



# The Voice of the Canadian Electric Vehicle Driver



# Methodology

A survey was conducted from November 21 to December 11, 2022, among Canadian residents to understand their preferences and experiences with their electric vehicles. A total of 16,232 EV drivers were sampled across all provinces and territories (see distribution on the right).

In addition, select slides where noted include data from PlugShare's profiling questionnaire administered to our panel of 12,551 Canadian EV drivers.

To better understand driver behavior, data was analyzed by vehicle type – comparing battery-electric vehicles (BEVs) that operate solely on battery charge with plug-in hybrid electric vehicles (PHEVs) that operate using both plug-in battery power and internal combustion.

Data that combined PHEV and BEV drivers was weighted to reflect the composition of the installed base using EV vehicle sales data.

[This project was funded by the FIA.](#)

Province/Territory	Sample size (n)
Alberta	1010
British Columbia	5620
Manitoba	330
New Brunswick	214
Newfoundland & Labrador	82
Nova Scotia	416
Ontario	4911
Prince Edward Island	108
Québec	3313
Saskatchewan	220
Northwest Territory	4
Yukon	4

# OWNERSHIP SATISFACTION

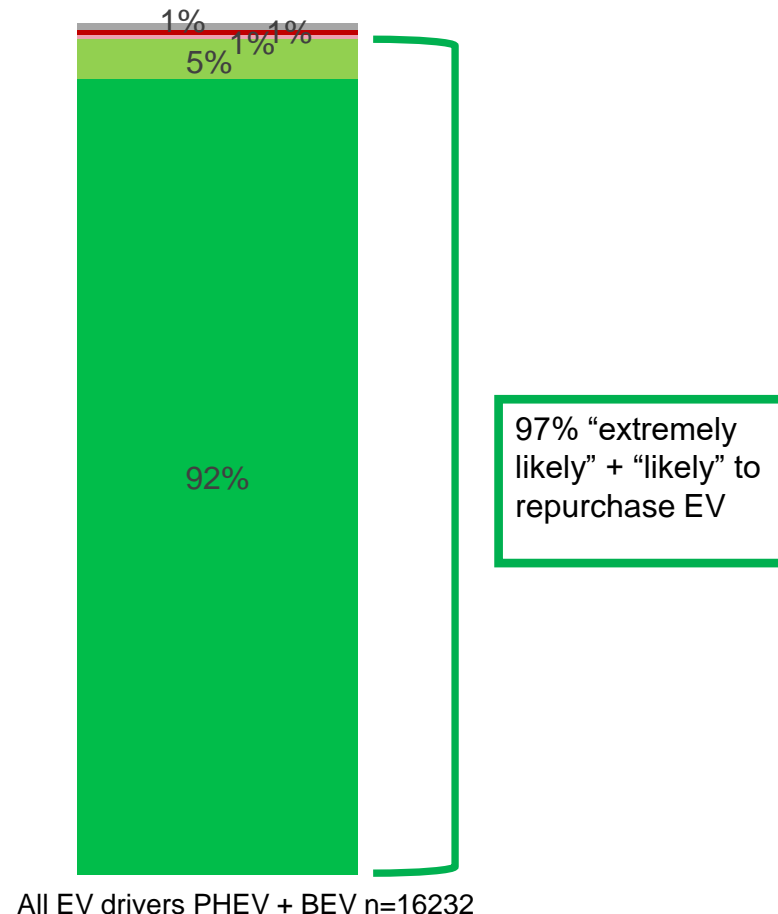


# EV repurchase intent: a one-way street

When it is time to replace your vehicle,  
how likely are you to replace it with  
another EV?



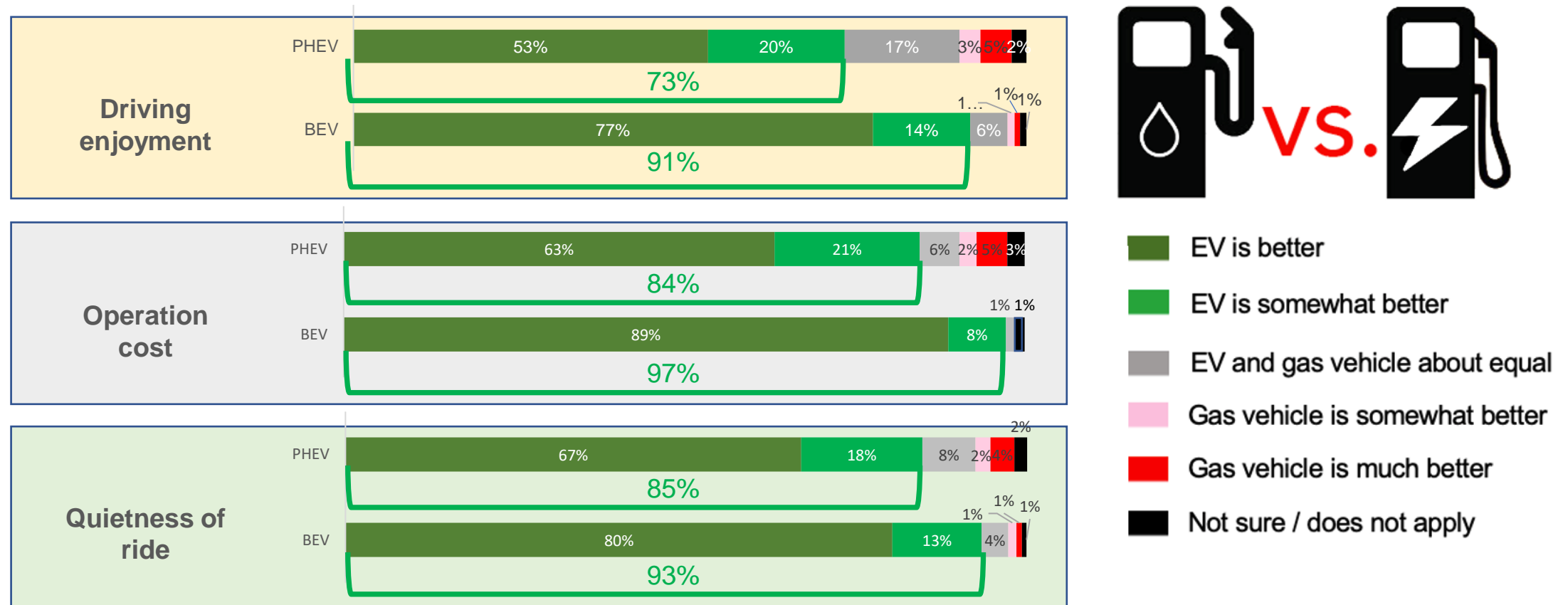
- Not sure/ Don't know
- Highly unlikely
- Somewhat likely
- Somewhat likely
- Highly likely



A key measure of high satisfaction: Canadian EV drivers have an extremely high likelihood of selecting another EV when the time comes to replace their existing EV.

