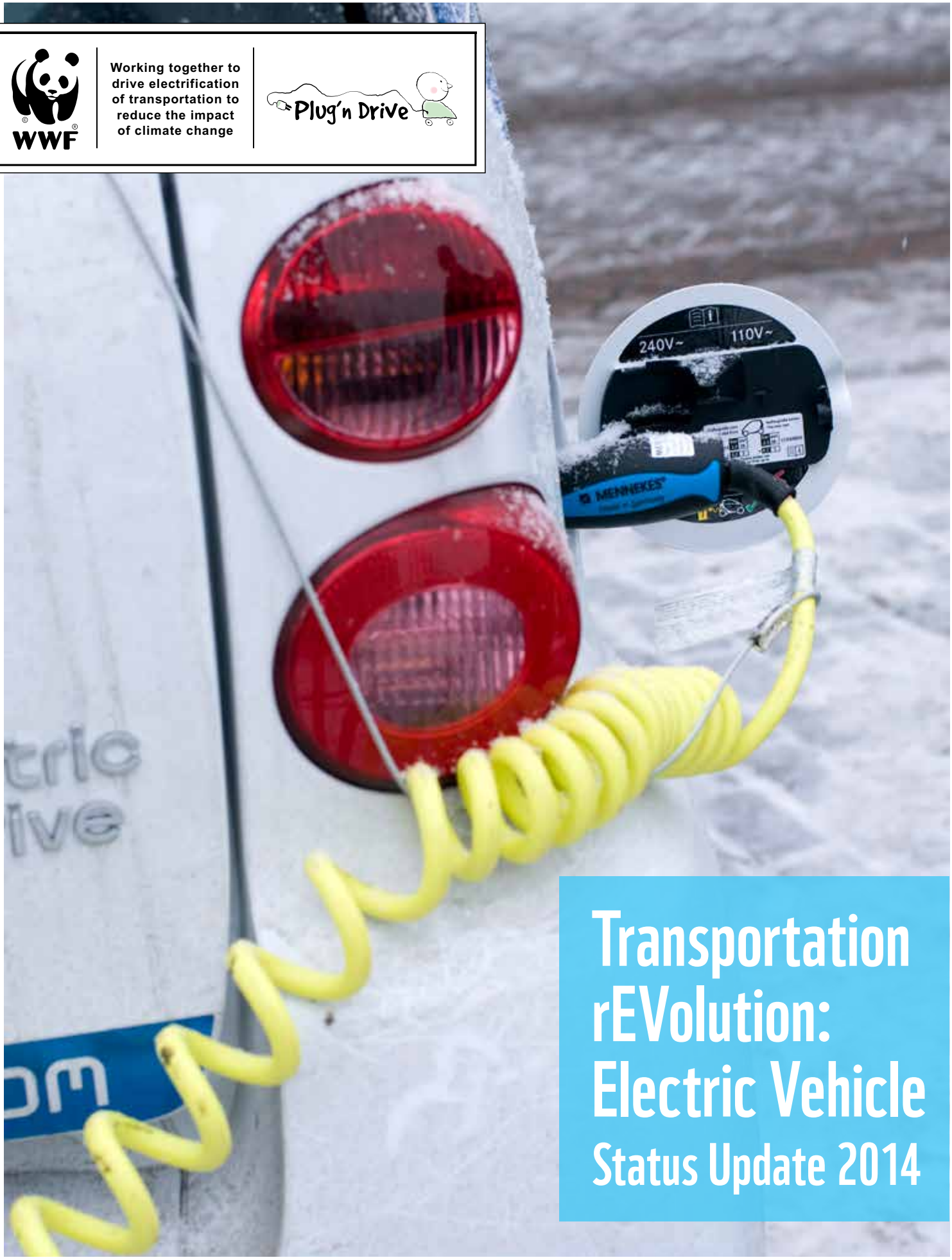
Working together to drive electrification of transportation to reduce the impact of climate change

Plug'n Drive



Transportation rEVolution: Electric Vehicle Status Update 2014

CONTENTS

WWF-Canada would like to recognize the McLean Foundation, The Ontario Trillium Foundation, and Fairmont Hotels and Resorts for their generous support of our sustainable transportation work. The Ontario Trillium Foundation is an agency of the Government of Ontario. Front cover photo © 2012 / WWF-Canada

Published in October 2014 • WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

WWF-Canada and Plug'n Drive would like to thank Electric Mobility Canada for acting as an advisor to this report. For more information on Plug'n Drive, visit www.plugndrive.ca.

Ontario Trillium Foundation
Fondation Trillium de l'Ontario

INTRODUCTION:

Climate change is the number one threat facing species and habitats today. Curbing climate change means drastically reducing greenhouse gas emissions (GHG). In Canada, 28 per cent of these emissions come from transportation and one of the biggest culprits is the car. That is why WWF, in partnership with Plug'n Drive, is promoting the switch to electric vehicles (EVs). EVs are far more efficient than conventional cars and if the electricity that powers them comes from renewable sources—as it does across much of the country—the benefits are even greater.

