Zero-Emission Vehicle Availability

Estimating Inventories in Canada: 2024 Update

Transport Canada Transports Canada

Canada

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This publication showcases the availability of zero-emission vehicles at dealerships across Canada.

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EXECUTIVE SUMMARY

This report summarizes the seventh, eighth, ninth, and tenth Canada-wide primary data collection efforts to quantify the zero-emission vehicles (ZEVs) in inventory across the country on behalf of Transport Canada. The report presents data that was collected in four separate periods—February 2023, June 2023, November 2023, and February 2024—with focus placed on the two most recent periods, and details on the two earlier periods provided in Appendix A. Dunsky has also collected similar datasets for six previous periods: February 2022, February 2021, November 2020, February 2020, November 2019, and December 2018.

In this report, we highlight absolute inventory numbers, contextualized using historical sales rates to measure inventory in terms of days of supply. Inventory levels are analyzed by province and automaker. Additional data is presented related to powertrain types, the number of vehicles per dealership, and, for dealerships with no ZEVs in stock – the wait time to receive a vehicle.

The data presented in this report was collected through online inventory databases and dealership phone surveys. Between these two methods, data on ZEV inventory levels were collected for 4,240 dealerships across Canada. In all cases, both plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs) were counted (collectively referred to as ZEVs). Additionally, limited inventory data on comparable internal combustion engine (ICE) vehicle models were included for benchmarking purposes for the February 2023 and June 2023 reporting periods, as detailed in Appendix A.

Several key observations emerge from the latest sets of data collected, namely:

- **Inventory and sales increased significantly** for both November 2023 and February 2024 compared to previous periods and reports. Making record highs, both November and February saw significant inventory improvements across most automakers and provinces. In five provinces, inventory levels were at target-supply, four were at over-supply, and one province was at under-supply. This increase in inventory bodes well for ZEV customers, who represented 11.7% of the total light-duty vehicle market in 2023 and are expected to account for an increasing share moving forward.

- As **global supply chain issues subside**, automakers have significantly increased and continued to invest in their ZEV manufacturing output - providing Canadians with greater options, both at the make and model levels. Increased production levels of ZEVs by the larger automakers may further invigorate competition, leading to additional price cuts for certain vehicle classes. Greater economies of scale within the next few years may also enable certain manufacturers to eventually compete on pricing with their ICE counterparts.

- **Automakers are showing a marked increase in initiatives to satisfy and expand the market** for zero-emission vehicles. Notably, Ford, Jeep, and BMW have the most substantial ZEV inventories in Canada, with the first two consistently ranking among the top five in ZEV inventory over the last three years. Conversely, while ZEV inventory is catching up with sales, there is still

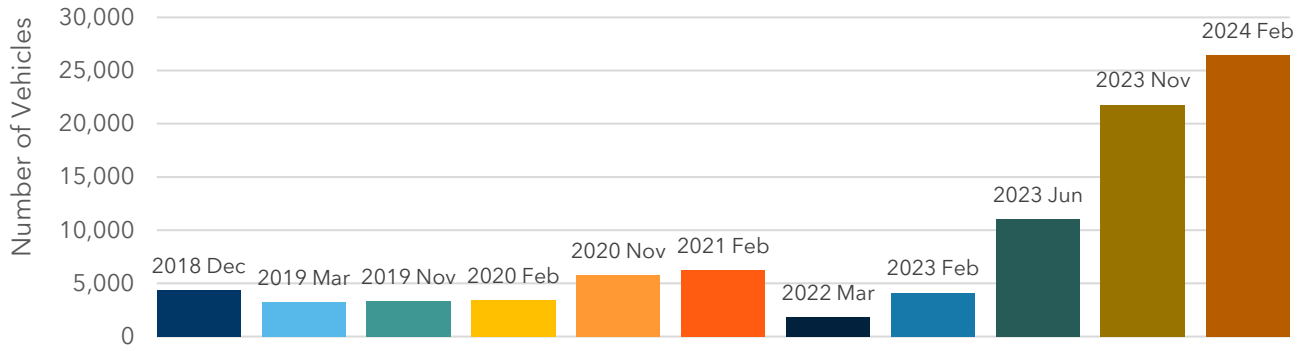
uneven participation among automakers; the top three automakers in ZEV inventory contribute to more than half of the inventory, while some large manufacturers remain underrepresented.

- **After peaking in February 2023, wait times appear to continue decreasing**. However, this observation is derived from a smaller sample of respondents and hinges on the premise that the contacted dealerships have no ZEVs in stock. This trend is inversely correlated with the increasing availability of ZEV inventory and its enhanced distribution across provinces and vehicle makes.

We elaborate on each of these findings below.

Inventory and sales increased significantly for both November 2023 and February 2024 compared to previous periods and reports. Making record highs, both November and February saw significant inventory improvements across most automakers and provinces. This increase in inventory bodes well for ZEV customers, who represented 11.7% of the total light-duty vehicle market in 2023 and are expected to account for an increasing share moving forward.

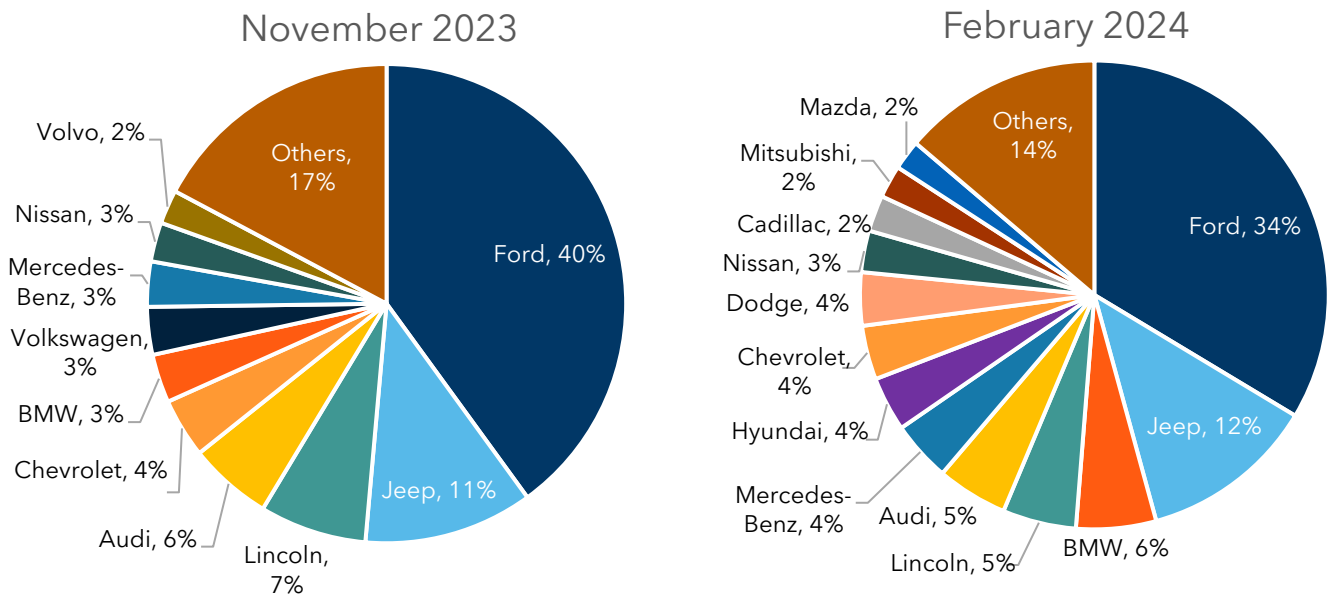
Figure ES-1. Vehicle Inventory Canada-wide – all results



With global supply chain issues subsiding, **automakers have significantly increased and continue to invest in their ZEV manufacturing output** - providing Canadians with greater options, both at the make and model levels. Increased production levels of ZEVs by the larger automakers may further invigorate competition, leading to additional price cuts for certain vehicle classes. Greater economies of scale within the next few years may also enable certain manufacturers to eventually compete on pricing with their ICE counterparts.

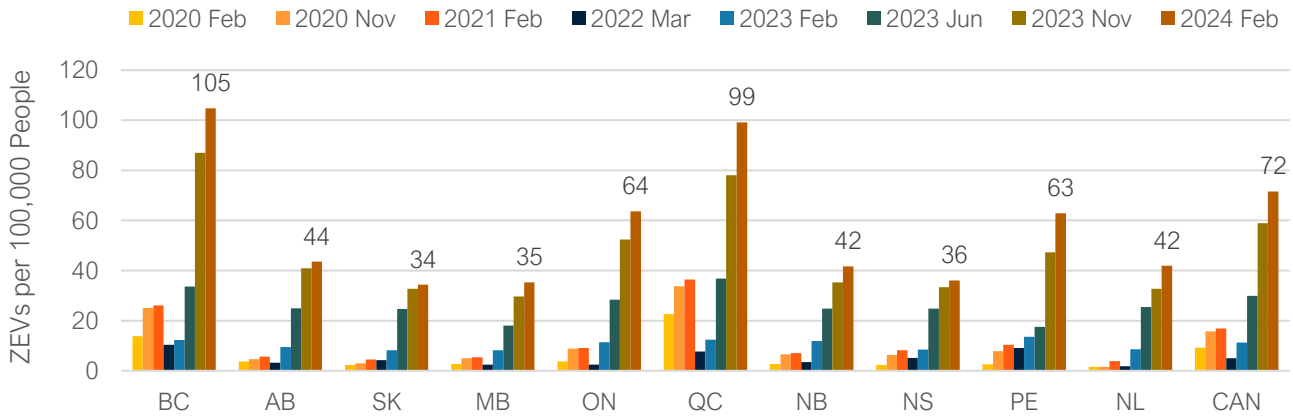
There are signs of increasing efforts to meet and grow ZEV demand from automakers. For example, Ford, Jeep, and BMW possess the highest ZEV inventory levels in Canada—with the former two landing within the top five manufacturers with the highest levels of ZEV inventory for the past three years. Meanwhile, BMW has 10 different ZEV models available on the Canadian market and has made efforts to supply every one of its dealerships with at least one ZEV model in February 2024 – ensuring that everyone visiting a BMW dealership can see a ZEV. Unfortunately, there is still uneven participation among automakers; the top three automakers in ZEV inventory contribute to more than half of the inventory, while some of the world's largest manufacturers remain underrepresented.

Figure ES-2. National ZEV Inventory by Automaker as a Percentage of Total Inventory



Inventory distribution is improving between provinces and automakers. As shown in the distribution of automakers above, 13 distinct automakers contributed more than 2% of total ZEV supply in February 2024. This compares to just 10 automakers in the three months prior. While inventories continue to be concentrated in BC, Ontario, and Quebec, availability based on population has improved significantly across every province when compared to the previous periods and reports as demonstrated by the continued increase in ZEVs available for purchase per capita below.

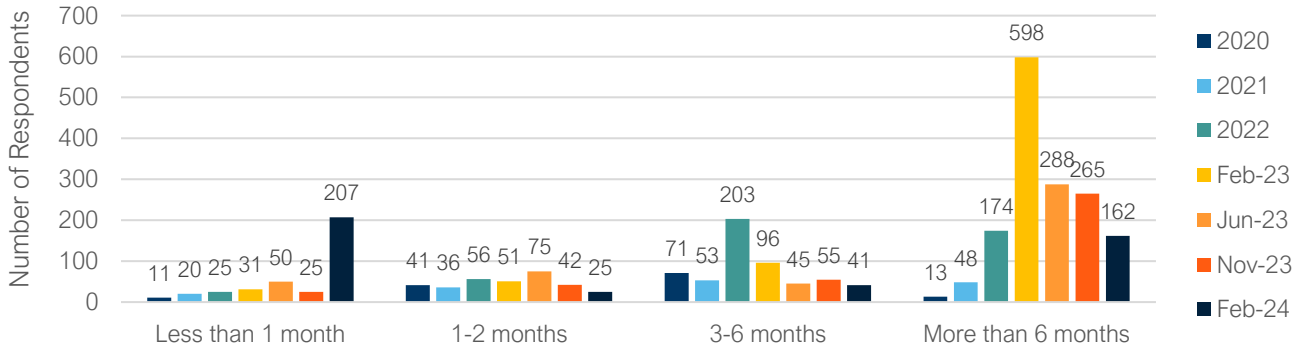
Figure ES-3. ZEVs Available for Purchase per 100,000 People



The most recent reporting period (February 2024) recorded a **decrease in wait times** and the **smallest proportion of dealers with no zero-emission vehicles (ZEVs) in stock** - 47% - since the inception of this report series. A review of availability by geography indicates that only 4% of the total ZEV inventory

is in rural regions. This figure is notably disproportionate when contrasted with the 18% (estimated) of the Canadian populace living in these areas.

Figure ES-4. Expected Wait Times for Dealerships with Zero ZEVs Available



Finally, as outlined in our 2022 report, **there continues to be a trend towards new automotive retail models when it comes to ZEV sales**. Almost every new automaker and a growing list of existing automakers are shifting towards online retailing in parallel to their transition towards an increasingly electrified model lineup, including Ford[1] and Volvo.[2] A consumer insight study by Google revealed that 6% of Canadian shoppers bought their new car online in 2022—a 6-fold increase relative to pre-pandemic times. More notably, it also revealed that 54% of buyers expect their next purchase to be contactless, from discovery to home delivery (online).[3] This growing trend towards online shopping will not only benefit online ZEV retailers but can also benefit any manufacturer that is willing to make the necessary investments to sell their vehicles online.

Overall, with improving levels of inventory, advancements in technology, and streamlined shopping experiences, the Canadian ZEV market continues to drive innovation and grow amid a variety of economic headwinds that have affected traditional vehicle sales over the past few years. The latest round of data underscores Canada's quickly increasing inventory levels for ZEVs.

[1] TechCrunch. (2022). "*Ford wants to restructure its dealership model to boost EV sales*". Accessed March 2024.
[2] Bloomberg. (2021). "*Volvo to go electric-only and shift sales online from 2030*". Accessed March 2024.
[3] ThinkWithGoogle. (2023). "*Five things you need to know about how Canadians will be car shopping in 2023*". Accessed March 2024.

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Table of Contents

1. INTRODUCTION

1. Introduction

This report summarizes the ninth and tenth Canada-wide primary data collection efforts to quantify the zero-emission vehicles (ZEVs) in inventory across the country on behalf of Transport Canada. The report presents data that was collected in two separate periods: November 2023 and February 2024. Dunsky has also collected similar datasets for eight previous periods: June 2023, February 2023, February 2022, February 2021, November 2020, February 2020, November 2019, and December 2018. The ZEV inventory data for the February and June 2023 periods are provided in Appendix A.

1.1 Methodology

The data presented in this report was collected through two primary means:

1. **Automakers[4] online inventory databases.** Where available, inventory data was collected directly through automaker websites. This was the case for 15 of the 29 automakers included in this study and for 13 out of 27 automakers in the February and June 2023 periods outlined in the appendix.

2. **Dealership phone surveys.** For the remaining 14 automakers, individual dealerships were contacted by phone by researchers posing as interested buyers and asked how many of each zero-emission vehicle (ZEV) model were available to purchase at the dealership.

Results in this report are reflective of the data collected through these methods, the accuracy of which can vary based on the data collection method (explained in further detail below). Between these two methods, data on ZEV inventory levels were collected for 4,240 dealerships across Canada. In all cases, both plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs) were counted (collectively referred to as ZEVs).

Table 1-1. Data Collection Methodology and Number of Dealerships by Automaker

Automaker	Data Collection Methodology	Number of Dealerships Across Canada - 2023	Number of Dealerships Across Canada - 2024
Alfa Romeo	Web	*Not collected*	16
Audi	Web	53	53
BMW	Web	52	52
Cadillac	Web	138	138
Chevrolet	Web	468	468
Chrysler	Web	483	487
Dodge	Web	*Not collected*	393
Ford	Web	474	474

[4] For simplicity's sake, the term "automaker" is used in this report to refer to automotive brands. Brands that are part of the same automotive company (e.g., Cadillac and Chevrolet as two brands under General Motors) are referred to as individual "automakers".

Automaker	Data Collection Methodology	Number of Dealerships Across Canada - 2023	Number of Dealerships Across Canada - 2024
Genesis	Phone	30	30
Hyundai	Phone	220	220
Jaguar	Phone	34	34
Jeep	Web	369	390
Kia	Phone	182	182
Land Rover	Phone	31	31
Lexus	Phone	40	40
Lincoln	Web	92	92
Mazda	Phone	165	165
Mercedes-Benz	Web	57	57
Mini	Web	31	31
Mitsubishi	Phone	77	77
Nissan	Phone	201	200
Polestar	Phone	3	3
Porsche	Web	20	20
Subaru	Phone	105	105
Tesla	Web	20	27
Toyota	Phone	225	225
VinFast	Phone	8	9
Volkswagen	Phone	147	147
Volvo	Web	54	54
Total	Web	2,311	2,752
Total	Phone	1, 468	1, 468
Total	All	3,779	4,240

It should be noted that both web and phone survey data collection methods have limitations. The web-based data collection method is an efficient means of collecting a large amount of data. If the inventory database does not accurately reflect actual inventory, however, it may misrepresent the actual customer experience of shopping by suggesting there are either more or less ZEVs on the lot than is truly the case.

While the phone survey more closely approximates the customer shopping experience, the accuracy of the data collected through this method is reflective of the knowledge of, and information readily available to, the respondents fielding the questions. For example, automakers may offer several versions of the same vehicle with different powertrains, such as plug-in hybrid and conventional hybrid versions of the Hyundai Ioniq and Toyota Prius, which may introduce confusion. To mitigate this, phone survey staff were given clear descriptions of each powertrain configuration and warned of specific cases where there might be possible confusion between available vehicle models.

1.2 Structure of Report

The remainder of this report is structured as follows:

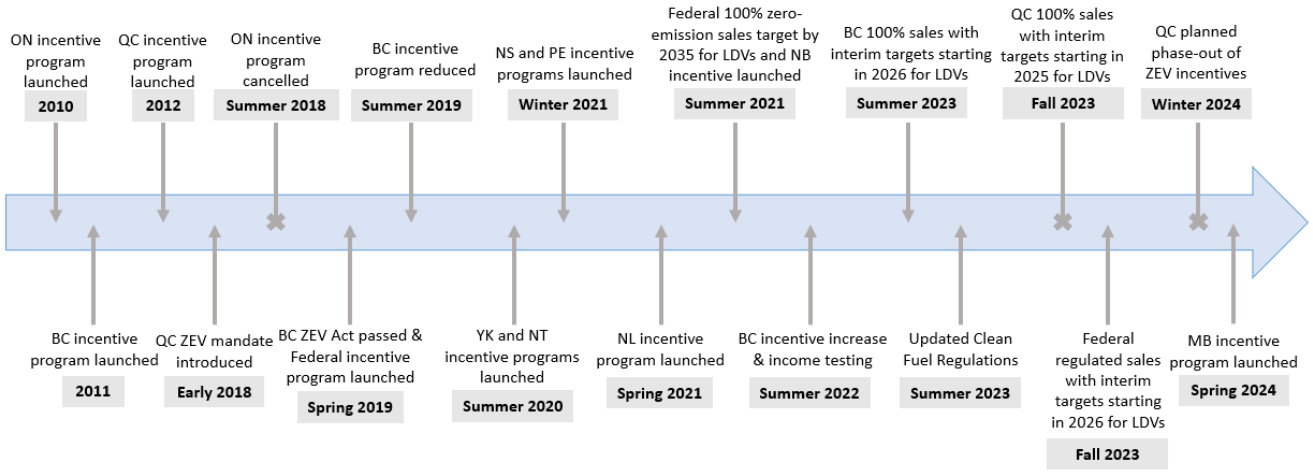
- **Context: Electric Mobility in Canada** – presents an overview of the ZEV market and existing policies and programs across Canada to drive their uptake.
- **ZEV Inventory: Data and Observations** – provides description and analysis of ZEV inventories by province and manufacturer, including absolute inventory levels, wait times, inventory relative to sales, split by drivetrain, and selection of makes and models. Inventory levels and choice are also split by geographies (urban vs. rural).
- **Conclusion** – summarizes key takeaways from this study.
- **Appendix A** – outlines the ZEV inventory data & observations from the February and June 2023 data collection periods. It also provides a unique inventory comparison of internal combustion engine (ICE) vehicles to benchmark a selection of models to their ZEV counterparts, based on inventory levels and consideration of recent sales data.

2. CONTEXT: ELECTRIC MOBILITY IN CANADA

2. Context: Electric Mobility in Canada

The timeline below highlights key provincial and federal policies related to ZEVs since 2010.

Figure 2-1. Timeline of Key Provincial and Federal ZEV Policies for Light-Duty Vehicles



Since the last report (March 2022), Canada's light-duty ZEV policy environment has developed through modifications to existing policies and programs. In April 2022, Canada's federal Incentives for Zero-Emission Vehicles (iZEV) Program was extended and expanded to allow for the inclusion of larger vehicle models to be eligible for the Program. In August 2022, BC amended the Clean BC Go Electric incentive program by increasing the eligible incentive amount from a maximum of $3,000 to $4,000 and introduced income testing requirements to the Program. [5] In September 2023, Quebec revised its ZEV regulations to spur the auto industry to improve the supply of ZEVs with a requirement of annual ZEV sales at 22% by 2025, 85% by 2030 and 100% by 2035.[6] BC also made amendments to its ZEV Act in October 2023 to accelerate its ZEV targets such that automakers must meet annual ZEV percentage requirements, and 100% by 2035 (five years ahead of the original target).[7] Quebec recently noted in the release of its 2024-25 Budget that it plans to phase out Roulez Vert by 2027.[8] Lastly, Manitoba announced in its 2024-25 Budget that is it launching incentives for both new (up to $4,000) and used (up to $2,500) ZEVs retroactive to August 2023.[9] Alberta, Saskatchewan, and Ontario remain the only provinces that do not offer financial incentives for ZEVs.

Additionally, several key federal regulations have come into force which should continue accelerating ZEV adoption across the country. These include updates to the Clean Fuels Regulation, which came into effect in July 2023 (requiring carbon intensity of fuels to be reduced by less than 4% compared to 2016

[5] BC Hydro. 2022. "EV rebates up to $9,000 in B.C., plus other updates". Accessed March 2024.
[6] Government of Quebec. 2023. "The zero-emission vehicle (ZEV) standard". Accessed April 2024.
[7] Government of British Columbia. 2023. "B.C. making it easier to buy zero-emission vehicles". Accessed March 2024.
[8] Government of Quebec. 2024. Budget 2024-2025. Pg. C.75.
[9] Government of Manitoba. 2024. "Budget 2024-2025". Pg. 42.

levels), and a mandatory target set in June 2021 that all new light-duty cars and passenger trucks sales be zero-emissions by 2035. To help achieve this mandatory target the Federal Government released the Electric Vehicle Availability Standard in December of 2023, which established annual zero-emission vehicles requirements for manufactures and importers of new light-duty vehicles for the purpose of sale, including 20 percent (%) in model year 2026, 60% in model year 2030, and 100% in model year 2035 and beyond.[10]

Public charging infrastructure has also continued to expand. While a 2024 vehicle owner study found that ZEV drivers do most of their vehicle charging at home,[11] public charging infrastructure is important for longer trips or for those without home charging access. It is therefore critical that these installations increase in line with, or faster than the rate of ZEV adoption – as this may otherwise discourage adoption. The figures below summarize the public electric vehicle charging infrastructure available in each province over the last year and a half.

