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ACCELERATING ELECTRIC  
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**MOBILITÉ  
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ACCÉLÉRER L'ÉLECTRIFICATION  
DES TRANSPORTS

# Powering Up

A national and sub-national outlook on electric vehicle adoption, barriers, and impacts to the grid

**Provincial Report: NEW BRUNSWICK**

August 2025

## POWERING UP

A national and sub-national outlook on electric vehicle adoption, barriers, and impacts to the grid



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### **"NO DISCLAIMERS" POLICY**

This report was prepared by Dunsky Energy + Climate Advisors, an independent firm focused on the clean energy transition and committed to quality, integrity and unbiased analysis and counsel. Our findings and recommendations are based on the best information available at the time the work was conducted as well as our experts' professional judgment.  
**Dunsky is proud to stand by our work.**

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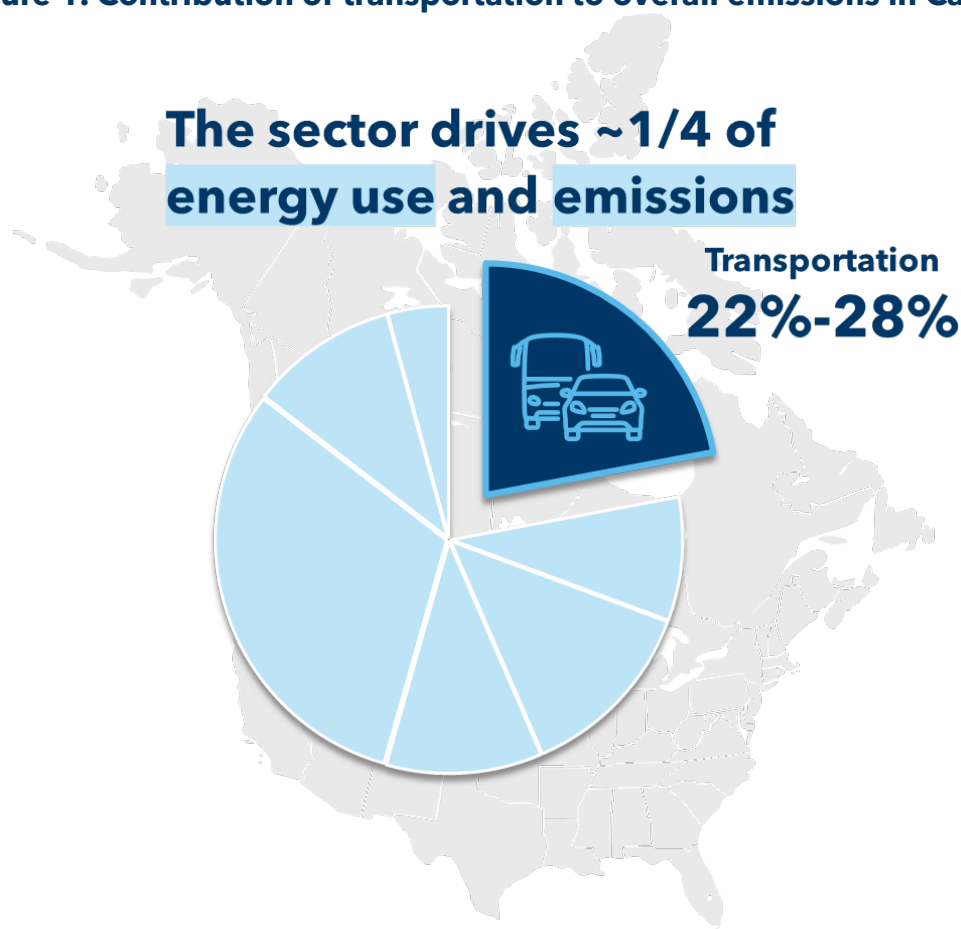


# 1. Background

## 1.1 Introduction

*Powering Up: A national and sub-national outlook on electric vehicle adoption, barriers, and impacts to the grid*, is a collaboration between Electric Mobility Canada and Dunskey Energy + Climate Advisors. Its goal is to provide robust data points for national and sub-national decision-making regarding the electrification of transportation. Light-duty vehicles (LDVs) were chosen as a focus because of their significant impact on total transportation greenhouse gas emissions (GHGs) in Canada.

**Figure 1. Contribution of transportation to overall emissions in Canada**



Addressing barriers to electric vehicle deployment is crucial to ensuring that Canada can meet its near-term climate targets (for 2030 and 2035) and maintain a realistic chance of achieving greater transportation decarbonization by 2050. By thoroughly examining key



barriers to Zero-emission Vehicle<sup>1</sup> (ZEV) adoption—including regionally tailored assessments of consumer affordability, customer economics, and electricity system impacts—our reports aim to identify policies and interventions that would enable the transition to electric mobility.

In this report, we outline the policy landscape and historical trajectory surrounding the adoption of light-duty ZEVs and provide a forecast of ZEV adoption under multiple scenarios between 2025 and 2040. We then analyze the implications of this adoption on electricity demand and how utilities, policymakers, and private actors can support a transition to ZEVs that is reliable, affordable, and predictable.

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## The key will be to transition to electric transportation in a way that is reliable, affordable and predictable

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### Primary benefits of ZEV adoption for Canadians:

- **Cleaner air** due to reduced emissions as the transportation energy source shifts from fossil fuel to electricity, which is becoming greener, and from reduced tailpipe emissions, improves air quality and helps to reduce the effects of climate change.
- **Improved affordability** due to savings on a total-cost-of-ownership basis – electricity is much cheaper than gasoline across Canada, offering operational savings from fuel as well as from maintenance, which has lower costs for ZEVs than for internal combustion engine vehicles (ICEVs).
- **Downward pressure on electricity rates** due to beneficial electrification, which creates opportunities for utilities to increase revenues, invest in infrastructure, and manage peaks and valleys in demand across their systems to reduce costs over time.

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<sup>1</sup> Includes fully-electric or battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).



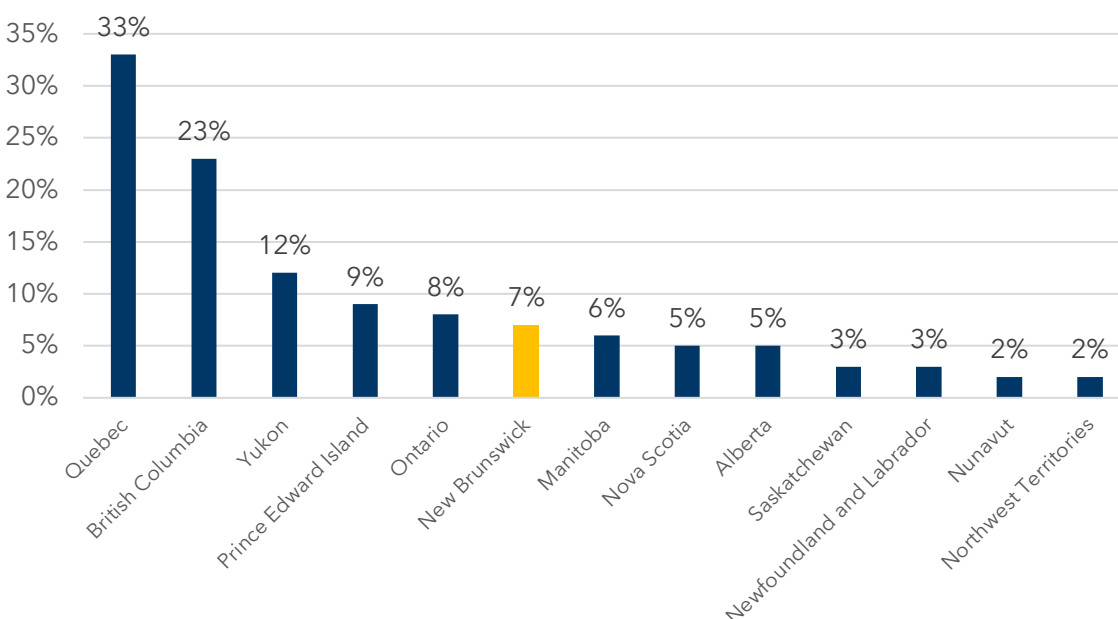


## 1.2 Historical ZEV Adoption

ZEV<sup>2</sup> adoption in New Brunswick is among the top 6 in Canada, ahead of other Atlantic provinces like Nova Scotia and Newfoundland, but behind Prince Edward Island. According to S&P Global, while ZEV adoption represented 15.4% of new vehicle sales in Canada in 2024, ZEV sales were only at 7% in New Brunswick, behind Ontario and Prince Edward Island.

**Figure 2. 2024 ZEV share of new vehicle sales by province and territory<sup>3</sup>**

▶ EVs represented 7% of new vehicle sales in the last quarter of 2024.



**ZEV adoption in New Brunswick is ahead of other Atlantic provinces, other than PEI.**

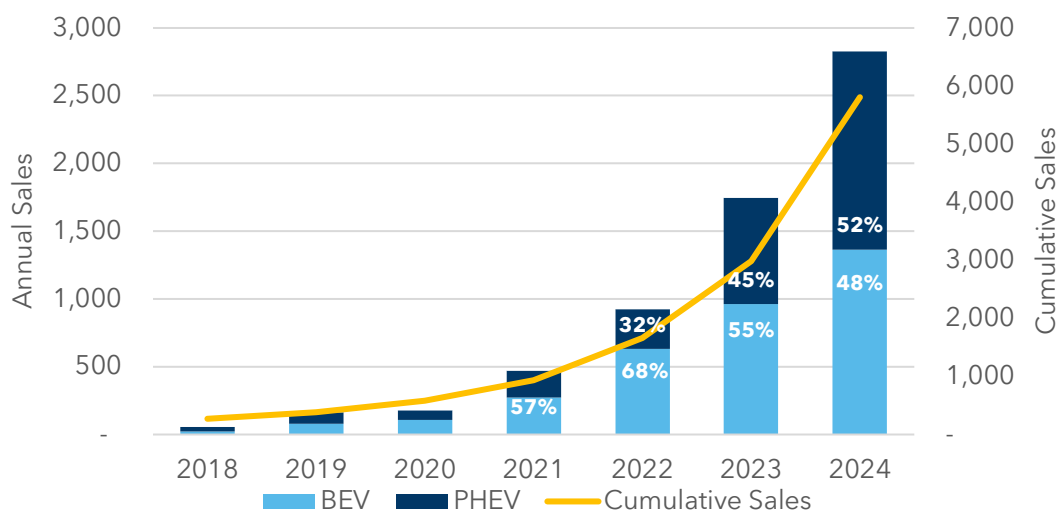
<sup>2</sup> Includes fully-electric or battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).

<sup>3</sup> S&P Global. Q3 2024. Automotive Insights: Q4 2024 Canadian ZEV Information and Analysis.



### Figure 3. Historical ZEV sales, New Brunswick

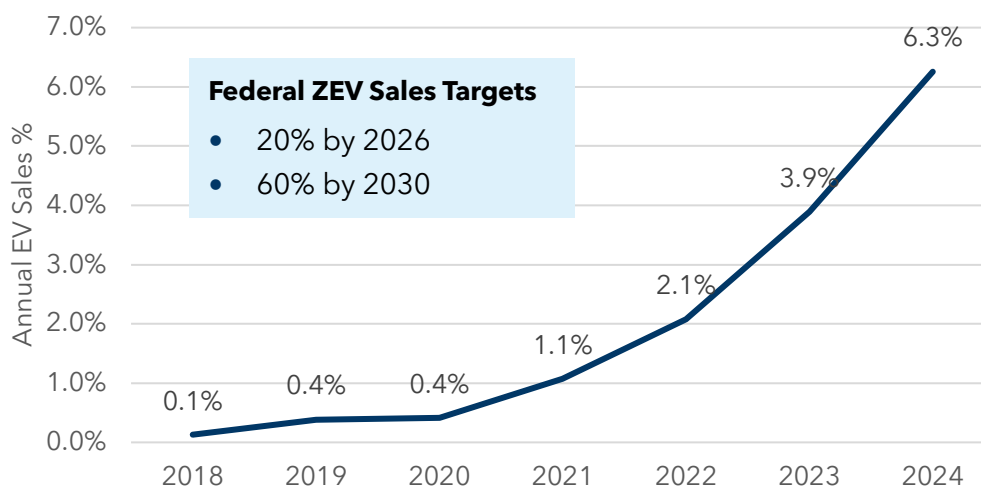
More than 5,800 ZEVs have been sold in the province as of 2024.<sup>4</sup>



In New Brunswick, ZEV adoption has been increasing slowly but steadily since 2018. BEV sales as a share of overall ZEV sales have grown from 39% in 2018 to 68% in 2022.

### Figure 4. Historical ZEV sales %, New Brunswick<sup>5</sup>

Since 2018, ZEV market share has grown year-over-year by an average of 102% each year.



<sup>4</sup> Sources include Statistics Canada. [New motor vehicle registrations, quarterly, by geographic level](#). Accessed January 2025 and Statistics Canada. [Vehicle registrations, by vehicle type and fuel type](#). Accessed January 2025.

