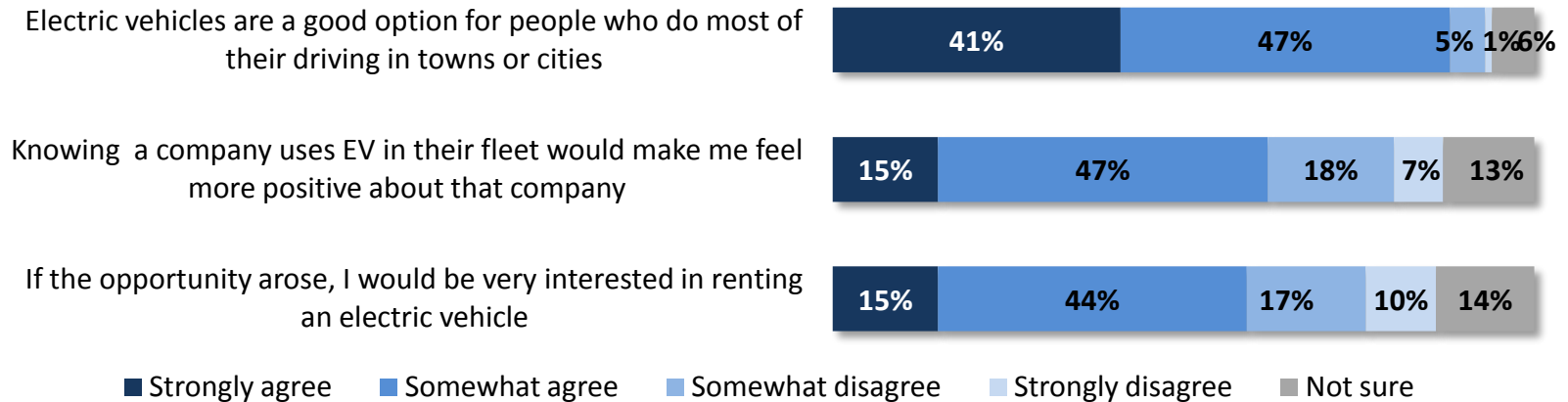
That the purchase price is the biggest barrier is a top response across most subgroups, but is highest among Quebecers (47%), and those who have positive views about EV impact on the environment (i.e., those who agree that vehicle emissions are a major source of climate change and those who believe EVs would have a considerable impact on a household’s environmental footprint). Concern about distance that can be driven on a charge is higher in Manitoba/Saskatchewan (43%) and among men (35% vs. 21% of women). Lack of available charging stations is mentioned most in B.C. (29%).

Q5. Which of the following do you think is the **biggest** barrier to more people switching to electric vehicles ...?



# Majorities of Canadians agree that EVs are a good option for urban drivers, that they would like to rent an EV, and would feel more positive about companies using EVs