There were no significant differences between BEV and PHEV or by province (see appendix).

# Comparing EVs to a gas/hybrid (non-EV) vehicle



BEV n=14097 PHEV n=2135

Compared to their experience with gas/hybrid vehicles, EV drivers rate their vehicles consistently higher on 3 key ownership experience dimensions: overall **driving enjoyment**, **operation cost**, and the **quietness of the ride**.

# Likelihood to recommend an EV (Net Promoter Score) is extremely high

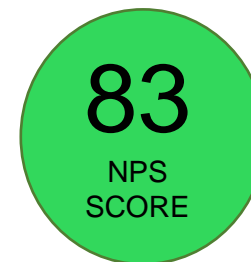
A Net Promoter Score (NPS) is a widely used market research metric based on a single survey question asking respondents to rate the likelihood that they would recommend a company, product, category of products, or service to friends/family/colleagues. NPS scores range from -100 to 100 and are generally interpreted on the following scale:

**Above 0: good      Above 20: favorable      Above 50: excellent      Above 80: world class**

## CANADIAN EV DRIVERS NPS: LIKELIHOOD TO RECOMMEND AN EV



**BEV**  
n=3000

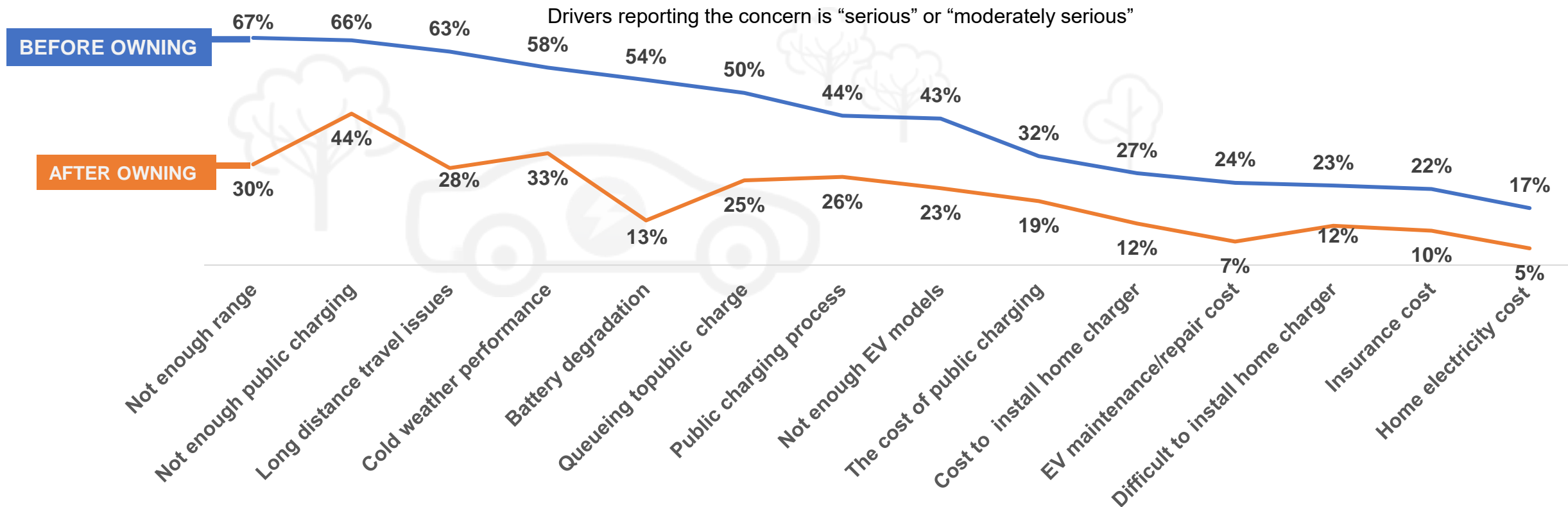


**PHEV**  
n=466

Source: PlugShare  
Canadian EV driver panel

**Finding:** Canadian drivers give EVs *extraordinarily* high NPS scores, all falling into the “world class” category. Most remarkable is the rarified NPS score of 91, given by Tesla drivers.