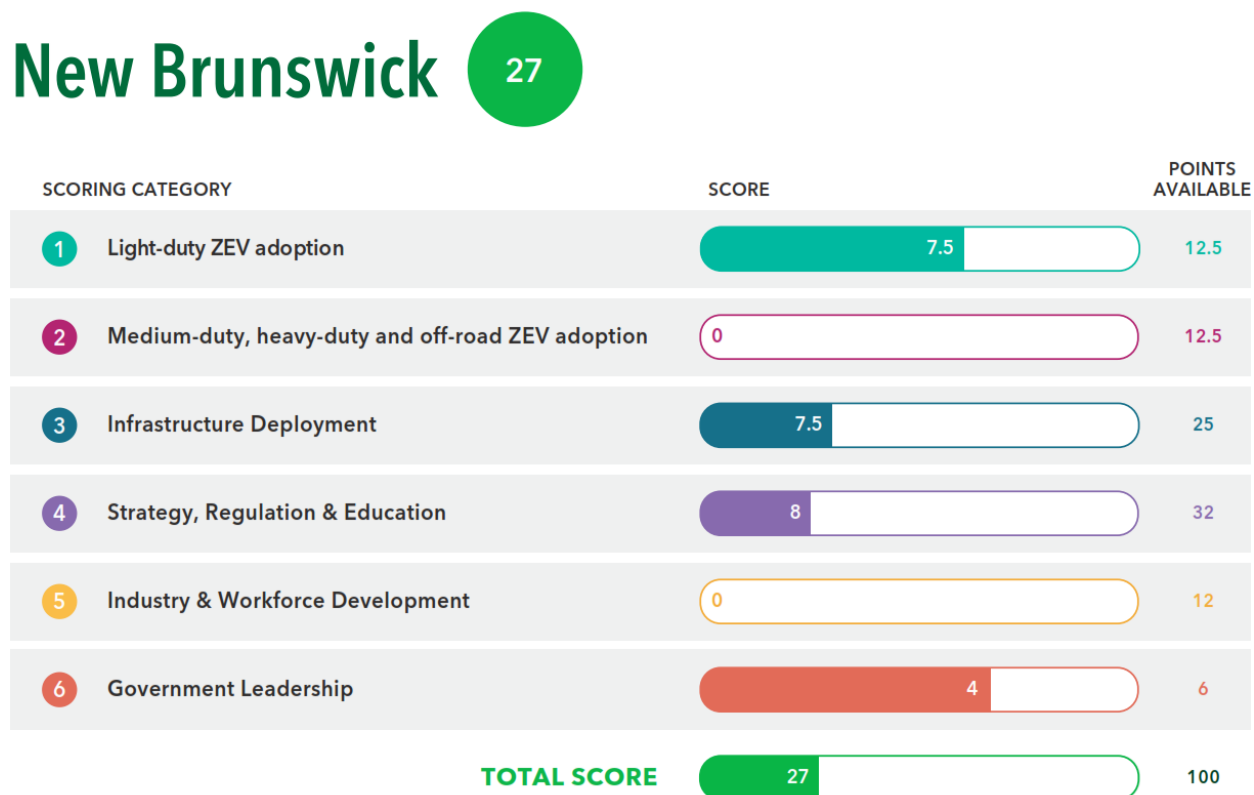
<sup>5</sup> Annual EV Sales percentage are calculated leveraging car and light truck new vehicle sales from Natural Resources Canada. [Comprehensive Energy Use Database: Transportation Sector](#). Note that new vehicle sales are not available for 2023 and 2024 and forecasted new sales are leveraged for those years calculations. Varying methodologies or source for 2023 and 2024 light-duty new vehicle sales may result in different annual EV Sales percentages for those years.



## 1.3 Policy Landscape

In 2022, Dunskey developed a Provincial and Territorial Zero-Emission Vehicle Scorecard for Electric Mobility Canada. At the time, New Brunswick had deployed a province-wide network of direct current fast chargers (DCFC) and Level 2 chargers, a purchase incentive, and a home charging incentive. Its score landed just below the Canadian average of 29 points, sitting at 27 points in the “Building Momentum” category.<sup>6</sup>

**Figure 5. New Brunswick ZEV Scorecard, 2021-22<sup>2</sup>**



In that scorecard, we also outlined several key opportunities for New Brunswick to improve its score and thereby encourage higher rates of ZEV adoption in the coming years, as shown in the table below. In addition to updates for the specific opportunities outlined below, New Brunswick Power has continued to make progress in charger deployments and the dissemination of incentives within the province.

<sup>6</sup> Electric Mobility Canada. 2021-22. [Provincial and Territorial Zero-Emission Vehicle Scorecard](#).



**Table 1. Opportunities for ZEV policy and program improvement and updates since 2022, New Brunswick**

| Opportunities highlighted in ZEV Scorecard (2022) <sup>7</sup>   | Major progress or updates in 2023-2024  |
|--|---|
| New Brunswick has announced a target of having 20,000 EVs on the road by 2030. The province can work to update this target and make it more ambitious and integrate its provincial goal with the forthcoming federal ZEV standard of 100% ZEV sales by 2035.                               | In 2023, New Brunswick set more ambitious targets of 6% of light-duty vehicle sales being electric by 2025, and 50% by 2030. <sup>8</sup>   |
| New Brunswick does not yet offer funding for MHDV electrification. The province could start with transit and/or school buses, building on the recently announced federal iMHZEV program. A commitment in this direction was made in the September 2022 updated Climate Change Action Plan. | N/A   |
| New Brunswick can begin discussions with municipalities to explore mechanisms for ZEV-ready building requirements, while developing funding programs for ZEV-ready retrofits to multi-unit residential buildings.  | The City of Fredericton has <a href="#">begun to explore</a> ZEV-ready building requirements; however, there has been no confirmation from the provincial level regarding these requirements. |

Additionally, in November 2024, the New Brunswick Government outlined government priorities, which included the intention to ensure that the government's vehicle fleet, including school buses, is all electric by 2035.<sup>9</sup>

<sup>7</sup> Electric Mobility Canada. 2021-22. [Provincial and Territorial Zero-Emission Vehicle Scorecard](#).

<sup>8</sup> Government of New Brunswick. 2023. [Our Pathway Towards Decarbonization and Climate Resilience](#).

<sup>9</sup> Government of New Brunswick. November 19, 2024. [Throne speech outlines changes tied to health care, affordability and education](#).

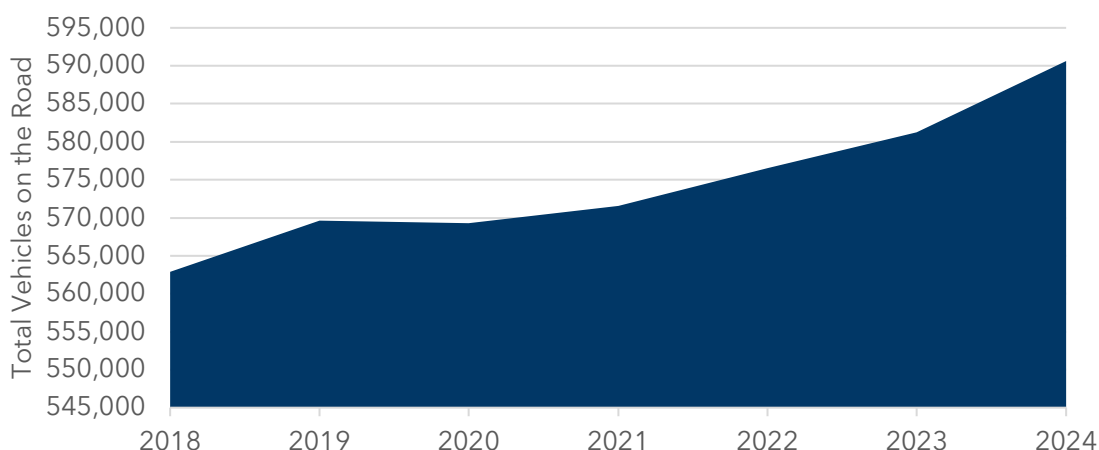


## 1.4 Vehicle and Housing Market Overview

After stagnating in 2020-2021 due to the COVID-19 pandemic, vehicle sales in New Brunswick have been on an upward trend, reaching over 590,000 LDVs on the road by 2024. This market growth has implications for not only the potential for total ZEV sales but also the grid impact of an increasing number of electric vehicles.

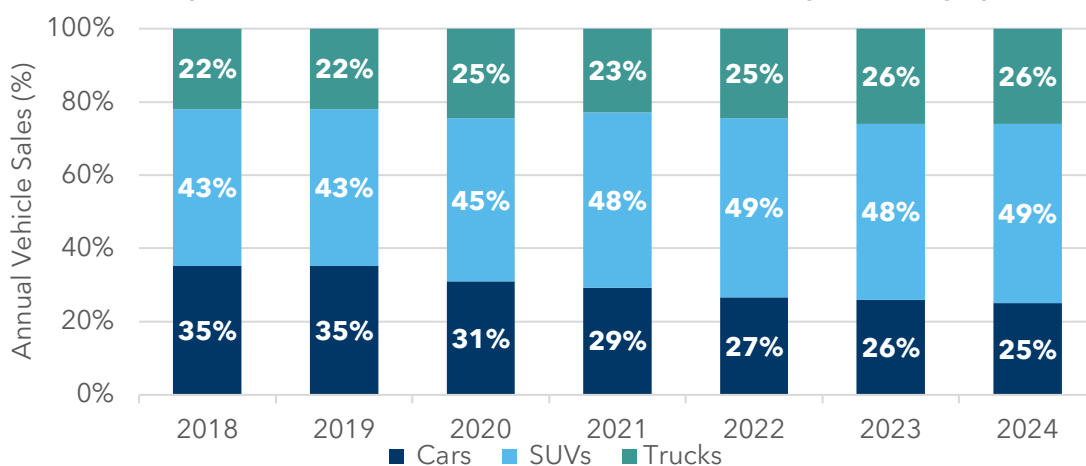
**Figure 6. Historical light-duty vehicle stock on the road, New Brunswick<sup>10</sup>**

▶ The vehicle market in New Brunswick is growing, reaching stock of over 590,000 in 2024.



**Figure 7. Historical light-duty vehicle segment mix, New Brunswick<sup>11</sup>**

▶ The current segment mix is 49% SUVs and 25% cars, the remaining 26% being light trucks.



<sup>10</sup> Natural Resources Canada. [Comprehensive Energy Use Database: Transportation Sector, New Brunswick](#). Accessed December 2024. Assume vehicle ownership remains constant and vehicles on the road align with population projections from Statistics Canada's M1 scenario. [Projected population, by projection scenario](#). Accessed June 2024.

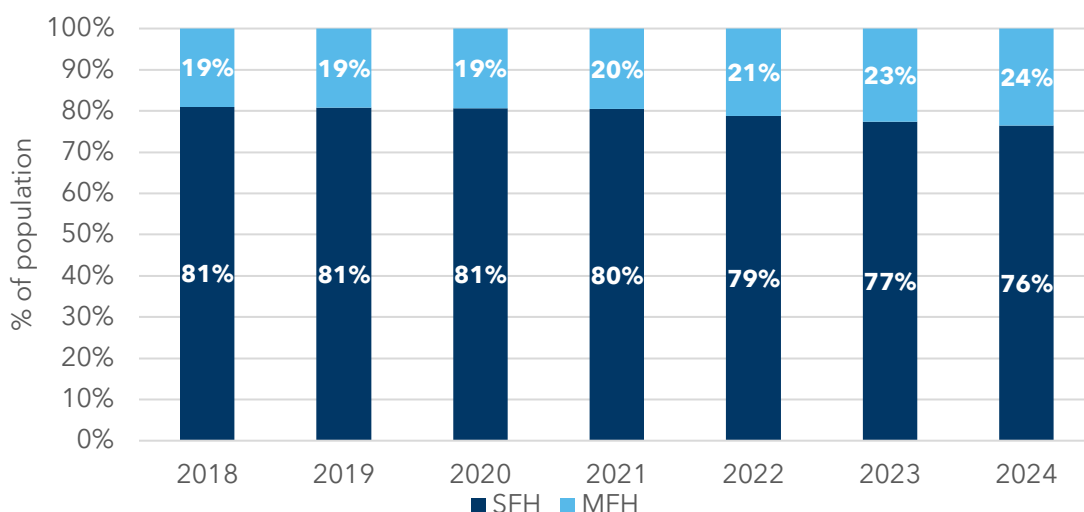
<sup>11</sup> Ibid.



New Brunswick's LDV market is trending towards larger vehicles (SUVs, Trucks) over time. It is essential to understand the vehicle segment mix when these vehicles are transitioned to electric, as larger vehicles are heavier and tend to be less energy-efficient, thereby requiring more charging energy for the same amount of driving. A trend towards larger vehicles, as seen in New Brunswick, will also result in increased energy needs for charging all vehicles on the road as vehicle electrification progresses.

**Figure 8. Historical percent of provincial population in single-family (SFH) versus multifamily homes (MFH), New Brunswick<sup>12</sup>**

▶ Most New Brunswickers live in SFH, with an increasing proportion living in MFH over time.



Most New Brunswickers (76% in 2024) live in single-family homes; however, this proportion has been on a downward trend over the last several years, and more New Brunswickers are living in multifamily buildings<sup>13</sup>. However, it is worth noting that this growth in multifamily housing is relatively small, and we do not expect single-family homes to become the minority throughout this study.

This trend has an impact on ZEV adoption because the barriers to home charging for those in single-family homes tend to be much lower than in multifamily homes – single-family home residents typically have more control over installing a charger where they park, and the costs of doing so are also typically lower. Provinces and municipalities committed to supporting ZEV adoption must either enable home charging in multifamily buildings through supportive policies, such as ZEV-ready requirements, or provide equivalent charging access in public places, which is significantly more expensive.

<sup>12</sup> Based on population projections from Statistics Canada's M1 scenario (June 24, 2024. [Projected population, by projection scenario.](#)) and housing market data from the Canada Mortgage and Housing Corporation (June 25, 2023. [Housing market data.](#)).

<sup>13</sup> We use Statistics Canada definitions of housing types as follows: Multifamily buildings include "Apartments five stories and more", "Apartments 5 stories and less" and "Row houses", while single family homes include "Semi-detached", "Single detached", "Apartment or flat in a duplex" and "Other".



## 2. Methodology

To create a forecast of ZEV charging load in New Brunswick, we first leveraged results from our in-house **ZEV Adoption (EVA™) model** to produce a light-duty ZEV adoption forecast based on a market characterization that we produce for each jurisdiction.

**Figure 9. Overview of the EVA™ Model**

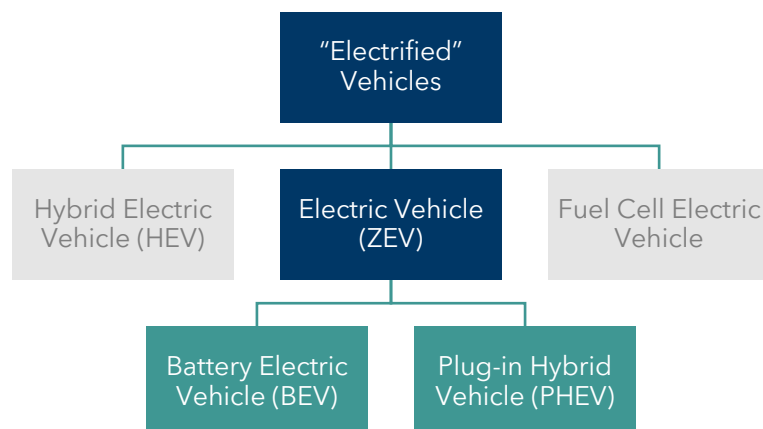
| Technical   | Economic  | Constraints   | Market   |
|---|---|---|--|
| <b>Assess the maximum theoretical potential for deployment</b> <ul style="list-style-type: none"> <li>Market size and composition by vehicle class (e.g. cars, SUVs, pickups)</li> <li>Forecasted availability of vehicle models in each class</li> </ul> | <b>Calculate unconstrained economic potential uptake</b> <ul style="list-style-type: none"> <li>Forecasted incremental purchase cost of ZEVs over ICEVs</li> <li>Total Cost of Ownership (TCO) based on operational and fuel costs</li> </ul> | <b>Account for jurisdiction-specific barriers and constraints, which vary by vehicle class, including:</b> <ul style="list-style-type: none"> <li>Range anxiety or range requirements</li> <li>Public charging coverage, capacity, and charging time</li> <li>Home charging access</li> </ul> | <b>Incorporate market dynamics and non-quantifiable market constraints</b> <ul style="list-style-type: none"> <li>Use of technology diffusion theory to determine rate of adoption</li> <li>Market competition between vehicle powertrain types</li> </ul> |

Our ZEV analysis includes the following vehicle types:

- **Battery electric vehicles (BEV)** – “pure” electric vehicles that only have an electric powertrain and that must be plugged into an electric source to charge (e.g. Tesla Model 3, Volkswagen ID.4, Hyundai Kona Electric)
- **Plug-in hybrid electric vehicles (PHEV)** – vehicles that can plug in to charge and operate in electric mode for short distances (e.g. 30 to 80 km), but that also include a combustion powertrain for longer trips. (e.g. Mitsubishi Outlander PHEV, Toyota Prius Prime, Ford Escape PHEV)



**Figure 10. Vehicle types in scope**



The following vehicle types are **excluded** from the analysis:

- Hybrid electric vehicles that do not plug in are considered ICEVs.
- Fuel cell electric vehicles such as hydrogen vehicles where the market is assumed to be minimal in the timeframe of the study.