## Agreement with positive statements about electric vehicles

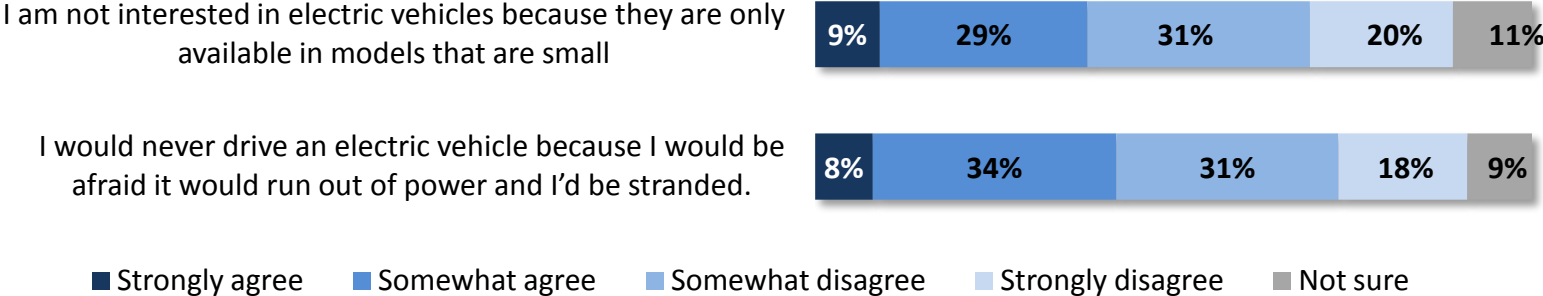


Six in ten or more Canadians agree at least somewhat with three positive statements about EVs. Agreement is highest (88% at least somewhat) for the statement “Electric vehicles are a good option for people who do most of their driving in towns or cities.” Net agreement for this statement is particularly high in B.C. and Quebec (92% each); agreement is higher among those aged 30 and over than younger Canadians.

Positive feelings about a company with EVs in their fleet is somewhat higher in Quebec (76%) and B.C. (65%) than elsewhere in the country, as well as among those aged 30 to 44 (68%) and men (66%). Being very interested in renting an EV is also higher in Quebec (65%) than elsewhere. It is highest among men (64%) and younger Canadians (66% aged 18 to 29, 67% aged 30 to 44) and decreases with age.

# Canadians are divided about whether EVs would suit them, due to size impressions and range anxiety

## Agreement with negative statements about electric vehicles



Canadians are more divided when it comes to two negative statements about EVs. Around four in ten Canadians agree at least somewhat that they are not interested in EVs because they are only available in small models or that they would be afraid of being stranded in one. Around half disagree to some extent with each of these statements and about one in ten are not sure.

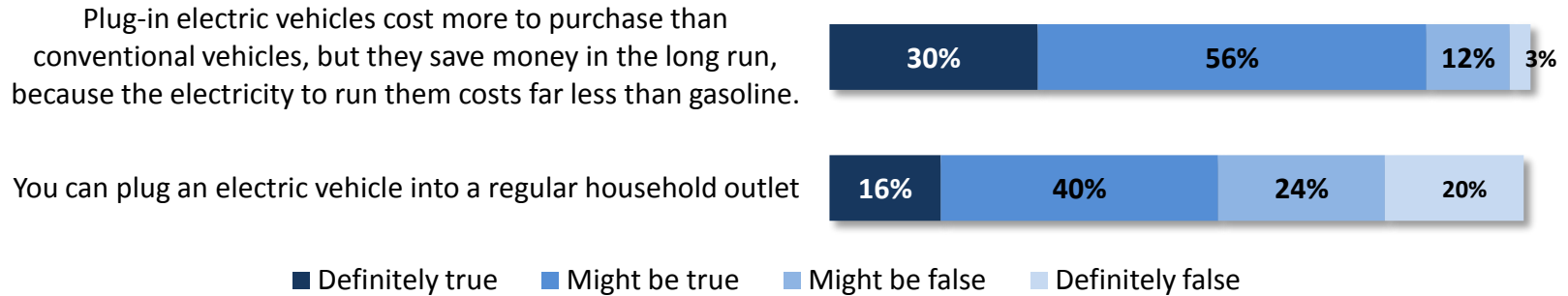
Agreement level with these statements is generally similar across subgroups, with some exceptions. Agreement with both statements is higher among people with lower levels of education (less than a university degree) and among people with less positive views about EV impact on the environment (i.e., those who disagree that vehicle emissions are a major source of climate change, and those who believe EVs would have a minor or no impact on a household’s environmental footprint).

Women are more likely than men to agree to some extent that they would never drive an EV because they would be concerned about running out of power, and agreement with this statement is highest in the Prairies (Manitoba/Saskatchewan).

Q8 e, f How much do you agree or disagree with each of the following statements ...?

# Majorities of Canadians think it at least might be true that EVs will save money in the long run and can be plugged in at home

## Extent to which positive statements about electric cars are true or false



Canadians were shown a series of statements about EVs and asked to indicate the extent to which they think they are true or false. It is clear that positive facts about EVs need stronger messaging, as only minorities identify them as being definitely true.