Figure 2-2. Number of Level 2 and DCFC Ports by Province: BC, ON, and QC[12]

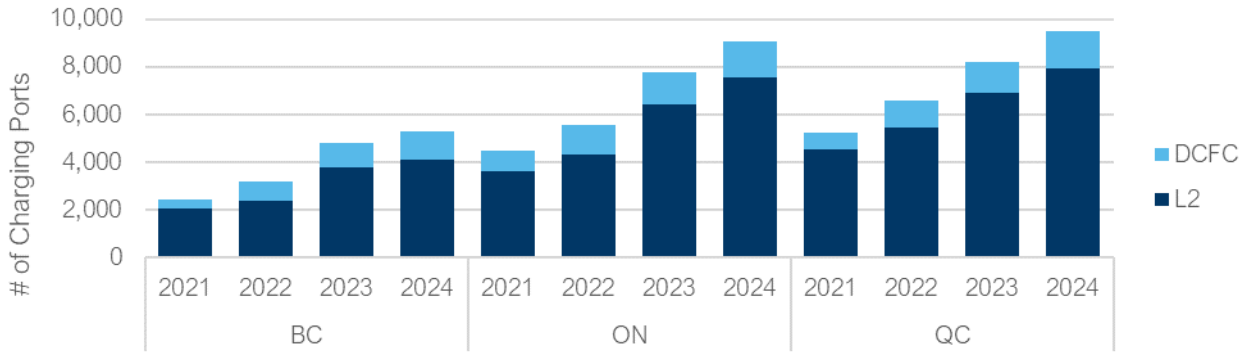
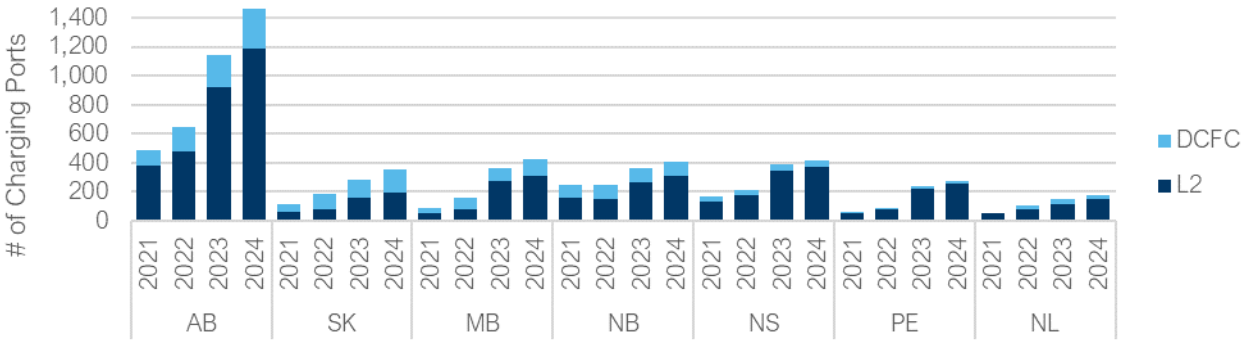


Figure 2-3. Number of Level 2 and DCFC Ports by Province: AB, SK, MB, NB, NS, PE, NL[13]



[10] Government of Canada. "Canada's Electric Vehicle Availability Standard (regulated targets for zero-emission vehicles)". Access March 2024.
[11] Pollution Probe. "*2023 Canadian Electric Vehicle Owner Charging Experience Survey*". Accessed March 2024.
[12] Data from Natural Resources Canada Electric Charging and Alternative Fueling Stations Locator. Available online at: this link. Data extracted July 2023.
[13] Data from Natural Resources Canada Electric Charging and Alternative Fueling Stations Locator. Available online at: this link. Data extracted July 2023.

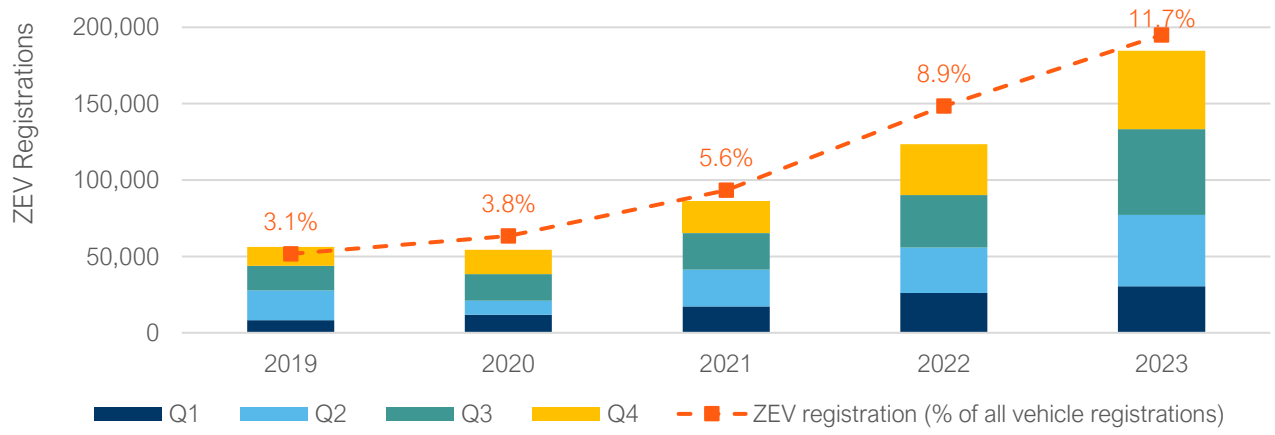
Since June 2023, market actors (including private corporations, municipal governments, utilities, and others, often with the support of Natural Resources Canada) have continued installing additional public charging infrastructure in all provinces, leading to a 15% increase for both Level 2 ports and Direct-Current Fast-Chargers (DCFC) ports Canada-wide.

The largest absolute increase in the total number of ports for a single province was in Quebec, where 1,072 Level 2 and 208 DCFC ports were installed between June 2023 and March 2024. The rate of total charger installations was greatest in Alberta (28%), followed by Saskatchewan (24%) and Newfoundland (21%).

2.1 ZEV Registrations and Market Trends

Total ZEV registrations as a percent of all vehicle registrations has steadily increased since 2017, reaching 11.7 % in 2023, as seen in Figure 2-4. With over 1.59 million vehicles registered in 2023, registrations are at their highest level since 2019, when over 1.83 million vehicles were registered. While still below pre-pandemic levels, 2023 registrations are notably higher than 2022, when only 1.41 million vehicles were registered due to supply chain issues and rising prices across certain automakers.[14] Overall, the fluctuation in yearly registrations did not affect the increased ZEV adoption trend shown below.

Figure 2-4. ZEV registrations in Canada since 2017 and as percentage of all new vehicle registrations[14].



Canada's ZEV market was not isolated from the impact of global semiconductor chip shortage. Persisting throughout 2022, inventory levels dropped significantly for both ZEV and ICE vehicles, with one study revealing that dealerships across Canada saw a 79% reduction in 2022 inventory levels for all vehicle types. [15] The impacts of these supply chain disruptions persisted into 2023, as one report found inventory levels to be at 42% of pre-pandemic levels in the first quarter of 2023. However, as issues regarding semiconductor shortages continue to lessen, inventory levels in Canada appear to be recovering well. [16] Despite the volatility in yearly total vehicle sales, the Canadian ZEV market continued

[14] S&P Global Mobility. 2024. New Vehicle Registration Data. Extracted March 25, 2024.
[15] DesRosiers Automotive Consultants. 2022. *The Semiconductor Shortage: Future Outlook and Implications for Dealers*.
[16] Greg Layson. Automotive News Canada. May 24 2023. "Canadian new-vehicle inventory improves, but it's a 'murky' situation". Accessed March 2024.

its strong growth, with 2023 sales increasing by 49% relative to 2022 - following a 44% increase from 2021 to 2022.[17]

Large OEMs with popular ZEV models such as Tesla and Ford continue to significantly increase and invest in their ZEV manufacturing capabilities. Both automakers have also reduced their ZEV prices multiple times in 2023 and 2024, not only to become cost competitive with new ICE vehicles, but to also compete with the ever-growing selection of automakers that are now producing electric vehicles. [18] This new trend reverses some of the price increases these automakers had made throughout 2021 and 2022.

ZEV registrations in British Columbia, Ontario, and Quebec continued to drive nationwide registrations in 2023. 92% of 2023 ZEV registrations were in three provinces, with Quebec leading at 41%, followed by Ontario (27%), and BC (23%).[19]

In 2023, Tesla's Model Y and Model 3 emerged as the best-selling models, with the Model Y surpassing the Model 3 to claim the top position, a shift from the previous year's rankings. The two Tesla's are followed by the Chevrolet Bolt EUV, the Mitsubishi Outlander, and Toyota's Rav4 Prime. The top five models accounted for 44% of total ZEV registrations in 2023, a decrease from 55% in 2022. The number of vehicles sold for the top five models for both 2023 and 2022 are shown below.

Table 2-1. Top-Selling Electric Vehicles in Canada, 2023.

Model	Powertrain	2023 Registrations
Tesla Model Y	BEV	34,660
Tesla Model 3	BEV	19,217
Chevrolet Bolt EUV	BEV	11,003
Mitsubishi Outlander	PHEV	9,581
Toyota Rav4 Prime	PHEV	7,901

Source: S&P Global Mobility. 2023. New Vehicle Registration Data. Extracted on March 18th, 2024.

Table 2-2. Top-Selling Electric Vehicles in Canada, 2022.

Model	Powertrain	2022 Registrations
Tesla Model 3	BEV	26,859
Tesla Model Y	BEV	25,409
Ford Mustang Mach-E	BEV	6,040
Hyundai Kona Electric	BEV	5,488
Hyundai Ioniq 5	BEV	4,910

Source: S&P Global Mobility. 2023. New Vehicle Registration Data. Extracted on December 31, 2022.

Despite a slight contraction at the start of the year, the Canadian ZEV market has continued its overall growth in 2023. The first quarter of 2023 saw a decrease in ZEV market share, at 9.2%, compared to the

[17] Statistics Canada. *New motor vehicle registrations, quarterly*. Extracted on March 18th, 2024.
[18] CBC.ca. 2023. "*Long-awaited price war a sign of rapid transformation in electric vehicle sector*". Accessed July 2023.
[19] Values do not add to total due to rounding.

last quarter of 2022 (10.2%). This was led by decreased volumes in Ontario and Quebec through lower registrations of both Tesla and Ford vehicles.[20] The second quarter of 2023 saw a recovery in registrations, with overall ZEV market share reaching 10.5%.[21] The growing market share trend continued into the third quarter, at which point ZEVs made up 13.4% of sales – a quarterly record.[22] The final quarter of the year saw ZEV registrations come in slightly lower, at 13.2%, which rounded out the year's registrations to 11.7%.[23]

Notably, 2023 has seen the introduction of several new ZEV models in Canada, such as Vinfast's VF series and new offerings from Stellantis, like the Dodge Hornet and Alfa Romeo Tonale PHEVs. As evidenced by increasing ZEV registrations and the introduction of new vehicle models and price reductions of popular ZEV models like the Tesla Model 3, Model Y, and the Ford F-150 Lightning, ZEV demand in Canada is expected to continue to grow as the market further develops.

[20] S&P Global. 2023. *"Automotive Insights – Canadian EV Information and Analysis Q1 2023"* . Accessed March 2024.
[21] S&P Global. 2023. *"Automotive Insights – Q2 2023 Canadian EV Information and Analysis"* . Accessed March 2024.
[22] S&P Global. 2023. *"Automotive Insights – Q3 2023 Canadian EV Information and Analysis"* . Accessed March 2024.
[23] S&P Global. 2024. *"Automotive Insights – Q4 2023 Canadian EV Information and Analysis"* . Accessed March 2024.

3. ZEV INVENTORY: DATA AND OBSERVATIONS

3. ZEV Inventory: Data and Observations

This section presents the ZEV inventory data that was collected under this study and highlights observations from the data. The data is presented in five main subsections:

1. **ZEV Inventory Levels**, where the absolute inventory numbers are presented by province and by automaker.
2. **Inventory Relative to Sales**, where the data is presented in terms of "days of supply" based on the sales rate of each automaker.
3. **ZEV Model Diversity**, where the number of distinct ZEV model options are presented by province and by automaker.
4. **Availability by Dealership**, with a focus on the number of ZEVs available in each dealership.
5. **Wait Times**, based on survey results from select automaker dealerships.

3.1 ZEV Inventory Levels

Figure 3-1 summarizes the ZEV inventory levels across Canada for each reporting period from December 2018 through February 2024. February 2024 showed the highest nationwide inventory available since the start of this analysis, reflecting a 21% increase over a three-month period (November 2023) and a six-fold increase over a year (February 2023). This is particularly significant considering that February historically has much lower sales volumes when compared with other months. While the year-over-year increase is notable, the February 2023 inventory was historically low, as levels were recovering from supply chain issues and general lack of model availability.

Figure 3-1. Vehicle Inventory Canada-wide – all results

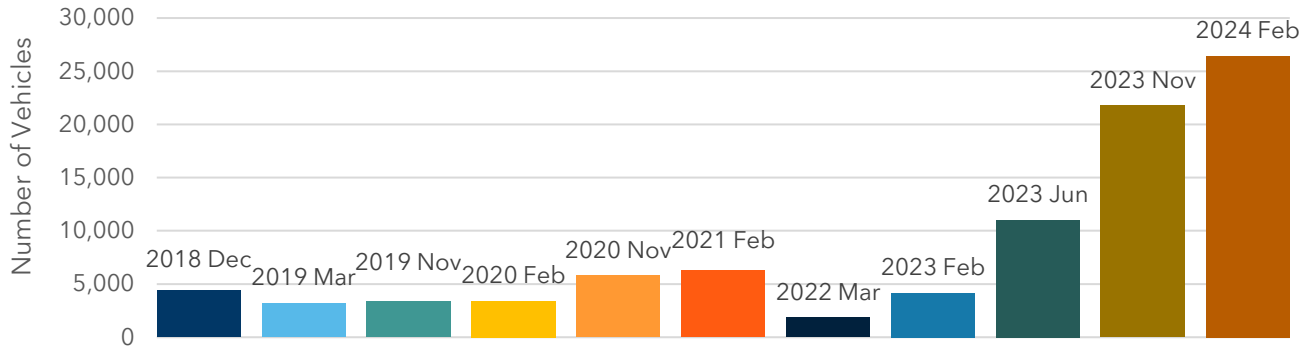


Table 3-1 and Table 3-2 provide detailed breakdowns of inventory results by province and automaker for each collection period. Inventory levels and make options increased significantly across provinces and geographic areas, both from November 2023 to February 2024 and relative to previous data collection periods. As of February 2024, 9 out of 29 automakers possessed ZEV inventory in all 10 provinces across Canada. This compares to six automakers in November 2023 and five in June 2023.

Table 3-1. Vehicle Inventory by Province and Automaker – November 2023

Automakers	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Total
Alfa Romeo	22	19		13	55	19					128
Audi	205	73	14	34	569	299	9	21		5	1,229
BMW	276	74		3	199	154	4	1		2	713
Cadillac	70	36	5	2	68	21	2	3		4	211
Chevrolet	337	23	7	21	317	157		11	2		875
Chrysler	11	11		2	25	66	1	7			123
Dodge	36	26	25	16	70	163	10	21	1	4	372
Ford	1,510	497	97	196	2,933	3,173	117	100	37	55	8,715
Genesis	7	6	3	3	36	73		2		3	133
Hyundai	89	54	17	13	136	62	10	20	1	12	414
Jaguar	5	3		1	14	4		2			29
Jeep	291	224	64	47	969	789	38	35	12	18	2,487
Kia	56	71	8	10	86	75	9	5	1	6	327
Land Rover	1						1				2
Lexus	8	3			5	15					31
Lincoln	163	259	67		725	281	20	9	15	35	1,574
Mazda	57	27	3	9	91	124	10	12	1	9	343
Mercedes	175	24	15		298	138	7	7		1	665
Mini	91	18	4	3	87	87	8	6		1	305
Mitsubishi	35	34	2		78	21	2	3		2	177
Nissan	167	7	2	2	112	285			1		576
Polestar	13					16					29
Porsche	53	69	3	7	54	62		1			249
Subaru	121	24	8	5	41	53	2	3	2		259
Tesla	123	21	12		123	44		34			357
Toyota	73	5			5	125					208
VinFast	18				35						53
Volkswagen	266	59	9	11	83	232	15	20		7	702
Volvo	73	74	6		235	100	9			3	500
November 2023	4,352	1,741	371	398	7,449	6,638	274	323	73	167	21,786

Table 3-2. Vehicle Inventory by Province and Automaker – February 2024

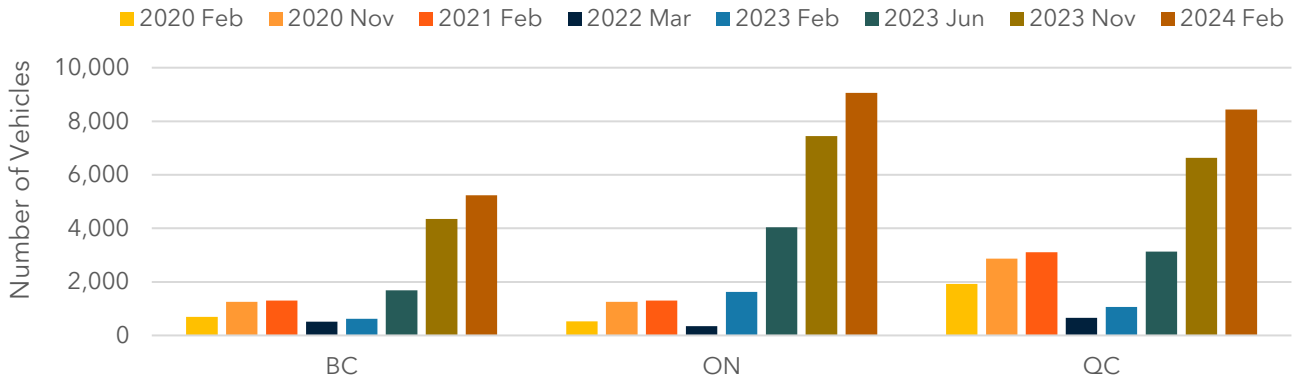
Automakers	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Total
Alfa Romeo	42	20		15	118	144					339
Audi	310	75	16	35	425	408	7	17		2	1,295
BMW	477	97			494	387	3	1			1,459
Cadillac	209	75	11	10	244	75	5	14	2	13	658
Chevrolet	399	68	14	39	340	76	4	27	4	6	977
Chrysler	26	7	2	3	138	97	4	19			296
Dodge	114	78	40	13	254	412	20	24	8	8	971
Ford	1,672	494	47	170	2,841	3,433	104	57	23	48	8,889
Genesis	9		5	3	32	16		3		3	71
Hyundai	195	120	43	36	330	85	59	58	22	46	994
Jaguar					5						5
Jeep	498	268	80	51	1,267	961	27	31	8	17	3,208
Kia	123	90	17	25	119	45	4	5	2	6	436
Land Rover		33			4	5					42
Lexus	33	1			2	14					50
Lincoln	137	184	56		598	291	21	9	12	35	1,343
Mazda	46	55	3	13	172	206	12	24	2	9	542
Mercedes	295	30	13		483	245	11	21		4	1,102
Mini	66	5	2	2	62	89	7	2		2	237
Mitsubishi	65	63	16	31	231	126	30	9	12	12	595
Nissan	85	5		2	186	479		1	1		759
Polestar	1					15					16
Porsche	72	38	3	5	62	90		3			273
Subaru	69	18	7	7	42	196	2	4	1		346
Tesla	68	20	12		110	79		19			308
Toyota	121	13	2		45	82	3	1		1	268
VinFast	14				50	3					67
Volkswagen	93			14	131	163				2	403
Volvo					272	211					483
February 2024	5,239	1,857	389	474	9,057	8,433	323	349	97	214	26,432

3.1.1 Availability by Province

At the provincial level, the February 2024 inventory levels represent the highest inventory recorded for the three leading provinces – with the largest increase observed in Quebec. The concentration of ZEV inventory in Canada's three most populated provinces has increased for the November 2023 and February 2024 periods, averaging at 85% and 86%, respectively. This contrasts with the 80% concentration observed in the February and June 2023 data collections, 82% in 2022, 91% in 2021 and

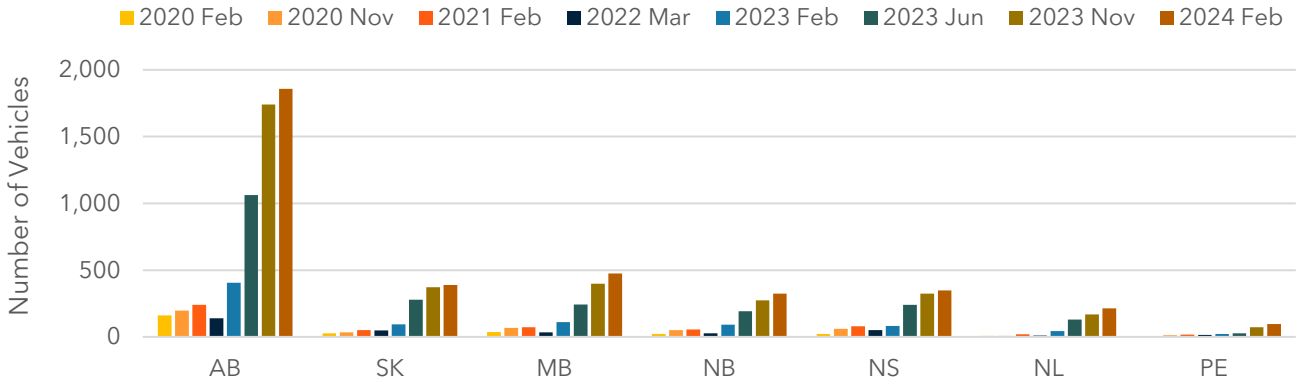
92% in 2020. With the three major provinces making up about 75% of the total population in Canada, we consider this increased concentration in select provinces as a slight negative impact with regards to broader ZEV availability across Canada. The average inventory increase from February 2023 to February 2024 was **635%** for the three provinces below.

Figure 3-2. Vehicle Inventory by Province – all results (BC, ON, QC).



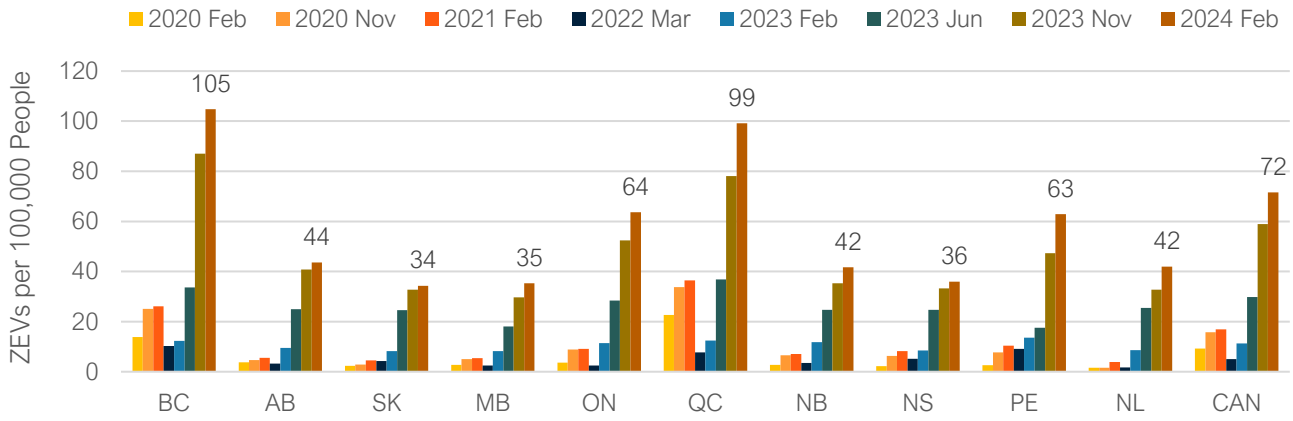
An increase in inventory was also apparent in other provinces across Canada. Every other province shown below saw their total inventory increase in the three months between November 2023 and February 2024 - with an average inventory increase of 17%. The average inventory increase from February 2023 to February 2024 was **333%** for the provinces below.