## 2.1 Scenario Analysis

The adoption rate of electric vehicles was assessed under three scenarios that vary policy and program interventions which can significantly impact ZEV adoption. These include the following key policy and program levers:

- 1. Public Charging Access:** Existing infrastructure deployed to date has jumped-started the ZEV market, however significant investments are required to alleviate range anxiety.
- 2. Home Charging Access:** With most ZEV charging expected to take place at home, lack of access to home charging for some segments of the population could limit their ability to adopt EVs.
- 3. Vehicle Incentives:** Government rebates can help to bridge the gap to cost-parity with ICEVs in the short-term as the up-front purchase costs of ZEVs decline over time.
- 4. Federal Zero Emission Vehicle (ZEV) Availability Standard:** Under the current ZEV Availability Standard, auto manufacturers and importers must meet a 100% ZEV sales target by 2035. Our scenario analysis varies whether the standard is present as well as its enforcement year to show its potential impact on ZEV adoption.
- 5. Provincial ZEV Mandate:** While some provinces have implemented their own ZEV sales requirements, those that have not may potentially experience lower availability in the next few years as manufacturers and importers focus supply on regions with the highest demand or requirements for ZEV sales, even if there are targets at the federal level.

In addition to the modelled policy and program interventions, the forecasted ZEV adoption is also sensitive to uncertainties around key market and technology factors such as electricity rates, fuel prices, battery costs, total vehicle sales and ZEV model availability.

Our Low Growth scenario represents minimal efforts to support ZEV adoption, and in some cases the removal of existing supportive policies. The Moderate Growth scenario represents



some support to enable ZEV adoption and generally aligns with current commitments and policies, while the High Growth scenario represents a strong policy pathway to reach the Federal ZEV sales target. The specific parameters for each scenario are outlined in **Table 2**.

**Table 2. Scenario assumptions for ZEV adoption**

| Parameter  | Low Growth   | Medium Growth   | High Growth   |
|--|--|---|---|
| <b>Public Charging Infrastructure<sup>14</sup></b> | Limited<br>1,000 ports by 2030<br>4,900 ports by 2040  | Moderate<br>2,000 ports by 2030<br>12,000 ports by 2040   | Significant<br>4,000 ports by 2030<br>16,000 ports by 2040  |
| <b>Home Charging Access<sup>15</sup></b>           | Limited<br>Single-family homes are 89% ZEV-ready, 15% of multifamily homes are ZEV-ready by 2040                                   | Moderate<br>Single-family homes are 89% ZEV-ready, 35% of multifamily homes are ZEV-ready by 2040   | Significant<br>Single-family homes are 89% ZEV-ready, 55% of multifamily homes are ZEV-ready by 2040                                |
| <b>Vehicle Incentives</b>                          | Current incentives<br><b>Federal:</b> up to \$5,000<br><b>Provincial:</b> up to \$5,000<br>(Both ramped down + phased-out by 2025) | Current incentives, extended<br><b>Federal:</b> up to \$5,000<br>(Ramped down + phased-out by 2030)<br><b>Provincial:</b> up to \$5,000<br>(Ramped down + phased-out by 2025) | Expanded incentives<br><b>Federal:</b> up to \$5,000<br><b>Provincial:</b> up to \$5,000<br>(Both ramped down + phased-out by 2035) |
| <b>Federal ZEV Availability Standard</b>           | None   | 100% by 2040<br>Federal interim targets extended  | 100% by 2035<br>Aligned with Federal interim targets  |
| <b>Provincial ZEV Mandate</b>                      | None   | None  | 100% by 2035  |

We refer to specific vehicle purchase incentive levels for simplicity; however, what matters for our modeling is the ZEV price relative to an ICEV. The same impact can be achieved through a \$5,000 rebate, a \$5,000 penalty on ICEVs, or a combination that is revenue-neutral, such as

<sup>14</sup> Charging infrastructure inputs in the High Growth scenario are aligned with the estimated charging needs developed in the 2024 Dunskey report [Electric Vehicle Charging Infrastructure for Canada](#). In the Medium and Low growth scenarios, charging inputs are lower to align with lower levels of adoption and to reflect reduced charging availability, which contributes to constrained EV adoption in these scenarios. Note that these inputs are not the result of a detailed charging needs assessment, but rather high-level estimates based on Dunskey's 2024 analysis, which reflects alternative adoption scenarios.

<sup>15</sup> Assumptions for Home Charging Access were based on the methodology used in the 2024 Dunskey report, [Electric Vehicle Charging Infrastructure for Canada](#).



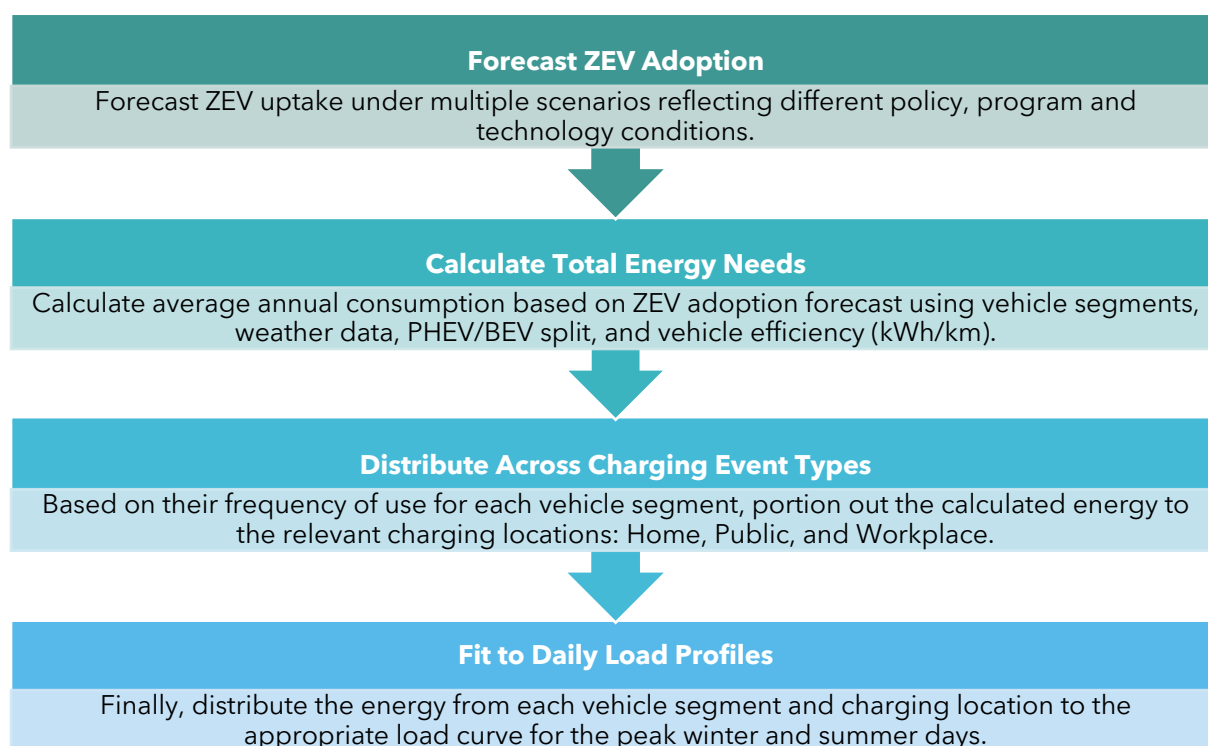


a "feebate" system. This approach would become important for the High Growth scenario to sustain ZEV incentives into the 2030s without high costs.

## 2.2 Electric Grid Load Impacts

This study follows a four-step process to assess the potential for and impacts of ZEVs on New Brunswick's electric grid from increased demand for electricity for ZEV charging. The ZEV adoption forecast from EVA™ is used to calculate the potential grid load (demand for electricity) impacts from realistic charging behaviours. Figure 11 outlines each of these four steps for determining peak demand from ZEVs.

**Figure 11. Process for modelling ZEV adoption and load impacts**



To determine the impacts of ZEV adoption on the electrical grid, we used typical 24-hour diversified charging distribution profiles established from the literature<sup>16</sup> for each vehicle segment and charging location, and the Dunskey EVA™ model results, with regional adjustments for vehicle consumption in New Brunswick (i.e. temperature and proportions of vehicle types). The resulting load curves represent the average charging behaviour of different ZEV segments on the road during summer and winter peak days.<sup>17</sup>

<sup>16</sup> The charging distribution profiles were developed by leveraging data sets from a range of government and utility-led pilot programs including the California Energy Commission (April 29, 2019. [California Investor-Owned Utility Electricity Load Shapes.](#)); ISO New England ([2020 Transportation Electrification Forecast.](#)); and Rocky Mountain Institute. (2019. [DCFC Rate Design Study.](#))

<sup>17</sup> Refers to the day with the highest electricity demand in a single hour, for a given year and season.



Next, these curves are multiplied by the forecasted number of ZEVs on the road in each study year. The results of this load impact analysis produce the hypothetical daily load impact for peak days. The curves consider the use of all charging event types – home, workplace, and public charging.

Charging event types refer to the location where charging is taking place, which will change the power level, time of day, and flexibility of the charging load. Each ZEV will receive a proportion of its total charging energy from different event types. For example, a personal vehicle is likely to charge at home most of the time, but it will occasionally charge at a public charger while the driver is shopping or at their workplace. This breakdown of charging event types will vary based on the vehicle’s purpose. Our assumptions for charging event type proportions by vehicle segment and origin can be found in **Table 3**.

**Table 3. Proportion of daily charging energy for each event type and vehicle segment**

| Charging Event Type      | Personal | Commercial |
|--------------------------|----------|------------|
| Home/Depot <sup>18</sup> | 80%      | 100%       |
| Workplace                | 10%      | N/A        |
| Public                   | 10%      | N/A        |

<sup>18</sup> Refers to where most vehicles are parked overnight, “Home” for personal vehicles and “Depot” for commercial vehicles.





## 3. Results

Key results highlights that we cover in this section include:

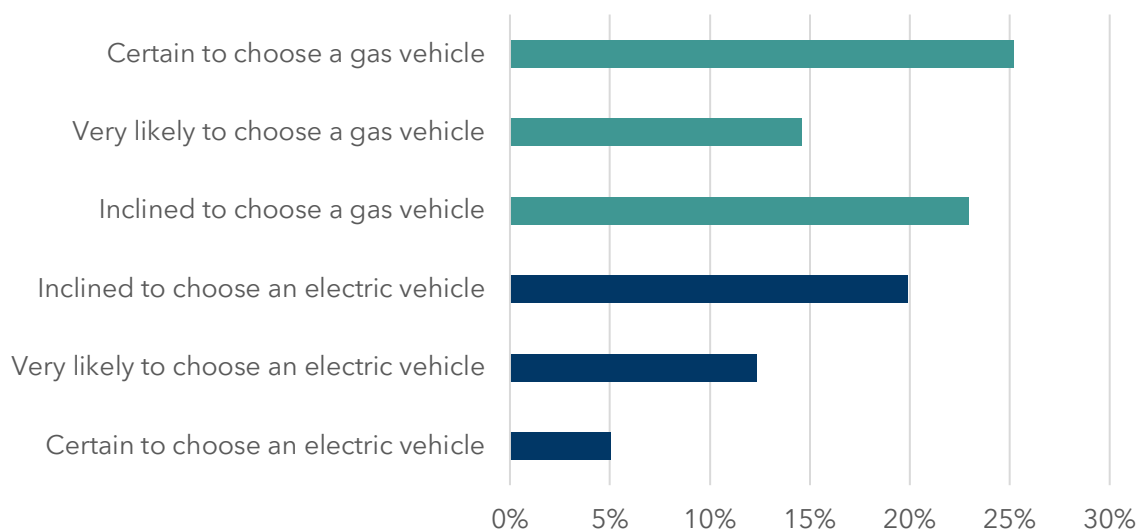
1. Over the long term, ZEV adoption in New Brunswick is forecasted to approach 100% of new sales, which would accumulate to 48% of total vehicles on the road by 2040, even in a low-growth scenario.
2. If effectively managed charging programs and technologies are employed, winter peak load from ZEV charging has the potential to be reduced by 1,200 MW (16%) in a medium growth scenario.
3. Without effective programs and policies in place over the next few years, New Brunswick will be on a slower path to electrification, resulting in lost benefits for New Brunswickers in both improved air quality and financial savings from reduced fuel and maintenance costs.

### 3.1 Results from Survey of Canadians

As part of the *Powering Up* project, Electric Mobility Canada surveyed over 6,000 Canadians, with 431 respondents from New Brunswick. A portion of this survey aimed to confirm, update, or determine new assumptions that should be used in the EVA™ model to forecast ZEV adoption in Canada as accurately as possible. This section summarizes some of those key results.

#### Figure 12. When thinking about your next vehicle purchase, which will you choose? New Brunswick only

▶ **About 3 in 8 New Brunswickers (37%) plan to buy a ZEV as their next vehicle.** This preference is higher among Canadian urban residents (49%) and individuals aged 30-44 (51%).