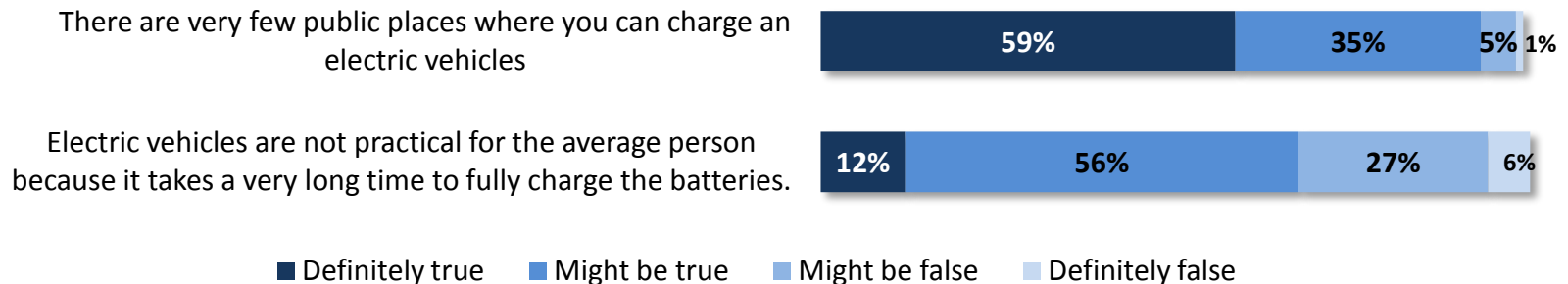
A majority (86%) think it is at least possibly true that PHEVs save money in the long run because of the lower cost of electricity, and three in ten say this is definitely true. People are more hesitant about whether EVs can be plugged in to regular household outlets, with just under six in ten thinking this may be (40%) or definitely is (16%) true.

That PHEVs save money in the long run is thought to definitely be true by higher proportions of Quebecers (45%) and those who have positive views about EV impact on the environment (i.e., those who agree that vehicle emissions are a major source of climate change – 34%, and those who believe EVs would have a considerable impact on a household’s environmental footprint – 48%). Interestingly, Quebecers are the most likely to think it is definitely *false* that EVs can be plugged into a regular household outlet (31%). However, this may also be an indication that they are more familiar than others about EV charging issues, like the actual length of time to charge, or about Level 2 chargers for faster battery charging.

Q6 a,d For each statement below, please indicate if you think it is definitely true, might be true, might be false or is definitely false ...

# The majority of Canadians think it is definitely true there are few public places to charge EVs, and many think it may be true they are not practical due to the time required to fully charge

## Extent to which negative statements about electric cars are true or false



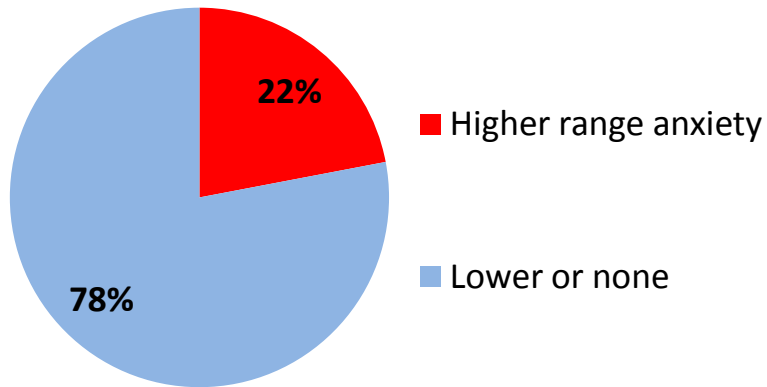
Majorities of Canadians say that each of two negative aspects of EVs may be or definitely are true. Six in ten say it is definitely true that there are very few public places where EVs can be charged; one in ten say it is definitely true (and six in ten say it might be true) that EVs are not practical for the average person because they take a longer time to charge. This further confirms other research that has identified charging problems as one of the major concerns limiting EV adoption.