Figure 3-3. Vehicle Inventory by Province – all results (AB, SK, MB, NB, NS, NL, PEI).



To put these numbers into perspective, Figure 3-4 presents the inventory data between provinces normalized to population (based on 2021 Census data). As shown, every province across Canada increased their inventory levels over the last five data collection periods (since March 2022), with the most recent increases taking place in Canada's more densely populated provinces (with PEI being a positive outlier as it saw higher relative per capita growth than BC over the past year). As of February 2024, British Columbia leads in the number of ZEVs available per 100,000 people (105 ZEVs), followed by Quebec (99 ZEVs) and Ontario (64 ZEVs).

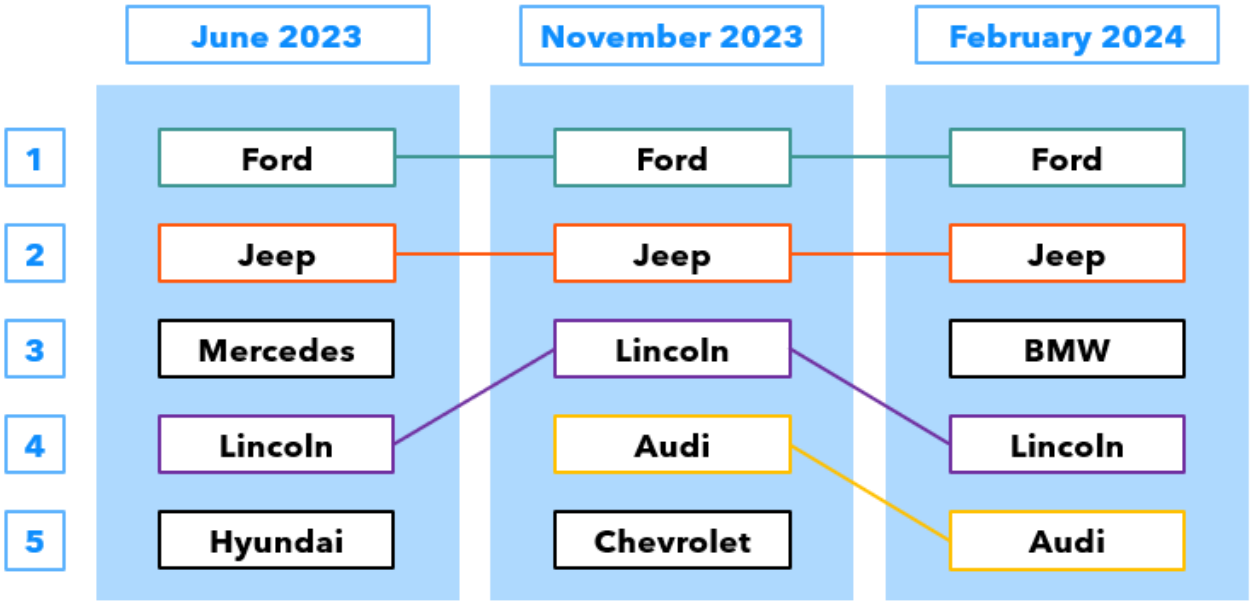
Figure 3-4. ZEVs Available for Purchase per 100,000 People



3.1.2 Availability by Automaker

Inventory data from the November 2023 and February 2024 collection periods outline a steady trend in the distribution of ZEV availability across all automakers- with the top five ZEV automakers accounting for a 68% share of total inventories in November 2023 and 61% in February 2024. This compares to 67% in June 2023 and 58% in February 2023. Figure 3-5 below outlines the top 5 automakers by inventory availability for the three most recent data collection periods.

Figure 3-5. Top 5 Automakers by inventory availability.



As shown in the figure above, Ford, Jeep, and Lincoln are the only automakers that have stayed in the top five positions within the last three data collection periods. Ford's availability remains high across

Canada amidst reports of increased sales and production of its EV models across North America in 2023.[24]

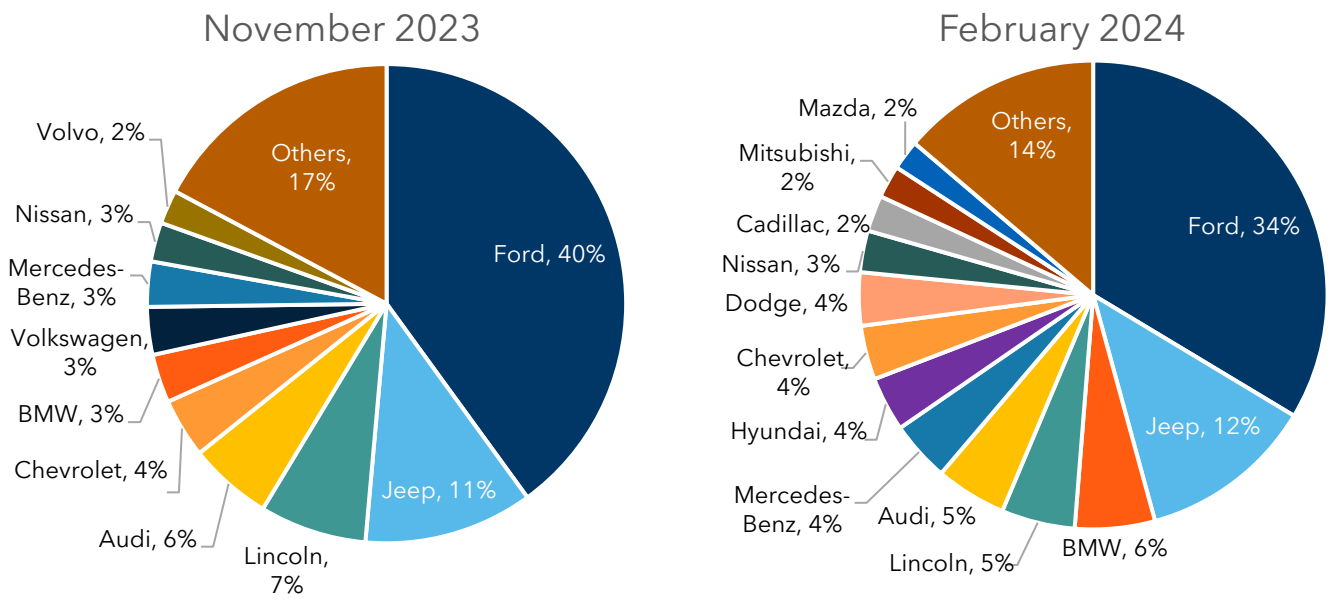
Similarly, Jeep has been keeping its dealerships well stocked with its two plug-in hybrid vehicle offerings – the Wrangler 4xe and the Grand Cherokee 4xe - the former of which makes up almost 80% of the automaker's ZEV inventory across Canada.

BMW made up over 5% (1,459) of total ZEV inventory supply in February 2024 compared to just 3% (713) in November 2023 and just 1% (145) in June 2023. The significant increase in inventory in less than a year stems from BMW AG's strong EV demand outlook combined with efforts to catch up to Tesla and Chinese EV automakers that continue to pull away in the global EV sales race following aggressive price cuts throughout 2023.[25]

Lincoln has consistently found itself within top five spots in terms of ZEV inventory over the past three data collection periods - ranging from 8% in June 2023, to 7% in November 2023 and most recently at 5% in February 2024.

With eight ZEV models targeting the luxury market, Audi has consistently contributed to a 5-6% range of Canada wide ZEV inventory over the past year (February 2023 to February 2024).

Figure 3-6. National ZEV Inventory by Automaker as a Percentage of Total Inventory



[24] Ford.com. "*Ford increasing production of popular electric, gas, hybrid vehicles in response to strong customer demand*". Accessed July 2023.
[25] Bnnbloomberg.ca *"BMW Raises Outlook for Vehicle Delivers on Strong EV Demand". Accessed March 2024.*

3.1.3 Availability by Geography (Urban vs. Rural)

Inventory by geographic areas is shown for each data collection in Figure 3-7 and Figure 3-8, below. The key metric used to differentiate between urban and rural inventory was determined based on dealership postal codes, whereby postal codes containing 0s as the second character represent a rural area.[26] While this method is no longer used by Statistics Canada, which adopted the *Population Centre and Rural Area Classification 2016 method* to determine what constitutes a rural area versus an urban area (population centre), the postal code method is the most feasible and efficient way to collect this data in the context of this study.[27] It should be noted that this difference introduces some uncertainty relating to the data presented here.

Figure 3-7. ZEV inventory by geographic area – November 2023

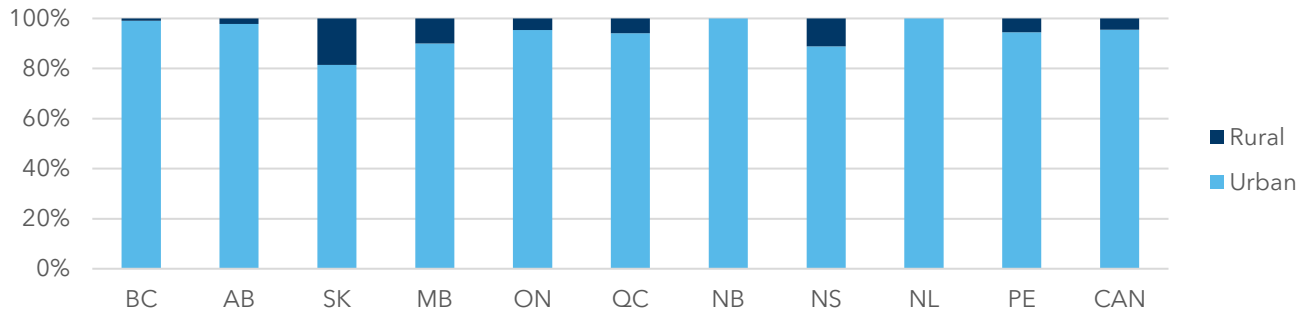
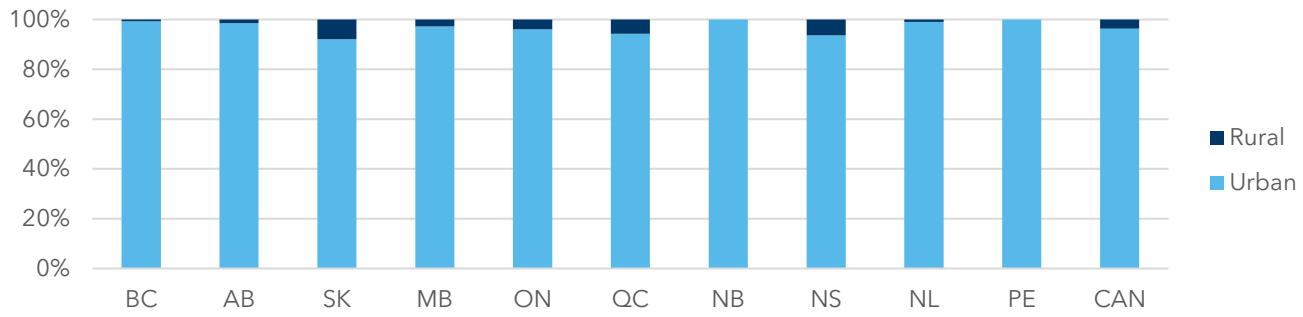


Figure 3-8. ZEV inventory by geographic area – February 2024



As shown above, inventory levels by geographic area for both periods remained stable between November 2023 and February 2024 - with observable rural decreases shown in Saskatchewan, Manitoba, Nova Scotia, and Prince Edward Island in February. Overall, 18% of the Canadian provincial population is considered to live in rural areas with the provincial figures ranging from 13% (BC & ON) to 54% (PEI).[28]

[26] Statistics Canada. "How Postal Codes Map to Geographic Areas. Accessed July 2023.
[27] Statistics Canada. "Population Centre and Rural Area Classification 2016". Accessed July 2023.
[28] Statistics Canada. "Population growth in Canada's rural areas, 2016 to 2021". Accessed July 2023.

Figure 3-9. Inventory by geographic area and Rural % Inventory

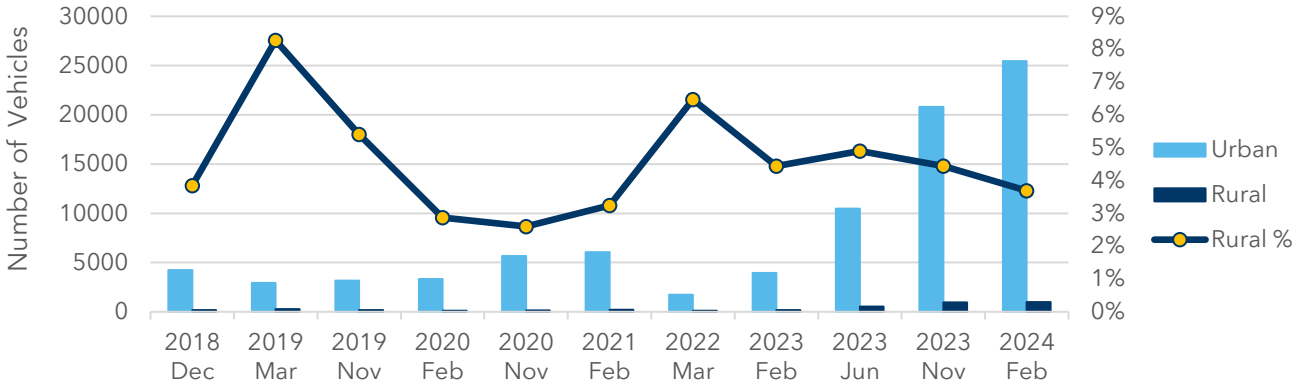


Figure 3-9 above outlines the change in urban vs rural inventory since December 2018 along with the percentage of total rural inventory across Canada. Rural inventory made up 3.8% of total inventory across Canada in February 2024. This compares to 4.4% in November 2023 and 4.9% in June 2023.

3.2 Inventory Relative to Sales

This section evaluates the adequacy of ZEV inventories using a common dealership inventory metric that combines inventory levels with historic vehicle sales rates: days of supply.

Days of Supply
A Metric for Dealership Inventory

Car dealerships use inventory management practices to balance the selection of vehicles available to customers with the demand for those vehicles. Days of supply is a common metric used to manage inventory, developed using historical sales data and used when determining which and how many models should be ordered. Using sales data, dealerships can calculate the number of a particular model of vehicle that are sold per day. These values are then used to fill orders for new vehicles to ensure that enough vehicles will be available to meet expected demand.

Dealerships will typically have guidelines for the minimum and maximum number of days they aim to stock vehicles for. Based on industry feedback, this report uses an optimal days of supply threshold range between 40 and 80.

For any given period "X", the following equation is used to calculate the days of supply metric:

$$Days\ of\ supply_{period\ X} = \frac{Current\ inventory_{period\ X}}{Number\ of\ vehicles\ sold_{period\ X}} \times Number\ of\ days_{period\ X}$$

Table 3-3 & Table 3-4 below summarize days of supply for inventory collected in November 2023 and February 2024 with sales data from October to December 2023. Table 3-5 summarizes the days of supply across all data collection periods, aggregated to the provincial level for each respective period. It should be noted that the days of supply metric may be of limited use for automakers given certain industry trends. In particular:

- As previously described, Tesla, VinFast, and Polestar use a factory-order model – an inventory model most seen in the luxury vehicle market – whereby they allow consumers to place customized orders instead of stocking a variety of vehicles for purchase on the lot. Given Tesla's high sales per day rates and low inventory model, as well as VinFast and Polestar's recent entry into the Canadian market, the days of supply metric will skew the aggregated calculations across provinces and Canada-wide.

- It is important to assess the days of supply metric in combination with the absolute inventory values presented in Table 3-1 and Table 3-2 to allow for a fulsome picture of how inventory is tracking with sales rates.

- When assessing EV markets, an apparent **'over-supply' can be a result of low historical sales rather than high inventory levels**. In these markets, a higher days of supply target may be warranted to recognize that historic sales are likely a poor indicator of true demand given the historic lack of availability.

The average days of supply for ZEVs across Canada was 47 days in February 2024, marking a significant increase in inventory levels across provinces and automakers relative to the previous year where the days of supply of ZEVs was 18 days (February 2023). The 47 days of supply for February 2024 is within the target supply range by traditional auto industry standards. Additional insights on the results by province and automaker are provided below.

Table 3-3. Days of Supply by Province and Automaker – November 2023

Over-supply > 80 | Target-supply | Under-supply < 40

No inventory | No sales data

Automaker	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	All
Alfa Romeo	96	350		239	153	22					82
Audi	31	146	143	348	77	26	69	129		31	46
BMW	59	77		55	35	30	61	8		31	42
Cadillac	126	110	153	15	37	23	31	92		123	54
Chevrolet	84	44	59	114	63	6		21	12		23
Chrysler	32	84			34	31	23	107			35
Dodge	368	266	1,150	491	129	134	184	644		368	176
Ford	175	216	319	225	243	146	127	133	170	169	181
Genesis	13	42	46	46	28	118				138	47
Hyundai	12	22	36	16	12	2	11	12	3	25	8
Jaguar	115				215	368					192
Jeep	146	162	151	197	269	148	117	101	221	166	180
Kia	12	65	46	16	16	5	18	18	8	24	11
Land Rover	31										4
Lexus	6	10			4	8					6
Lincoln	714	1,702	3,082		981	631	460	414	1,380		925
Mazda	56	104	69	75	50	35	131	65	31	138	48
Mercedes	53	35	230		47	44	92	59		31	48
Mini	147	237	368		133	98	736	92			129
Mitsubishi	7	24	15		16	1	3	5		31	6
Nissan	53	81	92	46	110	51			15		57
Polestar	14					3					4
Porsche	106	635	138	129	53	119		92			111
Subaru	114	147	736	58	99	14	46	55	184		46
Tesla	3	3	22		2	1		24			2
Toyota	8	7			1	4					5
VinFast	41				38						21
Volkswagen	50	170	207	67	34	14	39	80		43	27
Volvo	35	58	276		57	12	55			276	30
All[29]	37	78	124	80	51	26	47	42	39	60	**38**

[29] Weighted sales average.

Table 3-4. Days of Supply by Province and Automaker – February 2024

Over-supply	> 80	Target-supply		Under-supply	< 40
No inventory		No sales data			

Automaker	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	All
Alfa Romeo	184	368		276	329	168					217
Audi	47	150	164	358	58	36	54	104		12	49
BMW	103	101			86	76	46	8			86
Cadillac	377	230	337	77	134	81	77	429	184	399	168
Chevrolet	100	130	117	211	67	3	14	52	23	61	25
Chrysler	75	54	184		189	46	92	291			84
Dodge	1,165	797	1,840	399	467	338	368	736		736	457
Ford	194	214	154	196	235	158	113	76	106	147	185
Genesis	17		77	46	25	26				138	25
Hyundai	26	49	90	44	28	3	63	34	72	94	18
Jaguar					77						42
Jeep	249	194	189	213	352	180	83	89	147	156	232
Kia	27	83	98	41	22	3	8	18	15	24	15
Land Rover		759			26	115					155
Lexus	25	3			2	7					10
Lincoln	600	1,209	2,576		809	653	483	414	1,104		787
Mazda	45	211	69	109	95	58	158	130	61	138	75
Mercedes	90	43	199		76	79	145	176		123	80
Mini	107	66	184		95	100	644	31			100
Mitsubishi	12	44	123	119	47	8	52	14	79	184	21
Nissan	27	58		46	182	85		23	15		75
Polestar	1					3					2
Porsche	144	350	138	92	61	173		276			122
Subaru	65	110	644	81	102	52	46	74	92		62
Tesla	2	3	22		2	2		13			2
Toyota	13	18	12		13	3	11	2		7	6
VinFast	32				54	2					26
Volkswagen	17			86	54	10				12	16
Volvo					66	25					29
All[30]	45	84	130	95	62	33	55	46	48	81	**47**

[30] Weighted sales average.

Table 3-5. Days of Supply by Province and Data Collection Period – all periods

Over-supply	> 80	Target-supply		Under-supply	< 40
No inventory		No sales data			

Period	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	All
Feb 2024	45	84	130	95	62	33	55	46	48	81	**47**
Nov 2023	37	78	124	80	51	26	47	42	39	60	**38**
Jun 2023	13	51	92	56	27	14	32	35	14	41	**20**
Feb 2023	7	41	50	45	25	14	39	22	49	48	**18**
Mar 2022* [31]	44	65	65	72	18	11	86	52	368	119	**36**
Feb 2021*	67	120	177	119	98	49	109	130	147	86	**62**
Nov 2020*	56	89	87	132	86	40	115	126	79	37	**51**
Feb 2020*	19	47	53	50	22	29	47	43	28	67	**26**
Nov 2019*	12	24	39	35	16	24	16	20	20	31	**19**
Nov 2018*	49	100	87	128	23	37	501	115	0	56	**36**

**** Excludes Tesla and days of supply numbers are based on a simple average (as opposed to weighted).***

3.2.1 Results by Province

Supply days by province continue to vary across the country. Amidst a streak of record inventory levels over the last three data collection periods, February 2024 inventory saw 47 average days of supply for ZEV vehicles across Canada – putting it within target supply for the first time since 2021. Quebec was the only province considered to be under-supplied, with 33 days of ZEV supply in the latest data collection period. This contrasts with SK, MB, AB, and NL, which were each considered as oversupplied with 130, 95, 84, and 81 days of supply, respectively.

By comparison, November 2023 inventory saw 38 average days of supply for ZEV vehicles – falling just shy of the target-supply range of 40-80. Despite having a lower average day of supply relative to February 2024, more than half of the provinces saw their supply of ZEVs within the target range. Conversely, QC, BC, and PEI were each considered undersupplied in November, whereas SK was the only oversupplied province.

[31] March 2022 and previously dated "*Days of Supply*" provincial summaries were calculated using a simple average as opposed to a weighted average while also excluding Tesla

3.2.2 Results by Automaker

The make with the highest days of supply across Canada in February 2024 was Lincoln, at 787 days, whereas Tesla and Polestar both had the lowest days of ZEV supply at just two days. Assessed on a Canada-wide basis, Audi, Jaguar, Mazda, Mercedes-Benz, Nissan, and Subaru were the only automakers within the target days of supply range. Eleven automakers, managed to meet or exceed demand (as measured through days of supply), resulting in an over-supply Canada-wide. Among these 11, Dodge and Lincoln both saw oversupplies in every province they operate in. The remaining 12 automakers fell short of the 40-80 days of supply target range.

It should be noted that the days of supply metric has limited use when assessing EV markets. An apparent 'over-supply' can be a result of low historic sales rather than high inventory levels.

Of note, Tesla's high sales values paired with low inventory values (due to their factory-order model) results in skewing province-wide and Canada-wide days of supply calculations. Tesla's performance also highlights that having ZEVs available in inventory is not essential for achieving high ZEV sales, at least for some segments of the market.

