NYSERDA Drive Clean Rebate Adoption Survey: 2021 Results

Final Report | Report Number 23-09 | October 2022



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Our Mission:

Advance clean energy innovation and investments to combat climate change, improving the health, resiliency, and prosperity of New Yorkers and delivering benefits equitably to all.

NYSERDA Drive Clean Rebate Adoption Survey: 2021 Results

Final Report

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NYSERDA Report 23-09

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Abstract

This report summarizes the results of a survey of rebate recipients who adopted an electric vehicle (EV) while participating in the New York State Energy Research and Development Authority's (NYSERDA) Drive Clean Rebate Program in 2021. The program offered point-of-sale rebates on new car purchases and leases for eligible electric cars. Invitations to participate in this "Adoption Survey" were sent via email to 23,038 rebate recipients, resulting in 5,049 complete responses. Survey results are grouped by technology type, i.e., plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs). Results summarize purchasing decisions, the impact of the rebate on purchases, the role of dealers, EV charging access and behaviors, and the demographic characteristics of EV adopters.

Keywords

Electric cars, electric vehicles (EVs), plug-in electric hybrid vehicles (PHEVs), battery electric vehicles (BEVs), all-battery cars, Drive Clean Rebate Program, point-of-sale rebates, rebate importance, *Rebate Essentiality*, auto dealers, EV adoption.

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Executive Summary

NYSERDA's Drive Clean Rebate Program provides point-of-sale rebates to consumers who purchase or lease eligible new plug-in hybrid electric vehicles (PHEVs) or battery electric vehicles (BEVs). The program launched in March 2017 and is administered by the Center for Sustainable Energy (CSE). Participants in the program are invited to take an Adoption Survey after their application for the rebate has been approved. The survey is voluntary and used to gain insight on electric car adoption decisions and experience. This report summarizes findings for rebated vehicles purchased or leased between January 1, 2021, and December 31, 2021.

A total of 23,038 program participants received a rebate for vehicles acquired in 2021, and each received an invitation to complete the survey. Of these, 5,178 completed the survey, with a response rate of 22%. After removing 129 disqualified responses, 5,049 (22%) valid responses remained and were analyzed in this report. Respondents were disqualified for one of three reasons: their rebate was for a different car,¹ their car was primarily for commercial use, or they were not the primary driver of the car. To better represent the larger population of program participants, survey data were then weighted. They key findings include the following:

- Roughly 42% of the rebate recipients acquired a PHEV and 58% acquired a BEV.
- Respondents typically replaced, or will replace, a car with their rebated EV:
 - 78% of BEV drivers replaced a car with the acquired EV
 - 83% of PHEV drivers replaced a car with the acquired EV
- The replaced, or to-be-replaced, cars were largely conventional gasoline-powered:
 - 70% of BEV drivers replaced a gasoline-powered car with their BEV
 - o 61% of PHEV drivers replaced a gasoline-powered car with their PHEV
- Most respondents are first time EV owners:
 - 79% of BEV drivers indicated that the rebated car is their first EV acquired
 - \circ 85% of PHEV drivers indicated that the rebated car is their first EV acquired
- Almost two-thirds (68%) of respondents answered the Drive Clean rebate was "extremely important" or "very important" in making it possible for them to acquire their EV.
- Two-fifths (40%) of respondents answered they would not have acquired their electric car without the rebate.
- Most respondents (80%) charge their electric car at home.

1 Introduction

NYSERDA's Drive Clean Rebate Program provides point-of-sale rebates to consumers who purchase or lease eligible new plug-in hybrid electric vehicles (PHEVs) or battery electric vehicles (BEVs). The program launched in March 2017 and is administered by the Center for Sustainable Energy (CSE). One component of the program is the voluntary "Adoption Survey," which is used to gain insights into electric car adoption decisions, perceptions of program performance and efficacy, and demographic characteristics of participating households. This report summarizes the survey results and highlights key Drive Clean Rebate program trends.

1.1 Survey Administration and Response Rate

The Drive Clean Rebate Adoption Survey is administered on a rolling basis. Program participants receive a survey invitation by email approximately 1–3 weeks after approval of their rebate. The participants included in this analysis purchased or leased cars between January 1, 2021 and December 31, 2021. A total of 23,038 participants² were invited to take the survey, and 5,178 (22%) responded. The respondents completed the survey between January 23, 2021 and April 2, 2022. One hundred and twenty-nine respondents were disqualified for one of three reasons: their rebate was for a different car,³ their car was primarily for commercial use, or they were not the primary driver of the car. After eliminating these responses, 5,049 (22%) valid responses remained and were analyzed in this report.

An updated version of the Adoption Survey was released on January 1, 2021. While most survey questions remain unchanged from the previous survey edition, some questions were edited for clarity or to reflect current best practices for asking demographic questions. Due to some changes in questions and response options, question results displayed in this report may differ from previous reports, and caution should be taken to compare year over year. Questions with changes are indicated with a [†].