Saying it is definitely true that there are very few public places to charge an EV is the majority view across most subgroups, but is highest in Quebec (69%), which is consistent with their being the most likely to think regular household outlets cannot be used. Quebecers (19%) are also the most likely to say it is definitely true that EVs are not practical for the average person because it takes a very long time to fully charge the batteries. Saying that either of these statements is definitely true is also higher among people with less positive views about EV impact on the environment (i.e., those who disagree that vehicle emissions are a major source of climate change, and those who believe EVs would have a minor or no impact on a household's environmental footprint).

Q6 b, c For each statement below, please indicate if you think it is definitely true, might be true, might be false or is definitely false ...

# Two in ten Canadians express views that indicate they have heightened EV range anxiety

Range anxiety



An informal variable was created to identify Canadians with heightened “range anxiety.” A person was deemed to have “higher” range anxiety if they met two criteria:

- 1) They chose as the *biggest* barrier to EV adoption any of: the distance an electric vehicle can travel on a charge; how long it takes to charge the battery; or lack of availability of charging stations, AND
- 2) They also strongly or somewhat agreed with the statement “I would never drive an electric vehicle because I would be afraid it would run out of power and I’d be stranded.”

By this definition, 22 percent of Canadians fall into the category of having higher range anxiety. There are few really notable demographic differences in those with heightened range anxiety and those with less (other than a lower proportion live in Quebec). However, they have notably different attitudes about several key issues.

Those with heightened range anxiety are:

- Less likely than others to report regular use of any sustainable transportation method
- Less likely to think EVs are already a viable alternative to conventional vehicles
- Less likely to support government providing financial purchase incentives for individuals
- Less likely to be interested in renting an EV or to feel positively about companies that use them
- More likely to agree that there will never be enough EVs to fight climate change; that EVs are not cleaner due to the emissions of electricity generation; or that they are not interested in EVs because they are small

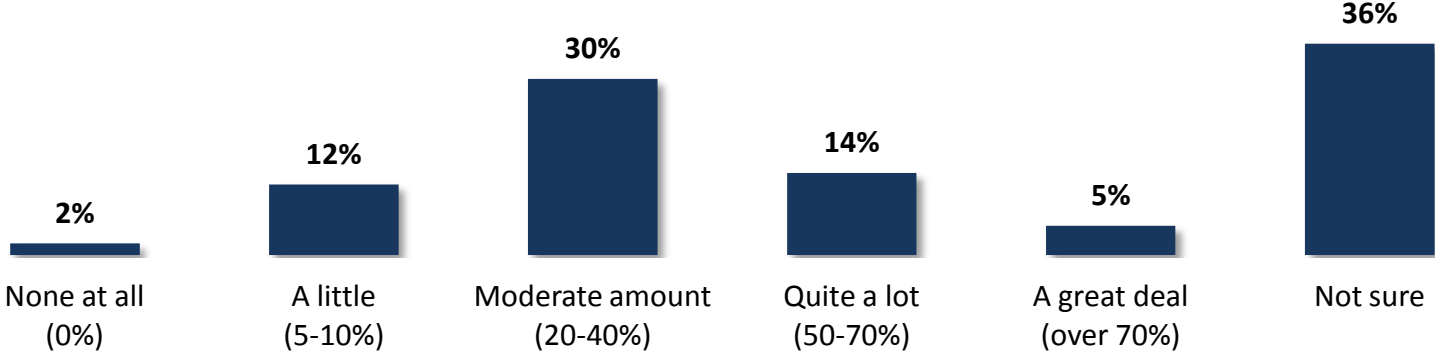
Q4. When do you think electric vehicles will be a viable alternative to conventional vehicles?

**Perceptions of  
environmental  
impact of electric  
vehicles**



# Three in ten Canadians say switching to an EV would have a moderate impact on a household's environmental footprint – but more are unable to say

How much could a switch to an EV reduce the average household's impact on the environment?