3.3 ZEV Model Diversity

3.3.1 Availability by Province

The number of unique ZEV makes and models available in each province are shown in Figure 3-10 and Figure 3-11 below, highlighting the selection available to consumers. The number of makes available by province increased when compared to previous years, reversing the historical downward trend most provinces saw from 2020 through 2022. Like previous years, Canada's three most populated provinces—British Columbia, Ontario, and Quebec—lead with the greatest ZEV selections for customers, both in terms of makes and models.

Over the past year (February 2023 to 2024), every province saw make and model availabilities increase. From November 2023 to February 2024, five provinces (BC, AB, SK, MB, NB) saw their make availabilities marginally decrease with the remaining provinces staying flat (NS, NL) or slightly increasing (ON, QC, PE).

Regarding models, eight provinces (BC, AB, SK, MB, ON, QC, NB, NS) saw their availabilities decrease from November 2023 to February 2024, whereas PE saw an increase of four models and NL was flat.

Figure 3-10. Number of Makes Available by Province

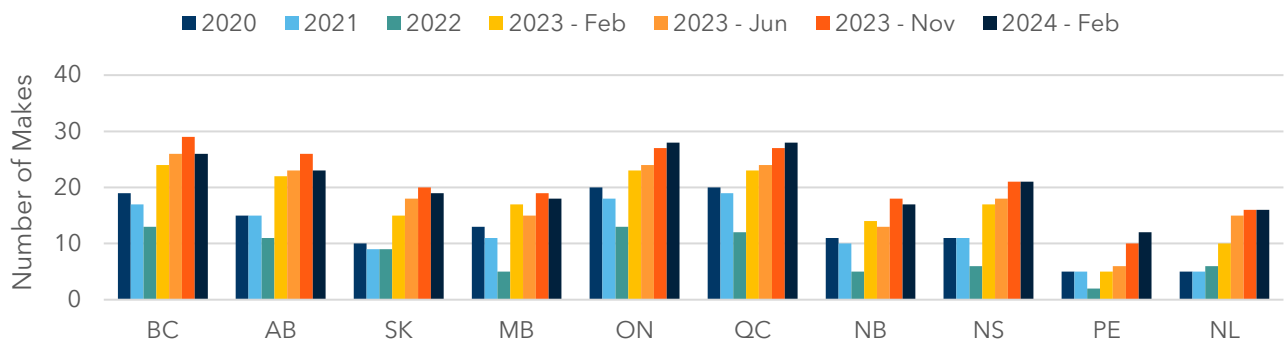
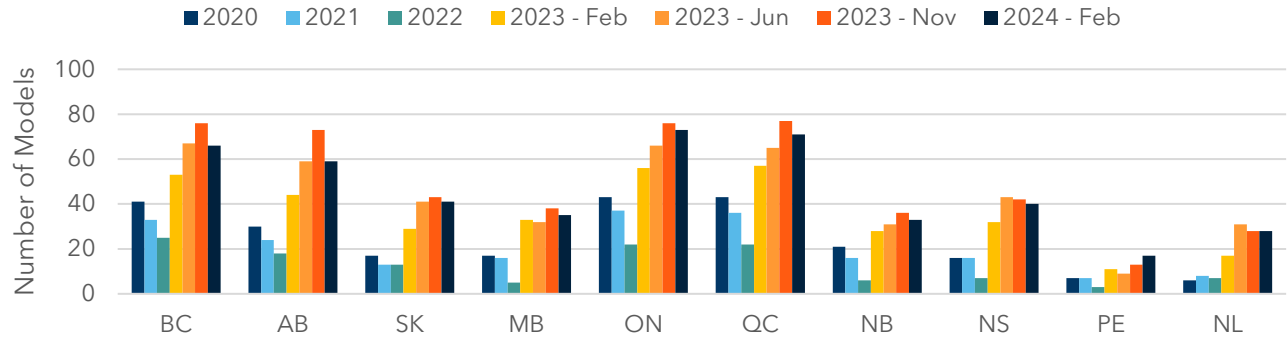


Figure 3-11. Number of Models Available by Province



Compared to previous years, the number of makes and models available to ZEV shoppers in the last two data collection periods has improved significantly from the lows observed in 2022. This can be attributed to a rebound in inventories across Canada along with new models coming onto the market. Overall, half of the provinces had the same or more brands to purchase from in February 2024 relative to November 2023.

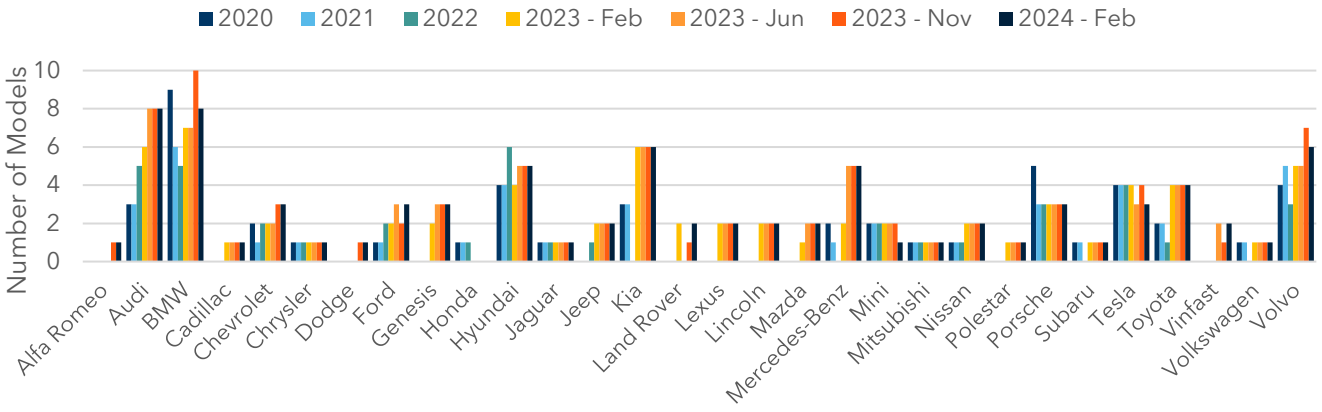
Conversely, model optionality decreased slightly in every province in February 2024 expect for PE and NL. This is most likely due to inventory rollover of 2023 models that were available in November 2023 while the updated 2024 version of these models may not have yet been available in certain provinces in February 2024.

3.3.2 Availability by Automaker

The number of unique models available in inventory from each automaker is shown in Figure below. Based on the two latest data collection periods, availability of different automaker models has stabilized with more than two-thirds of automakers maintaining the same number of models available since June 2023. Audi and BMW each had eight different models available in February 2024, whereas BMW had a total of 10 models on offer in November 2023.

BMW, Mini, Tesla, and Volvo were the only makes that saw their February 2024 model options decrease relative to November 2023. Whereas Ford, Land Rover, and VinFast were the only manufacturers that saw their model options increase (each by one model).

Figure 3-12. Number of ZEV Models Available in Dealership Inventory by Automaker across Canada

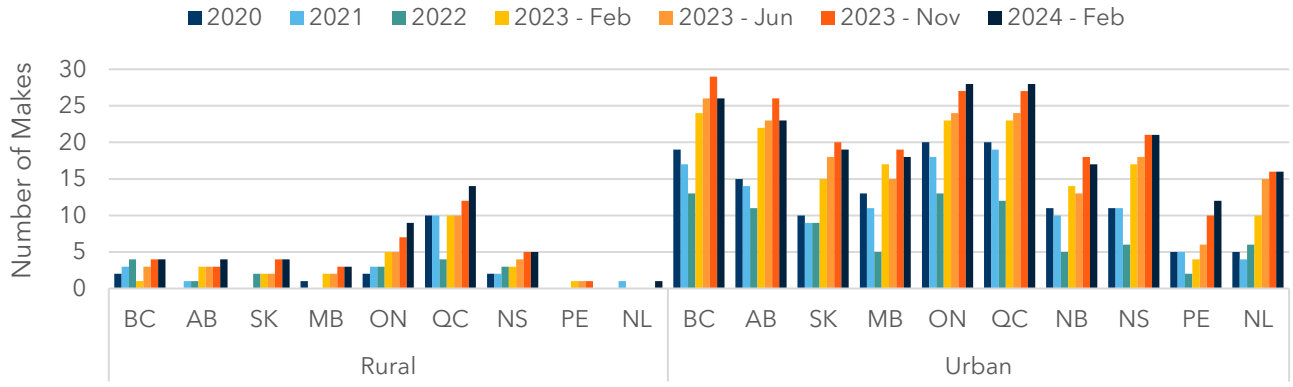


3.3.3 Availability by Geography (Urban vs. Rural)

The number of unique models available from each automaker by geographic area and province is shown in Figure 3-13 and Figure 3-14, below. Based on these figures, plus the Urban vs. Rural findings provided in section 3.1.3, there is a significant disparity for in-person ZEV purchasing options between rural and urban areas across Canada. However, this impact is mitigated by a growing number of OEMs offering online purchasing and make-to-order delivery of their models.

Fortunately, in-person purchasing options for both makes and models have either stayed the same or increased for rural areas between November 2023 and February 2024 - with the exception of PE.

Figure 3-13. Number of Makes Available by Province & Geographic Area

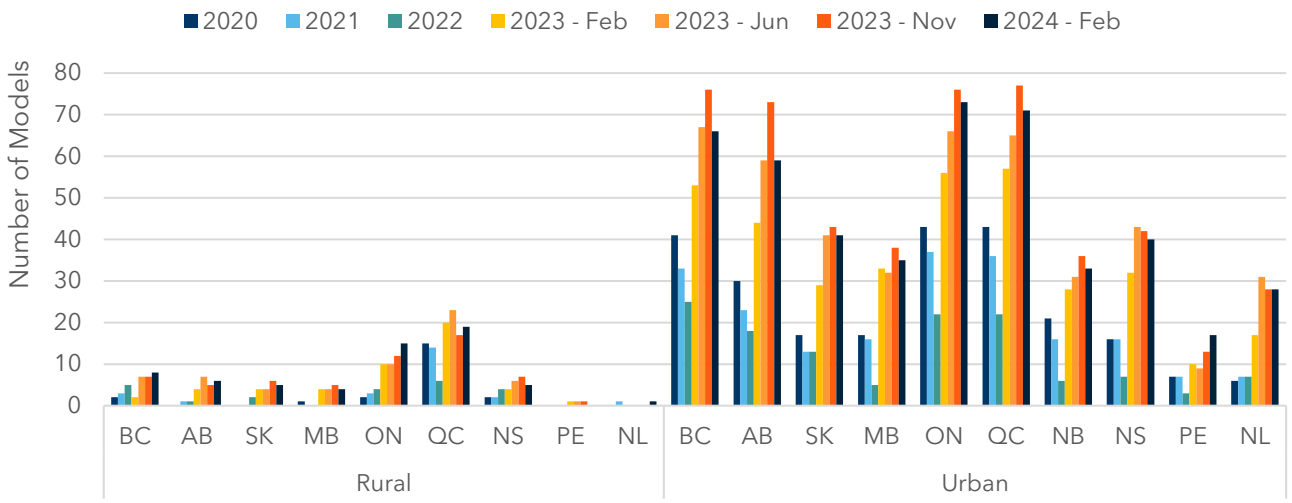


The number of make options decreased in urban areas from November 2023 to February 2024 for half of the provinces (BC, AB, SK, MB, NB). Only ON, QC, and PE experienced make availability increases

while NL was the only province that recorded no changes. There were no ZEV makes available in rural regions within NB and PE for February 2024.

The number of model options decreased from November 2023 to February 2024 for most urban areas except for PE and NL, which saw one more and the same number of models available, respectively. In rural areas in BC, AB, ON, QC and NL, model availabilities increased by 1, 1, 3, 2, and 1, respectively, while every other province recorded one fewer model available - except NS, which had two less. Similar to makes, no ZEV models were available in rural regions within NB and PE in February 2024.

Figure 3-14. Number of Models Available by Province & Geographic Area



3.3.4 Split of BEV vs PHEV

In addition to the overall selection of ZEV models, powertrain type is also an important consideration for ZEV shoppers. The ZEV categories included in this analysis are:

- **Battery Electric Vehicle (BEVs)** which run exclusively on electricity.
- **Plug-in Hybrid Electric Vehicles (PHEVs)** which offer sufficient electric-only range for typical daily driving distances while relying on an internal combustion engine for longer trips.

New to 2023 & 2024, inventory data was recorded across QC and ON for Toyota's Mirai Fuel Cell Electric Vehicle (FCEV), which showed inventory levels of three models for both recent collection periods. FCEV inventories are excluded from the BEV vs. PHEV analysis in this section.

Figure 3-15 and Figure 3-16 below show the percent of vehicles available in inventory in each province by powertrain type for the two latest data collection periods. Figure 3-17 present BEV vs PHEV trends over time, based on previous data reporting collection periods.

Figure 3-15. Split of BEV vs PHEV Available for Purchase by Province – November 2023

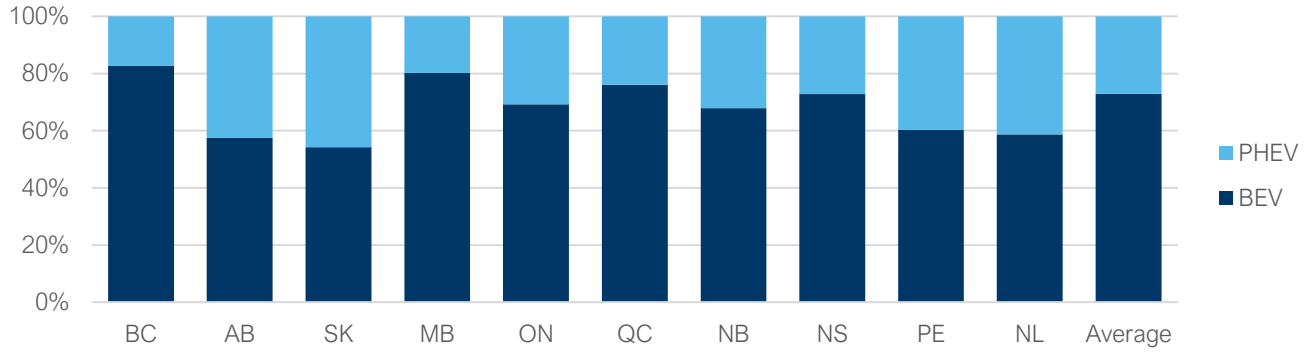


Figure 3-16. Split of BEV vs PHEV Available for Purchase by Province – February 2024

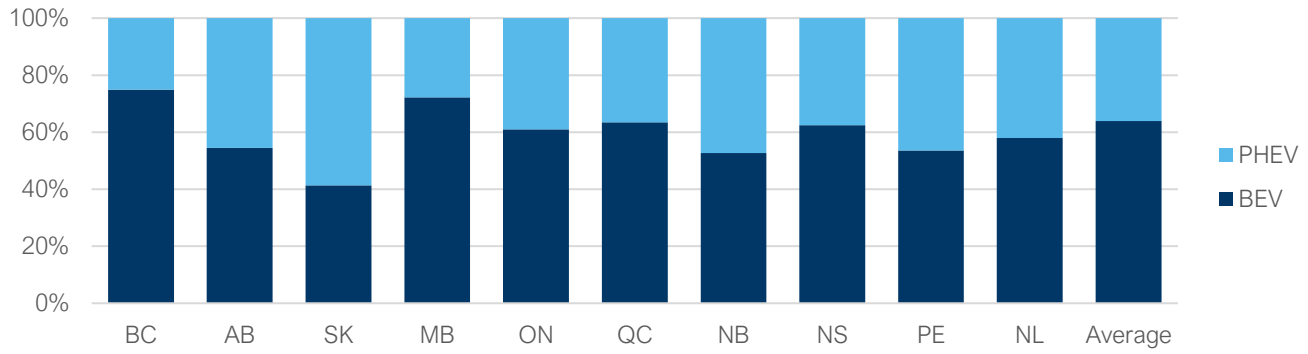
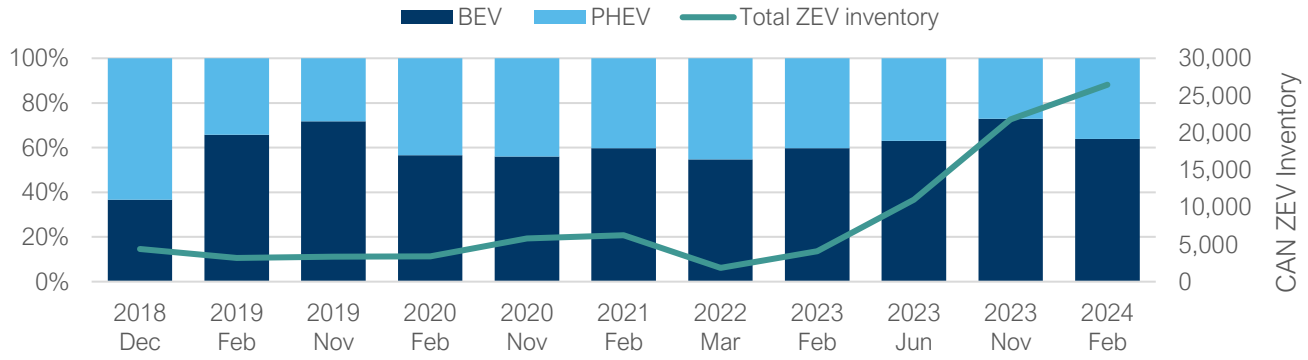


Figure 3-17. Historical Split of BEVs vs PHEVs Available for Purchase Across Canada



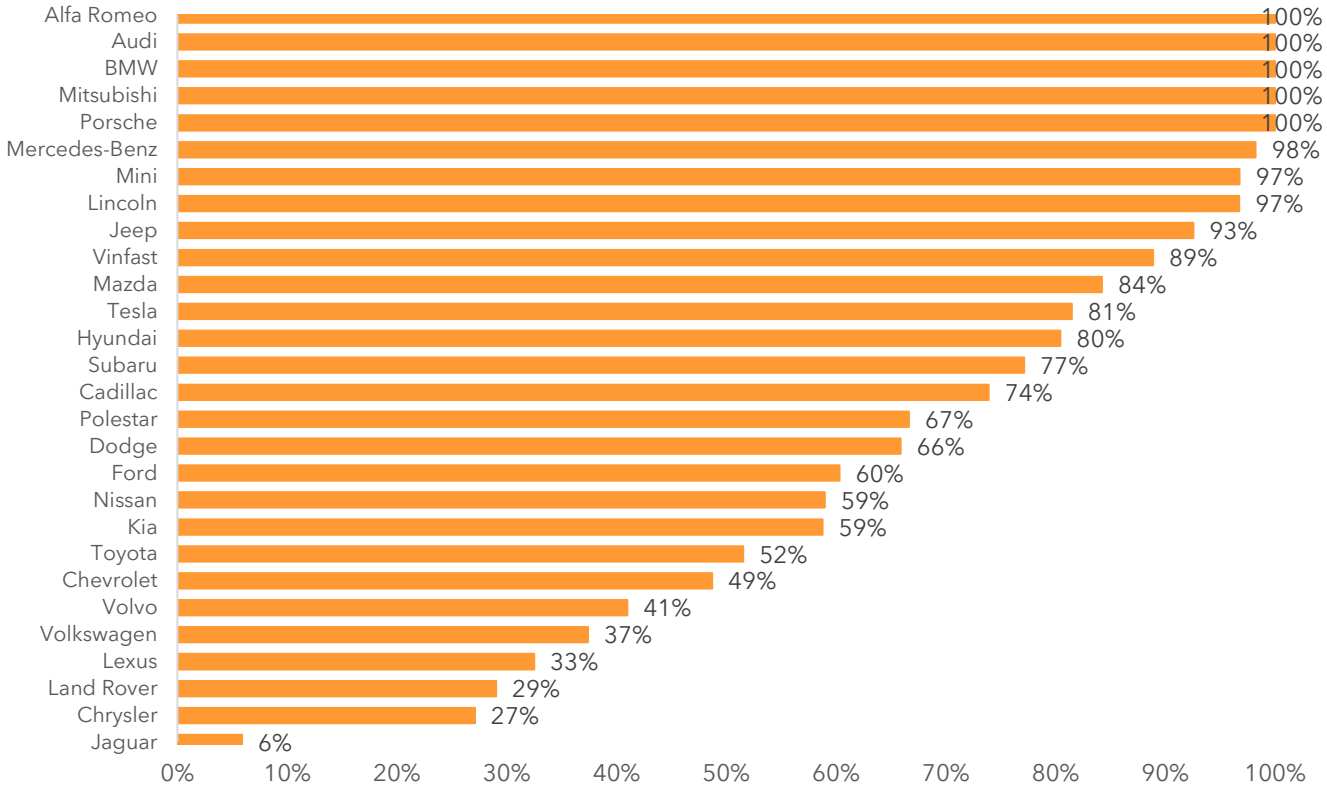
An increasing trend in BEV's share of the market took place between 2018-2019, reaching 72% of inventory levels in November 2019. This was primarily due to the introduction of widely popular BEVs, reduced concern among consumers in BEV's range, growing charging infrastructure, and price stability. For the three years that followed between February 2020 and 2023, the Canada-wide inventory share for BEVs has remained stable, representing 55%-60% of the total ZEV inventory. Based on more recent inventory data, BEV relative to PHEV inventory increased to 63% in June 2023, followed by a high of 73% in November 2023. This recorded high has since decreased to 64% in February 2024.

On a provincial level, the last two data collection periods revealed a slight divergence in the BEV vs PHEV availability mix across the country. This contrasts with the two previous periods of February and June 2023, which saw fewer differences between provinces' BEV and PHEV shares. In particular, for the November 2023 and February 2024 periods, BC had the highest relative share of BEVs at 83% and 75%, respectively. Conversely, SK had the lowest relative share of BEVs at 54% and 41% for the same respective periods.

3.4 Availability by Dealership

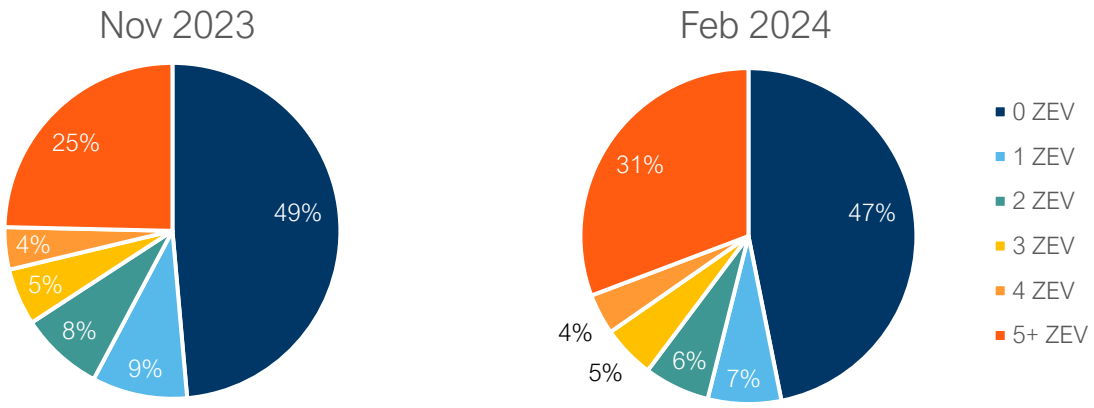
One way to measure the Canadian consumer ZEV shopping experience is by looking at the number of ZEVs in stock at a given dealership and available for consumers to choose from. Figure 3-18 below shows the percentage of dealerships for each automaker with at least one ZEV in inventory. Five automakers (Alfa Romeo, Audi, BMW, Mitsubishi, Porsche, and Mercedes-Benz) had at least one ZEV available at each of their dealerships in February 2024. Conversely, only 6% of Jaguar dealerships possessed ZEV inventory for this same period.