# BEV: Concerns about owning an EV pre- and post- purchase

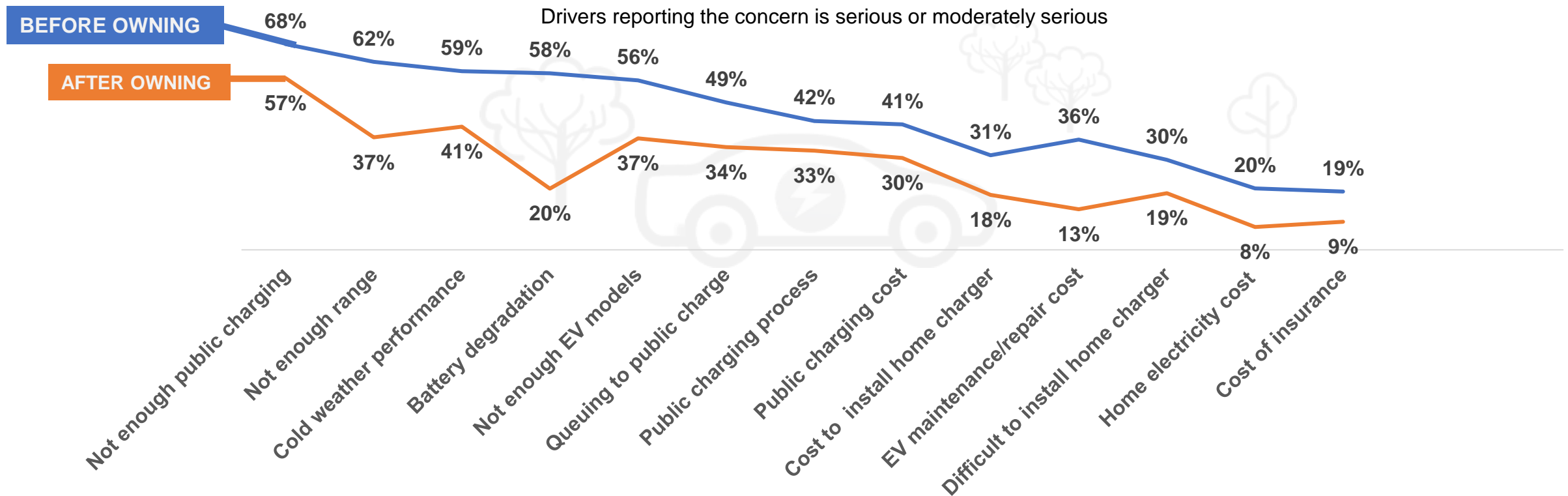


Questions: BEFORE buying your first EV, which of the following (if any) were concerns you had about owning an EV? SINCE owning your EV, how would you say you feel about these concerns now?

We asked drivers to rate the level of their pre-purchase concerns, then asked them to rate their post-purchase concerns once they had actual ownership experience. This chart shows pre/post ratings for “serious or moderately serious” concerns for Canadian BEV drivers.

In all cases, ongoing concerns dropped dramatically in all 14 categories once the driver had hands-on ownership experience. Concerns about public charging availability, however, remain relatively higher than all other issues.

# PHEV: Concerns about owning an EV pre- and post- purchase



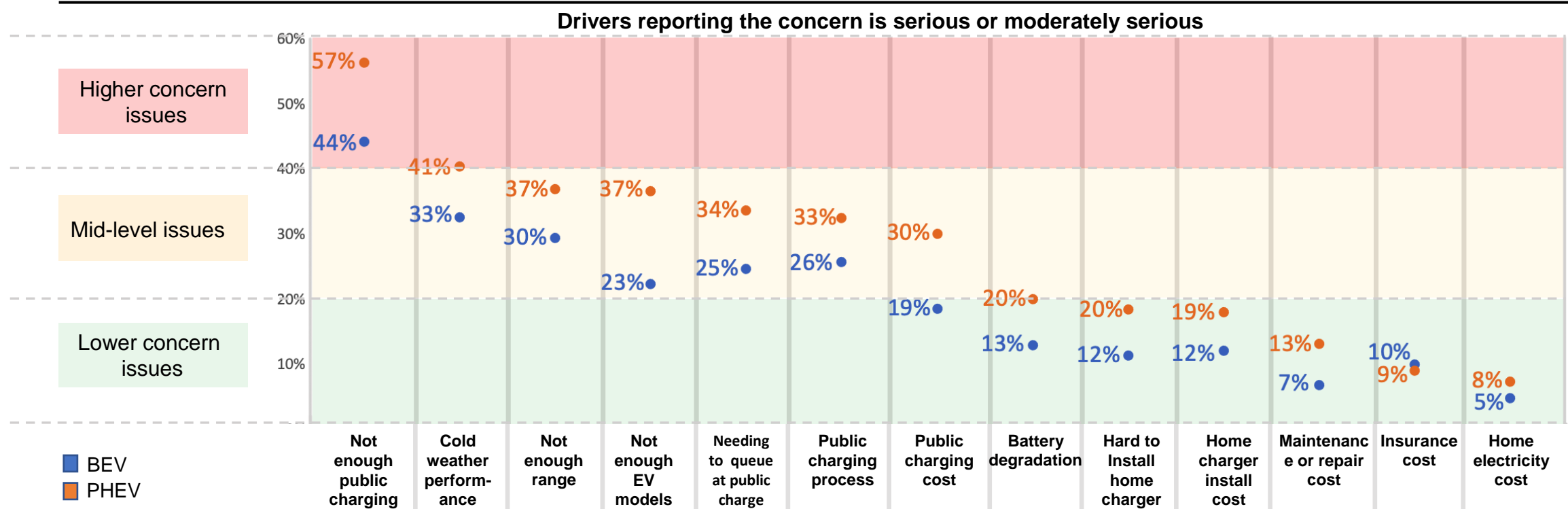
BEFORE buying your first EV, which of the following (if any) were concerns you had about owning an EV? Since owning your EV, how would you say you feel about these concerns now?

We see a similar pattern for drivers of PHEVs. In all cases, the pre-purchase concerns declined markedly once the driver had post-purchase experience. Note, however, the pre-to-post ownership drop in level of concern for the rated issue was lower than we saw for BEV drivers.

Also noteworthy: once again, the top post-purchase concern is **not enough public charging**.