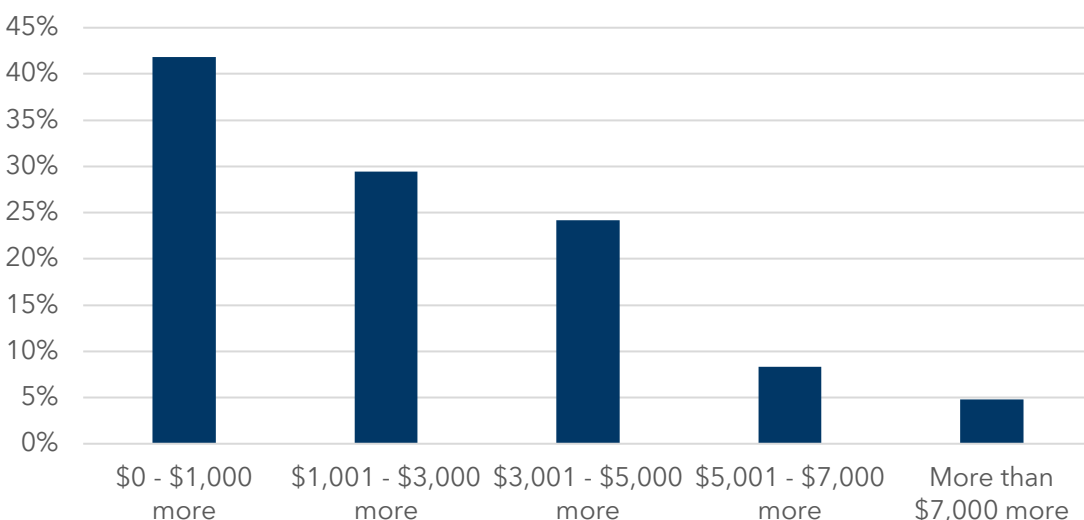




Although New Brunswickers are willing to pay a premium for ZEVs over ICEVs (see **Figure 13**), the EVA™ model assumes that the comparatively higher upfront costs will pose a barrier to the majority of potential ZEV buyers until ZEV prices reach parity with ICEVs across most segments.

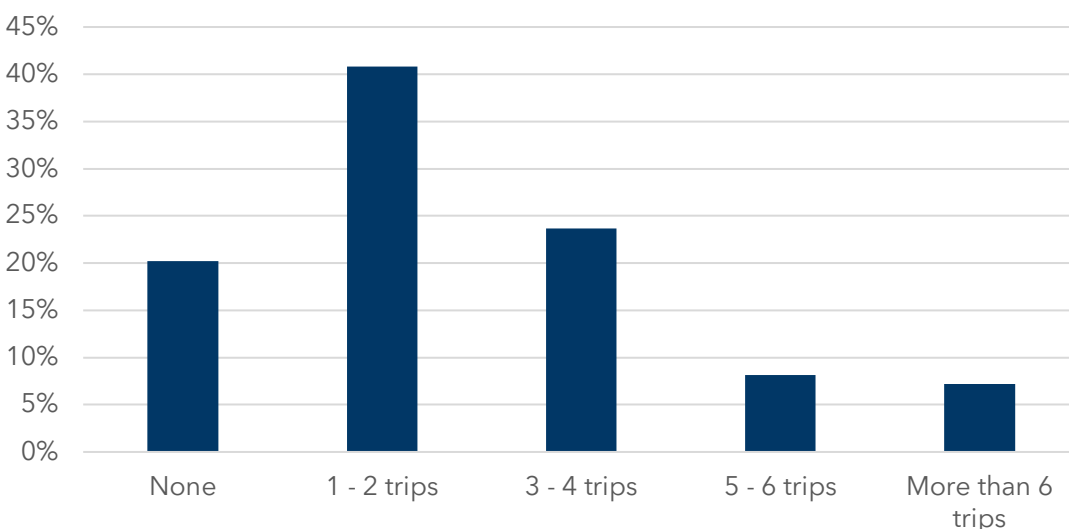
**Figure 13. When considering the upfront cost of an electric vehicle vs a traditional gas vehicle, how much more do you consider acceptable today? New Brunswick only**

▶ 62% of New Brunswickers would be willing to pay a premium for a ZEV versus an ICEV.



**Figure 14. How many long-distance (500 km or more) trips do you make in one year? New Brunswick only**

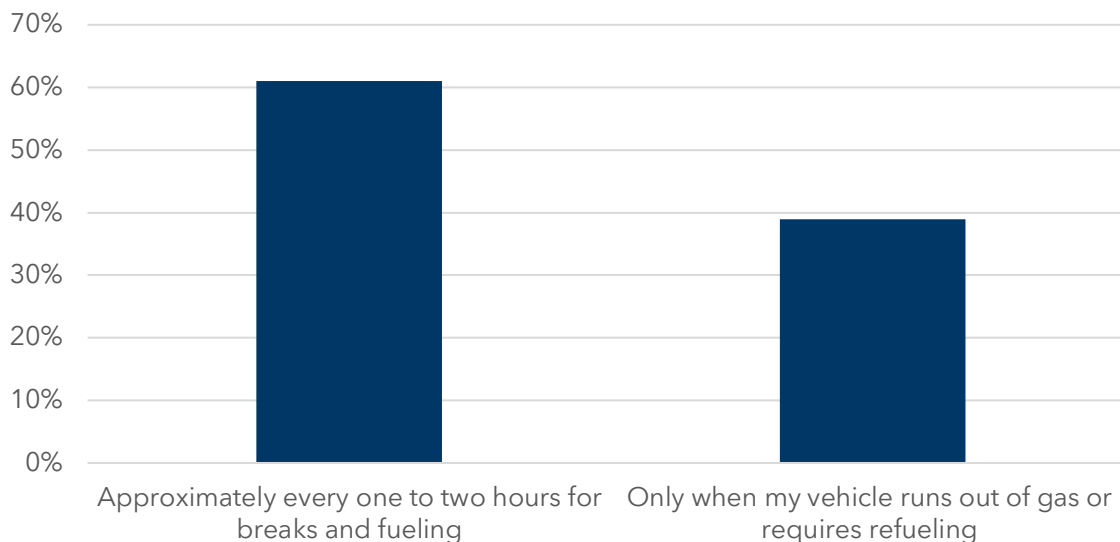
▶ Over 40% of New Brunswickers take 1-2 long-distance trips annually.





### Figure 15. How frequently do you typically make stops during long-distance trips (500 km or more)? New Brunswick only

▶ 61% of New Brunswickers stop more frequently on long trips than they would need to refuel, indicating that ZEV range is not a major constraint or inconvenience on their ability to make long-distance trips so long as sufficient public charging is available.



Nearly half of New Brunswickers (48%) drive less than 30 km to get to work (a 60 km round trip), which means that many people do not need to rely on top-up charging or do not travel far enough daily for range to be a concern in their daily driving.

Despite improvements in battery size and access to public charging, there may still be perceived range barriers, also known as “range anxiety”, which makes potential ZEV buyers hesitant to switch to electric, but could be improved either through education or exposure to EVs and charging as adoption increases.

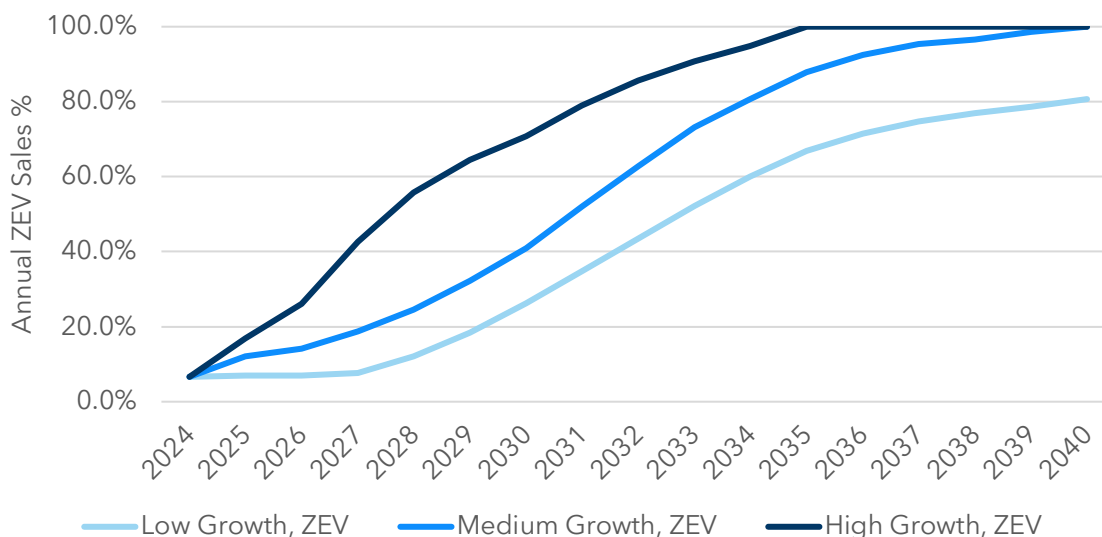
This survey also included questions pertaining to Canadians’ knowledge about EVs, which can be indicative of some common misconceptions that result in perceived barriers to adoption. For instance, the majority of New Brunswickers are unaware of the average range of new EVs, with only 30% knowing that it falls between 400 and 500 kilometers. Additionally, only 42% of New Brunswickers are aware of the federal government rebates for EVs. A sample of additional questions that were asked in this knowledge section is included in the Appendix, Additional Results from Survey of Canadians.



## 3.2 ZEV Adoption Results

Policies and programs that support ZEV adoption in New Brunswick will be significant drivers of growth over the next 10 years.

**Figure 16. Annual ZEV sales % by scenario, New Brunswick**



Changes in charging availability, purchase incentives, and a ZEV standard in the near term will determine how quickly New Brunswick arrives at a complete transition to electric vehicles. If these factors are in place, they will reduce key barriers to adoption, including having enough charge when needed, bringing EVs to price parity with ICEVs, and ensuring adequate local supply.

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**Policy makers have a critical opportunity in the next few years to put Canada on a strong path to vehicle electrification, enabling Canadians to reap the cost and environmental benefits over the following decades.**

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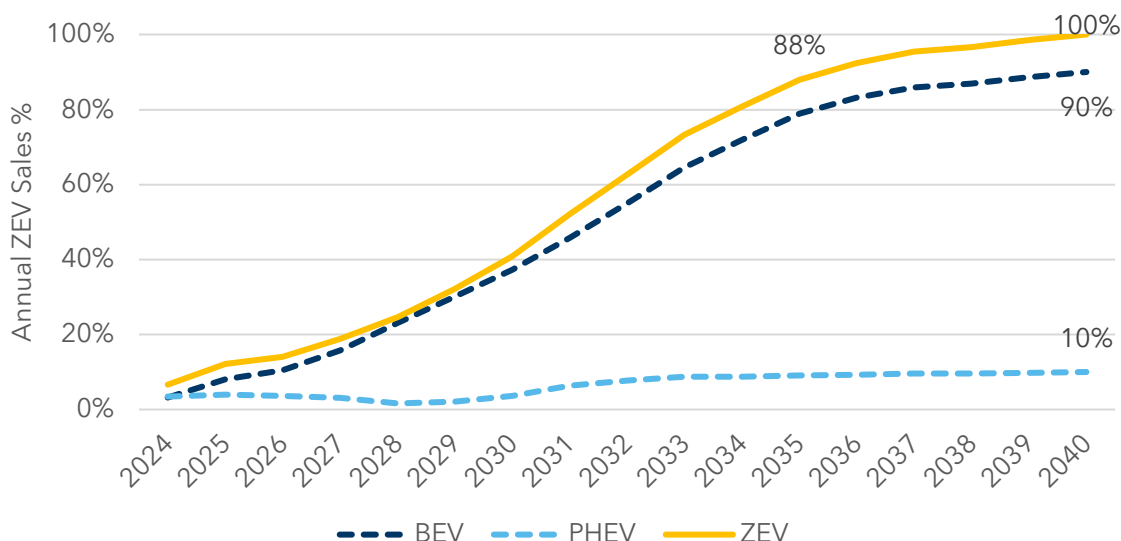


### 3.2.1 Medium Growth Scenario

Although the Medium scenario models a delayed federal ZEV standard enforcement date, ZEV adoption is still expected to reach 88% of new sales by the current target date of 2035.

**Figure 17. Annual ZEV sales % by powertrain, medium growth, New Brunswick**

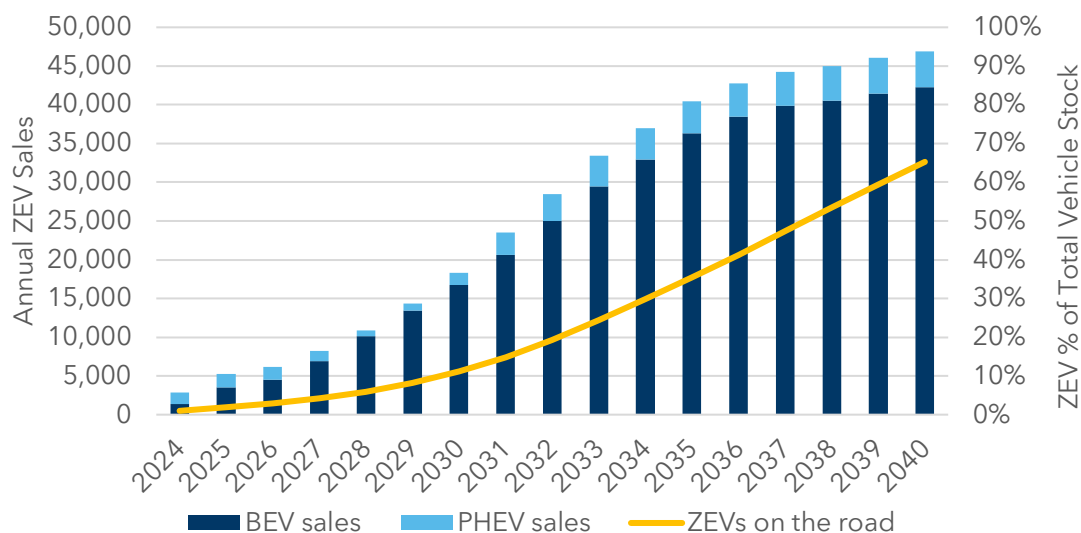
▶ New Brunswick will experience significant growth in ZEV uptake, reaching 100% by 2040.



With the additional public and home charging access assumed in this scenario, reducing barriers to BEV adoption, BEVs out-compete PHEVs due to lower total cost of ownership.

**Figure 18. Annual ZEV sales by powertrain and total ZEV stock, medium growth, New Brunswick**

▶ By 2040, over 445,000 of the 680,000 (65%) LDVs on the road are forecasted to be EVs.