Figure 3-18. Percentage of dealerships with at least one ZEV available – February 2024



Having at least one ZEV available at a dealership allows interested shoppers to see and potentially test drive a ZEV model in person - while having more than one ZEV in stock can help a potential buyer find a model that fits their expectations in terms of personalization (e.g., trim level, colour), increasing the likelihood of a purchase taking place that same day. Figure 3-19 shows the number of ZEVs available per dealership across Canada for the two most recent data collection periods.

Figure 3-19. Number of ZEVs Available per Dealership



As shown above, both November and February data collection periods saw more than half of all dealerships possessing at least one ZEV in stock. In addition to a significant improvement in the number of ZEVs available across dealerships, 31% of dealerships had five or more models in February. This surpasses the 25% level shown in the November period as well as the previous record of 21% set in June 2023.

Figure 3-21 below shows the number of ZEVs available per dealership by province for February 2024. Data on the number of ZEVs available per dealership by province collected for this report indicate a significant improvement to what was observed just one year ago. According to data collected in February 2023, most dealerships had no ZEV inventory and all provinces except BC had at least 50% of dealerships with zero supply. While discrepancies remain between the provinces, they have been significantly reduced by February 2024, with over 60% of all dealers in each province possessing at least 1 ZEV in inventory.

In February 2024, British Columbia was the province with the greatest share of dealerships with five or more ZEV models on lots, at 53%, with Ontario in second at 44%. Similarly, BC was the province with the lowest share of dealerships with zero ZEV models on lots, at 20%, with Ontario close behind at 24%. The province with the lowest share of dealerships with five or more models was Nova Scotia at 25%, while the province with the highest share of dealerships with no ZEV model offerings was New Brunswick, at 42%.

Figure 3-20. Number of ZEVs Available per Dealership by Province - November 2023

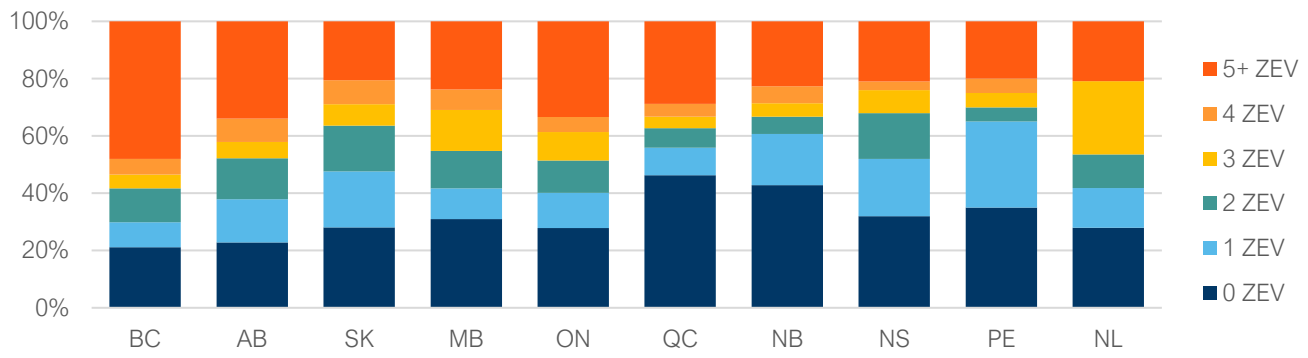
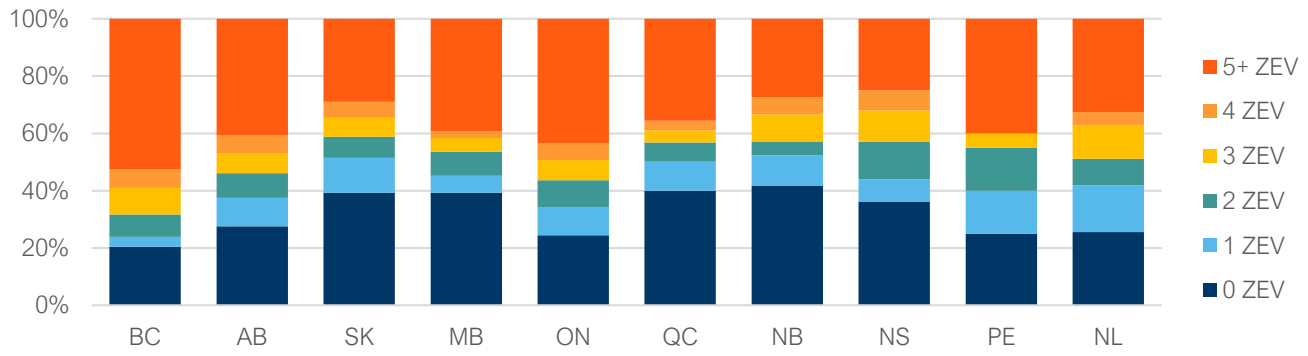


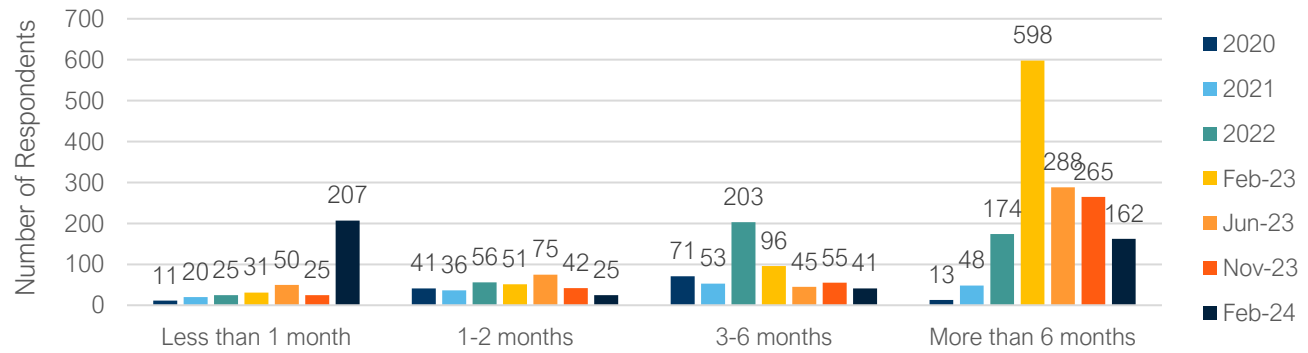
Figure 3-21. Number of ZEVs Available per Dealership by Province – February 2024



3.5 Wait Times & Dealer Comments

Wait time is another important consideration for consumers looking to purchase a new vehicle, especially in the case of automakers that do not have significant inventory. For instance, a low inventory may be acceptable for some shoppers if a ZEV can be ordered and received promptly. Dealerships that were surveyed by phone (1,468 out of 4,240 dealerships were surveyed by phone, 35%) and did not have any ZEVs available were asked how long the wait would be. Figure 3-22 includes the wait times estimated by these dealerships.

Figure 3-22. Expected Wait Times for Dealerships with Zero ZEVs Available



In February 2024, 36% of dealerships with no inventory were able to offer an estimated wait time when asked, a decrease from the record of 60% set in February 2023. In November 2023, 34% of dealerships were able to offer an estimated wait time when asked.

Of those that provided wait times in February 2024, almost half of the dealerships (48%) responded that the wait time would be less than one month. This outlines a significant improvement when compared to just three months prior, when only 6% of dealerships estimated wait times of less than a month in November 2023. Along with a decreasing trend in estimated wait times over six months, these trends may indicate that supply chain issues have eased and/or that a significant amount of supply is expected to be delivered from March 2024 and beyond.

Figure 3-23 and Figure 3-24 below show expected wait times by province for data collected in November 2023 and February 2024, respectively. Data labels in these charts show the number of respondents.

Figure 3-23. Expected Wait Times by Province (Number of Responses) – November 2023

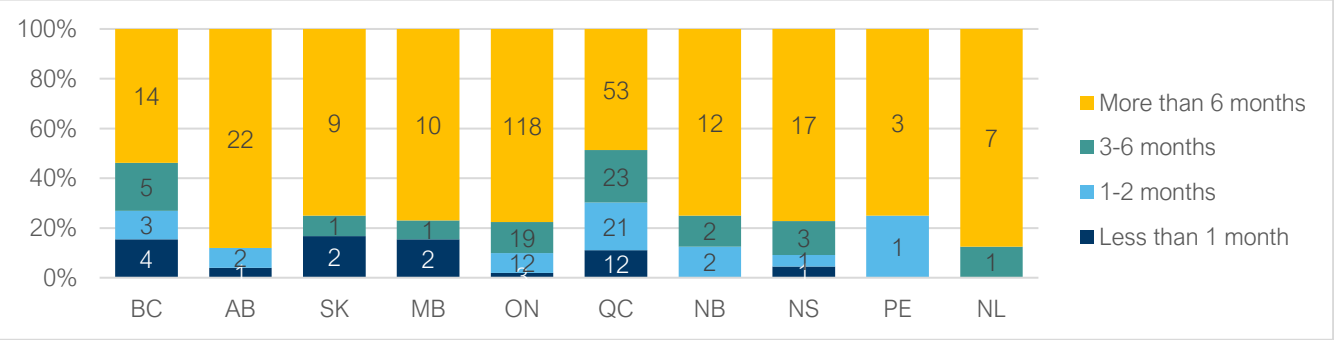
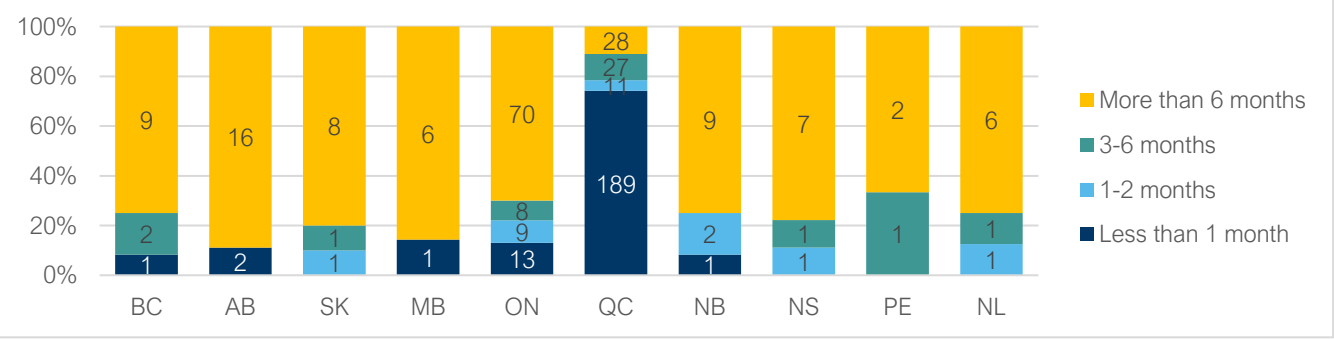


Figure 3-24. Expected Wait Times by Province (Number of Responses) – February 2024



More than half of survey wait time respondents in February 2024 came from Quebec. This coincides with the province's dealer's estimating much shorter wait times than other provinces across Canada.

It should be noted that the sample sizes in the Atlantic provinces are rather small compared to other provinces. Despite this, the data suggest that wait times have increased for every province except Ontario and Quebec.

Those fielding the survey also took note of information dealership representatives provided without prompting. This information included recommendations for future ZEVs that would be available near-term, recommendations for non-ZEV alternatives, and mention of government rebates for ZEVs. The results are summarized in Table 3-6, below.

Table 3-6. Unprompted Responses from Dealerships

Unprompted Responses	Feb 2023		June 2023		Nov 2023		Feb 2024	
	Yes	***No***	***Yes***	***No***	***Yes***	***No***	***Yes***	***No***
Recommended future ZEVs that would be available soon	92	1,212	5	1,302	51	1,101	35	1,178
Recommended non-ZEV instead	123	1,181	242	1,065	15	1,137	51	1,162
Mentioned government rebates	178	2,252	362	945	23	1,129	48	1,165

As shown, recommendations of non-ZEV vehicles have decreased significantly from Feb 2023 to Feb 2024, coinciding with the lower levels of expected wait times. The mentioning of government rebates has also decreased dramatically over the past year, with only 4% of dealers mentioning rebates to prospective callers in February 2024 compared to 28% in June 2023.

The low response rate to the wait time questions and limited unprompted responses likely also reflects the limitations of the phone-based approach. It is presumed that an in-person secret shopper approach would be more effective at receiving responses to these additional questions and would give a more fulsome representation of the typical ZEV shopping experience.

4. CONCLUSION

4. Conclusion

This report presents a snapshot of ZEV inventory in dealerships across Canada captured in November 2023 and February 2024, as well as earlier data collections in February and June 2023 which are detailed in Appendix A. Previous reports in this series summarized data collected in 2018, 2019, early 2020, November 2020, February 2021, and March 2022. In each report, absolute inventory numbers are highlighted then contextualized using historical sales rates to measure inventory in terms of days of supply. Inventory levels were analyzed by province and automaker. Additional data is presented related to powertrain types, the number of vehicles per dealership, and, for dealerships with no ZEVs in stock – the wait time to receive a vehicle. Several key observations emerge from the latest sets of data collected:

- **Inventory and sales increased significantly** for both November 2023 and February 2024 compared to previous periods and reports. Making record highs, both November and February saw significant inventory improvements across most automakers and provinces. This increase in inventory bodes well for ZEV customers, who represented 11.7% of the total light-duty vehicle market in 2023 and are expected to account for an increasing share moving forward.

- As **global supply chain issues subside**, automakers have significantly increased and continued to invest in their ZEV manufacturing output - providing Canadians with greater options, both at the make and model levels. Increased production levels of ZEVs by the larger automakers may further invigorate competition, leading to additional price cuts for certain vehicle classes. Greater economies of scale within the next few years may also enable certain manufacturers to eventually compete on pricing with their ICE counterparts.

- **Automakers are showing a marked increase in initiatives to satisfy and expand the market** for zero-emission vehicles. Notably, Ford, Jeep, and BMW have the most substantial ZEV inventories in Canada, with the first two consistently ranking among the top five in ZEV inventory over the last three years. Conversely, while ZEV inventory is catching up with sales, there is still uneven participation among automakers; the top three automakers in ZEV inventory contribute to more than half of the inventory, while some large manufacturers remain underrepresented.

- **After peaking in February 2023, wait times appear to continue decreasing**. However, this observation is derived from a smaller sample of respondents and hinges on the premise that the contacted dealerships have no ZEVs in stock. This trend is inversely correlated with the increasing availability of ZEV inventory and its enhanced distribution across provinces and vehicle makes.

As outlined in the previous (2022) report, there is a growing trend towards new automotive retail models when it comes to ZEV sales. Almost every new automaker and a growing list of existing automakers are shifting towards online retailing in parallel to their transition towards an increasingly

electrified model lineup, including Ford[32] and Volvo.[33] A consumer insight study by Google revealed that 6% of Canadian shoppers bought their new car online in 2022—a 6-fold increase relative to pre-pandemic times. More notably, it was also revealed that 54% of buyers expect their next purchase to be contactless, from discovery to home delivery (online).[34] This growing trend towards online shopping will not only benefit online ZEV retailers but can benefit any manufacturer that is willing to make the necessary investments to sell their vehicles online.

As automakers shift to online inventories and consumers towards make-to-order sales, there is an expectation that ZEV inventory levels and their relative days of supply metrics will be lower than what has traditionally been the norm for the auto industry. To better understand the linkages between inventories and sales in the ZEV market, continued monitoring of online sales and the make-to-order retail model will be an important complement to this study on ZEV inventories.

Overall, with improving levels of inventory, advancements in technology, and streamlined shopping experiences, the Canadian ZEV market continues to drive innovation and grow amid a variety of economic headwinds that have affected traditional vehicle sales over the past few years.

[32] TechCrunch. (2022). "*Ford wants to restructure its dealership model to boost EV sales*". Accessed July 2023.
[33] Bloomberg. (2021). "*Volvo to go electric-only and shift sales online from 2030*". Accessed July 2023.
[34] ThinkWithGoogle. (2023). "*Five things you need to know about how Canadians will be car shopping in 2023*". Accessed August 2023.

APPENDICES

Appendix A: Results from February and June 2023 Data Collection

Appendix A – February and June 2023 Data

A.1 ZEV Inventory Levels

Figure 3-1Figure A-1 summarizes the ZEV inventory levels across Canada for each reporting period from December 2018 through June 2023. June 2023 showed the highest nationwide inventory available since the start of this analysis, reflecting a 166% increase over the previous reporting period (February 2023). While the February 2023 inventory also showed a significant improvement over last year, increasing by 125% over the previous period, levels were still below those observed in December 2018. It is important to note that, historically, June has higher sales volumes than previously reported months; therefore, the spike in June inventories may be due to anticipated higher demand by OEMs. Moreover, previous reports in this series have not captured June inventories, which is why this trend may not be visible in the historical data.

Figure A-1. Vehicle Inventory Canada-wide – all results

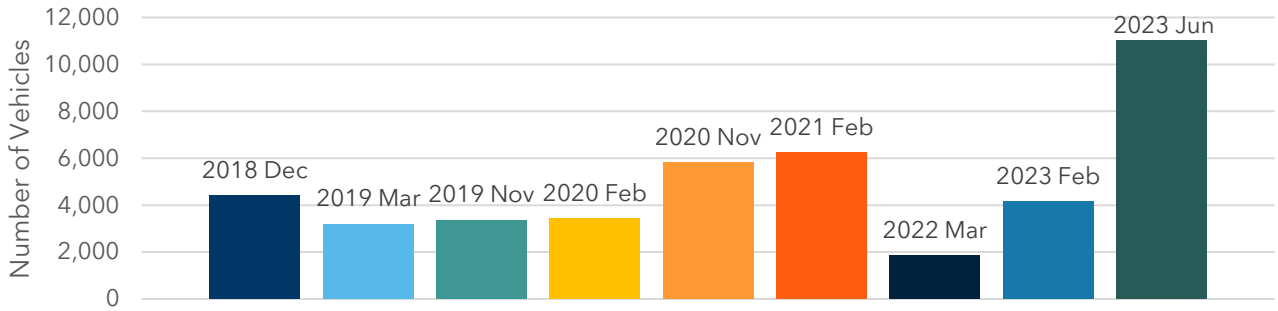


Table A-1 and Table A-2 provide detailed breakdowns of inventory results by province and automaker for each collection period. In contrast to the March 2022 report, inventory levels and make options increased significantly across provinces and geographic areas, particularly from February to June. Still, as of June 2023, only five out of 27 automakers possessed ZEV inventory in all 10 provinces across Canada. This compares to just three automakers in February 2023 and two in March 2022.

Table A-1. Vehicle Inventory by Province and Automaker – February 2023

Automakers	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Total
Audi	33	15	6	14	67	55	4	3			197
BMW	46	15			49	33		1		1	145
Cadillac			1	1	3			1		1	7
Chevrolet	125	11	3	4	65	80	9	9	6		312
Chrysler	1	1									2
Ford	98	130	34	22	158	52	9	5		11	519
Genesis	1	2		1	1	10					15
Hyundai	50	25	3	25	62	67	16	5	2	1	256
Jaguar	1	1		1	10	5					18
Jeep	22	67	18	19	500	69	14	16	1	7	733
Kia	2	5		6	22	391	14	22	11	15	488
Land Rover				4		11	3	2		3	23
Lexus	1	1			1	14	2				19
Lincoln	9	20	4		40	12		1			86
Mazda	23	11	4	3	58	45	6	7	1	3	161
Mercedes	8	3	4		40	8	1	2			66
Mini	9	4	2		16	8	1			1	41
Mitsubishi	8	13		2	29	10	4			1	67
Nissan	16	3	3	1	51	2		2			78
Polestar	10					1					11
Porsche	5	24	2	1	11	16		1			60
Subaru	17	6	1	2	16		2	1			45
Tesla	69	38	7		165	78		3			360
Toyota	16	2	1	1	206	64					290
VinFast											
Volkswagen	20				41	9					70
Volvo	27	8		3	10	18	7	1			74
February 2023	617	405	93	110	1,621	1,058	92	82	21	44	4,143

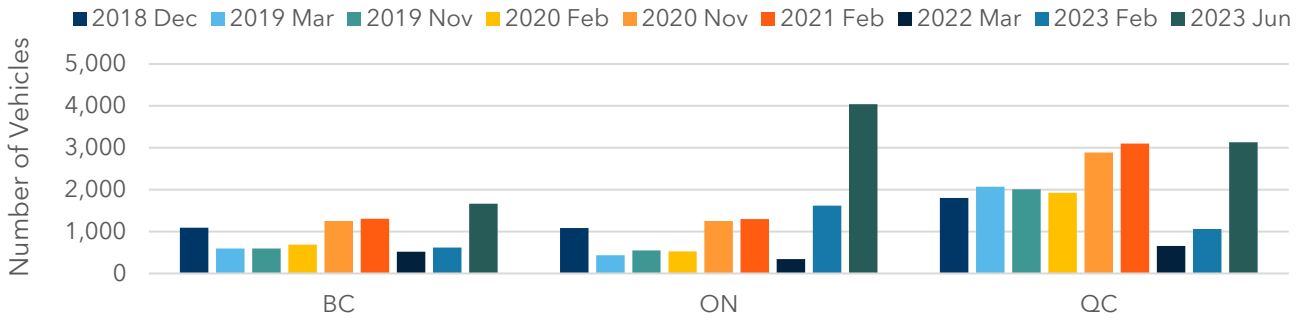
Table A-2. Vehicle Inventory by Province and Automaker – June 2023

Automakers	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Total
Audi	89	20	8	21	128	99	3	7		2	377
BMW	46	15			49	33		1		1	145
Cadillac	5	4			3	2					14
Chevrolet	100	15	5	6	58	240	9	7	6	1	447
Chrysler	5	2	1	1	52	49		2			112
Ford	494	342	93	107	1,082	877	54	57	11	30	3,147
Genesis	11	5	6	4	7			2			35
Hyundai	44	35	14	11	197	246	25	29		24	625
Jaguar	1	1			8	5		2			17
Jeep	181	203	69	63	651	160	18	41	5	9	1,400
Kia	15	17	1	2	124	212	12	24		14	421
Land Rover											
Lexus	13	1				9					23
Lincoln	123	125	33		374	212	10	7	3	23	910
Mazda	60	32	4	6	203	202	22	28	1	13	571
Mercedes	240	68	22	14	658	311	16	12		5	1,346
Mini	47	11	4	3	66	81	1	1		3	217
Mitsubishi	12	39	3	6	104	66	11	9	1	1	252
Nissan	33	5	2	5	96	92					233
Polestar	1				3	4					8
Porsche	21	72	5	6	42	40					186
Subaru	20	4	1	1	18	10	2	2		1	59
Tesla	34	8	4		45	19		1			111
Toyota	14	2			2	94					112
VinFast	6										6
Volkswagen	10			1	20	25				1	57
Volvo	40	40	4		53	47	7	6		2	199
June 2023	1,665	1,066	279	257	4,043	3,135	190	238	27	130	11,030

A.1.1 Availability by Province

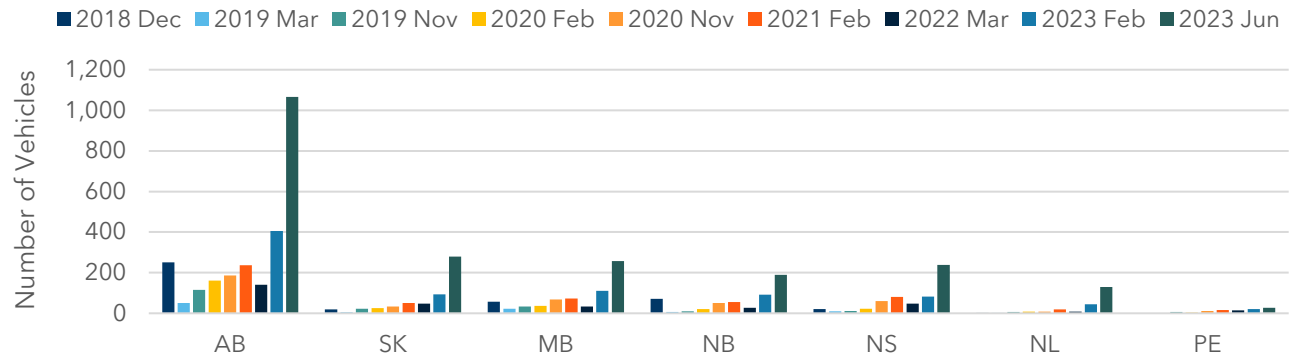
At the provincial level, the June 2023 inventory levels represent the highest inventory recorded for the three leading provinces - with the largest increase observed in Ontario. Despite the large increases, the concentration of available ZEV inventory between these three provinces relative to the rest of Canada remained about the same, at 80% between February and June 2023, compared to previous periods at 82% (2022), 91% (2021) and 92% (2020). With the three major provinces making up about 75% of the total population in Canada, we consider this convergence as healthy and indicative of wider ZEV availability across Canada.