In 2012, WWF challenged Canadians to achieve the goal of 10 per cent of new vehicle sales being electric by 2020. This would total nearly 600,000 electric vehicles. We knew it was an aggressive target, but we also knew that preventing dangerous climate change required aggressive action. To achieve this target, we identified key pathways to create the ideal conditions for Canadian uptake of electric vehicles:

- **Competitive Pricing:** Price is not a barrier for consumers to choose an EV over a conventional vehicle.
- **Charging Infrastructure:** Barriers to home charging are mitigated and EV drivers have access to charging infrastructure while on the road through 30,000 workplace and public locations by 2020.
- **Public Awareness and Experience:** Canadians believe that EVs are a viable option for their lifestyles.
- **Availability:** Canadians have access to a full range of EVs to rent, buy, or share.
- **Environmental Benefits:** Increased production of renewable electricity further improves the benefits of EVs.

In 2013, we saw a massive uptick in public charging infrastructure—led by the government of British Columbia and the Quebec provincial utility Hydro Quebec—and we identified the need for increased public education across the country.

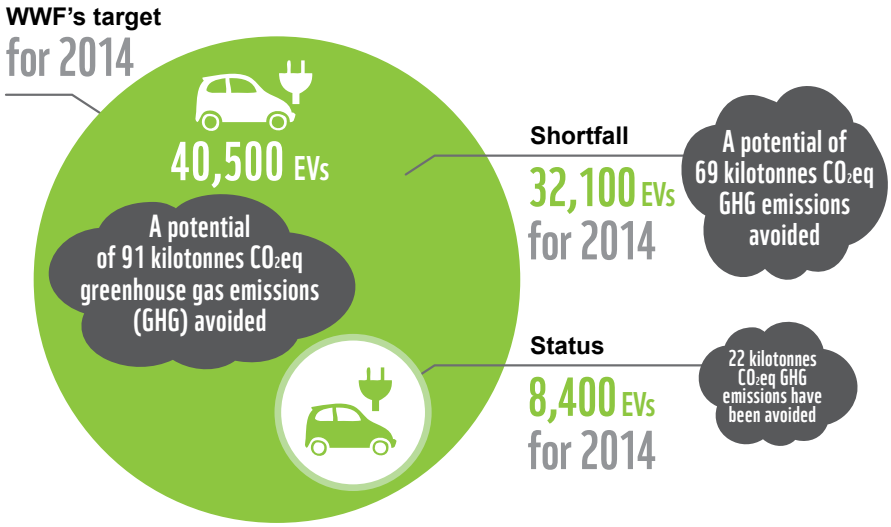
This year, we have partnered with Plug'n Drive on this second status update to ensure credibility and consensus on Canada's continuing progress in electrification of personal transportation.

MEASURING PROGRESS:

Canadian demand for electric vehicles continues to escalate, with EV sales growing nearly 80 per cent from September 2013 to August 2014 compared to the previous year.[1] Public awareness and experience with EVs are up—as is the belief that EVs are a viable alternative to conventional vehicles.

However, Canada is still lagging behind the challenge WWF set for it. By not keeping pace with places like California and Norway, Canada has missed avoiding the equivalent of 67 kilotonnes (kt) of CO_2eq.[2] Although this gap may be relatively small now, it will continue to grow exponentially if we do not catch up. The escalating threat of climate change means we cannot rest on our early accomplishments, but must push forward to achieve the full emissions reductions promised by renewably powered electric transportation.

CANADA



Our slower adoption rates are not due to a failure in technology because much higher uptake is evident in California. Nor is it due to our colder climate because one in every eight cars purchased in Norway are now electric and are powering through their winters.[3] This status update examines where Canada stands on a number of metrics that influence EV adoption—price, charging infrastructure, awareness, availability, and environmental benefits—using the following grading system:

- **Powered Up**—Among the leaders
- **Charging**—Showing good progress but lagging behind global leaders
- **Energy Needed**—Progress is lacking
- **Data Deficient**—There is not enough information to evaluate progress

Our status update also compares Canada's progress with leading jurisdictions and looks at the high uptake of EVs in certain Canadian provinces to identify best practices that should be mirrored across the country.

NATIONAL OVERVIEW:

Let's start by comparing Canada with California and Norway—two jurisdictions leading the world in EV adoption. Even in the Canadian adoption hubs of British Columbia, Ontario, and Quebec, proportional EV numbers lag significantly behind California and Norway.