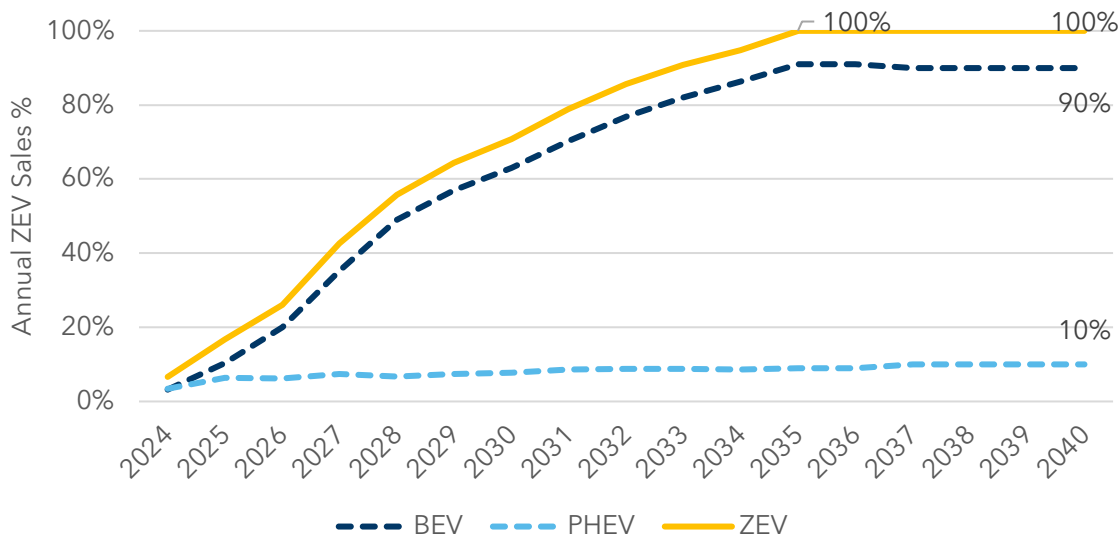


### 3.2.2 High Growth Scenario

Under the High scenario, additional policy supports remove the primary barriers to ZEV adoption, including public charging, home charging access, and upfront cost reductions.

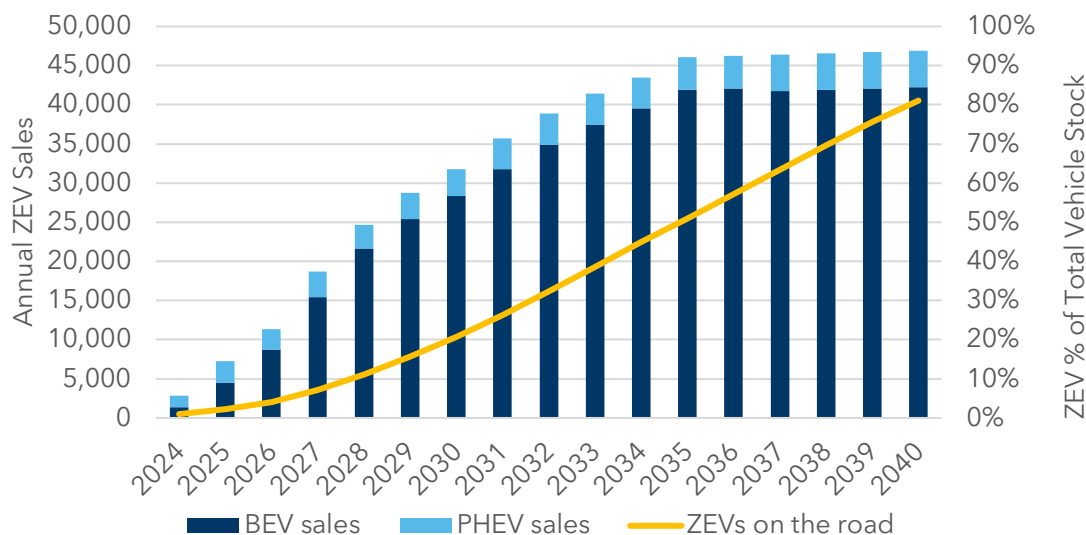
**Figure 19. Annual ZEV sales % by powertrain, high growth, New Brunswick**

▶ The ZEV proportion of annual sales increases rapidly towards the 100% ZEV standard in 2035, reaching 71% by 2030.



**Figure 20. Annual ZEV sales by powertrain and total ZEV stock, high growth, New Brunswick**

▶ By 2040, over 552,000 of the 680,000 (81%) LDVs on the road are forecasted to be EVs.



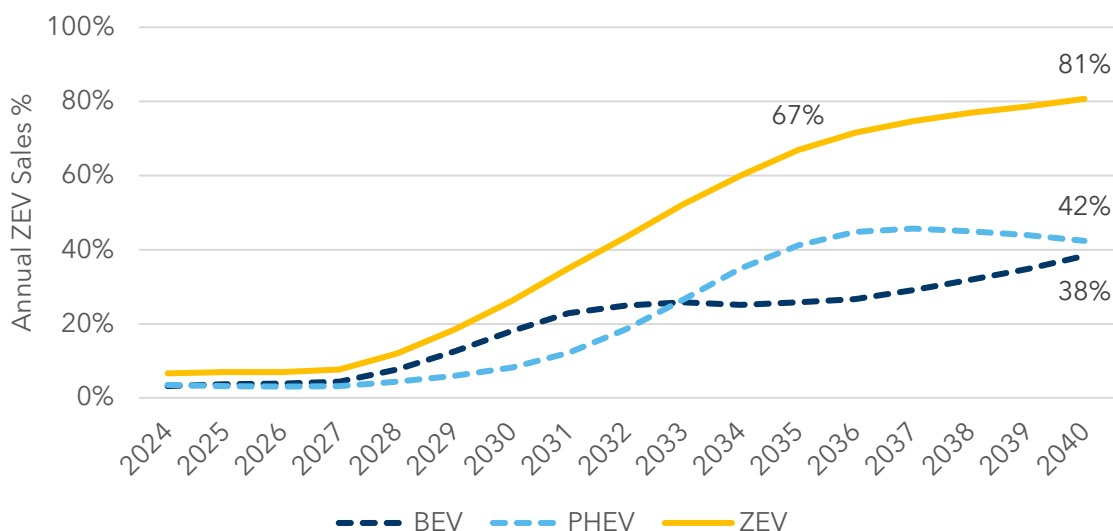


### 3.2.3 Low Growth Scenario

With few supportive policies in the Low scenario, ZEV adoption potential will be constrained.

**Figure 21. Annual ZEV sales % by powertrain, low growth, New Brunswick**

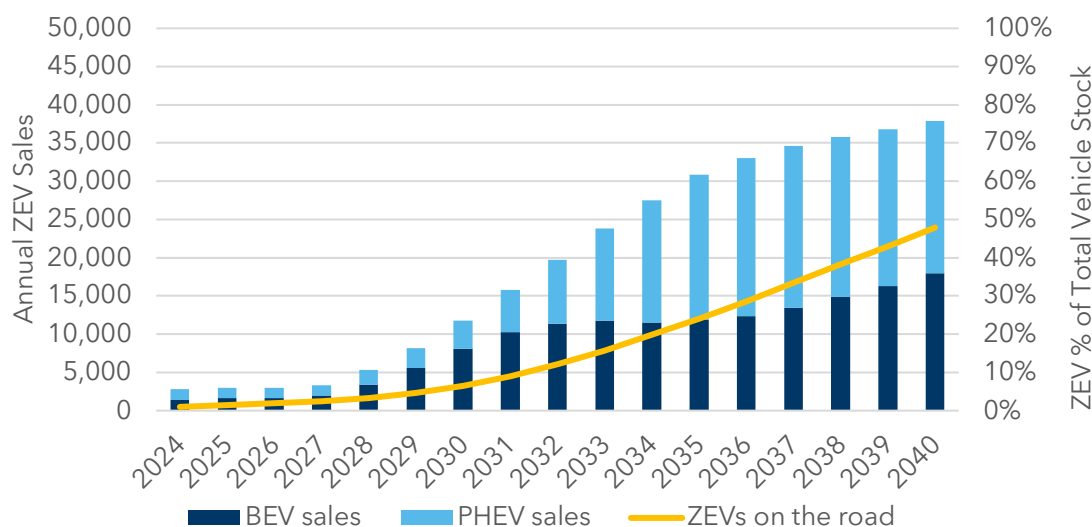
▶ ZEV adoption is expected to fall short of the current federal 2035 ZEV target (100%), reaching only 67% of new sales by 2035 and 81% by 2040.



The market share shifts towards PHEVs in 2033 as public infrastructure deployment in this scenario is insufficient to meet the needs of BEV drivers. However, over the long term, the economics of BEVs are likely to continue to improve and result in increasing market share.

**Figure 22. Annual ZEV sales by powertrain and total ZEV stock, low growth, New Brunswick**

▶ By 2040, over 326,000 of the 680,000 (48%) LDVs on the road are forecasted to be EVs.



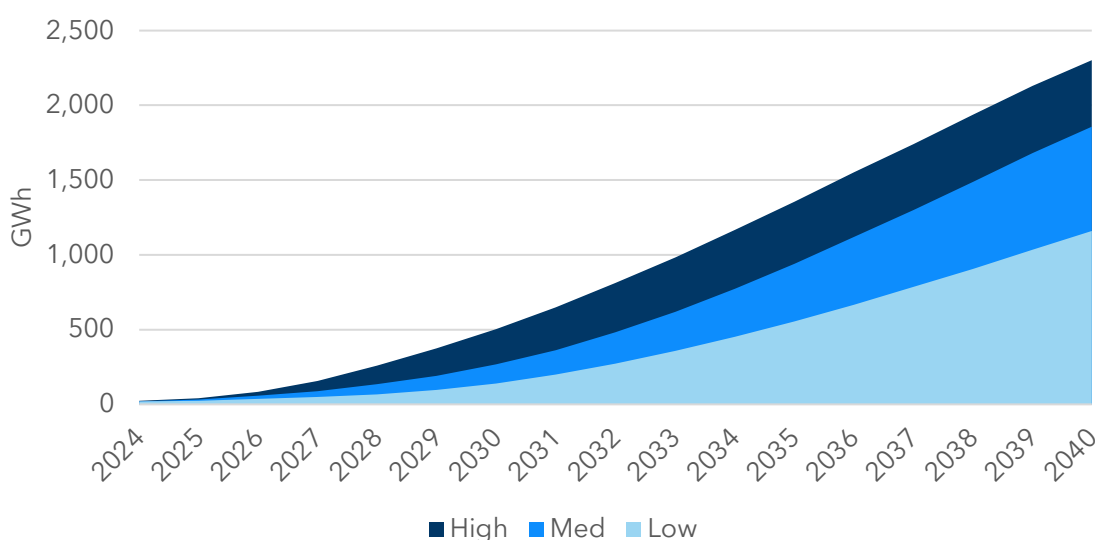


### 3.3 Electric Grid Load Impact Results

Total annual energy consumption from EVs will be higher in the Medium and High scenarios compared to the Low scenario, not only because there are more EVs overall, but also because there are more BEVs than PHEVs. Since PHEVs drive a proportion of their time on gas, whereas a BEV must always use electricity, a higher proportion of BEVs will result in higher energy consumption overall.

**Figure 23. Annual energy impacts from ZEV charging, scenario comparison, New Brunswick**

▶ Total annual load impacts in New Brunswick could range from 1,100 to 2,300 GWh by 2040 under the Low and High Growth scenarios, respectively, mirroring the growth of cumulative EVs on the road.



**Light-duty EVs will increase annual electricity consumption in New Brunswick by between 8% and 16% by 2040.<sup>19</sup>**

<sup>19</sup> Based on our ZEV forecast (Figure 16Figure 23) and the total energy demand on NB Power's system from 2024. See source: New Brunswick Power. [System Information Archive](#). Accessed January 2025.

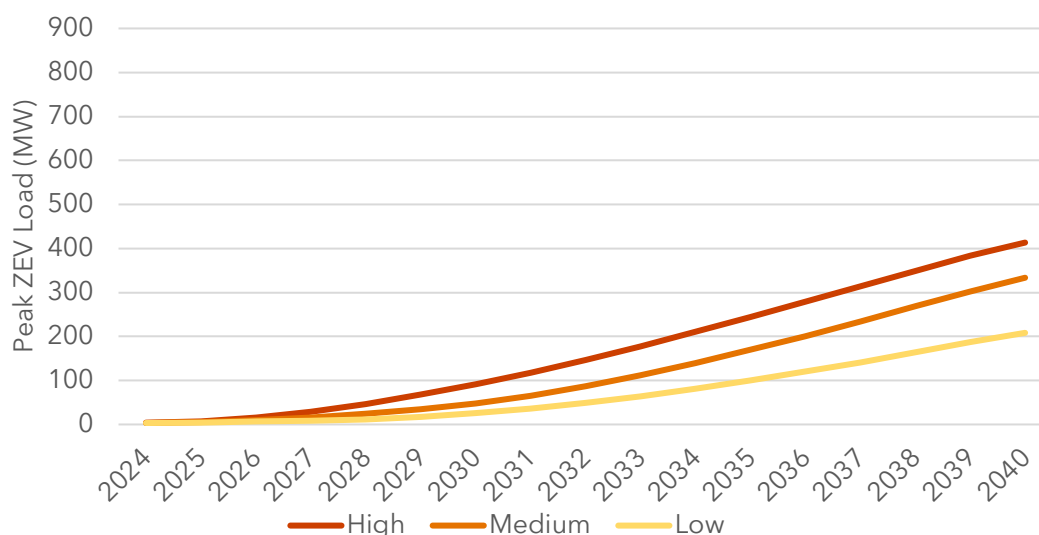


### 3.3.1 ZEV Charging Load Growth Over Time

Outdoor air temperatures on the coldest day can increase vehicle energy needs, thereby doubling peak grid impacts<sup>20</sup> compared to summer requirements, mainly due to cabin heating needs.<sup>21</sup>

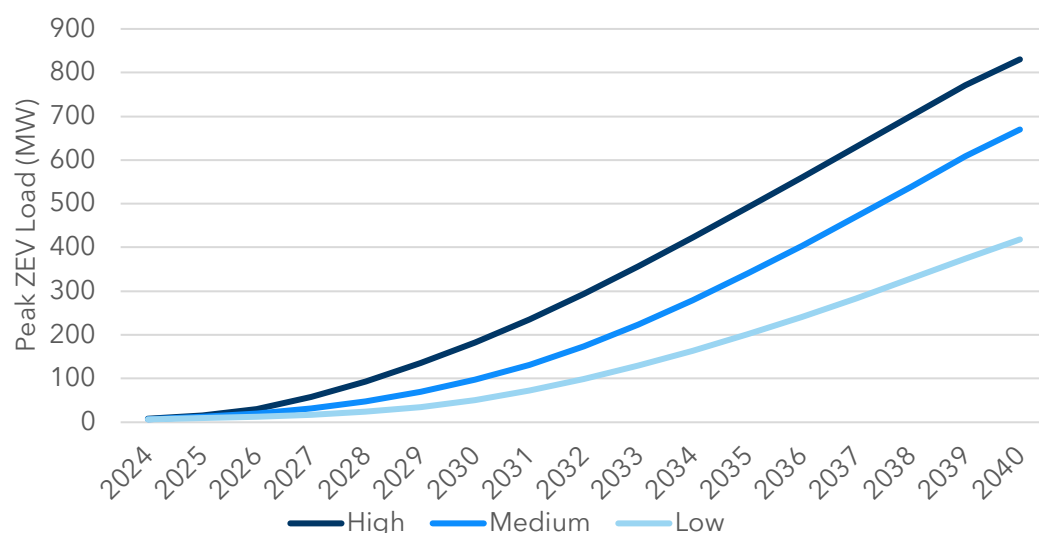
**Figure 24. Peak ZEV Charging Load, summer, New Brunswick**

▶ EVs will contribute between **200 and 400 MW** of peak load by 2040 in **summer**.