# Post-purchase concerns for BEV and PHEV owners, by concern level

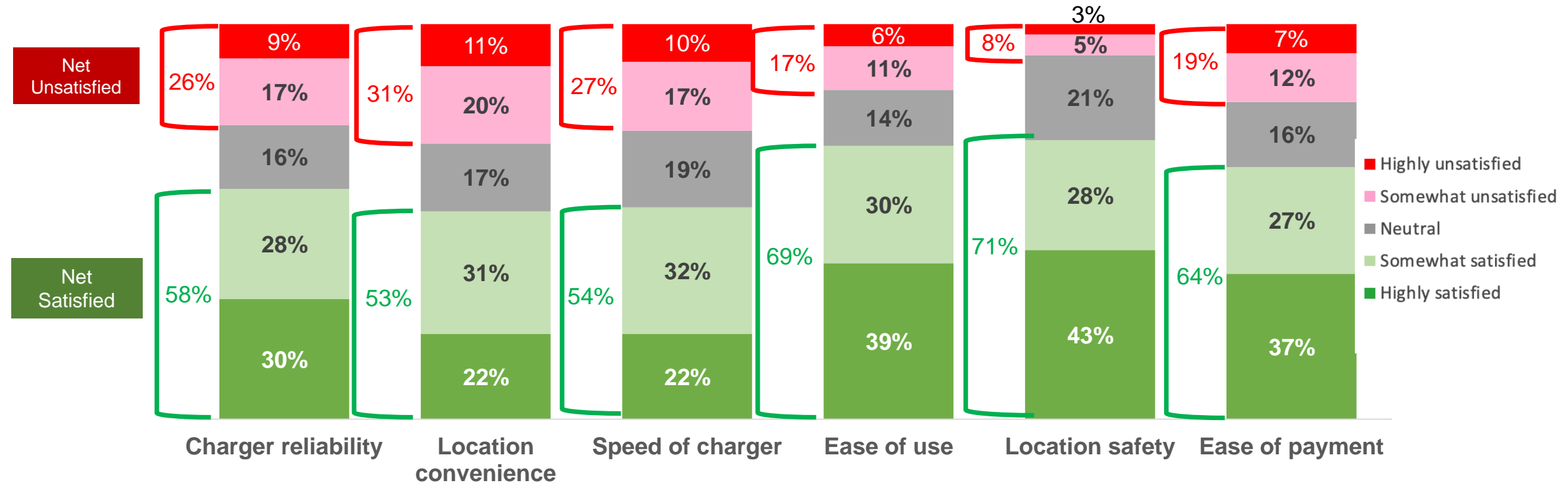


This chart sorts post-purchase concern issues into 3 groups, comparing PHEV and BEV drivers. **In the “higher concern” group we see that 57% of PHEV drivers and 44% of BEV drivers cite not enough public charging as the top concern, a key red flag.** The #2 issue, cold weather performance, was also cited by a concerning 41% of PHEV drivers and 31% of BEV drivers. Mid-level concerns include not enough range, not enough EV models, needing to queue at public charging, public charging process and public charging cost.

## DEEPER DIVE: PUBLIC CHARGING SATISFACTION

# Public Level 2 Charging Satisfaction (BEV + PHEV)

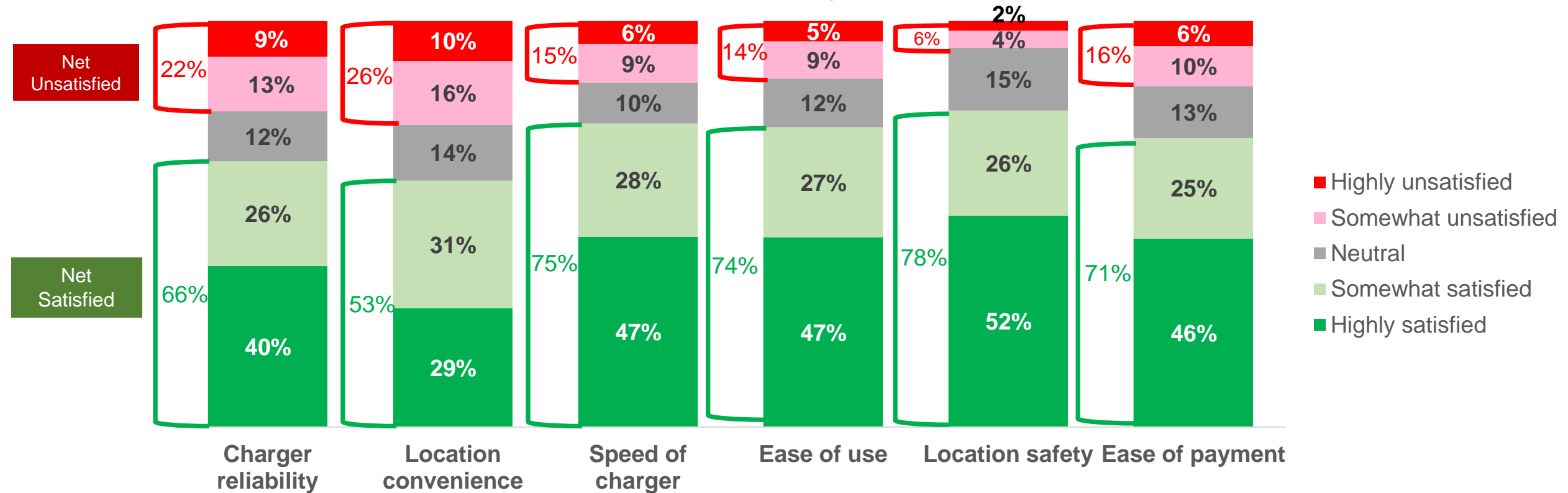
How satisfied are you with the following aspects of PUBLIC LEVEL 2 CHARGING?



This chart looks at 6 key markers of satisfaction with public Level 2 charging. As shown, in all cases, drivers rated Level 2 charging satisfaction positively in over 53% of cases. However, for **charger reliability**, **location convenience**, and **speed of charger**, more than 1-in-4 drivers rated Level 2 charging satisfaction negatively, a potential red flag and a factor to watch for in future studies.

# BEV only: Public DC Fast Charging Satisfaction

How satisfied are you with the following aspects of PUBLIC DC FAST CHARGING?