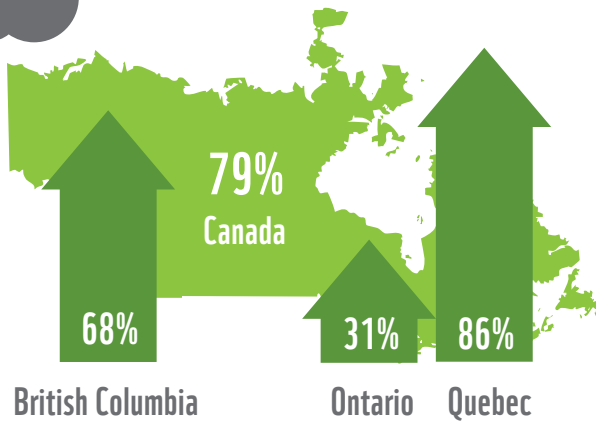
CANADA

8,429 EVs on the road to date

22 kilotonnes CO_2-eq. GHG emissions avoided

Cars sold this year	EV	Regular cars
Canada	4,340	1 : 174
BC	704	1 : 104
ON	1,244	1 : 224
QC	2,146	1 : 114

EV sales growth this year



NORWAY EV global leader

35,902 EVs on the road to date

Cars sold this year	EV	Regular cars	EV sales growth this year
22,905	1 : 8		175%

CALIFORNIA EV global leader

102,440 EVs on the road to date

Cars sold this year	EV	Regular cars	EV sales growth this year
50,304	1 : 34		43%

In the pages that follow, we discuss some of the reasons for the shortfall and also recognize the areas where various provinces and Canada as a whole have seen good progress this year.

COMPETITIVE PRICING

There is growing proof that EVs provide good value to consumers. Between good purchase incentives in some provinces, MSRPs that are dropping, low maintenance costs, and comparatively low electricity costs, research[5] and owner claims[6] show that EVs will save their owners money despite higher purchase costs.

Goal:	• Price is no longer a barrier for consumers to choose an EV over a conventional vehicle.
Status:	• Charging.
Success:	• Ontario and Quebec offer EV buyers incentives of up to $8,500.* • British Columbia's carbon tax means EV drivers save even more money on their vehicle's operation compared with conventional gas-powered vehicles. • Next-generation EVs are 11 to 17 per cent cheaper for consumers.[4]
Threats:	• British Columbia's incentive program was allowed to expire in March 2014. • Price is still named as Canadians' number one barrier to purchasing an EV.
Needs Improvement:	• Canadians outside Ontario and Quebec do not have access to incentives to buy EVs. • Governments and businesses should consider other opportunities to encourage EV uptake that have been successful in other jurisdictions, such as carbon pricing, preferential parking costs, and reduced road tolls.

*All figures are in Canadian dollars unless otherwise stated.

Not only is there proof that EVs can be cheaper than conventional vehicles, it appears that more Canadians are recognizing this. A recent poll by WWF-Canada found that 33 per cent of Canadians believe that it is definitely true that electric vehicles will save money in the long run, and an additional 56 per cent believe that it is likely true.[7]

Unfortunately, based on past experiences with hybrid technologies, we know that future cost savings on fuel are regularly ignored by vehicle purchasers.[8] As a result, a higher purchase price will still deter interested potential EV owners. This reality was demonstrated in our recent survey. Although most Canadians believe an EV will eventually pay off with cheaper energy prices, they also chose the higher purchase price as the number one barrier preventing them from considering an EV.[9]

Canadians realize that transportation-related greenhouse gas emissions are a significant problem and express support for government programs that promote

electric vehicles; specifically, 77 per cent of Canadians support government-issued purchase incentives and residential charging incentives.[10]

In the past year, the government of British Columbia allowed their $5,000 electric vehicle purchase incentive to expire. Although sales have continued in that province, some analysts have compared this flat line in demand with Ontario and Quebec, where uptake has increased since March 2014, and have concluded that the incentive likely was responsible for 50 per cent of the EV sales in British Columbia.[11] We believe it is still too early to judge the impact of the British Columbia incentive, although comparison with the leading countries, Norway and California, show that incentives are key to achieving significant results.

In Norway, a country where EVs account for 12.9 per cent of car sales, the high rate of EV uptake has been attributed to pricing policies. This includes tax break incentives, gas taxes, free parking, and free access to high-occupancy vehicle (HOV) and toll lanes. All these incentives total between US$3,000 to US$8,000 per year.[12]

In California, a state where EVs account for three per cent of car sales, EV uptake has been linked to both federal and state incentives (US$7,500 and US$2,500, respectively) and access to HOV lanes. In a state with significant traffic congestion issues, a shorter commute provides a priceless benefit—free time.

RECOMMENDATIONS:

Federal Government: Follow the U.S. government's lead and introduce a purchase incentive that provides opportunities for all Canadians to choose a lower-emission electric vehicle.

Provincial Government: Maintain/introduce purchase incentives that support federal incentives.

Municipalities: Offer preferential parking (either reserving spaces or reducing parking costs) for EV drivers.