**Figure 25. Peak ZEV Charging Load, winter, New Brunswick**

▶ EVs will contribute between **400 and 800 MW** of peak load by 2040 in **winter**.



<sup>20</sup> Peak load refers to the hour with the highest electricity demand for a given year and season.

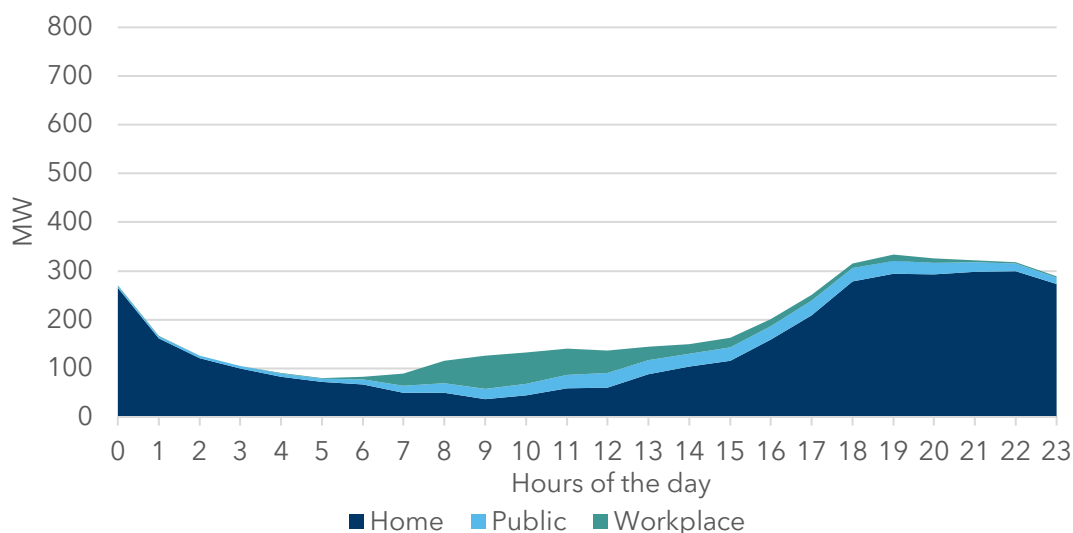
<sup>21</sup> Geotab. November 30, 2023. [To what degree does temperature impact EV range?](#)



### 3.3.2 Peak Day ZEV Load in 2040

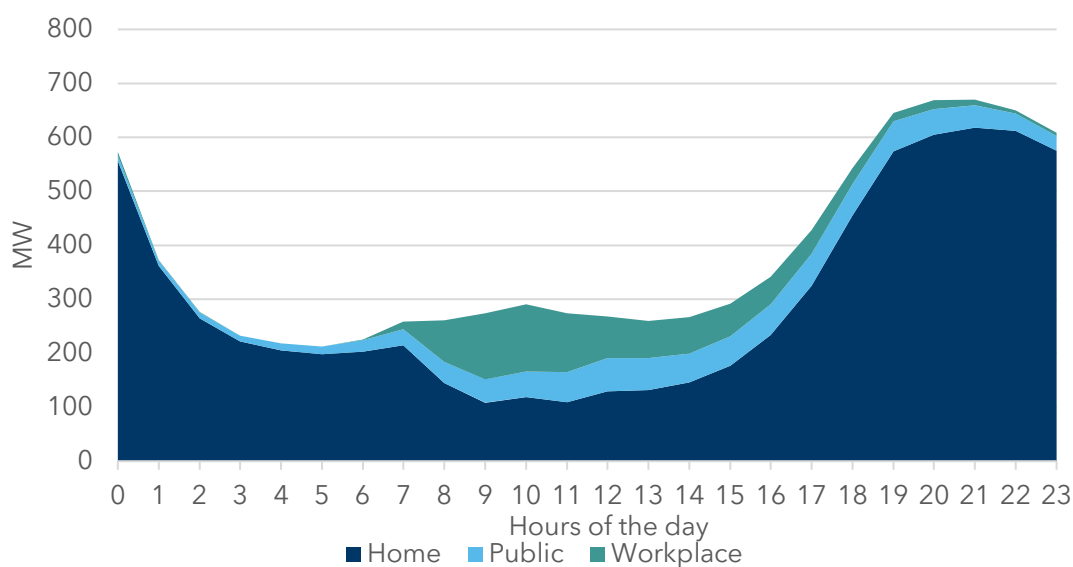
Most of the peak day<sup>22</sup> impact from ZEV charging will come from home charging, with the majority of this charging occurring in the evening and overnight.

**Figure 26. Summer peak day ZEV load in 2040, medium growth, New Brunswick**



Although the ZEV-peak typically occurs overnight, as a result, load impacts from ZEV charging are significant enough during New Brunswick's winter peak periods (6 - 9 am in winter)<sup>23</sup> to be impactful on the electrical system if the charging load is unmanaged.

**Figure 27. Winter peak day ZEV load in 2040, medium growth, New Brunswick**



<sup>22</sup> Refers to the day with the highest electricity demand in a single hour, for a given year and season.

<sup>23</sup> New Brunswick Power. [What is Peak Demand?](#)

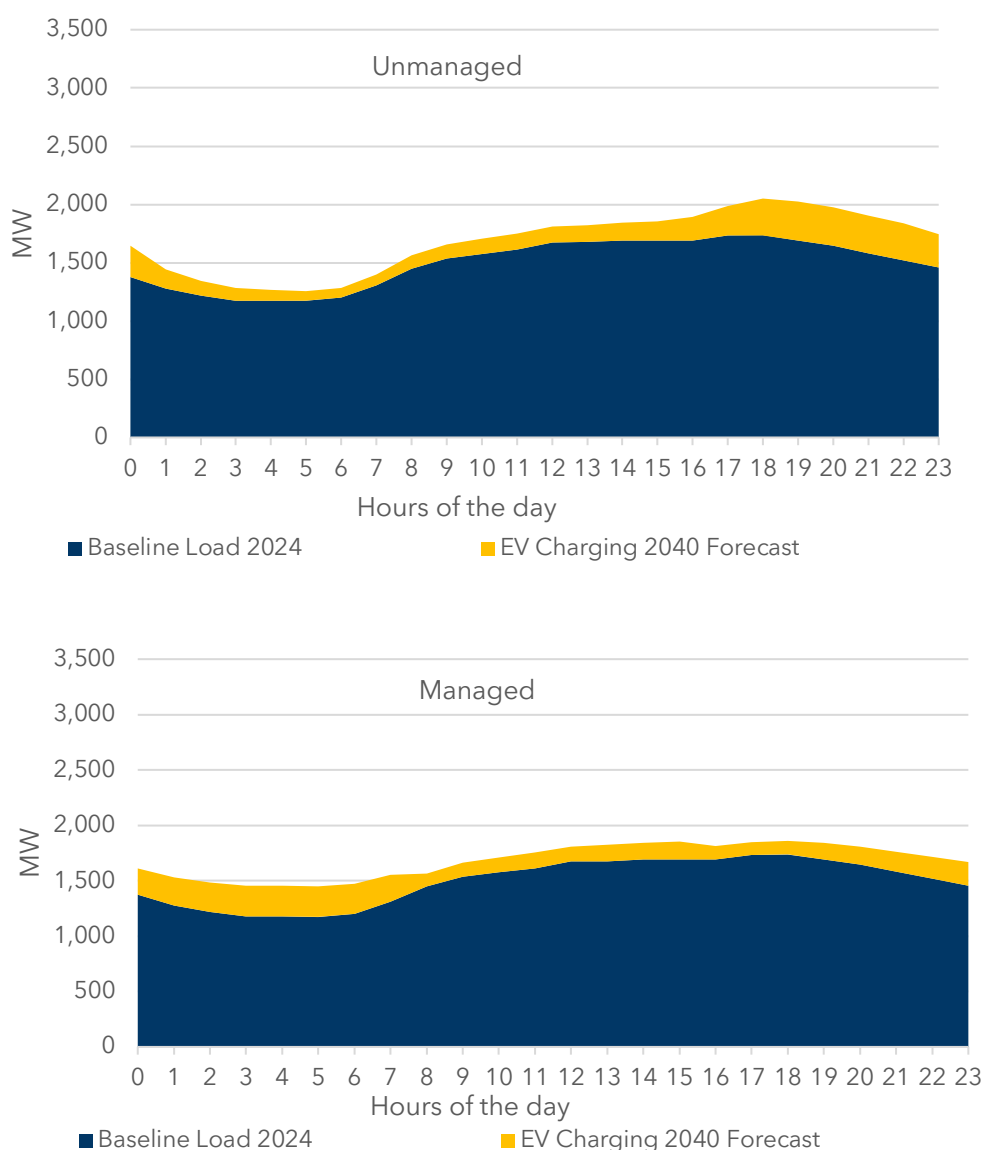




### 3.3.3 Managed ZEV Charging Load

To understand the impact of ZEV charging on the total system peak, we layer the ZEV load on top of the existing grid demand.<sup>24</sup> This also allows us to see opportunities to shift ZEV load to periods when other loads are low. When applied to a typical peak day, light-duty EVs typically increase peak demand and push the peak hour to later in the evening.

**Figure 28. Managed charging potential, summer peak day, medium growth, NB**



However, if this charging is effectively managed through active load management, winter peak impacts could be reduced by 1,200 MW (16%).<sup>25</sup> Note that this analysis uses sample

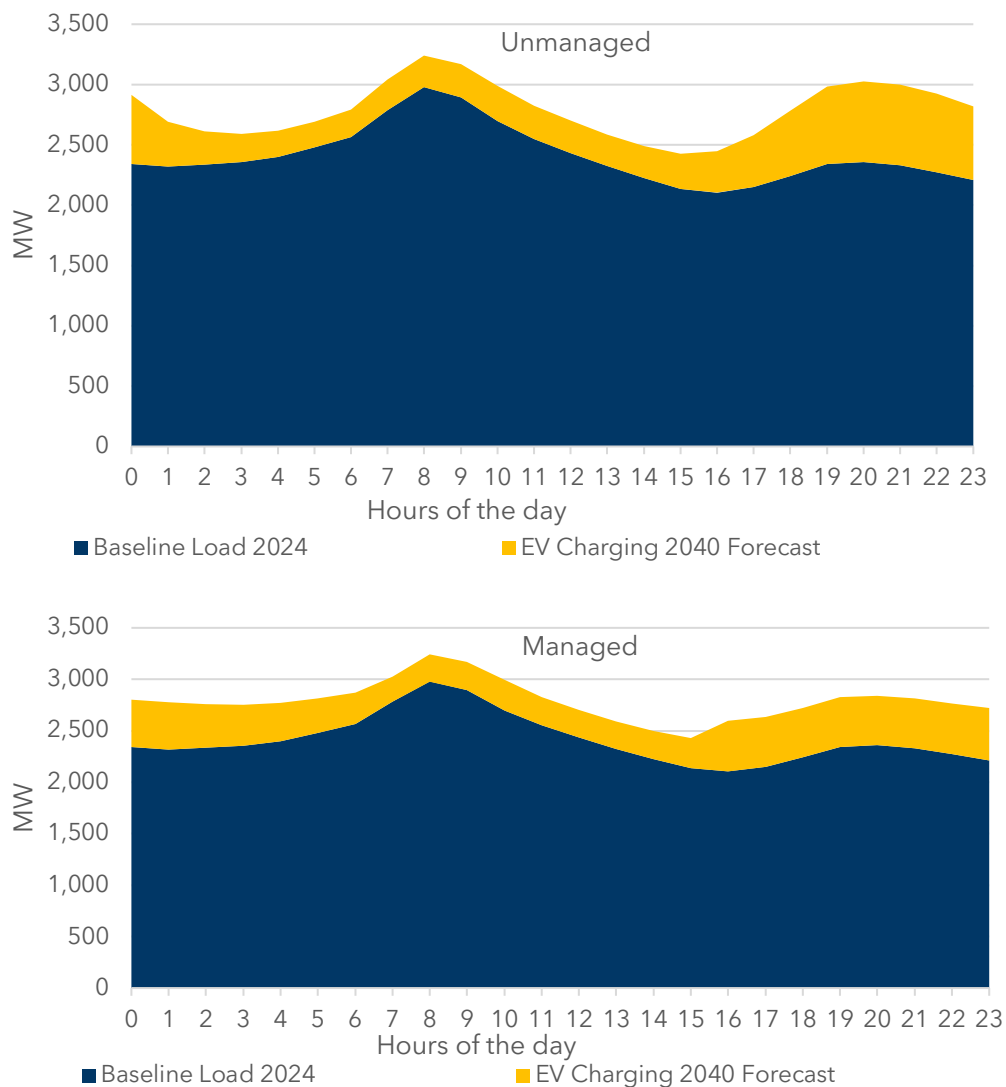
<sup>24</sup> New Brunswick Power. [System Information Archive](#). Accessed January 2025.

<sup>25</sup> We assume managed charging applies only to EVs charging at home on Level 2 chargers, and that 20% of those EVs are unmanaged with 80% participating in a utility program. Medium growth scenario.



peak days from New Brunswick in 2024, but peak day baseline load profiles can vary from year to year and grow over time from the electrification of other loads like buildings. New Brunswick typically has its peak in winter mornings, with a secondary peak in the evening.