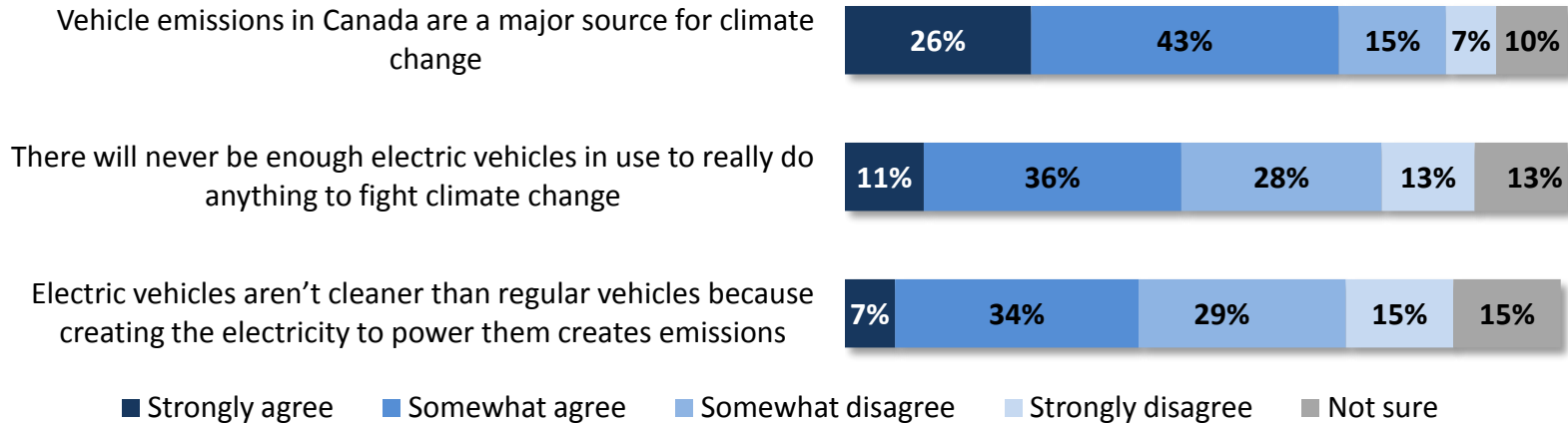
Canadians were asked to indicate how much they think an average household could reduce its impact on the environment by switching from a conventional vehicle to an EV (the percentage ranges were included with each category, as examples). A plurality of 36 percent are not able to say. Three in ten think switching to an EV would make a moderate reduction; two in ten say it would reduce the environmental footprint by at least half, and one in six say it would make a minor impact (10% or less) or no impact.

The proportions indicating the extremes – that there would be little impact or a lot of impact – are generally similar across subgroups. Differences are mainly between saying there would be a moderate impact and not being able to say – suggesting that the moderate category may be being selected by some in preference to saying “not sure” (this happens in other surveys with questions using a scale with a midpoint). However, it is notable that saying switching to an EV would make little or no impact is higher among those who disagree that vehicle emissions are a major cause of climate change; those who agree about emission impact on climate change are the most likely to say switching would make a moderate or quite a lot of environmental sense.

Q3. From what you have heard, how much could an average household reduce its impact on the environment by switching from a conventional vehicle to an electric vehicle?

# Although the majority agree that vehicle emissions are a major climate change source, few currently see EVs as a major solution

## Agreement with statements about electric vehicles and the environment



Seven in ten Canadians agree to some extent with the statement that “Vehicle emissions in Canada are a major source for climate change” and three in ten strongly agree. Close to half (47%) agree that “There will never be enough EVs in use to really do anything about climate change” and four in ten agree that “EVs aren’t cleaner because creating the electricity to power them creates emissions.”

Agreement that vehicle emissions are a major source of climate change is similar across most demographic subgroups, but is highest in Quebec and among those who believe that switching to an EV would have a major impact on reducing a household’s environmental footprint.

Agreement that there will never be enough EVs on the road to make an impact on climate change is somewhat higher among older Canadians (58% of those aged 60 and over), and among those with less than a university degree and those with the lowest household incomes (<\$40,000). Agreement with both negative statements is highest among those who think switching to an EV would have little or no environmental impact, and among those who disagree that vehicle emissions are a major climate change contributor.