CHARGING INFRASTRUCTURE

In 2013, we saw an increase in public charging infrastructure in Canada supported by provincial incentives, utility leadership, and corporate piloting. In 2014, this growth slowed to only a 19 per cent increase in infrastructure nationwide.[13] With roughly 1,500 total public charging points in Canada,[14] compared to 4,500 in California[15] and nearly 6,000 in Norway,[16] it is clear that continued growth is needed.

Goal:	• Barriers to home charging are mitigated and EV drivers have access to charging infrastructure through 30,000 workplace and public locations by 2020.
Status:	• Energy needed.
Success:	• Introduction of the first fast-charging stations are building the basic network needed for longer-distance travel. • Green building standards in leading municipalities ensure future developments include options for EVs.
Needs Improvement:	• Stalling growth of infrastructure in most provinces after early growth in previous years. • Building codes and acts governing condominiums must provide guidance for ensuring EV charging in the future.

There was a definite slowdown in charging infrastructure across Canada this year, yet Ontario continues to lag far behind British Columbia and Quebec in terms of total numbers and per capita numbers for public infrastructure. To address this dearth of infrastructure, regional alliances of municipalities, non-governmental organizations (NGOs), and local businesses have begun working together to develop plans for a baseline network of infrastructure. Although we have little to report this year, these alliances may provide important models for how to grow infrastructure in the absence of incentives or a provincial utility. However, for the time being, Ontario continues to suffer from a lack of these two components.

Another development in Canada this year was the opening of multiple fast-charging stations that allow owners of compatible EVs to charge their vehicle at a much faster rate. The current Canadian leaders on fast-charging infrastructure are the government of British Columbia and Tesla Motors. In January 2013, the government of British Columbia announced a $1.3 million investment in fast-charging infrastructure in 13 communities in the province[17] bringing their number

of fast-charging ports to a total of 16. Tesla Motors currently have three Canadian locations—two of which are in Ontario and account for most of the 16 fast-charging ports—with plans for four additional locations to open soon.[18] It is important to note, however, that these Supercharging locations are only accessible to Tesla owners and are not universally supportive of EV technology.

Total public charging points

BC	700	11%
ON	400	11%
QC	530	30%
Canada	1,850	19%

Growth this year

Comparing Canada's 33 fast-charging ports to California's 246 and Norway's 177 demonstrates the need for further action and leadership to support Canadian EV owners.[19-21]

In the United States, the federal government offered tax credits to homeowners and commercial businesses for installing infrastructure. Starting at 50 per cent of the cost of purchase and installation (up to US$2,000 for individuals and US$50,000 for businesses) in 2010, it was reduced for 2011 to 2013 to 30 per cent of the cost (up to US$1,000 for individuals and US$30,000 for businesses).[22]

RECOMMENDATIONS:

Federal: Develop tax credits or incentives to encourage municipalities, workplaces, and retail to install public charging stations.

Manufacturers: Collaborate to support an interoperable charging network.

NGOs: Work regionally with municipalities and businesses to develop a local support network.

Provinces: Update building codes and condominium/strata acts to provide guidelines for EV infrastructure at home.

Ontario: Consider applying the charger rebate program to commercial installs without the need for an associated EV purchase, at least until Ontario hits 1,000 stations.

Municipalities: Install charging points at municipal buildings and parking lots and consider updating bylaws to require rough-ins for charging infrastructure in new buildings.

PUBLIC AWARENESS AND EXPERIENCE

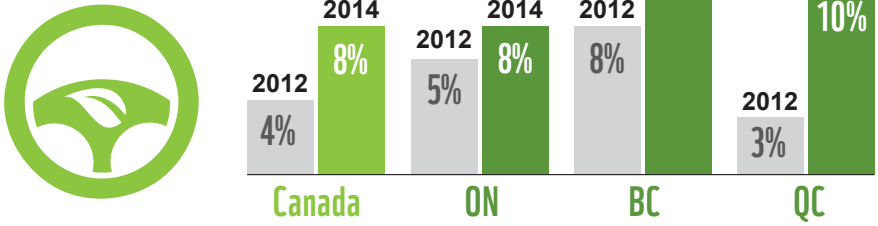
In September 2014, WWF surveyed Canadians to assess their familiarity with EVs and to evaluate how things have changed since our baseline survey in 2012.[25] In 2012, we saw that few (28 per cent) Canadians believed that EVs were viable and that first-hand experience with EVs was very low (7 per cent nationally).[26] We also saw an extremely large proportion of Canadians older than 60 years had virtually no experience with electric cars (58 per cent).[27]

Goal:	• Canadians believe that EVs are a viable option for their lifestyle.
Status:	• Charging.
Success:	• The number of Canadians who believe that EVs are a viable option has grown by 50 per cent.[23]
Needs Improvement:	• Canadians are still missing key information; for example, only 14 per cent know that EVs can be plugged in to a regular outlet.[24]

Two years later, we see some exciting improvements. The number of Canadians who have driven an EV has doubled—with B.C. residents being the most likely to have given an EV a spin (12 per cent).[28] We still see a significantly high proportion of seniors being unfamiliar with EVs (59 per cent), but other age groups are becoming increasingly familiar.