Figure A-1. Vehicle Inventory by Province – all results (BC, ON, QC).



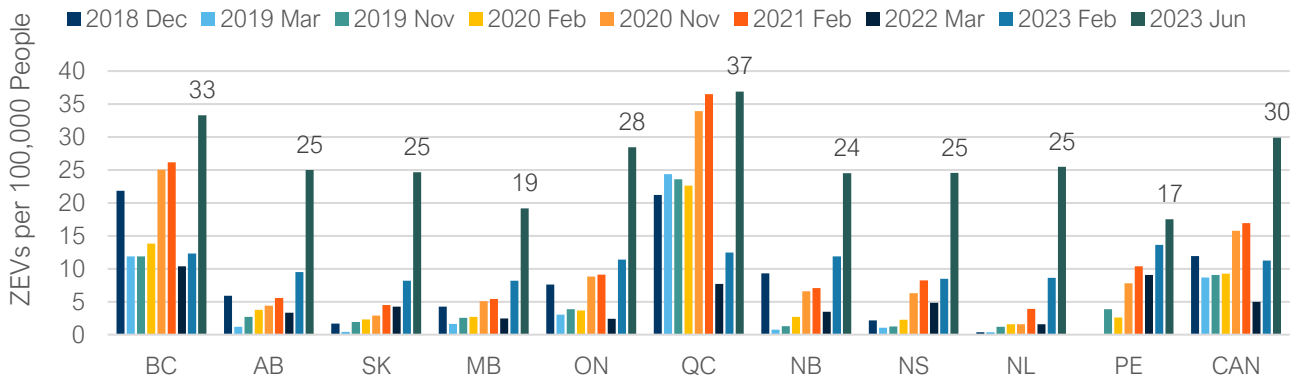
An increase in inventory was also apparent in other provinces across Canada. Nearly every other province shown below saw their total inventory **more than double** between February and June 2023 (except for PEI, where it dropped slightly) - with an average inventory increase of 145%. This compares to the previous recorded increase of 190% between March 2022 and February 2023, which was disproportionally higher due to very low inventory levels observed in the 2022 study.

Figure A-3. Vehicle Inventory by Province – all results (AB, SK, MB, NB, NS, NL, PEI)



To put these numbers into perspective, Figure A-4 presents the inventory data between provinces normalized to population (based on 2021 Census data). As shown, every province across Canada beat their previous records set in February 2021, with the most notable increases taking place in Canada's less densely populated provinces. As of June 2023, Quebec leads in the number of ZEVs available per 100,000 people (37 ZEVs), followed by British Columbia (33 ZEVs) and Ontario (28 ZEVs), but the disparity relative to other provinces is now much lower.

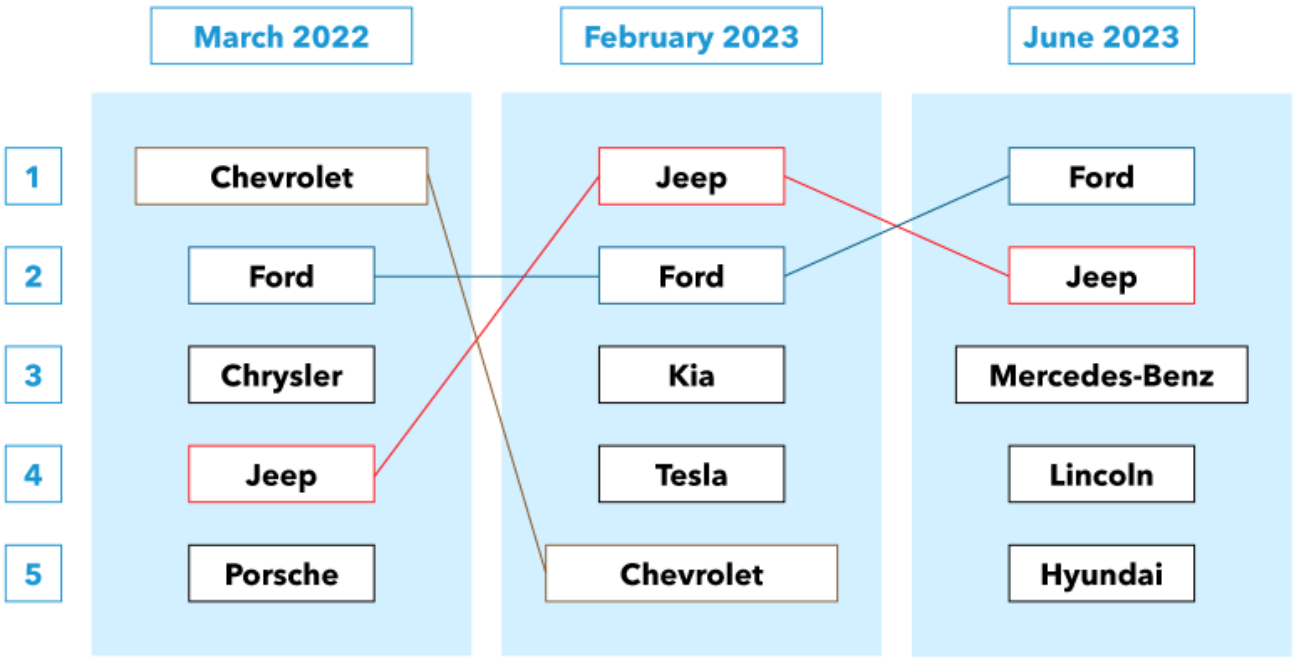
Figure A-4. ZEVs Available for Purchase per 100,000 People



A.1.2 Availability by Automaker

Inventory data from the February and June 2023 collection periods show a progression towards a more even distribution of ZEV availability across automakers- with the top five ZEV automakers accounting for a smaller share of total inventories—58% in February 2023 and 67% June 2023, compared to 89% in March 2022. Figure 3-5 A-5 below outlines the top 5 automakers by inventory availability for the three most recent data collection periods.

Figure A-5. Top 5 Automakers by inventory availability



As shown in the figure above, Jeep and Ford are the only automakers that have stayed in the top five positions within the last three data collection periods. Ford's availability remains high across Canada amidst reports of increased sales and production of its ZEV models across North America in Q1 2023[35].

Taking third place in inventory levels for June 2023, Mercedes-Benz made up over 12% (1,346) of total ZEV inventory supply compared to just 1.6% (66) in February 2023. The increased supply most likely stems from shipment arrivals from the automaker's recently integrated, fully electric assembly line at its Alabama plant, where 260,000 vehicles are produced annually[36,37].

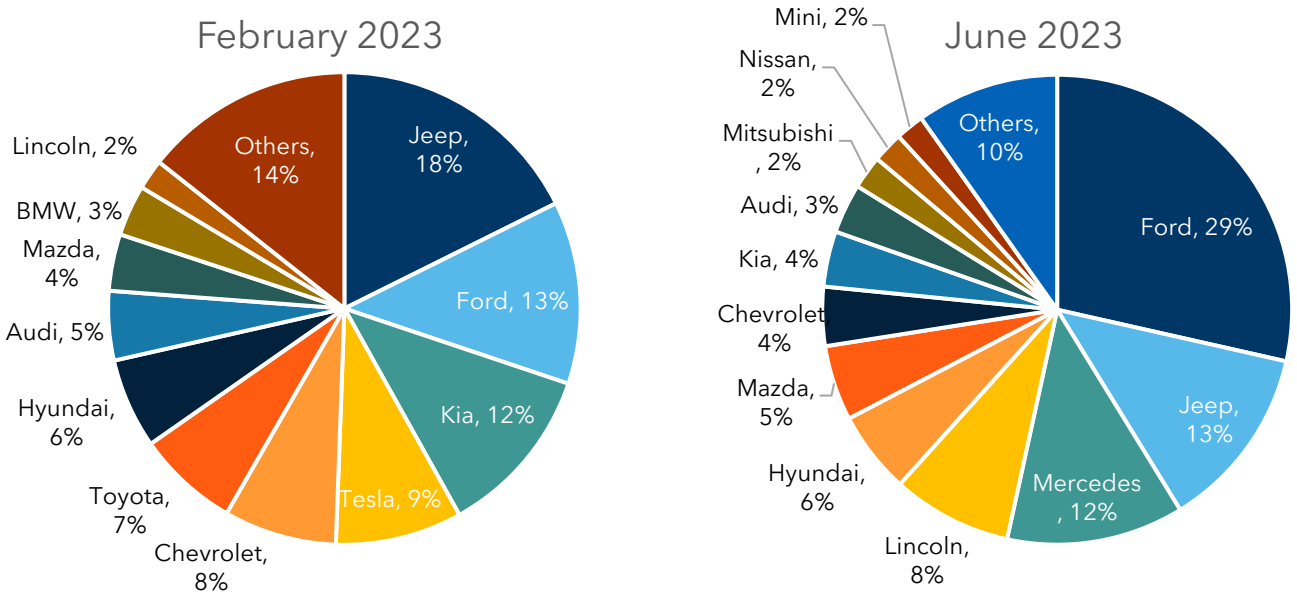
Chrysler, the only automaker in Canada with a minivan ZEV offering (Pacifica PHEV), saw its ZEV inventory deplete from 385 vehicles in March 2022 to only 2 vehicles in February 2023, before bouncing back up to 112 vehicles in June 2023.

Tesla's inventory increased to 360 vehicles in February 2023 (from 16 in March 2022) and subsequently lowered to 111 vehicles in June 2023. While these are still considered to be low levels relative to other automakers, it is notably higher than the inventory levels seen from Tesla between 2019 and 2022. The automaker continues to operate using showrooms and a factory-order business model instead of relying on "brick and mortar" dealerships to sell its vehicles.

A new entrant into the ZEV market in Canada, VinFast, is employing a similar strategy, with a factory-order business model and differentiated showrooms appearing in shopping centres across the country. Figure 3-6 A-6 below provides a summary of the ZEV inventory by automakers as a percentage of total ZEV inventory in Canada.[38]

[35] Ford.com. "*Ford increasing production of popular electric, gas, hybrid vehicles in response to strong customer demand*". Accessed July 2023.
[36] Mercedes-Benz. "*Mercedes-Benz EV ramp-up*". Accessed July 2023.
[37] Made in Alabama. "*Mercedes-Benz launches EV production in Alabama as new chapter begins*". Accessed July 2023.
[38] Automakers representing less than 2.0% of inventory have been grouped into the "Others" category.

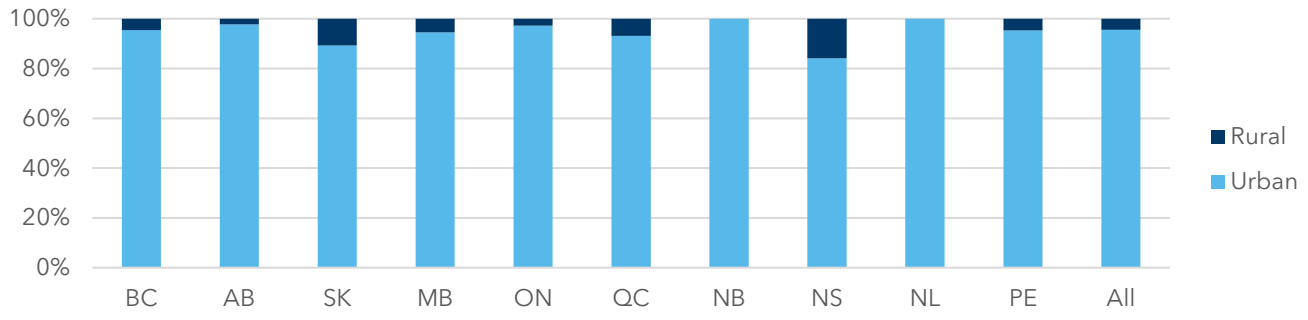
Figure A-6. National ZEV Inventory by Automaker as a Percentage of Total Inventory



A.1.3 Availability by Geography (Urban vs. Rural)

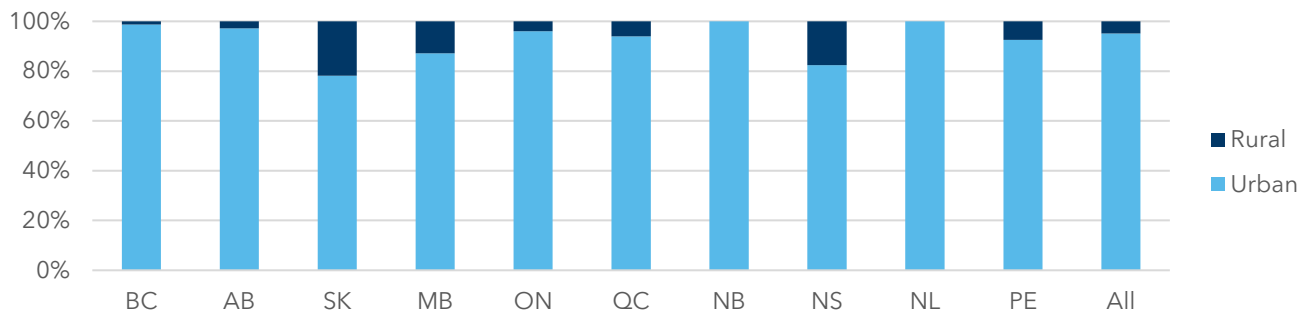
Inventory by geographic areas is shown for each data collection in Figure A-7 and Figure A-8, below. The key metric used to differentiate between urban and rural inventory was determined based on dealership postal codes, whereby postal codes containing 0s as the second character represent a rural area.[39] While this method is no longer used by statistics Canada, which adopted the *Population Centre and Rural Area Classification 2016 method* to determine what constitutes a rural area versus an urban area (population centre), the postal code method is the most feasible and efficient way to collect this data in the context of this study.[40] It should be noted that this difference introduces some uncertainty relating to the data presented here.

Figure A-7. ZEV inventory by geographic area - February 2023



[39] Statistics Canada. "How Postal Codes Map to Geographic Areas. Accessed July 2023.
[40] Statistics Canada. "Population Centre and Rural Area Classification 2016". Accessed July 2023.

Figure A-8. ZEV inventory by geographic area - June 2023



As shown above, inventory levels by geographic area for both periods remained stable between February and June 2023 - With observable rural increases shown in Saskatchewan and Manitoba in June. Overall, 18% of the Canadian provincial population is considered to live in rural areas with the provincial figures ranging from 13% (BC & ON) to 54% (PEI) [41].

Figure A-9. Inventory by geographic area and Rural % Inventory

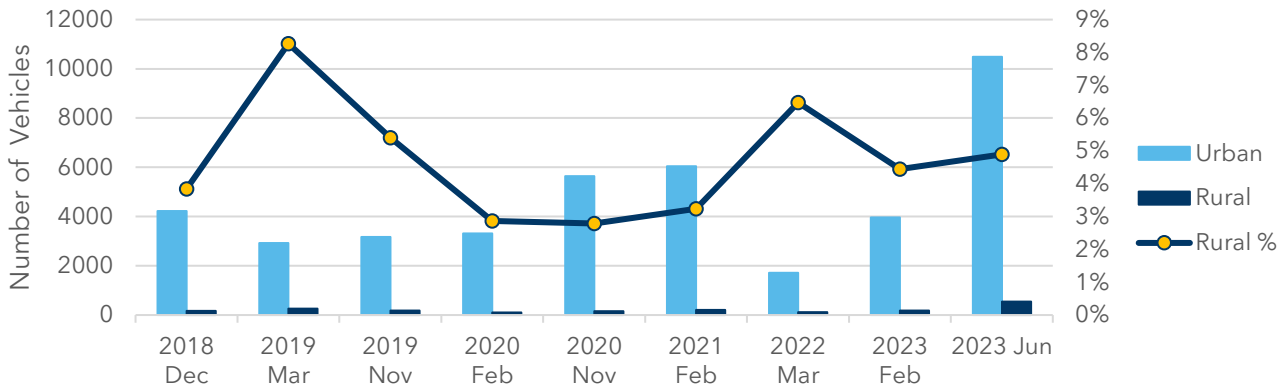


Figure A-9 above outlines the change in urban vs rural inventory since December 2018 along with the percentage of total rural inventory across Canada. Rural inventory made up 4.9% of total inventory across Canada in June 2023. This compares to 4.4% in February 2023 and 6.5% in March 2022.

A.2 Inventory Relative to Sales

This section evaluates the adequacy of ZEV inventories using a common dealership inventory metric that combines inventory levels with historic vehicle sales rates: days of supply.

Table A-3 & Table A-4 below summarize days of supply for inventory collected in February 2023 and June 2023 with sales data from January to March 2023 and May to July 2023, respectively. Table 3-5 summarizes the days of supply across all data collection periods, aggregated to the provincial level for

[41] Statistics Canada. "*Population growth in Canada's rural areas, 2016 to 2021*". Accessed July 2023.

each respective period. It should be noted that the days of supply metric may be of limited use for automakers given certain industry trends. In particular:

- As previously described, Tesla and VinFast use a factory-order model – an inventory model most seen in the luxury vehicle market – whereby they allow consumers to place customized orders instead of stocking a variety of vehicles for purchase on the lot. Given Tesla's high sales per day rates and low inventory model, as well as VinFast's recent entry into the Canadian market, the days of supply metric will skew the aggregated calculations across provinces and Canada-wide.

- It is important to assess the days of supply metric in combination with the absolute inventory values presented in Table A-1 and Table A-2 to allow for a fulsome picture of how inventory is tracking with sales rates.

- When assessing EV markets, an apparent **'over-supply' can be a result of low historical sales rather than high inventory levels**. In these markets, a higher days of supply target may be warranted to recognize that historic sales are likely a poor indicator of true demand given the historic lack of availability.

That said, for June 2023, the average days of supply for ZEV vehicles across Canada was 20 days, marking a significant increase in inventory levels across provinces and automakers. However, the 20 days of supply for June 2023 is still considered under-supplied. Additional insights on the results by province and automaker are provided below.

Table A-3. Days of Supply by Province and Automaker – February 2023

Over-supply	> 80	Target-supply		Under-supply	< 40
No inventory		No sales data			

Automaker	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	All
Audi	14	32	107	125	22	20	59	89			22
BMW	11	27			10	8		9		13	11
Cadillac			30		7						3
Chevrolet	25	21	30	51	12	4	30	27	45		9
Chrysler	8	13									2
Ford	32	121	168	70	67	19	114	23		326	45
Genesis	3	20		89	2	56					23
Hyundai	7	27	13	97	13	4	45	10	36	6	10
Jaguar	22				148	148					109
Jeep	17	86	146	113	102	17	78	95	22	125	58
Kia	1	16		53	13	101	96	163	490	334	63
Land Rover						979					
Lexus	1	4			1	12	36				6
Lincoln	67	178	178		83	49		89			71
Mazda	82	979			645	59					247
Mercedes	9	17	40		25	14	18	45			18
Mini	23	119			33	11					23
Mitsubishi	1	12		7	8	1	13			4	5
Nissan	8	13	267	7	26	0		59			8
Polestar	13					0					1
Porsche	6	153	178	45	9	29		45			21
Subaru	12	53	89	36	20		59	22			11
Tesla	2	8	18		4	3		4			3
Toyota	3	7	13	7	122	5					16
VinFast											
Volkswagen	6				26	1					4
Volvo	11	11		16	3	4	125	6			6
All[42]	7	41	50	45	25	14	39	22	49	48	**18**

[42] Previous versions of this report used a simple average to represent "All" data categories, which disproportionally increased the days of supply metric for provinces and makes. The figures shown here use a weighted average based on sales.

Table A-4. Days of Supply by Province and Automaker – June 2023

Over-supply	> 80	Target-supply		Under-supply	< 40
No inventory		No sales data			

Automaker	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	All
Audi	27	35	123	193	36	29	39	59		37	34
BMW	9	18			9	7		12		9	8
Cadillac	10	19			3	4					
Chevrolet	25	22	35	26	8	8	14	9	32	4	10
Chrysler	6	6	18	18	27	14		20			16
Ford	74	170	231	173	95	53	71	97	48	345	80
Genesis	24	31	276	74	7			37			13
Hyundai	5	28	36	18	18	10	29	18		32	13
Jaguar	92				368	153					184
Jeep	109	228	317	207	111	25	57	157	42	83	87
Kia	2	18	10	4	18	12	36	85		64	13
Land Rover											
Lexus	7	5				4					4
Lincoln	943	2,875	3,036		492	464	307	322			594
Mazda	68	123	46	110	147	76	289	286	92	239	103
Mercedes	142	174	675	429	206	195	1,472	1,104		460	193
Mini	73	92	184	138	103	81	31	15		69	84
Mitsubishi	3	18	7	10	13	7	9	11	3	2	9
Nissan	9	29	46	31	47	14					18
Polestar	1				1	1					1
Porsche	25	510	230	552	29	48					56
Subaru	16	25	46	13	21	5	46	61		31	13
Tesla	1	1	6		1	0		1			1
Toyota	1	2			0	4					3
VinFast	69										
Volkswagen	1			31	17	2					3
Volvo	29	53	184		17	12	215	61		92	21
All[43]	13	51	92	56	27	14	32	35	14	41	**20**

[43] Previous versions of this report used a simple average to represent "All" data categories, which disproportionally increased the days of supply metric for provinces and makes. The figures shown here use a weighted average based on sales.

A.2.1 Results by Province

Supply days by province continue to vary based on a province's size and overall ZEV market adoption. Despite record inventory levels in June 2023 inventory saw 20 average days of supply for ZEV vehicles. Canada's top three provinces by population—ON, QC, and BC—were all below target supplies, each with 27, 14, and 13 days of supply, respectively. These three provinces represent approximately 75% of Canada's new light-duty vehicle market.