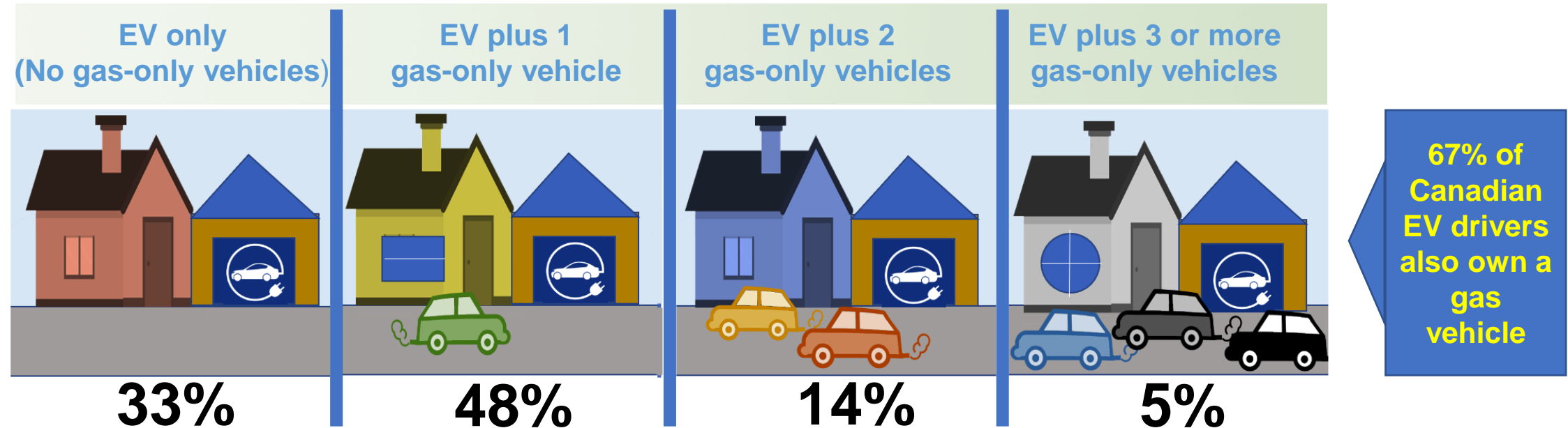


This chart looks at BEV drivers and 6 key markers of satisfaction with public fast charging. (With rare exceptions, currently only BEVs are fast-charge capable). Net satisfaction levels for all factors are markedly higher for public fast charging when compared to public level 2 charging, with the sole exception of [location convenience](#) (which is on par with level 2 ratings).

# LONG DISTANCE TRAVEL



# Presence of gas vehicles in Canadian EV households



67% of all Canadian EV drivers also have access to a gas-only vehicle.

That means that when it's time to make a long-distance trip, most of them have a choice between driving their EV or taking a gas vehicle instead. Accordingly, one important marker of a BEV driver's confidence in public fast-charging infrastructure is the degree to which they prefer to use electric fuel over gasoline when journeying far from home, something we will discuss next.

All EV drivers PHEV + BEV n=16232

# Canadian Tesla drivers show more confidence in fast-charging infrastructure for taking long distance trips than non-Tesla BEV drivers do



We identified BEV drivers who also had access to a gas vehicle at home and asked them to react to 2 statements designed to gauge their confidence in public fast charging infrastructure for the purpose of taking long distance journeys.

62% of Tesla BEV drivers *did not agree* that it's preferable to take a gas car instead of their EV on a long journey, while conversely, 47% of non-Tesla drivers *agreed*.

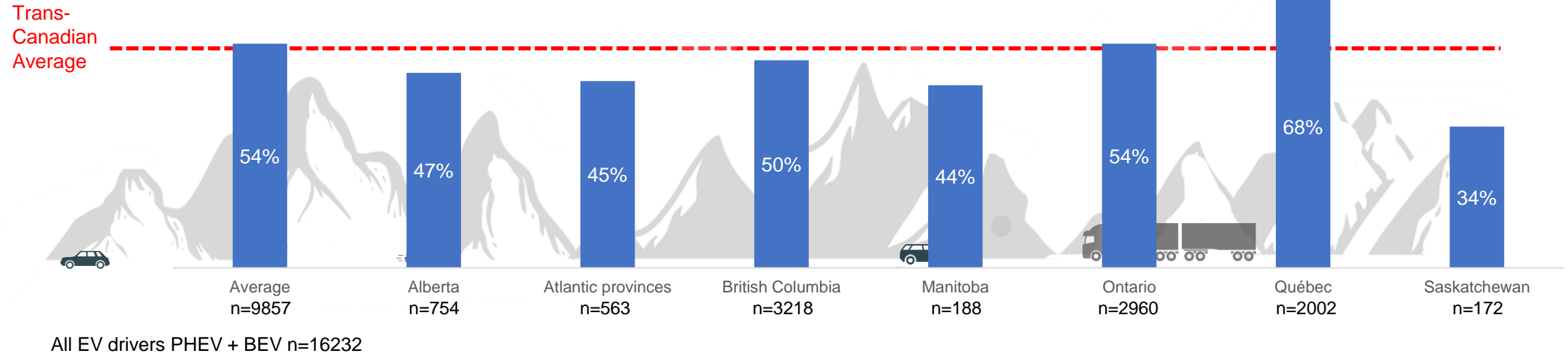
69% of Tesla BEV drivers *agreed* that they are confident they can always find a public fast charger when taking a long EV trip, while only 44% of non-Tesla drivers said the same. In fact, the largest group of non-Tesla BEV drivers (45%) actually *disagreed* with the statement.

Why the differences between these groups? Tesla BEVs fast-charge on the Tesla-exclusive Supercharger network, which was purpose-built to support long-distance trips (as well to serve urban centers). Supercharger complexes are arrayed at ideal intervals across Canada to allow dependable recharging opportunities on corridor routes.

# BEV driver confidence in long-distance fast-charging infrastructure: by province

I am confident I can always find a public DC fast charge station when taking a long trip in my EV.





% Strongly agree + somewhat agree



BEV drivers' confidence in finding fast-charging on a long journey varies by province, from a high of 68% in Québec to a low of 34% in Saskatchewan.

## THE “HOME CHARGING CHALLENGED”

# EV adoption is low for drivers who live in multi-unit dwellings and/or rent

VEHICLE TYPE	<div>   </div> <div>           MULTI-UNIT DWELLING           SINGLE FAMILY DWELLING         </div>		<div>   </div> <div>           RENT HOME           OWN HOME         </div>	
BEV	18%	77%	11%	88%
PHEV	21%	73%	13%	86%

All EV drivers (BEV + PHEV) PlugShare panel profiling questionnaire: n=12550

Percentages omit those responding "other".

People who live in multi-unit dwellings (like apartments or condominiums) represent a much smaller percentage of EV adopters in Canada than those who live in single family homes.

Similarly, renters are much less likely to be EV drivers, compared to those who own their homes.