**Figure 29. Managed charging potential, winter peak day, medium growth, NB**





## 4. Key Takeaways

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**1**

**Over the long term, ZEV adoption in New Brunswick is forecasted to approach 100% of new sales, which would accumulate to 48% of total vehicles on the road by 2040, even in a low-growth scenario.** The impact of policies and programs, as well as the deployment of charging infrastructure, has the potential to increase the rate of adoption significantly in earlier years.

**2**

**If effectively managed charging programs and technologies are employed, winter peak load from ZEV charging has the potential to be reduced by 1,200 MW (16%) in a medium growth scenario.**

- While the actual load shift will depend on the techniques and technologies employed, as well as the incentives provided for ZEV drivers to participate, these results highlight the opportunity to avoid costly grid upgrades by leveraging the inherent flexibility of ZEV charging loads.
- By 2040, transportation electrification could be such an important driver of load that utilities may need to employ additional strategies in addition to shifting charging to overnight. These may include encouraging daytime charging at workplaces alongside increases in generation capacity.

**3**

**Without effective programs and policies in place** over the next few years, New Brunswick will be on a slower path to electrification, resulting in lost benefits for New Brunswickers in both improved air quality and financial savings from reduced fuel and maintenance costs.

The **most impactful tools** that local actors have to support the adoption of electric vehicles are **increasing charging access, increasing the local supply of ZEVs, and reducing vehicle purchase costs**. Critical actions to address these barriers include:

- Supportive ZEV-ready policies, standards, and programs to increase home charging availability, and deployment of sufficient public charging to supplement home charging
- Requiring and encouraging a sufficient supply of ZEVs at local dealerships
- Financial support for ZEV purchases as prices approach parity with ICEVs



# Appendix

## Key Inputs & Assumptions

**Table 4. Federal and Provincial ZEV Incentives, New Brunswick<sup>26</sup>**

| Scenario | Powertrain | 2024     | 2025     | 2026     | 2027     | 2028     | 2029     | 2030     | 2031     | 2032    | 2033    | 2034    | 2035    | 2036+ |
|----------|------------|----------|----------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|-------|
| Lo       | PHEV       | \$5,250  | \$5,250  | -        | -        | -        | -        | -        | -        | -       | -       | -       | -       | -     |
| Lo       | BEV        | \$7,500  | \$7,500  | -        | -        | -        | -        | -        | -        | -       | -       | -       | -       | -     |
| Med      | PHEV       | \$7,500  | \$7,500  | \$3,750  | \$3,750  | \$1,875  | \$1,875  | \$938    | -        | -       | -       | -       | -       | -     |
| Med      | BEV        | \$10,000 | \$10,000 | \$5,000  | \$5,000  | \$2,500  | \$2,500  | \$1,250  | -        | -       | -       | -       | -       | -     |
| Hi       | PHEV       | \$7,500  | \$7,500  | \$7,500  | \$7,500  | \$7,500  | \$7,500  | \$7,500  | \$7,500  | \$6,000 | \$3,600 | \$1,800 | \$900   | -     |
| Hi       | BEV        | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$8,000 | \$4,800 | \$2,400 | \$1,200 | -     |

<sup>26</sup> Based on a combination of professional judgement and currently available incentives and target phase-out dates from the Government of Canada: [Incentives for Zero-Emission Vehicles \(iZEV\)](#). Accessed December 2024.

**Table 5. Fuel Costs, New Brunswick<sup>27</sup>**

| Variable                       | Units  | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   | 2031   | 2032   | 2033   | 2034   | 2035   | 2036   | 2037   | 2038   | 2039   | 2040   |
|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Electricity rate <sup>28</sup> | \$/kWh | \$0.15 | \$0.16 | \$0.16 | \$0.16 | \$0.16 | \$0.16 | \$0.16 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 | \$0.17 |
| Gas rate <sup>29</sup>         | \$/L   | \$1.64 | \$1.66 | \$1.68 | \$1.69 | \$1.71 | \$1.73 | \$1.74 | \$1.76 | \$1.78 | \$1.80 | \$1.81 | \$1.83 | \$1.85 | \$1.87 | \$1.89 | \$1.91 | \$1.93 |

<sup>27</sup> We assume an annual growth rate of 1% and no carbon tax.

<sup>28</sup> Dunskey's projected electricity rates by province in real dollars. These are blended \$/kWh rates including energy, transmission, distribution and associated fees, but excluding taxes. Includes both residential and smaller commercial electricity rates.

<sup>29</sup> Statistics Canada. December 17, 2024. [\*Monthly average retail prices for gasoline and fuel oil, by geography.\*](#)

**Table 6. Light-duty vehicle stock and sales, thousands of vehicles, New Brunswick<sup>30</sup>**

| Variable         | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>LDV sales</b> | 43   | 43   | 43   | 44   | 44   | 45   | 45   | 45   | 45   | 46   | 46   | 46   | 46   | 46   | 47   | 47   | 47   |
| <b>LDV Stock</b> | 591  | 597  | 603  | 609  | 613  | 617  | 620  | 623  | 626  | 632  | 639  | 653  | 664  | 669  | 674  | 678  | 682  |

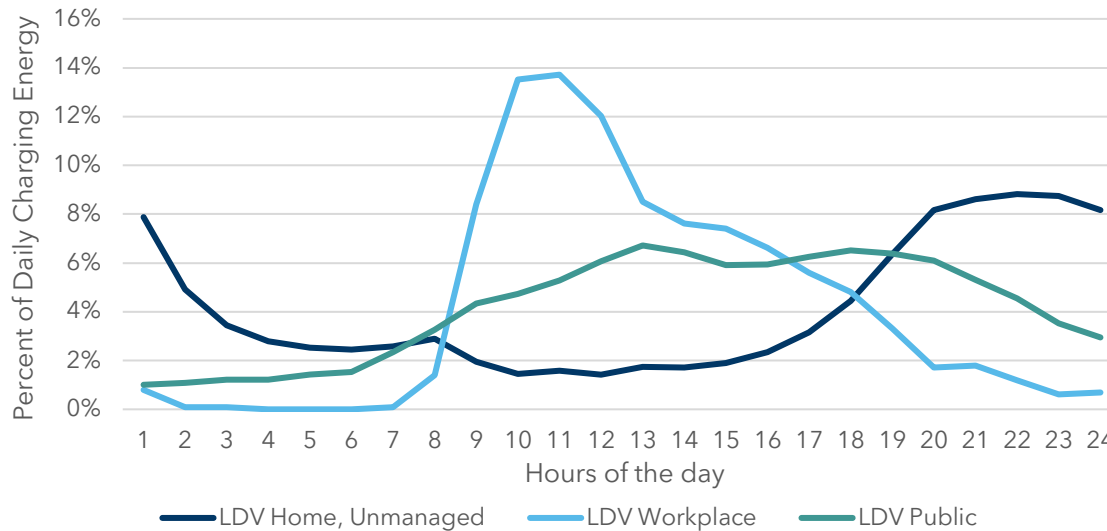
<sup>30</sup> Natural Resources Canada. [Comprehensive Energy Use Database: Transportation Sector, New Brunswick](#). Accessed December 2024. Assume vehicle ownership remains constant and vehicles on the road align with population projections from Statistics Canada's M1 scenario. [Projected population, by projection scenario](#). Accessed June 2024.





The unmanaged diversified charging distribution profiles were developed by leveraging data sets from a range of government and utility-led pilot programs including: California Energy Commission 2019 California Investor-Owned Utility Electricity Load Shapes; ISO New England 2020 Transportation Electrification Forecast; Rocky Mountain Institute 2019 DCFC Rate Design Study.

**Figure 30. Diversified charging distribution profiles**

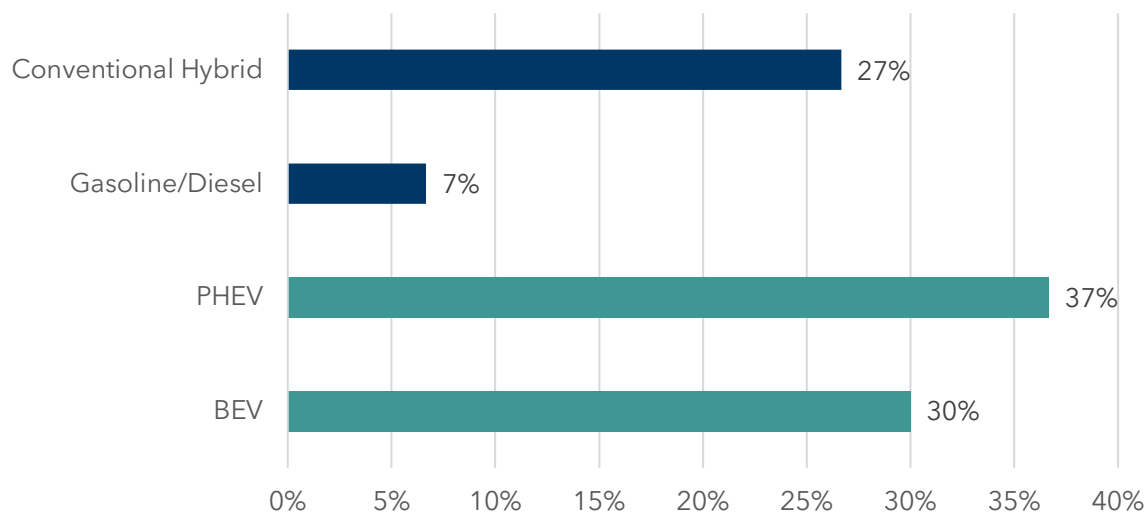


The curves in the figure above represent the proportion of daily charging energy that the average vehicle would charge in each hour of the day. We calculate average daily energy needs per ZEV based on the average driving distance for vehicles in New Brunswick and use this in combination with the charging distribution profiles to determine how much charging energy is used every hour for our load impacts analysis.



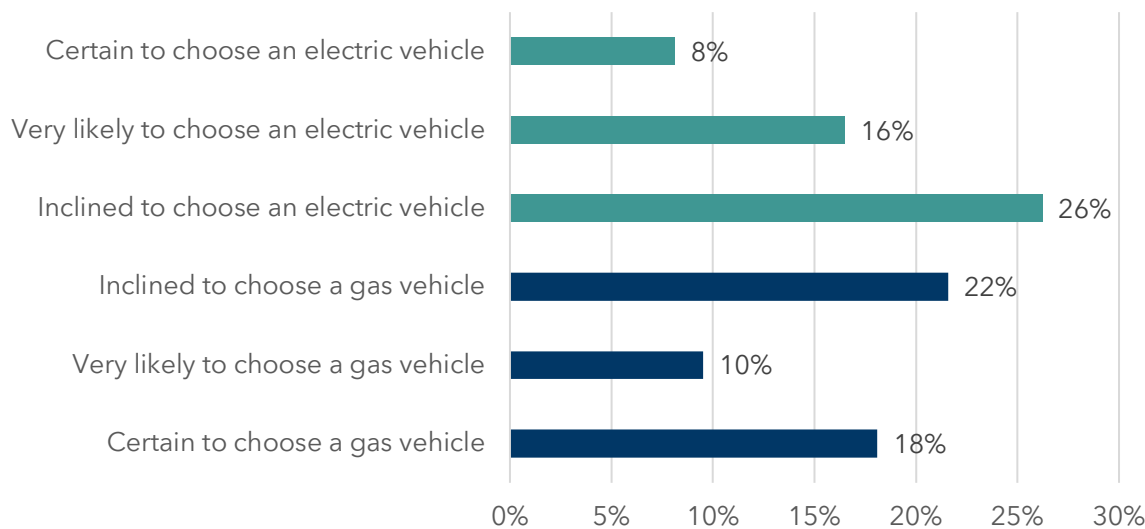
## Additional Results from Survey of Canadians

**Figure 31. What type of vehicle do you intend to purchase or lease next? New Brunswick only (Posed only to current ZEV owners)**



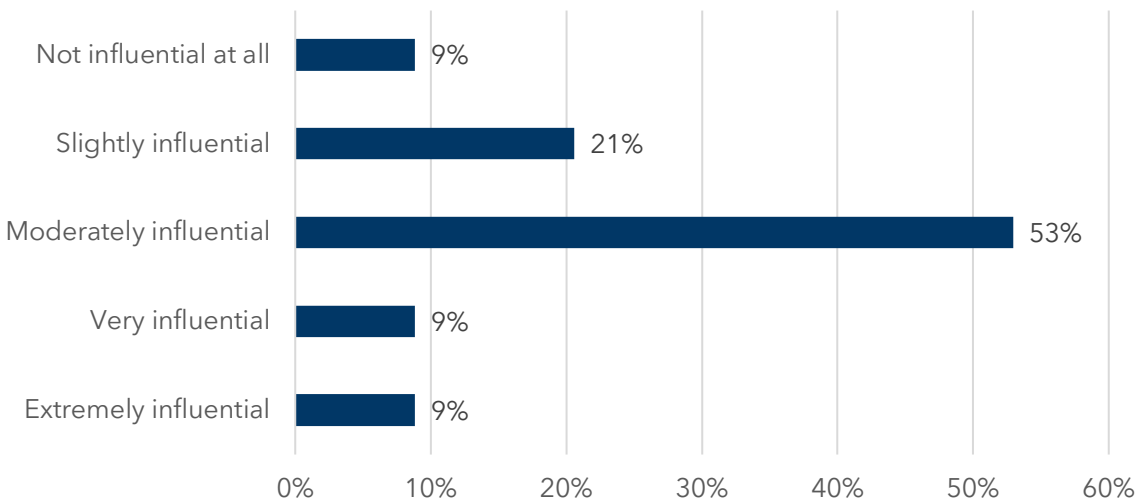
After being presented with a series of knowledge testing questions about electric vehicles and their correct answers, survey respondents were asked again to select the type of vehicle they would buy next. The responses to Figure 32 should be compared to **Figure 12** to assess the potential impact of increased awareness of ZEV benefits on purchasing decisions.