By comparison, February 2023 inventory saw 18 average days of supply for ZEV vehicles. Despite having a lower average day of supply relative to June 2023, half of the provinces saw their supply of ZEVs within the target supply range. Interestingly, the only province that saw a decrease in the days of supply metric between the two periods was PEI – going from 49 days of supply in February 2023 to 14 in June 2023.

In the latest data collection period of June 2023, three provinces (Alberta, Manitoba, and Newfoundland & Labrador) fall within the target days of supply range of 40 to 80, only one province (Saskatchewan) is over-supplied, while the remaining six provinces (British Columbia, Ontario, Quebec, New Brunswick, Nova Scotia, and PEI) are under-supplied.

A.2.2 Results by Automaker

The make with the highest days of supply across Canada in June 2023 was Lincoln, at 594 days, whereas Tesla and Polestar both had the lowest days of ZEV supply at just 1 day. Assessed on a Canada-wide basis, Audi was the only automaker within the target days of supply range. Seven automakers, managed to meet or exceed demand (as measured through days of supply), resulting in an over-supply Canada-wide. Among these seven, Mercedes and Lincoln both saw oversupplies in every province they operate in. The remaining 19 automakers fell short of the 40-80 days of supply target range or had no sales/inventory data.

It should be noted that the days of supply metric has limited use when assessing emerging EV markets, where apparent 'over-supply' can be a result of low historic sales rather than high inventory levels.

Of note, Tesla's high sales values paired with low inventory values (due to their factory-order model) results in skewing province-wide and Canada-wide days of supply calculations. Tesla's performance also highlights that having ZEVs available in inventory is not essential for achieving high ZEV sales, at least for some segments of the market.

A.3 ZEV Model Diversity

A.3.1 Availability by Province

The number of unique ZEV makes and models available in each province are shown in Figure A-10 and Figure A-11 below, highlighting the selection available to consumers. The number of makes available by province increased when compared to previous years, reversing the historical downward trend most provinces saw from 2020 through 2022. Like previous years, Canada's three most populated provinces–British Columbia, Ontario, and Quebec–lead with the greatest ZEV selections for customers, both in terms of makes and models.

Most provinces saw make and model availabilities increase in June 2023 compared to February 2023, with a few minor exceptions. This includes a decrease in makes for Manitoba and New Brunswick, each seeing one less automaker available in the most recent collection period relative to the one prior. PE was the only province that experienced a decrease in model availability with two less models offered in June compared to February.

Figure A-10. Number of Makes Available by Province

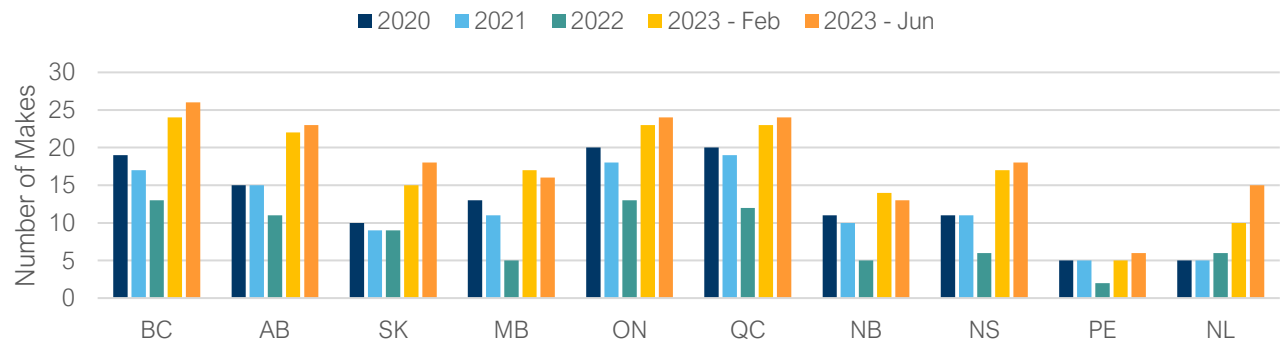
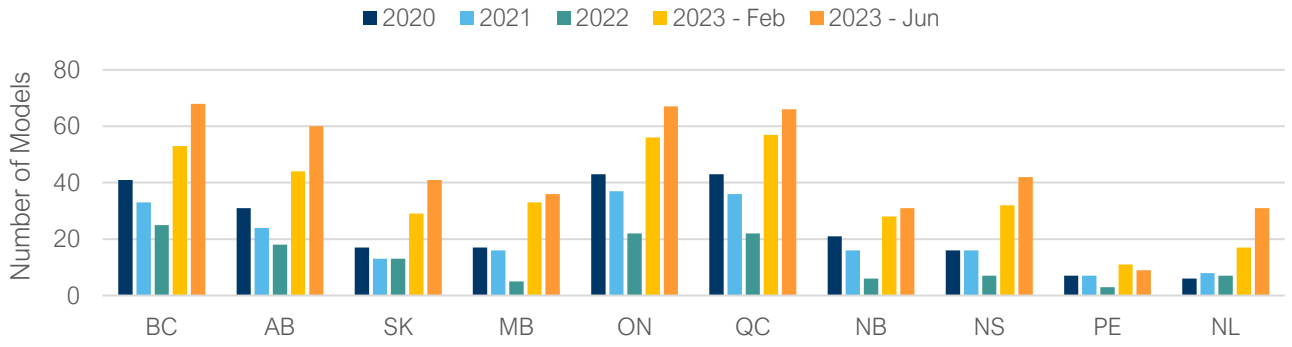


Figure A-11. Number of Models Available by Province



Compared to previous years, the number of makes and models available to ZEV shoppers in 2023 has significantly improved from the lows in 2022. This can be attributed to a rebound in inventories across Canada along with new models coming onto the market. Overall, availability still varies across Canada,

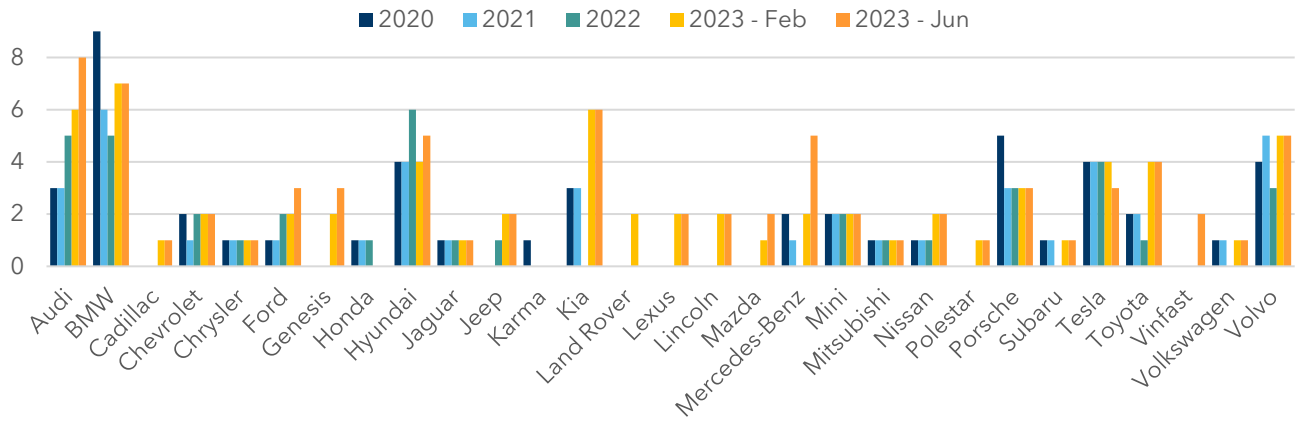
notably in the Atlantic provinces of NB, PE, and NL, where consumers have less than half the buying options compared to BC, ON, and QC.

A.3.2 Availability by Automaker

The number of unique models available in inventory from each automaker is shown in Figure A-12 below. As of June 2023, more than half of the listed automakers now offer two or more ZEV models. Audi, Ford, Hyundai, Mazda, Mercedes-Benz, and VinFast all added models since February 2023. Audi has overtaken BMW as the leader, with eight models offered in June, while Land Rover saw its model offerings drop to zero for the same month.

Mercedes-Benz saw the largest increase in availability, with three new models from its EQ line making their way to dealership lots (EQE Sedan, EQE SUV, EQS SUV). Tesla had zero Model Y inventory available in June 2023, making it the first time since the 2019 data collection period that the automaker had less than four models available at its showrooms

Figure A-12. Number of ZEV Models Available in Dealership Inventory by Automaker across Canada

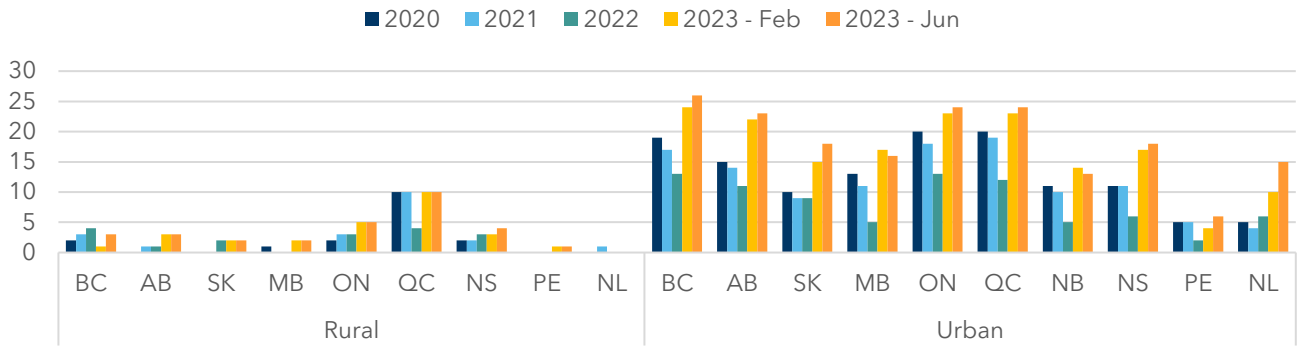


A.3.3 Availability by Geography (Urban vs. Rural)

The number of unique models available from each automaker by geographic area and province is shown in Figure A-13Figure 3-13 and Figure A-14, below. Based on these figures plus the Urban vs. Rural findings provided in section A.1.3, there is a significant disparity for in-person ZEV purchasing options between rural and urban areas across Canada. However, this impact is mitigated by a growing number of OEMs offering online purchasing and make-to-order delivery of their models.

Fortunately, in-person purchasing options for both makes and models have either stayed the same or increased for rural areas between February and June 2023.

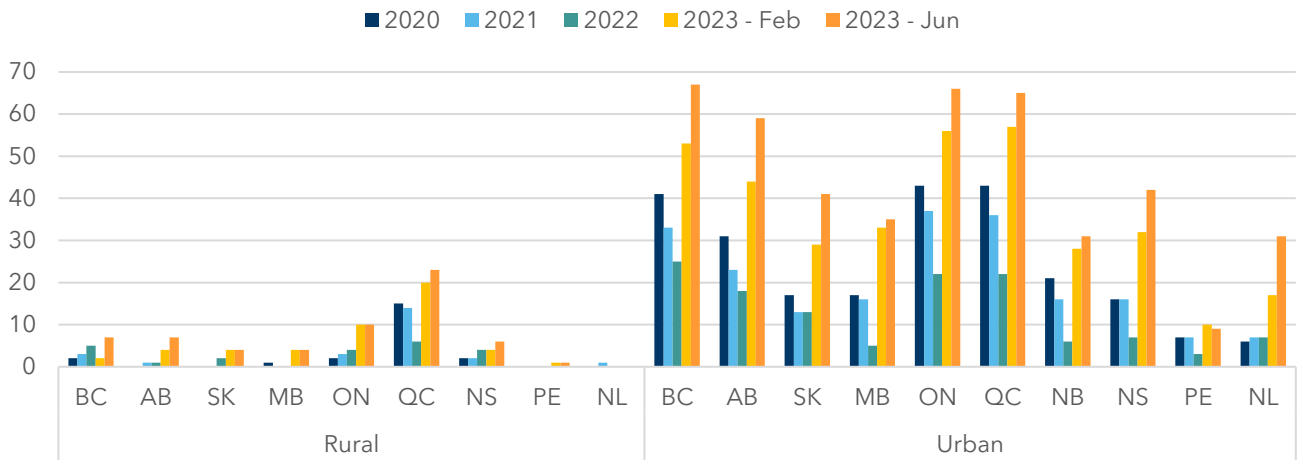
Figure A-13. Number of Makes Available by Province & Geographic Area



The number of make options increased from February to June 2023 for most urban areas except for MB and NB, which each saw one less make available. In rural areas, only BC and NS experienced make availability increases of two and one makes, respectively, while every other province recorded no changes. There were no makes with ZEVs available in rural regions within NB and NL for February or June 2023.

The number of model options increased from February to June 2023 for most urban areas except for PE, which saw one less model available. In rural areas in BC, AB, QC and NS, model availabilities increased by 5, 3, 3, and 2 models, respectively, while every other province recorded no changes. Similar to makes, no ZEV models were available in rural regions within NB and NL for both February and June 2023.

Figure A-14. Number of Models Available by Province & Geographic Area



A.3.4 Split of BEV vs PHEV

In addition to the overall selection of ZEV models, powertrain type is also an important consideration for ZEV shoppers. The ZEV categories included in this analysis are:

- **Battery Electric Vehicle (BEVs)** which run only on electricity
- **Plug-in Hybrid Electric Vehicles (PHEVs)** which offer sufficient electric-only range for typical daily driving distances while relying on an internal combustion engine for longer trips

New to 2023, inventory data was recorded across QC and ON for Toyota's Mirai Fuel Cell Electric Vehicle (FCEV), which showed inventory levels of 57 and 38 cars for February 2023 and June 2023, respectively. These numbers are excluded from the BEV vs. PHEV analysis in this section.

Figure A-15 and Figure A-16 below show the percent of vehicles available in inventory in each province by powertrain type for the two latest data collection periods. Figure A-17 present BEV vs PHEV trends over time, based on previous data reporting collection periods.

Figure A-15. Split of BEV vs PHEV Available for Purchase by Province – February 2023

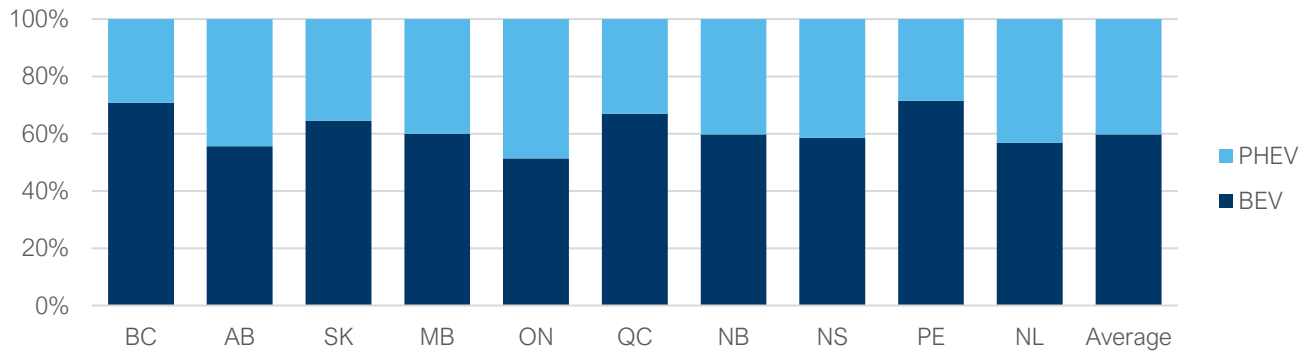


Figure A-16. Split of BEV vs PHEV Available for Purchase by Province – June 2023

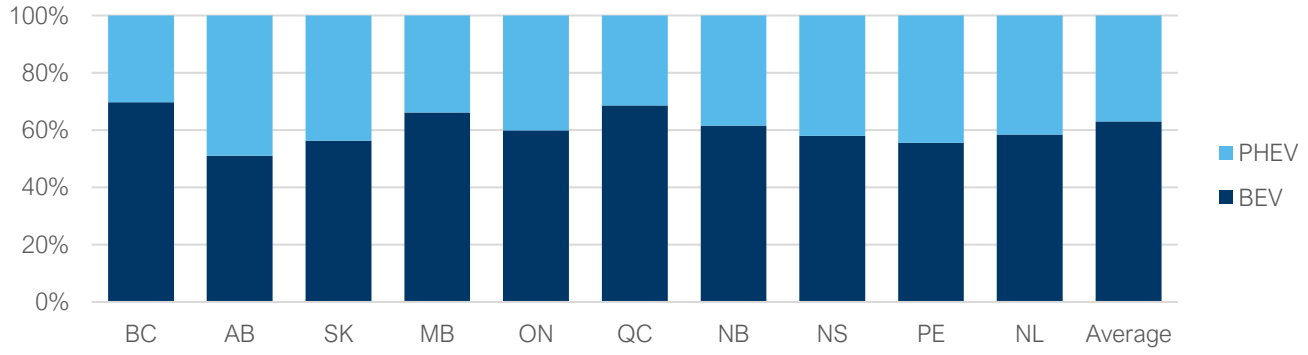
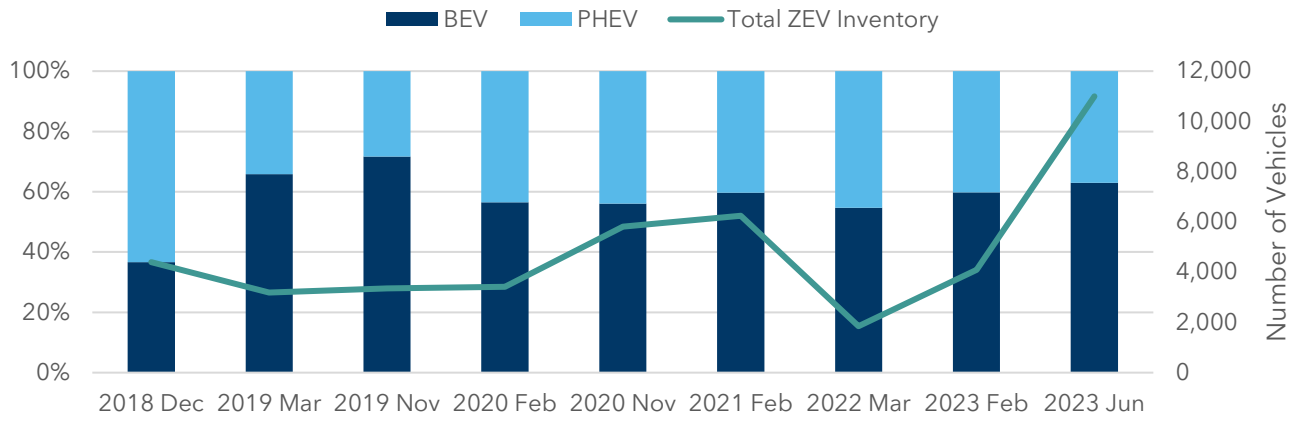


Figure A-17. Historical Split of BEVs vs PHEVs Available for Purchase Across Canada



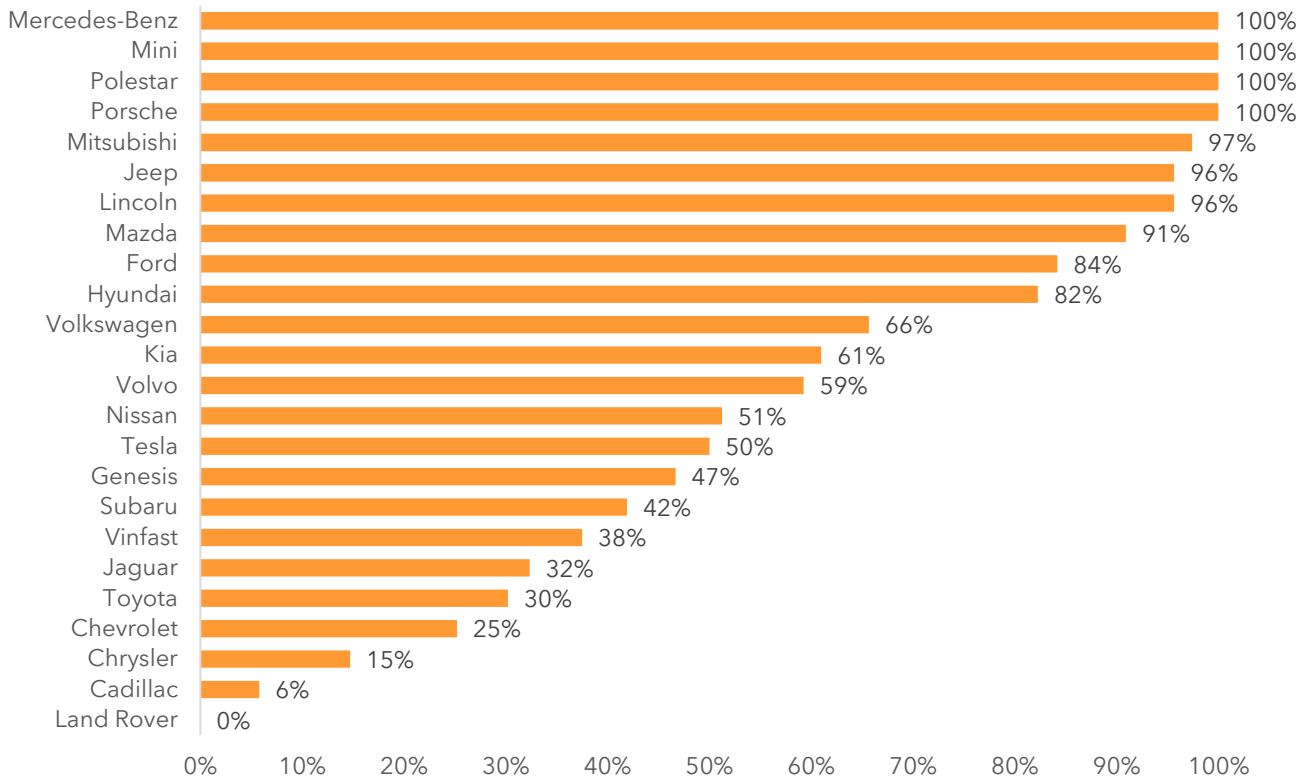
An increasing trend in BEV's share of the market took place between 2018-2019, reaching a peak of 72% inventory levels in November 2019. This was primarily due to the introduction of widely popular BEVs, reduced concern among consumers in BEV's range, growing charging infrastructure, and price reductions. Since then, the Canada-wide inventory share for BEVs has remained stable, representing 55%-60% of the total ZEV inventory between February 2020 and February 2023. Although, based on the most recent inventory data from June 2023, BEV inventory represented a slightly higher share of total ZEV inventory, at 63%.

On a provincial level, the last two data collection periods reveal a relatively consistent split of BEV vs PHEV vehicle availability across the country. This contrasts with previous periods such as March 2022, which saw significant differences between certain provinces' BEV and PHEV shares – though these differences were most likely exacerbated by the record low inventory levels seen within that collection period.