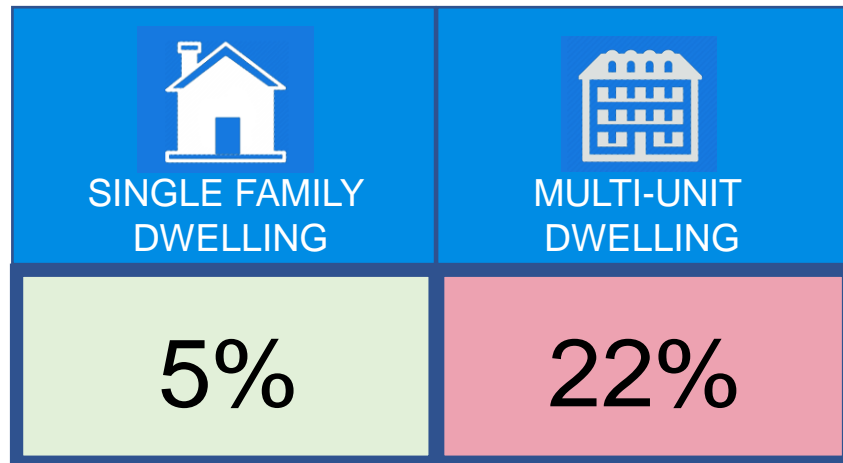
**The root of the problem is the challenge these drivers have in installing home chargers.** Multi-unit dwellings often have communal, open parking areas where it is difficult to reliably place electrical outlets (especially higher-power 208-240V outlets) or to hard-wire chargers. Renters, on the other hand, often need landlord approval to install a charger, and many drivers are unwilling to pay to install a charger in a home they do not own.



# Drivers in multi-unit dwellings are much more likely to have no home charging



Drivers with no home charging



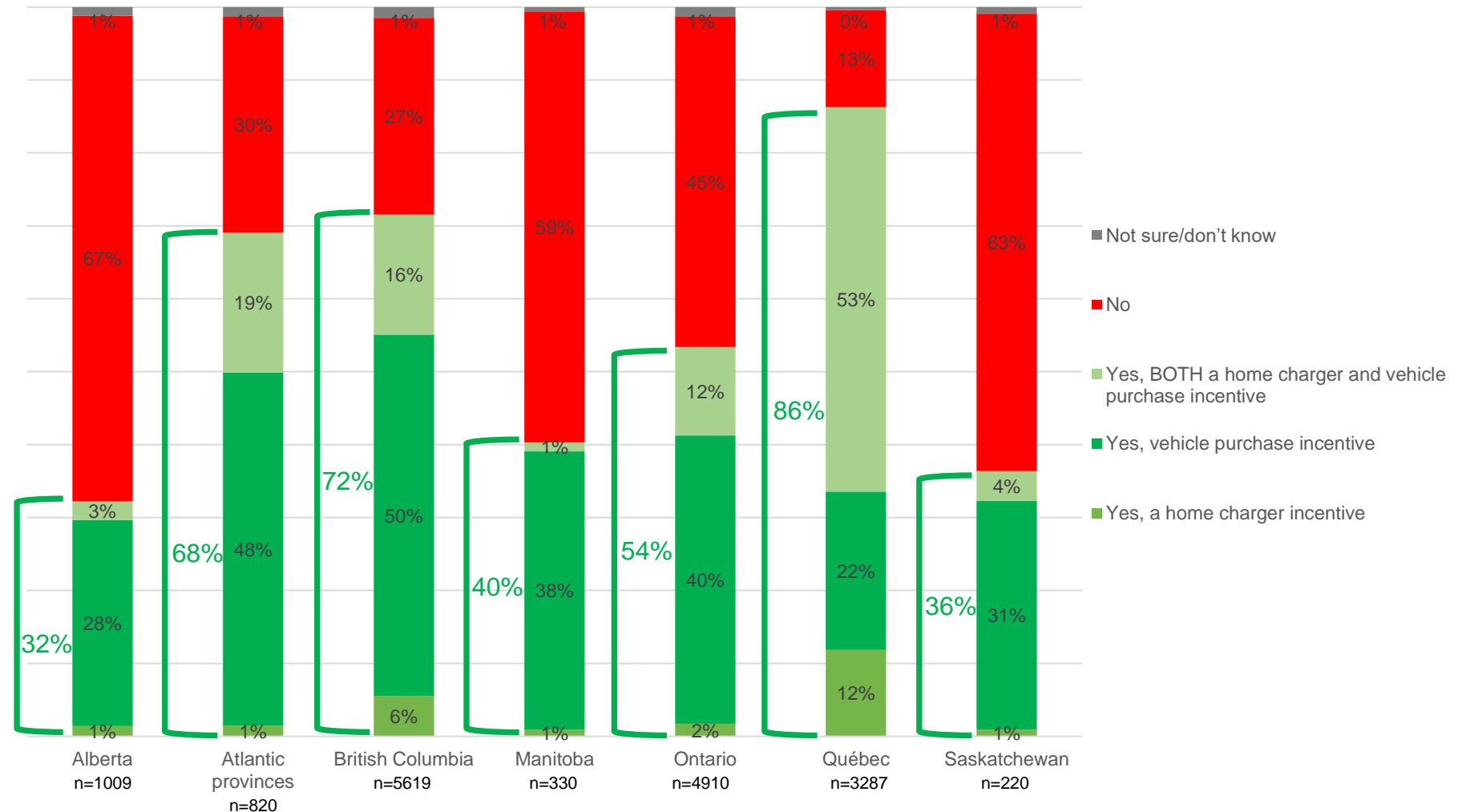
**Over 1-in-5 Canadian EV drivers who live in multi-unit homes have no home charging at *all*.** In sharp contrast, home charging is nearly universal for those living in single-family dwellings.

All EV drivers (BEV + PHEV) PlugShare panel profiling questionnaire: n=12550

# PURCHASE INCENTIVES

# The number of drivers receiving incentives varied widely by province

The degree to which drivers received EV incentives varied widely from province to province. Québec, which launched its generous Roulez Vert program in early 2012, leads the way, with 86% of drivers receiving some form of incentive. At the other end of the spectrum, only 32% of Albertans received an incentive.