Even more impressive is the increasing belief that EVs are a viable alternative to conventional vehicles. In 2012, 10 per cent of people thought EVs were already a viable alternative and 18 per cent thought they would be very soon (total of 28 per cent), those numbers have increased by more than 50 per cent. Today, 17 per cent think EVs are already a viable alternative and 25 per cent believe they will be shortly. Perhaps due

Growth in EV driving experience over last two years



to the amount of infrastructure, people in British Columbia and Quebec are most likely to believe that EVs are viable today and people in Ontario are the most likely to believe that they will be viable very shortly.

Finally, more Canadians are recognizing the environmental problems associated with gas-powered vehicles and believe that EVs are a cleaner alternative. Only 34 per cent of Canadians (down from 41 per cent) are somewhat concerned about upstream emissions.

Despite the positive trends, there are some popular opinions which have remained the same, indicating the need for continued progress in Canada to overcome barriers:

- The vast majority (92 per cent) of all Canadians believe that there are very few places to charge electric vehicles.
- Only 14 per cent of Canadians know that you can plug an electric vehicle into a regular household outlet (46 per cent think that you cannot).
- Most (69 per cent) Canadians think that EVs are not practical for the average person because of the length of charge time for batteries.
- One-third of Canadians think that the upstream emissions from electricity generation makes EVs no cleaner than a conventional vehicle.

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RECOMMENDATIONS:

Government and Public Organizations: Increase fleet uptake to demonstrate the viability of EVs, to increase the opportunities for employees to use them, and to increase their presence on Canadian streets.

NGOs: Provide opportunities to try EVs and raise awareness—especially regarding the missing information highlighted previously.

EV Owners: With 8,500 ambassadors in Canada now, EV associations can play a huge role in raising awareness of the technology. Take your neighbours and friends for a spin!

AVAILABILITY

The number of EV models in Canada grew by 65 per cent this year. With even more on the horizon, Canadian drivers have a good selection of options. The Canadian market has also significantly closed the gap on the vehicle models available here compared to California.[29]

Goal:	• Canadians have access to a full range of EVs to rent, buy, or share.
Status:	• Charging.
Success:	• There are currently 14 EV models available in Canada.
Threats:	• Low availability at dealerships means EVs are regionally inaccessible (despite nationally availability).
Needs Improvement:	• Higher supply for dealerships.

Despite these gains, we still see niche sales on many of the models available in Canada. Of the 14 models available, only 4 models sold over 150 vehicles in the past year.[30] Although consumer demand will certainly play a role in this—the Tesla, Volt, and Leaf are the most popular vehicles globally—it is likely that availability of vehicles at dealerships also plays a role.

Based on anecdotal reports of customers encountering barriers to EV purchasing at dealerships (i.e., uninformed or negative salespeople, lack of EVs on site), Plug'n Drive collaborated with My Sustainable Canada to better understand the sales process in EV dealerships. Secret shoppers visited 24 "EV Certified" dealerships in Ontario in early 2014 and found variable levels of EV availability. Some highlights:

- Dealerships were happy and able to provide information to interested customers—82 per cent of shoppers were offered some type of printed materials to take home with them.
- In general, salespeople made encouraging statements almost three times more frequently than negative statements.[31]

Some of the barriers encountered:

- There were no EVs on site at 46 per cent of the certified dealerships. Of those, only 20 per cent were able to direct the customer to a dealership that had an EV onsite.

- Only 50 per cent of certified dealerships had signage or obvious brochures on EVs on hand or available. However, some were willing to use the Internet to access information.
- In a few instances, customers encountered either a lack of enthusiasm from the salesperson (22 per cent) or even flat-out discouragement from purchasing an EV (8 per cent).

Although lack of supply and salesperson education should be addressed, this study showed that, in general, salespeople are not discouraging customers and do attempt to provide appropriate information when prompted. Based on generally positive attitudes, we anticipate that if supplies increase, dealerships will become a good space for raising public awareness.

Higher availability will come from greater demand, as can be demonstrated by Norway's successes. Federal, provincial, and municipal governments can encourage EVs through continued and increased incentives. However, there are U.S. policy examples which also demonstrate the inverse—that higher availability will drive higher demand. Some U.S. states, led by California, have implemented Zero Emission Vehicle (ZEV) regulations which require a specific percentage of car sales to be electric. This regulation, complemented by generous incentive programs, likely has played a role in the significantly higher rate of uptake in those states.

RECOMMENDATIONS

Dealerships and Manufacturers:

- **Ensure easy accessibility to EV models by either increasing supply and distribution to all dealerships or guaranteeing EV availability at fewer dealerships. Provide ongoing training to sales people regarding the benefits of EVs.**
- **Support test driving opportunities within communities.**

Provinces: Consult with manufacturers to set agendas and actions for increasing availability to Canadians.