A.4 Availability by Dealership

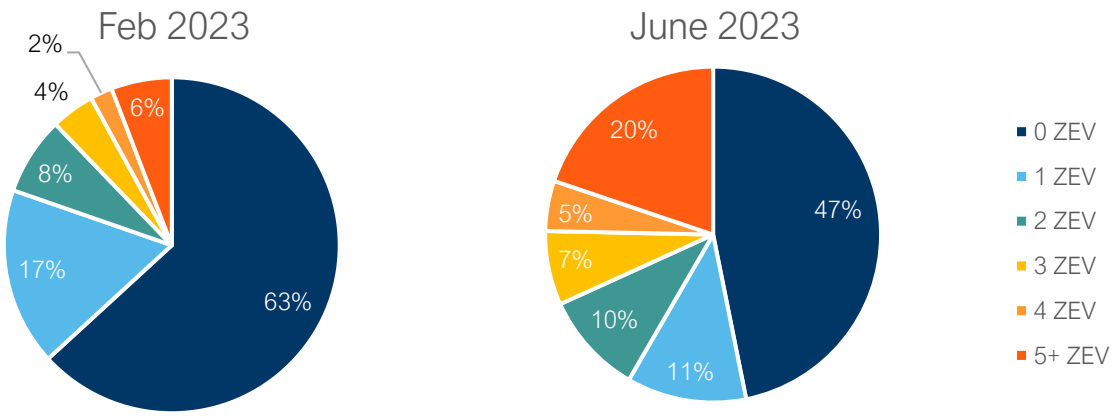
One way to measure the Canadian consumer ZEV shopping experience is by looking at the number of ZEVs in stock at a given dealership and available for consumers to choose from. Figure A-18 below shows the percentage of dealerships for each automaker with at least one ZEV in inventory. Four automakers (Mercedes-Benz, Mini, Polestar, and Porsche) had at least one ZEV available at each of their dealerships in June. Conversely, Land Rover did not have a single dealership with EV inventory for this same period.

Figure A-18. Percentage of dealerships with at least one ZEV available – June 2023



Having at least one ZEV available at a dealership allows interested shoppers to see and potentially test drive a ZEV model in person - while having more than one ZEV in stock can help a potential buyer find a model that fits their expectations in terms of personalization (e.g., trim level, colour), increasing the likelihood of a purchase taking place that same day. Figure A-19 shows the number of ZEVs available per dealership across Canada for the two most recent data collection periods.

Figure A-19. Number of ZEVs Available per Dealership



More than half of dealerships had zero ZEV inventory from 2018 to February 2023. As shown above, June 2023 marks the first time that more dealerships have at least one ZEV model than those that do not. In addition to a significant improvement in the number of ZEVs available across dealerships, 20% of dealerships had five or more models in June. This surpasses the previous record of 12% documented in February 2021.

Figure A-20 below shows the number of ZEVs available per dealership by province for June 2023. Compared to the previous report, where most dealerships had no ZEV inventory (record low inventory) and every province had at least 70% of dealerships with zero supply, June 2023's inventory distribution marks a stark contrast. While discrepancies between the provinces are still notable in June 2023, particularly between the inventory-leading provinces (BC, ON, QC) vs. the rest, the increase in ZEVs available on dealership lots is providing consumers with greater choice when making their purchasing decisions.

For June 2023, Ontario was the province with the greatest share of dealerships with five or more ZEV models on lots, at 28%, with British Columbia close behind at 27%. BC was the province with the lowest share of dealerships with zero ZEV models on lots, at 29%, with Quebec close behind at 32%. The province with both the lowest share of dealerships with five or more models and highest share of no model offerings was PE, at 8% and 63%, respectively.

Figure A-20. Number of ZEVs Available per Dealership by Province - February 2023

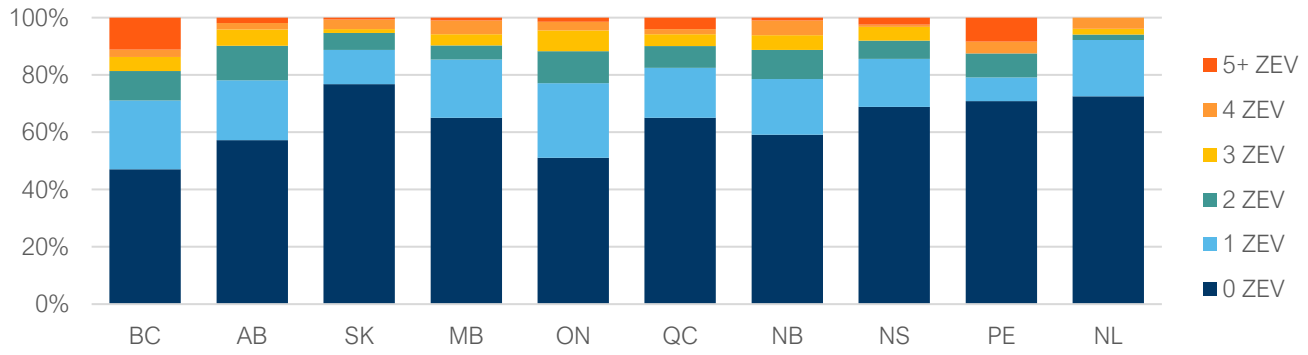
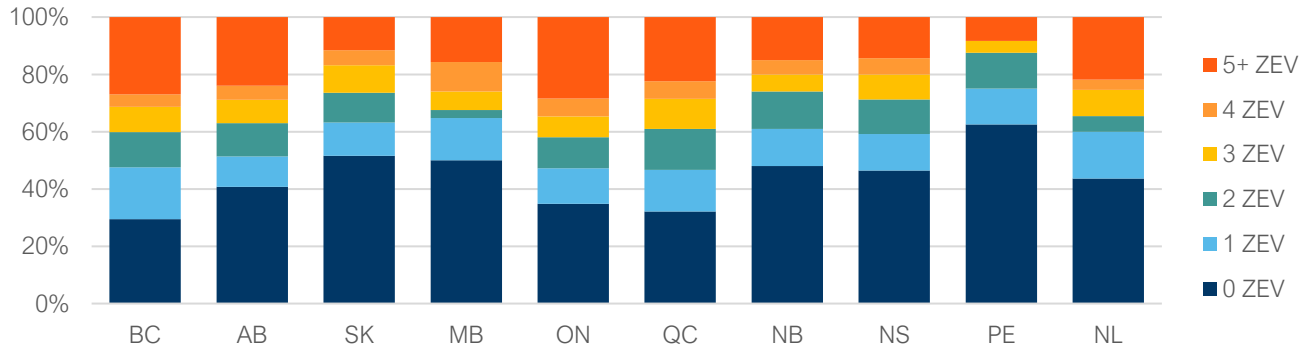


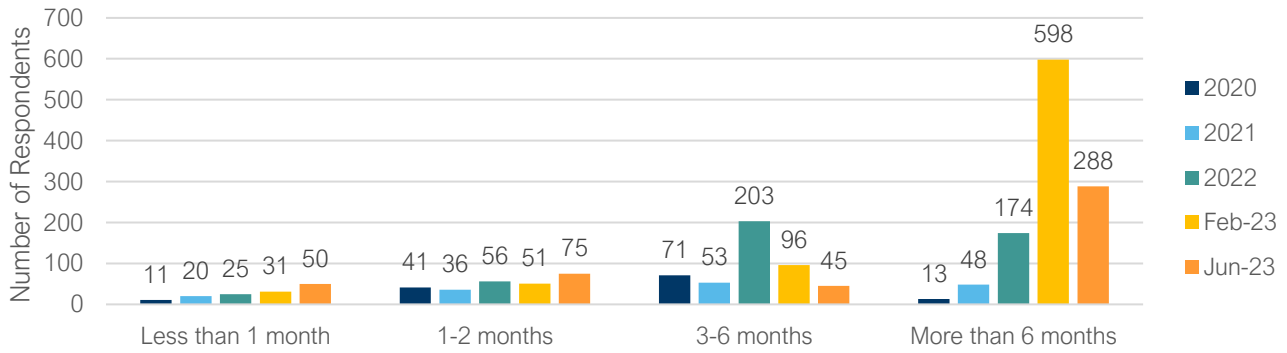
Figure A-21. Number of ZEVs Available per Dealership by Province - June 2023



A.5 Wait Times & Dealer Comments

Wait time is another important consideration for consumers looking to purchase a new vehicle, especially in the case of automakers that do not have significant inventory. For instance, a low inventory may be acceptable for some shoppers if a ZEV can be ordered and received promptly. Dealerships that were surveyed by phone (1,354 out of 3,699 dealerships were surveyed by phone, i.e., 36%) and did not have any ZEVs available were asked how long the wait would be. Figure A-22 includes the wait times estimated by these dealerships.

Figure A-22. Expected Wait Times for Dealerships with Zero ZEVs Available



For June 2023, 35% of dealerships with no inventory were able to offer an estimated wait time when asked, a decrease from the previous record of 47% in the 2022 report. Interestingly, for February 2023, 60% of dealerships were able to offer an estimated wait time when asked. This record coincides with a significant spike in wait times of more than six months, as shown in the figure above.

Of those that provided wait times for June, most dealerships (73%) responded that the wait time would be longer than three months. This delay would require potential buyers to be patient and to plan for a new ZEV purchase, particularly those buying from a dealership that expect wait times to exceed six months (63%). Overall, this indicates that demand for EVs is still outpacing supply, despite growing inventory levels, along with the fact that some OEMs might still be experiencing issues in their supply chains – Though these impacts seem to have peaked in February 2023.

Figure 3-23 A-23 and Figure A-24 below show expected wait times by province for data collected in February and June 2023, respectively. Data labels in these charts show the number of respondents.

Figure A-23. Expected Wait Times by Province (Number of Responses) – February 2023

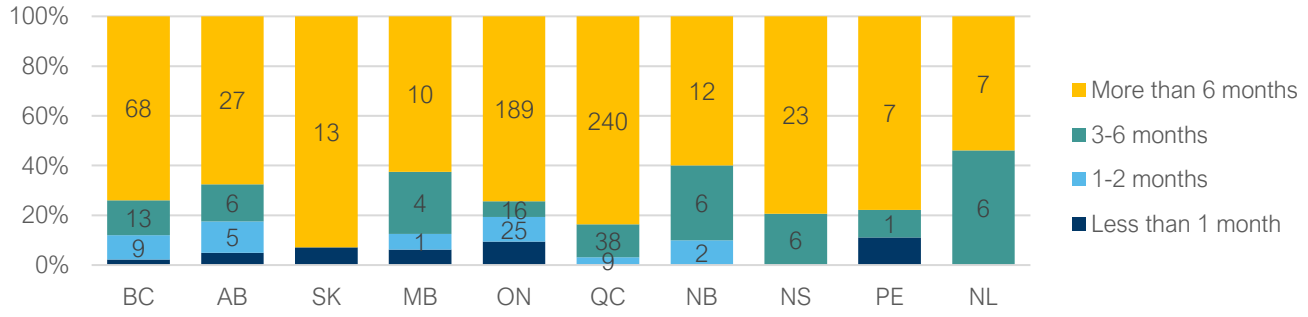
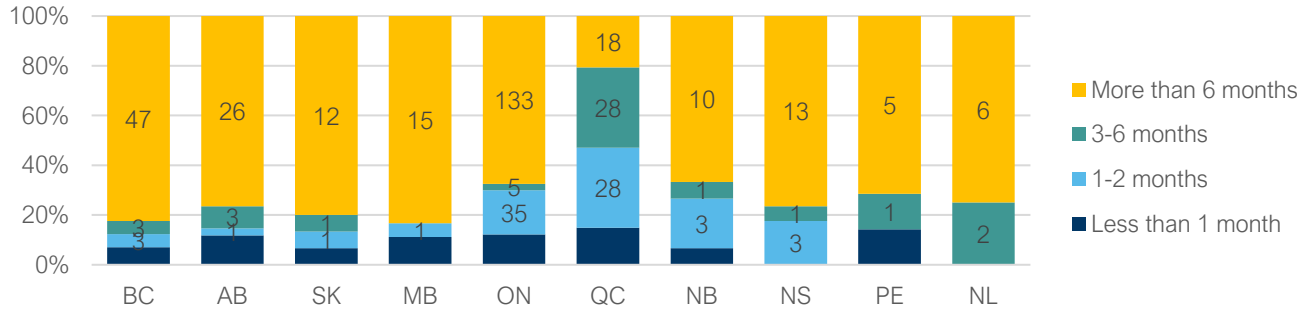


Figure A-24. Expected Wait Times by Province (Number of Responses) – June 2023



The relative portion of respondents who indicated that wait times would exceed three months grew in most provinces except for Quebec and Ontario – with the former province seeing a significant change in narrative from February and June, as it went from one of the provinces with the longest wait times to the one with the shortest. It is possible that dealerships are airing on the side of caution when providing time estimates to potential clients in the hopes of tempering delivery expectations when delivery schedules from OEMs are still uncertain or subject to change.

It should be noted that the sample sizes in the Atlantic provinces are rather small compared to other provinces. Despite this, the data suggest that wait times have increased across most of the country.

Those fielding the survey also took note of information dealership representatives provided without prompting. This information included recommendations for future ZEVs that would be available near-term, recommendations for non-ZEV alternatives, and mention of government rebates for ZEVs. The results are summarized in Table A-6, below.

Table A-6. Unprompted Responses from Dealerships

Unprompted Responses	Feb 2021		Mar 2022		Feb 2023		Jun 2023	
	Yes	***No***	***Yes***	***No***	***Yes***	***No***	***Yes***	***No***
Recommended future ZEVs that would be available soon	0	1,096	84	964	92	1,212	5	1,302
Recommended non-ZEV instead	4	1,092	16	1,032	123	1,181	242	1,065
Mentioned government rebates	29	1,067	8	1,040	178	2,252	362	945

As shown, recommendations of non-ZEV vehicles have increased steadily from February 2021 to June 2023, coinciding with the higher levels of expected wait times. The mentioning of government rebates has also increased dramatically over the last two data collection periods, with 28% of dealers mentioning rebates to prospective callers in June 2023. Over half of these mentions were made by Mazda and Hyundai dealerships, at 28% and 24%, respectively.

The low response rate to the wait time questions and limited unprompted responses likely also reflects the limitations of the phone-based approach. It is presumed that an in-person secret shopper approach would be more effective at receiving responses to these additional questions and would give a more fulsome representation of the typical ZEV shopping experience.

A.6 ICE Inventory: Data & Observations

This section presents the ICE inventory data of selected models that was collected under this study and highlights observations from the data. Seven ICE models with comparable ZEV equivalents were chosen to benchmark and evaluate the levels of inventory for each powertrain type over time. The ICE models chosen for comparison along with their associated ZEV comparisons are listed below.

Table A-7. List of ICE models and ZEV equivalents for benchmarking purposes.

Make	ICE Model	% of LDV Market	ZEV Model	Data Collection Method
Ford	F-150	5.85%	F-150 Lightning (BEV)	Web
Ford	Escape	1.68%	Escape (PHEV)	Web
Jeep	Wrangler	1.66%	Wrangler 4xe (PHEV)	Web
Volvo	XC60	0.24%	XC60 Recharge (PHEV)	Web
Volvo	XC40* [44]	0.20%	XC40 Recharge (BEV)	Web
BMW	330i	0.18%	330e (PHEV)	Web
Mini	Cooper S 3 Door	0.04%	Cooper SE 3 Door (BEV)	Web

For benchmarking and plotting purposes within this section, ICE and ZEV model names above are grouped into the following reference model names: F-150, Escape, Wrangler, XC60, XC40, 330, and Cooper 3 Door.

ICE models were selected based on the existence of ZEV comparable models along with the availability of online inventory from OEM websites. An array of models and makes with varying market shares and different ZEV powertrains (PHEV vs BEV) were also chosen to provide insights into how these factors may change over time.

Given this is the first report where ICE inventory data was collected for the same period, preliminary findings and insights can only be made for the February 2023 and June 2023 periods. Greater insights and trends may become apparent if additional data are collected in future years. Table A-8 and Table A-9 outline the change in inventory for benchmarked ICE and ZEV vehicles, respectively.

Ford's F-series has been Canada's best-selling truck for 57 consecutive years and, in 2022, sold more than 100,000 vehicles—a feat that no other vehicle has achieved to date. [45] The F-150's popularity is also reflected in their inventory levels, with nearly 10,000 trucks in dealership lots as of June 2023, more than three times the number of vehicles of the next most-available ICE model in the benchmarking list. Overall, across the ICE models selected for this analysis, a 56% increase in ICE inventory levels was recorded between February 2023 and June 2023.

Despite recording no inventory in February 2023, the availability of F-150's ZEV counterpart, the F-150 Lightning, followed a similar trend to its ICE model, with 1,205 vehicles available for purchase in dealership lots in June 2023. Overall, ZEV benchmark model inventory grew by 222%, from February 2023 to June 2023.

[44] *Data collected in June 2023 only. Replaces discontinued Chevrolet Trax which saw data collection for the February 2023 period.
[45] Driving.ca. "10 Best Selling Vehicles Canada 2022". Accessed July 2023.

Table A-8. ICE inventory levels for selected benchmarking models.

Make	Model	Feb-23	Jun-23	% Change
Ford	F-150	3,923	9,982	154%
Ford	Escape	1,398	1,507	8%
Jeep	Wrangler	3,841	3,109	-19%
Volvo	XC60	470	493	5%
Volvo	XC40	n/a	123	n/a
BMW	330i	129	93	-28%
Mini	Cooper S 3 Door	140	108	-23%
Total	**All**	**9,901**	**15,415**	**56%**

Table A-9. ZEV inventory levels for selected benchmarking models.

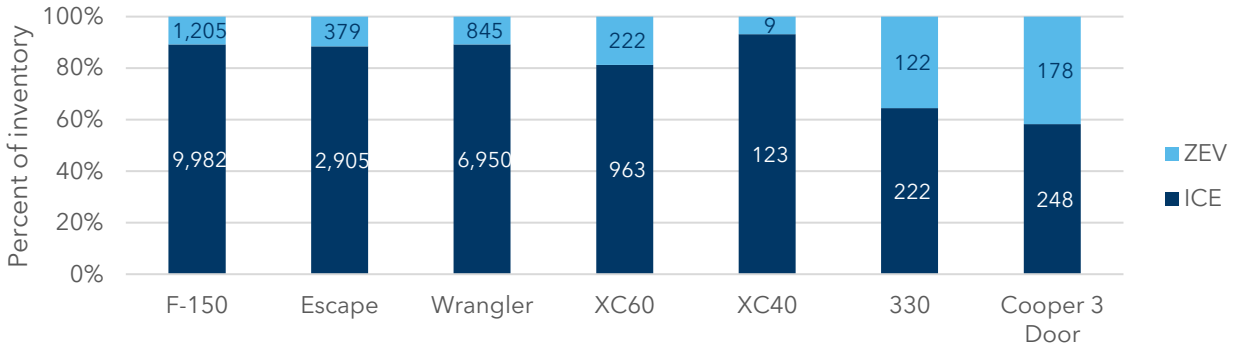
Make	Model	Feb-23	Jun-23	% Change
Ford	F-150 Lightning	0	1,205	n/a
Ford	Escape Plug-In Hybrid	97	282	191%
Jeep	Wrangler 4xe	457	388	-15%
Volvo	XC60 Recharge	56	166	196%
Volvo	XC40 Recharge	8	9	13%
BMW	330e	61	61	0%
Mini	Cooper SE 3 Door	25	153	512%
Total	**All**	**704**	**2,264**	**222%**

Upon observing the trend in inventory levels between ICE models and their ZEV counterparts:

- Both Ford F-150 powertrain inventories increased in June relative to February levels.
- Ford Escape ICE inventories were essentially flat, while its PHEV alternative saw its inventory nearly triple.
- Volvo's XC60 ICE inventory level went up slightly in June but this pales in comparison to the tripling of its ZEV counterpart.
- Both Jeep Wrangler powertrains saw declining inventories from one collection period to the next.
- Both BMW 330 and Mini Cooper 3 Door ICE inventories went down by about 25%; while there was no change in BMW's 330 ZEV inventory, Mini's ZEV version of the Cooper 3 Door recorded the highest increase of ZEV inventory level (512%) out of all the benchmarked models.

Across benchmarked models, ZEV inventory made up 13% of total inventory numbers in the June 2023 period. This value is slightly higher than the percentage of ZEV registration of all light-duty vehicle registrations in June 2023 (12.2%). However, caution should be taken when comparing these two figures, given the small sample size of the ICE benchmark vehicles.

Figure A-25. Total inventory (Feb + June 2023) of benchmark models.



Note: F-150 values only show June inventory since no ZEV existed in February.

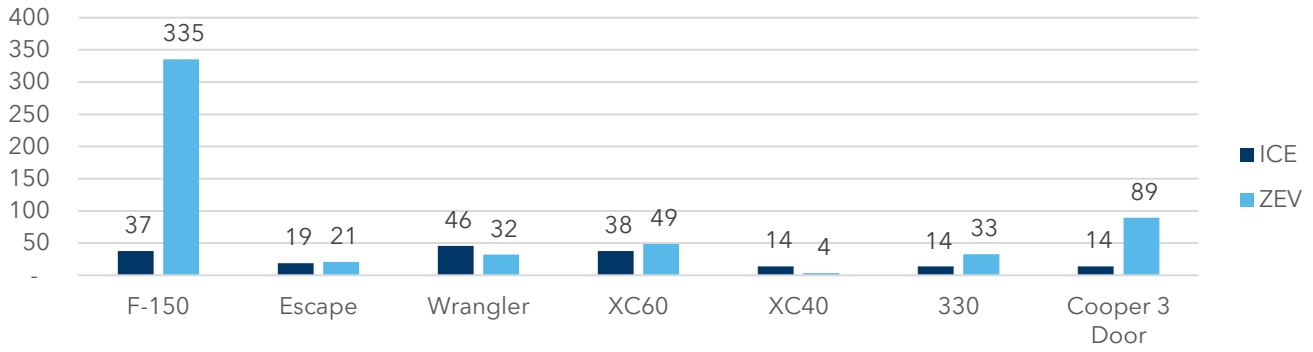
Table Table A-10 outlines the Q2 (April to June) sales for 2022 & 2023 for the selected benchmarking models. Additionally, the days of supply in Figure A-26 were calculated with June 2023 inventory relative to Q2 2023 sales.

Table A-10. Actual Q2 2022 Sales and Q2 2023 Sales

Model	Q2 - 2022		Q2 - 2023	
	ICE	*ZEV*	*ICE*	*ZEV*
F-150	23,657	145	24,239	327
Escape	8,472	990	7,320	1,232
Wrangler	7,379	1,795	6,208	1,091
XC60	1,150	415	1,195	311
XC40	729	132	800	229
330	700	316	624	170
Cooper 3 Door	406	94	708	156

Source: S&P Global Mobility, New Vehicle Registration data.

Figure A-26. Days of Supply by ICE & ZEV Models for June 2023 (Inventory) Relative to Q2 Sales



As shown in the figure above, every ICE model chosen is within target supply (Wrangler) or undersupplied. Alternatively, two ZEV models, the F-150 Lightning and the Cooper SE 3 Door, are considered as oversupplied with 335 and 89 days of supply for each respective model. Interestingly, certain ZEV models – namely, the Wrangler and XC40 - saw less availability than their ICE counterparts for the same period.

This observation aligns with the findings from Cox Automotive's New-Vehicle Inventory study for June 2023, indicating that the average supply of ZEVs in the U.S. stood at 103 days, which is more than twice the supply of ICE vehicles.[46] On the surface, this data may suggest a cooling demand for some ZEV models but, as previously discussed, in ZEV markets, an apparent 'over-supply' can be a result of low historical sales rather than high inventory levels. Days of supply figures can reflect real inventory levels only when a product is in a steady state. Consequently, we cannot conclude that the F-150 Lighting or Cooper 3 Door EV is over-supplied for the market. Instead, this data underscores automakers are taking proactive measures to ensure sufficient inventory is available to meet the expected growth in demand.

[46] coxautonic.com. 2023. "*New-Vehicle Inventory, Prices Stabilize; EV Supply Grows*". Accessed October 2023.

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