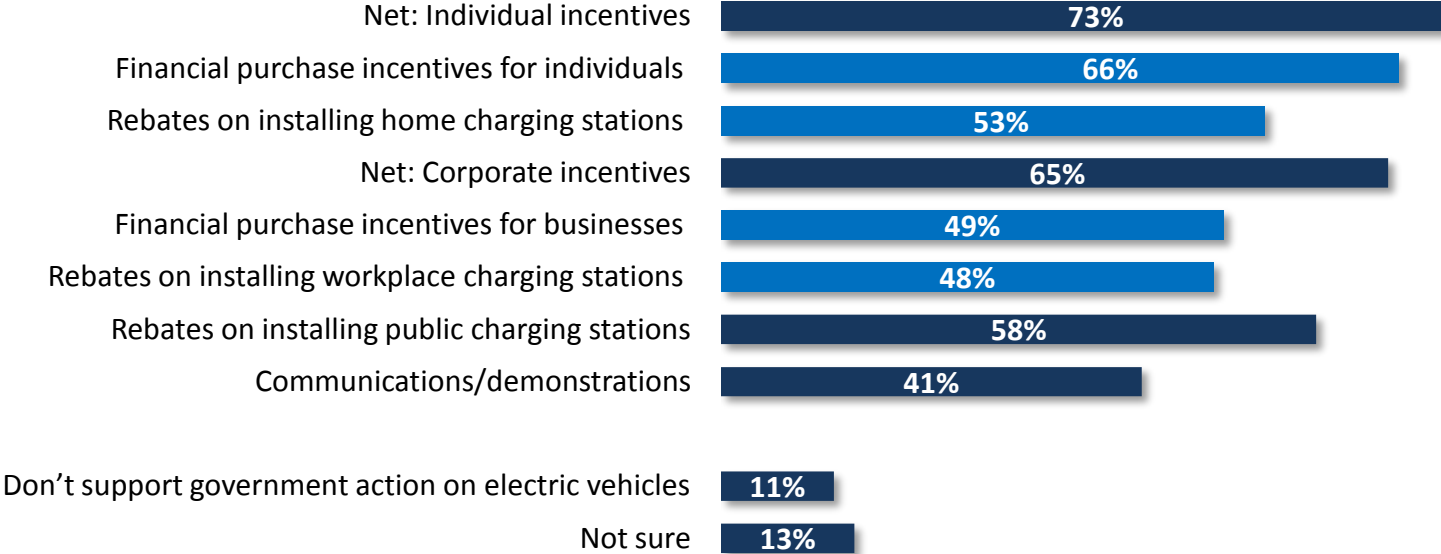


A photograph of a multi-lane highway with traffic. In the foreground, a double yellow line runs down the center of the road, with small yellow bollards placed between the lines. To the left of the yellow lines is a white dashed line. The road is filled with various cars, including a silver SUV in the left lane and a red car in the right lane. The highway curves to the left in the distance. The text "Support for government action on electric vehicles" is overlaid on the left side of the image.

**Support for government action  
on electric vehicles**

# There is substantial support for government actions to encourage EV take-up

## Support for government actions to encourage changing to electric vehicles



Canadians were asked to indicate which of a list of possible government actions to encourage uptake of EVs they would support. Close to three-quarters would support at least one of two incentives for individuals, and two-thirds would support at least one of two business incentives. Six in ten would also support the government offering rebates on installing public charging stations, and four in ten would support communications or demonstrations to show the advantages of EVs.

Support for all of the incentives is highest among those with a university degree and among younger Canadians (under age 45); those aged 60 and over are the most likely to not support government incentives or to say they are not sure. Support for individual or business purchase incentives is highest in Quebec. Support for all incentives is linked to agreement that vehicle emissions are a major source of climate change and to thinking that switching to an EV would have a major impact on a household's environmental footprint.

Q7. Below are several possible actions that governments could take to encourage changing to electric vehicles, to reduce transportation emissions. Which actions, if any, would **you** support ...?



# Appendix: Questionnaire

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World Wildlife Fund-Canada  
Electric Vehicle Survey  
Final Questionnaire

Online survey with n=1,000 Canadians aged 18+

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1. Which, if any, of the following sustainable transportation options do you use on a regular basis to get to work, school or appointments?