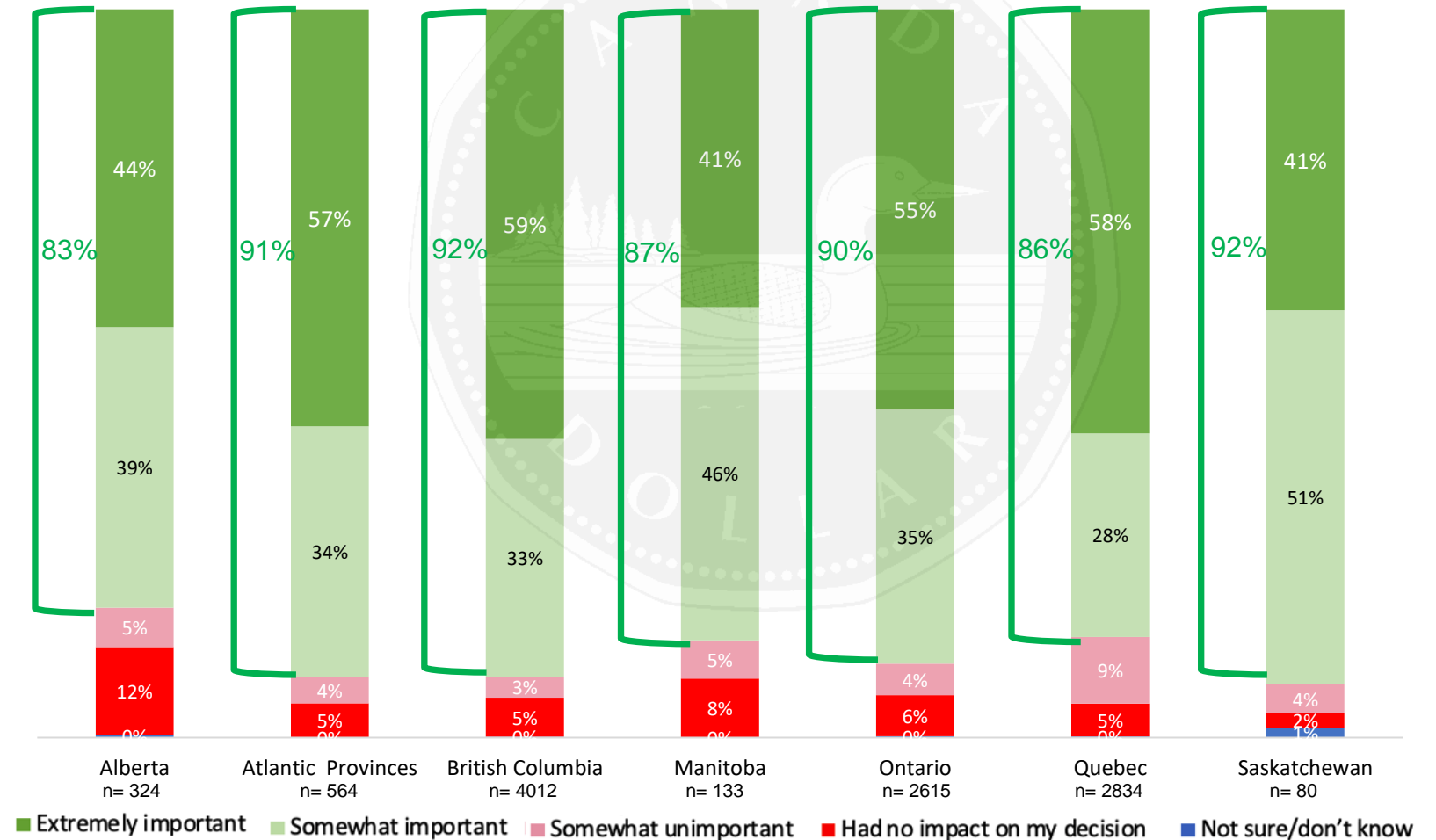


# Incentives as an adoption catalyst was strong in all provinces

## Importance of purchase incentives on EV adoption decision

Among drivers receiving purchase incentives







Among the subset of drivers who *did* receive some type of incentive, the importance on their purchase decision was uniformly strong, province to province. While British Columbians cited the greatest importance, with 92% saying it was extremely + somewhat important, drivers in *all* provinces felt a powerful influence from incentives.



# CHARGING BEHAVIOR



## Source of battery-driven kilometers: previous 30 days

Charging method		PHEV	BEV
	Level 1 at home	46%	19%
	Level 2 at home	34%	53%
	Workplace (any type)	7%	5%
	Fast charging	----	16%
	Public Level 2 (not at work)	11%	7%
	Other	2%	0%

The top source monthly of e-kilometers for PHEV drivers is Level 1 (110-120V) home charging (46%). Only 34% of PHEV e-kilometers come from Level 2 home charging. In contrast, most BEV monthly e-kilometers come from Level 2 home charging (53%), with Level 1 home charging being much less common (19%).

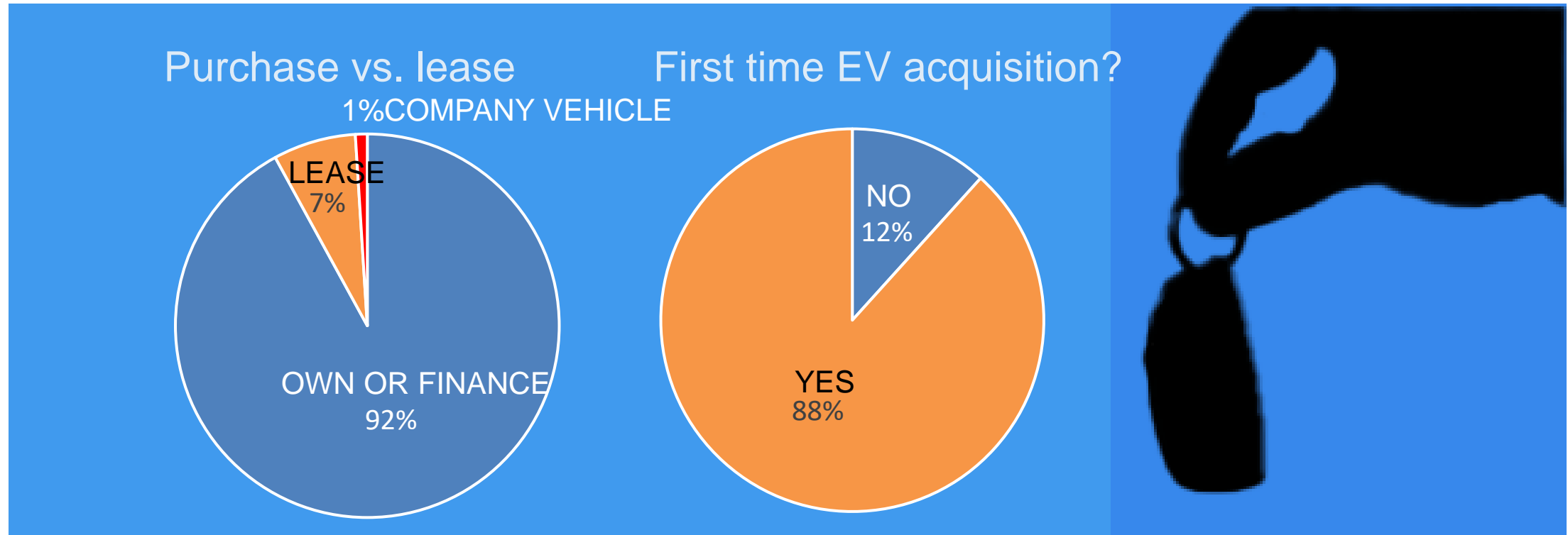
This difference is about battery size. Typically, the smaller battery of a PHEV can be comfortably recharged overnight using Level 1, whereas BEVs require more powerful Level 2 charging to do the job.