**Figure 32. Taking into consideration the information provided to you, when thinking about your next vehicle purchase, which will you choose? New Brunswick only**

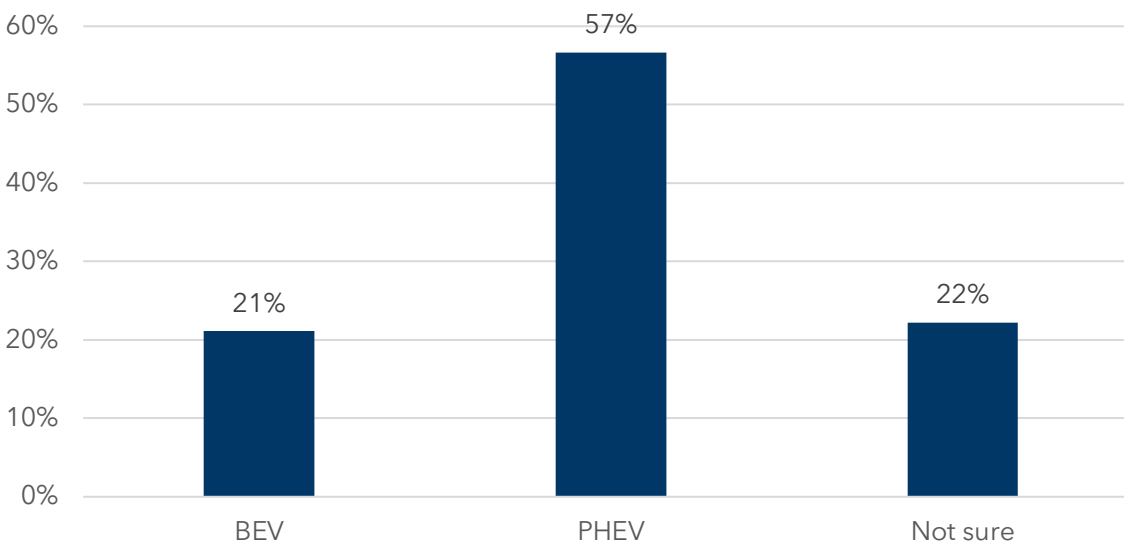




**Figure 33. How influential were government incentives in your decision to purchase/lease an ZEV/PHEV? New Brunswick only**

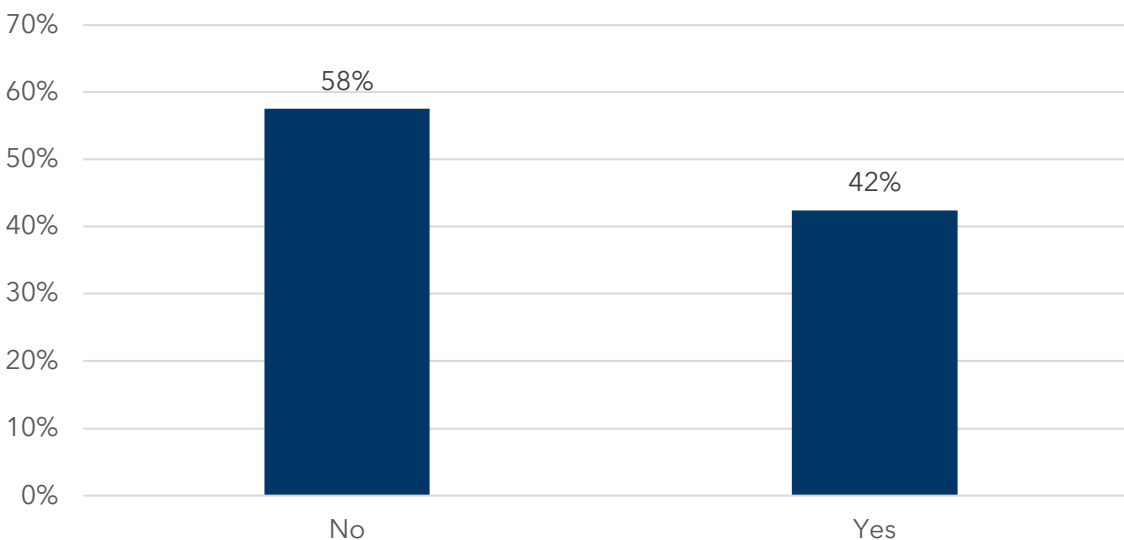


**Figure 34. When you are selecting your next vehicle, do you expect you will buy/lease a fully electric vehicle (BEV) or a plug-in hybrid electric vehicle (PHEV)? New Brunswick only**

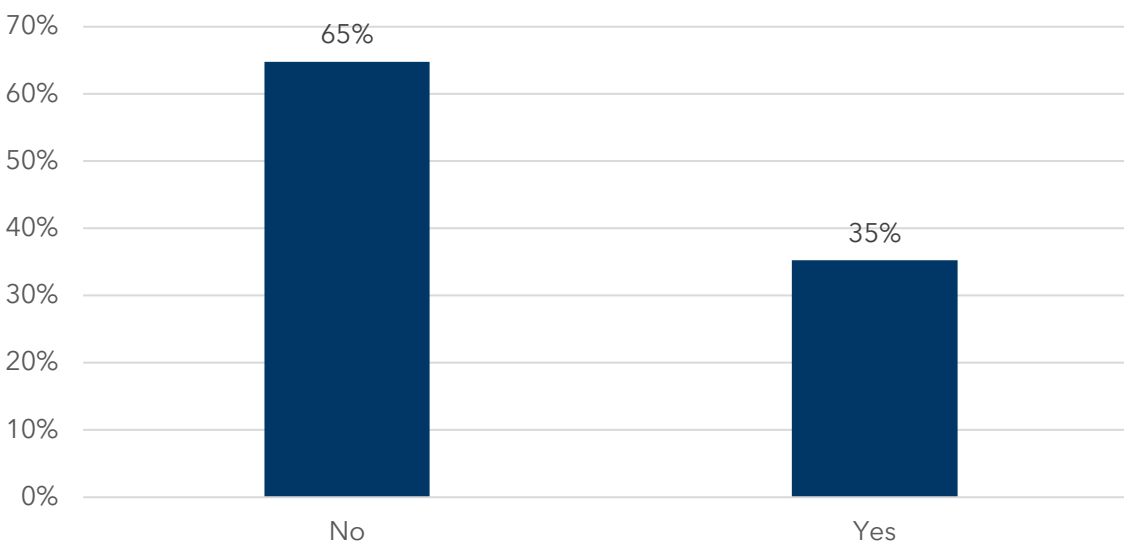




**Figure 35. Are you aware of the federal government rebate of up to \$5,000 for purchasing an electric vehicle? New Brunswick only**

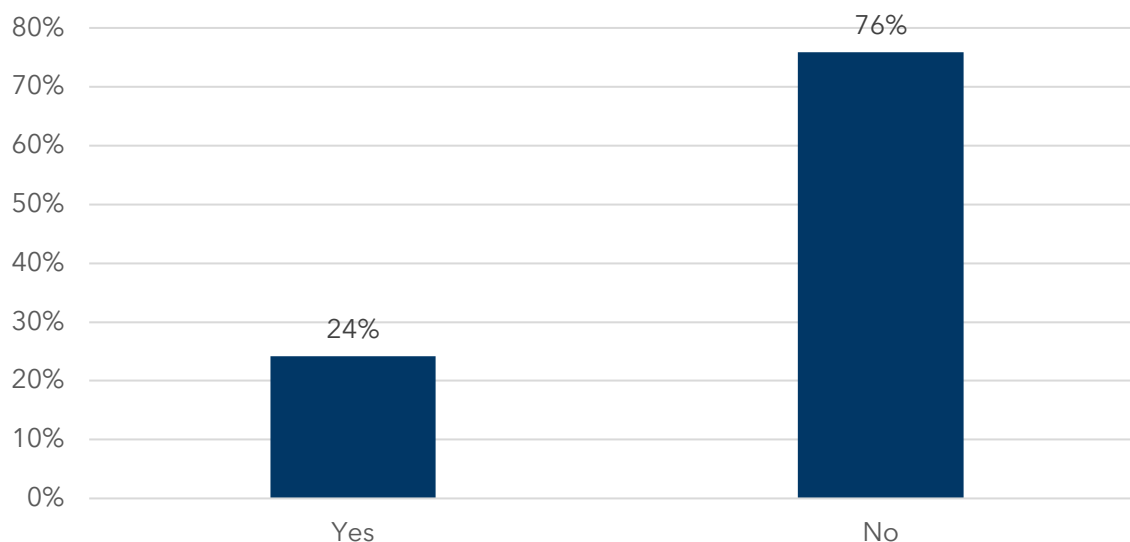


**Figure 36. Are you aware that the government of New Brunswick offers a rebate of up to \$4,000 for purchasing an electric vehicle? New Brunswick only**

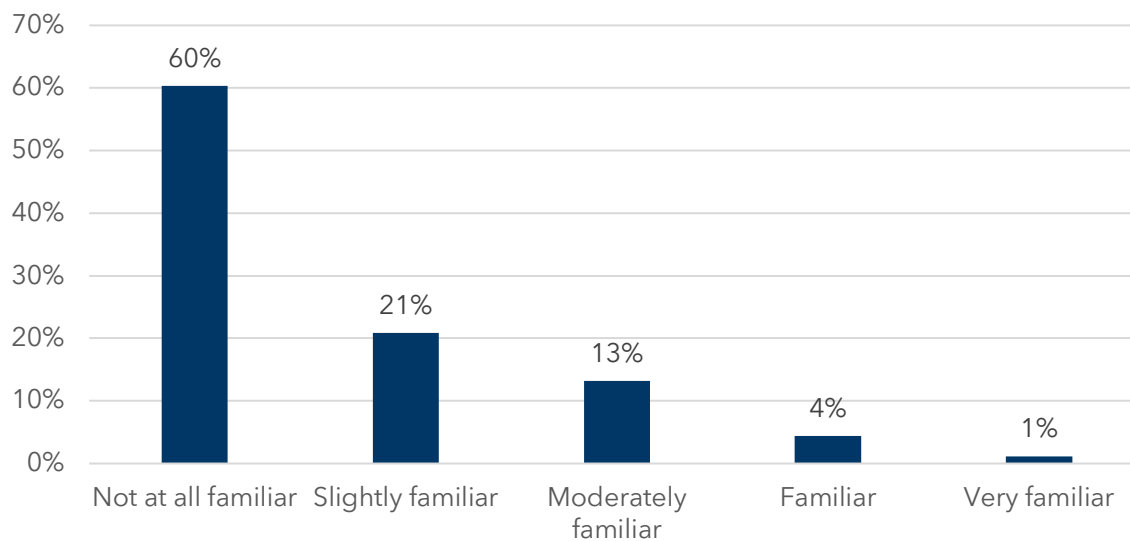




**Figure 37. Are you aware that you may be eligible for a federal tax deduction specifically for the purchase of an electric vehicle if you are self-employed or own a company? New Brunswick only**

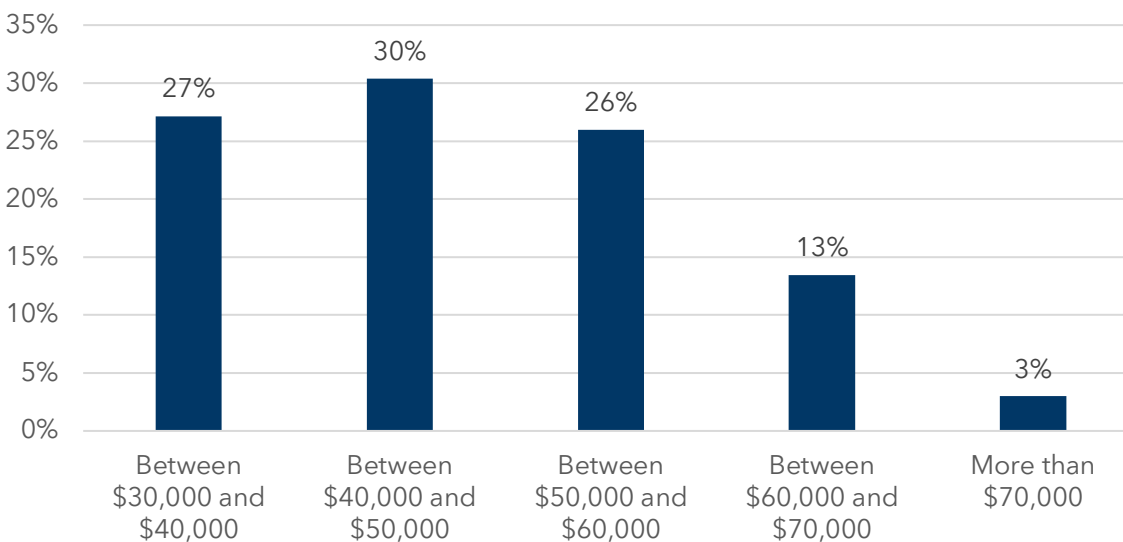


**Figure 38. Are you familiar with other incentives available to EVs (e.g., ferries, dedicated lanes on highways, dedicated parking spots closer to the entrance, etc.)? New Brunswick only**

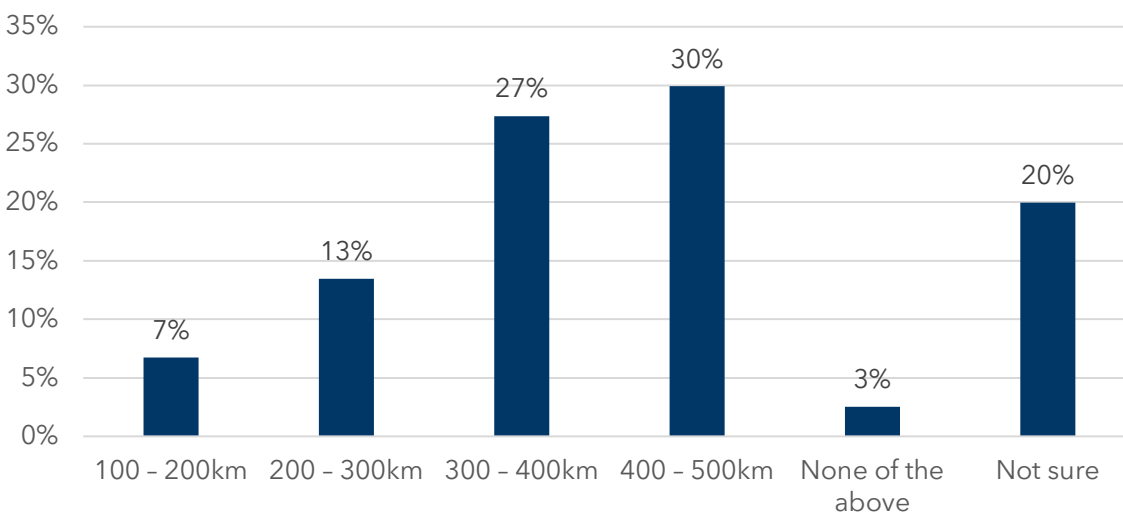




**Figure 39. What is the average price of a new light duty vehicle (car, SUV, pickup truck) in Canada? New Brunswick only**



**Figure 40. What is the average range of most new electric vehicles? New Brunswick only**



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