ENVIRONMENTAL BENEFITS

Electric vehicles are inherently more efficient than conventional vehicles; they produce fewer total greenhouse gas emissions even if the electricity that powers them is generated using fossil fuels. When EVs are powered by clean electricity, as is the case in many Canadian provinces, the environmental benefits are greater still. For example, in provinces that rely predominantly on hydroelectric power, such as British Columbia and Quebec, EVs will reduce lifecycle greenhouse gas emissions by 80 per cent compared to a conventional vehicle of similar size.

Goal:	• Increased production of renewable electricity further improves the benefits of EVs.
Status:	• On track.
Success:	• In most provinces, EVs produce 60 to 80 per cent fewer greenhouse gas emissions over their lifecycle than conventional cars.
Needs Improvement:	• Electric vehicles have fewer environmental benefits in the provinces that rely on fossil fuels to generate electricity.

Overall, Canada has a much greener electricity grid than most countries. However, Alberta, Saskatchewan, and Nova Scotia continue to rely at least partially on fossil fuels such as coal. Shifting to cleaner energy sources, such as hydro, wind, or solar, would enhance the environmental benefits of EVs in those provinces. WWF's goal is to reach 100 per cent renewable energy by 2050.

Meanwhile, car manufacturers can shrink the environmental footprint of EVs still further by improving manufacturing efficiencies, utilizing renewable energy to power their operations, and enacting clear stewardship plans for battery manufacturing, reuse, and recycling. Mining and processing many of the metals used in batteries comes at a high environmental cost, so reusing and recycling batteries at the end of their life minimizes that cost.

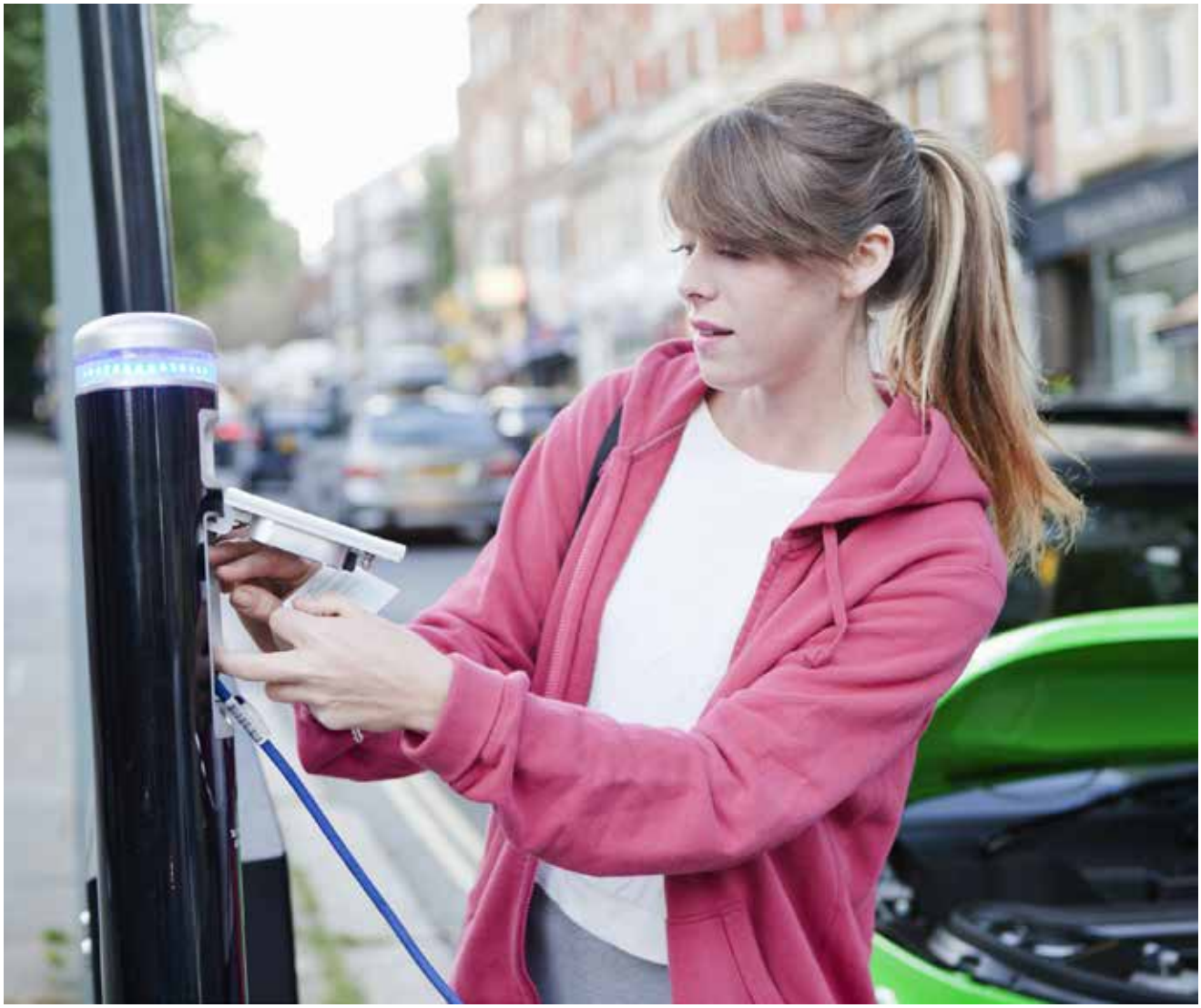
Finally, EVs are just one part of the solution to cutting transportation emissions in Canada. Although they are a better alternative to conventional vehicles for