PHEVs get more e-kilometers from Level 2 public charging (11%) than BEVs (7%), but BEVs also draw 16% from fast charging, giving BEVs a higher net monthly public charging profile of 23%.

Workplace charging is still comparatively rare for both PHEVs and BEVs, and this may be in part due to the post-COVID work-at-home trend away from daily commutes.

# PURCHASER PROFILES

# EV Acquisition: purchase vs. lease and repeat purchases

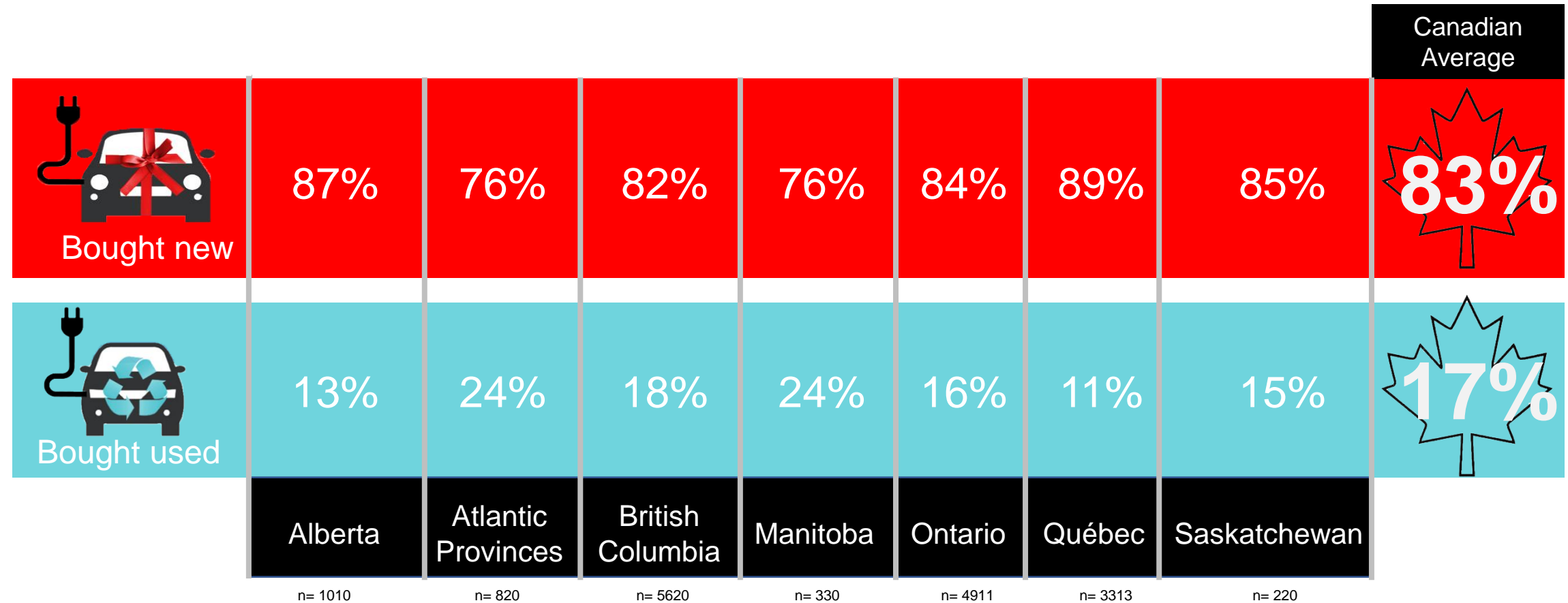


All EV drivers PHEV + BEV n=16232

Canadian EV drivers overwhelmingly own/finance their EVs, rather than lease.

The large majority of drivers are still on their first EV.

# EVs in Canada: new vs. used



While 83% of Canadian EV drivers bought their EV new, 17% bought used. (This is lower the US, were 25% of EV drivers acquired their vehicles used\*). Drivers in the Atlantic Provinces and Manitoba were most likely to acquire a used EV.

\*Source: PlugShare US EV driver panel, n=74446

# DEMOGRAPHY



## Age Demographics

Age group	BEV	PHEV
18-34	8%	7%
35-44	19%	16%
45-54	24%	24%
55-64	25%	25%
65-74	19%	20%
75+	6%	8%

Source: PlugShare  
Canadian EV driver panel

BEV n=13398

PHEV n= 2019

Canadian EV drivers skew older with at least 50% aged 55 years or older. The average age of a Canadian EV driver is 51.3 years.

As we saw earlier, people that own single-family homes represent the dominant group of EV owners in Canada, likely because installing home charging has far fewer barriers than it does for people living in multi-unit dwellings and those who rent. This effect is likely driving up the average age of EV acquisition.

# Gender and marital status demographics

GENDER	BEV	PHEV
Male	74%	73%
Female	23%	25%
Other	3%	2%

All EV drivers PHEV + BEV n=16232

MARITAL STATUS	BEV	PHEV
Single	8%	8%
Married Domestic partnership	83%	83%
Divorced	4%	5%
Widowed	2%	2%
Other	1%	0%

All EV drivers PHEV + BEV n=16232  
2% (BEV) and 5% (PHEV) preferred not to answer

EV ownership skews strongly toward males in Canada. Females are only around a quarter of EV drivers in Canada. (This is the identical pattern found in the US.\*)

Consistent with the older age profile discussed, the large majority of Canadian EV drivers married or in a domestic partnership. Only 8% are single.

\* 75% male/25% female. Source: PlugShare US EV driver panel n=547211