Please select any that apply

RANDOMIZE OPTIONS BUT LEAVE DO NOT USE ANY AT END (SINGLE MENTION)

- 01 - Public transit
- 02 - Carpooling
- 03 - Biking
- 04 - Walking
- 05 - Electric vehicle (fully electric, one that plugs in)
- 06 - Hybrid vehicle (partially electric) or other alternative fuel
- 07 - Carsharing (renting cars by the hour when you need them)
- 08 - I do not use any of the above on a regular basis

2. What is your experience with electric cars? By electric cars we mean ones that *plug in to electric outlets*, not hybrids with a gas engine that can also charge a battery.

Please select any that apply

NO EXPERIENCE IS SINGLE MENTION

- 01 - I've driven one
- 02 - I've been a passenger in one
- 03 - I've seen one in person at a dealership or out on the street
- 04 - I've seen a commercial for them
- 05 - I've seen articles about them in magazines or on TV or radio
- 06 - I have no experience with plug-in electric cars

3. From what you have heard, how much could an average household reduce its impact on the environment by switching from a conventional vehicle to an electric vehicle?

Please select one response

- 01 None at all - 0%
- 02 A little - 5 to 10%
- 03 A moderate amount - 20 - 40%
- 04 Quite a lot - 50 to 70%
- 05 A great deal - over 70%
- 99 - Not sure

4. When do you think electric vehicles will be a viable alternative to conventional vehicles?

Please select one response

- 01 - They already are a viable alternative
- 02 - Very soon - only a few issues need to be addressed
- 03 - I think it will be some time before the technology matures and charging infrastructure is ready
- 04 - Never - I don't believe electric vehicles will ever be viable
- 99 - Not sure

5. Which of the following do you think is the *biggest* barrier to more people switching to electric vehicles?

Please select one response

RANDOMIZE

- 01 - Purchase price of the vehicle
- 02 - Electricity cost for charging the battery
- 03 - Ongoing maintenance costs
- 04 - The distance an electric vehicle can travel on a charge
- 05 - How long it takes to charge the battery
- 06 - Lack of availability of charging stations
- 07 - The size of vehicles available
- 08 - The speed/power of electric vehicles
- 99 - Not sure

6. For each statement below, please indicate if you think it is definitely true, might be true, might be false, or is definitely false.

Please select one response for each item

RANDOMIZE

	Definitely true	Might be true	Might be false	Definitely false
a) Plug-in electric vehicles cost more to purchase than conventional vehicles, but they save money in the long run, because the electricity to run them costs far less than gasoline.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Electric vehicles are not practical for the average person because it takes a very long time to fully charge the batteries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) There are very few public places where you can charge an electric vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) You can plug an electric vehicle into a regular household outlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Below are several possible actions that governments could take to encourage changing to electric vehicles, to reduce transportation emissions. Which actions, if any, would **you** support?

Please select any that apply

NONE OF THE ABOVE AND DON'T SUPPORT ARE SINGLE MENTION

Individual incentives

01 – Financial incentives for individuals to purchase electric vehicles

02 – Rebates on installing home charging stations

Corporate or organizational incentives

03 – Financial incentives for businesses to add electric vehicles to their fleet

04 – Rebates on installing workplace charging stations

Other actions

05 – Rebates on installing public charging stations (e.g., at malls, grocery stores, hotels)

06 – Communications and demonstrations to show the advantages of electric vehicles

98 – I don't support government action on electric vehicles

99 – Not sure

8. How much do you agree or disagree with each of the following statements?

Please select one response for each item

RANDOMIZE STATEMENTS

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Not sure
a) Vehicle emissions in Canada are a major source for climate change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Knowing that a company uses electric vehicles in their fleet would make me feel more positive about that company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Electric vehicles are a good option for people who do most of their driving in towns or cities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) There will never be enough electric vehicles in use to really do anything to fight climate change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I am not interested in electric vehicles because they are only available in models that are small.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I would never drive an electric vehicle because I would be afraid it would run out of power and I'd be stranded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) If the opportunity arose I would be very interested in renting an electric vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Electric vehicles aren't cleaner than regular vehicles because creating the electricity to power them creates emissions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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