trips in which personal vehicles are the only viable option, governments should enact sustainable transportation policies that encourage public transit and active forms of transportation whenever possible.

RECOMMENDATIONS

Manufacturers: Put a stewardship plan in place to reduce the effects of manufacturing vehicles as well as collecting, reusing, and recycling batteries from EVs.

Provinces: Set targets and introduce plans to increase renewable electricity generation and offer pricing incentives and education to encourage off-peak charging.



SUMMARY OF RECOMMENDATIONS

FEDERAL GOVERNMENT

1. **Introduce a purchase incentive that provides opportunities for all Canadians to choose a lower-emission EV.**
2. **Develop tax credits or incentives to encourage municipalities, workplaces, and retail to install public charging stations (especially fast-charging stations).**
3. **Increase fleet uptake to demonstrate the viability of EVs, to increase the opportunities for employees to use them, and to increase their presence on Canadian streets.**

MANUFACTURERS

1. **Put a stewardship plan in place to collect, reuse, and recycle batteries from EVs.**
2. **Ensure easy accessibility to EV models by either increasing supply and distribution to all dealerships or guaranteeing EV availability at fewer dealerships.**
3. **Support test driving opportunities within communities.**

NGOS

1. **Provide opportunities for Canadians to try EVs and raise awareness.**
2. **Work regionally with municipalities and businesses to develop a local support network.**

PROVINCES

1. **Maintain or introduce purchase incentives for electric vehicles.**
2. **Increase fleet uptake to demonstrate the viability of EVs, to increase the opportunities for employees to use them, and to increase their presence on Canadian streets.**
3. **Update building codes and condominium/strata acts to provide guidelines for EV infrastructure at home.**
    - **Ontario: Consider applying the charger rebate program to commercial installs without the need for an associated EV purchase, at least until Ontario hits 1,000 charging stations.**

4. **Set targets and introduce plans to increase renewable electricity generation.**
5. **Offer pricing incentives and education to encourage off-peak charging.**
6. **Consult with manufacturers to set agendas and actions for increasing availability to Canadians.**

MUNICIPALITIES

1. **Offer preferential parking (either reserving spaces or reducing parking costs) for EV drivers.**
2. **Install charging points at municipal buildings and parking lots.**
3. **Increase fleet uptake to demonstrate the viability of EVs, to increase the opportunities for employees to use them, and to increase their presence on Canadian streets.**

EV OWNERS

1. **With 8,500 ambassadors in Canada now, EV associations can play a huge role in raising awareness of the technology. Take your neighbours and friends for a spin!**

ENDNOTES

1 Comparing sales numbers from September 2013 to August 2014 (4,340) against numbers from September 2012 to August 2013 (2,424). Data compiled by Plug'n Drive from a number of sources including Polk, OEMs, and M. Klippenstein (greencarreports.com).

2 Projected target for 2014: 40,500 EVs on the road avoiding the equivalent of 91 kt CO_2eq 2014 status: 8,400 EVs on the road avoiding the equivalent of 22 kt CO_2eq (achieving 22 per cent of our challenge). 2014 shortfall: 32,100 EV and the equivalent of 69 kt of CO_2. The CO_2 calculations are based on lifecycle emissions provided in Natural Resources Canada's GHGenius. WWF methodology can be found:
WWF-Canada. (2012). Greenhouse Gas Reduction Potential of Electric Vehicles: 2025 Outlook.
http://awsassets.wwf.ca/downloads/wwf_ev_report_2012.pdf.

3 Calculated based on reported EV sales of 12.9 per cent by Norsk Elbilforening:
(http://www.elbil.no/nyheter/elbiler/3317-snart-10-000-nye-elbiler-registrert).

4 Calculated based on reduction in MSRP costs from Chevrolet Volt: $36,895 in 2014 vs. $41,545 in 2011 (an 11 per cent reduction) and from the Nissan Leaf: $31,798 in 2014 vs. $38,395 in 2011 (a 17 per cent reduction).

5 Pollution Probe. (2013). Business Case for Electric Vehicle Use in Service Vehicle Fleets.
http://www.pollutionprobe.org/publications/Project-EVAN-Final-Report-June-2013.

6 Cohen, J.B. (2013). Clean Technica.
http://cleantechnica.com/2013/12/27/2013-chevrolet-volt-1-year-cost-ownership-review/.

7 Environics Research Group. (2014). Electric Vehicle Survey.
http://awsassets.wwf.ca/downloads/environics___wwf_electric_vehicles_survey_report___sept_25_2014.pptx

8 Turrentine, T., Kurani, K., & Heffner, R. (2007). Fuel economy: What drives consumer choice? Access, 31, 14–19.
http://www.uctc.net/access/31/Access%2031%20-%2004%20-%20Consumer%20Choice.pdf.

9 Environics Research Group. (2014). Electric Vehicle Survey.
http://awsassets.wwf.ca/downloads/environics___wwf_electric_vehicles_survey_report___sept_25_2014.pptx

10 Environics Research Group. (2014). Electric Vehicle Survey.
http://awsassets.wwf.ca/downloads/environics___wwf_electric_vehicles_survey_report___sept_25_2014.pptx

11 Klippenstein, M. (2014). Green Car Reports.
http://www.greencarreports.com/news/1094468_when-electric-car-incentives-expire-a-case-study-in-canada

12 Grønn Bil. (2013). Norwegian EV Benefits. http://www.gronnbil.no/nyheter/highly-misleading-figuresregarding-norwegian-ev-benefits-in-reuters-article-article326-239.html.

13 From 1,119 L2 charging heads in August 2013 to 1,328 L2 charging heads in August 2014. Numbers sourced from Mogile Technologies (http://www.mogiletech.com/).

14 According to Mogile Technologies there are 1,328 L2 public charging stations in Canada. CAA has counted 1,854 charging stations in Canada (http://www.caa.ca/evstations/).

15 Numbers sourced from Mogile Technologies (http://www.mogiletech.com/).

16 Numbers sourced from Grønn Bil (http://www.gronnbil.no/ladepunkter/?redirect=invalidurl).

17 Ministry of Environment, Government of British Columbia. (2013).
http://www2.news.gov.bc.ca/news_releases_2009-2013/2013ENV0002-000067.htm.

18 Tesla Motors (http://www.teslamotors.com/supercharger).

19 Numbers sourced from Mogile Technologies (http://www.mogiletech.com/).

20 Numbers sourced from Mogile Technologies (http://www.mogiletech.com/).

21 Numbers sourced from Grønn Bil (http://www.gronnbil.no/ladepunkter/?redirect=invalidurl).

22 Chambers, N. (2010, December 17). BREAKING: Electric Car Charging Station Tax Credit Extended, But at Lower 30% Pre-Stimulus Levels. http://www.plugincars.com/breaking-electric-car-charging-station-tax-credit-extended-lower-30-pre-stimulus-levels-106580.html.

23 In 2012, 28 per cent of Canadians thought that EVs were a viable option. In 2014, that number increased to 42 per cent. Environics Research Group. (2014). Electric Vehicle Survey.

24 Environics Research Group. 2014. Electric Vehicle Survey.
http://awsassets.wwf.ca/downloads/environics___wwf_electric_vehicles_survey_report___sept_25_2014.pptx

25 WWF-Canada. (2012). Electric Vehicle Survey.
http://awsassets.wwf.ca/downloads/wwf_electric_vehicles_survey_report___sept_21_2012.pdf.

26 "First-hand experience" includes driving or riding in an electric car.

27 "No experience" was defined by not seeing one in person or references to them in the media.

28 Four per cent of Canadians had driven an EV in 2012. In 2014, that number is now eight per cent.

29 In 2013, Canadians had access to 9 EV models vs. 16 models in California. In 2014, Canadians have access to 14 models vs. 18 models in California.

30 Chevy Volt: 1,416; Nissan Leaf: 741; Tesla Model S: 640; Smart ForTwo: 432. Note: it is possible that the Ford Energi models (Fusion and C-Max) and/or the Toyota Prius PHV have sold over 150 models, but these numbers are not reported publicly.

31 Encouraging statements included lower maintenance costs (mentioned 40 per cent of the time), lower operating costs and better fuel economy (60 per cent), and the Ontario subsidy for EVs (60 per cent). Negative statements included limited battery capacity (35 per cent of the visits), limited access to charging stations (20 per cent), and high up-front cost (20 per cent).

Transportation by the Numbers

28%

Transportation is the most significant contributor to GHG emissions in Canada, accounting for 28 per cent of the total emissions in 2009.

35%

Road transportation emissions have increased by 35 per cent since 1990, second only to GHG emissions growth from the Canadian oil sands industry

270 grams

The average private automobile emits 270 grams of CO_2eq emissions per passenger kilometre travelled

65%

Light-duty vehicles make up 65 per cent of road transportation emissions

Plug'n Drive is a non-profit organization committed to accelerating the adoption of electric vehicles (EV) to maximize their environmental and economic benefits. www.plugndrive.ca.