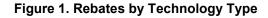
1.2 Representativeness and Weighting

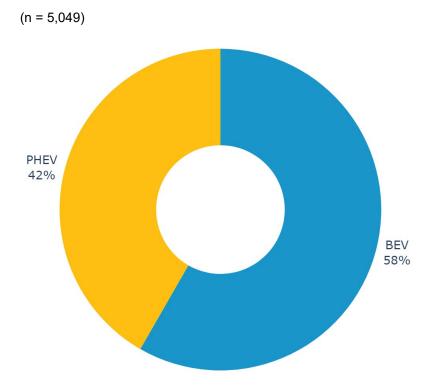
Since the Adoption Survey is not completed by all Drive Clean Rebate recipients, responses may not be perfectly representative of the entire participant population. To mitigate this issue, response weights were created to compensate for over- or under-representation among groups using application data that is available for all program participants. The dimensions used for weighting were car model, purchase versus lease, county, and technology type. Weights were calculated using the raking method.⁴ During the weighting process, 20 incentive recipients were excluded from the participant population because no corresponding survey response was represented in one or more of the strata used to weight. Weighted responses are presented in this report and are representative of applicants who purchased their cars between January 1, 2021 and December 31, 2021.

2 Results

2.1 Technology Types

Roughly 42% of the rebates were used to acquire plug-in hybrid electric vehicles (PHEVs), with the remaining 58% used for battery electric vehicles (BEVs) (Figure 1.) This represents a decrease in BEV representation from last year, where BEVs represented 69% of vehicles, but still indicates higher participation compared to the 2017–2018 and 2018–2019 survey results, where the percentages of BEV drivers were 27% and 45%, respectively.





2.2 Adoption Decisions

Overall, 80% of rebate recipients indicated the vehicle rebated had replaced or would replace another household vehicle, while 14% reported that the car was an addition to the household fleet. Figure 2 shows car replacement by technology type. Those who adopted a PHEV were significantly more likely to replace (or plan to replace) a car in the home than those who adopted a BEV.

Figure 2. Responses to "Which of the Following Best Describes Your New Electric Car Purchase or Lease?"

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 20$, p < 0.01, n = 5,042).

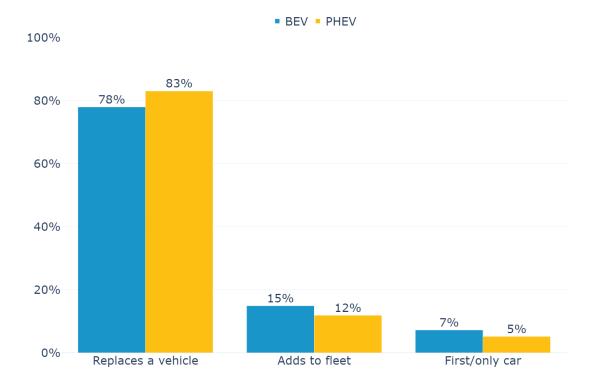


Figure 3⁵ shows that 66% of replaced (or to-be-replaced) cars are conventional gasoline-powered cars, and 9% are conventional hybrids. Nearly 83% of respondents reported that this was the first electric car they had purchased or leased (Figure 4).

Figure 3. Technology of Replaced Cars

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 653$, p < 0.01, n = 3,996).

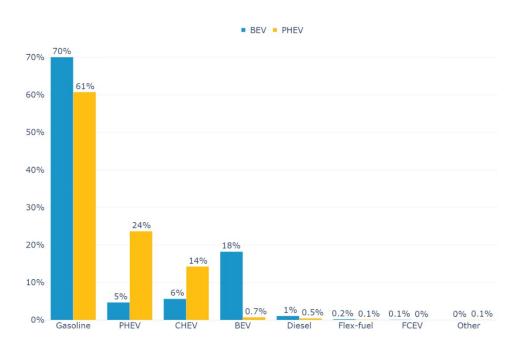
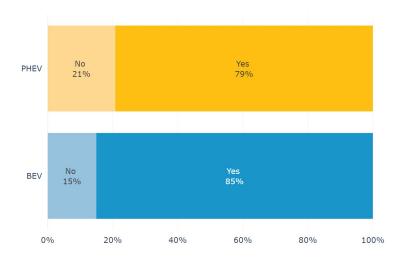


Figure 4. Responses to "Is This the First Electric Car You Have Ever Purchased or Leased?"

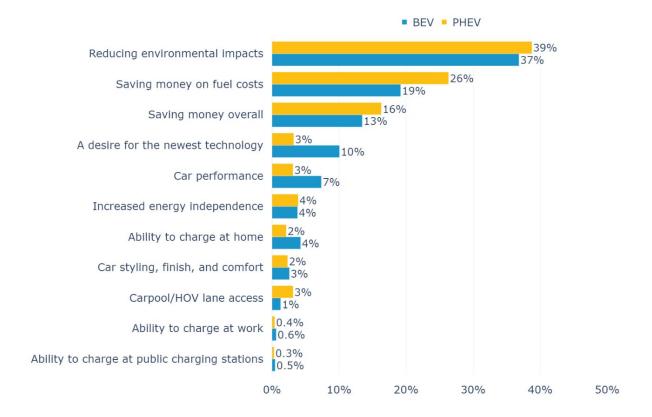
Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 29, p < 0.01, n = 5,030).



Respondents were asked to choose among a few options the most important reason they decided to acquire an electric car (Figure 5). Across all respondents, the top reasons were "Reducing environmental impacts" (38%), "Saving money on fuel costs" (22%), and "Saving money overall" (15%). These three factors remain the most important reasons for acquiring an electric car, as previous survey results (2017-2018, 2018-2019, and 2020) have reflected similar top reasons. BEV drivers were more likely to select "car performance" or "a desire for the newest technology" than PHEV drivers in the survey. PHEV drivers were more likely to indicate "saving money on fuel costs" or "saving money overall" as important factors in their decision.

Figure 5. Responses to "Which of These Factors Was the Most Important Reason Why You Decided to Acquire an Electric Car?"[†]

Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 192, p < 0.01, n = 4,968).

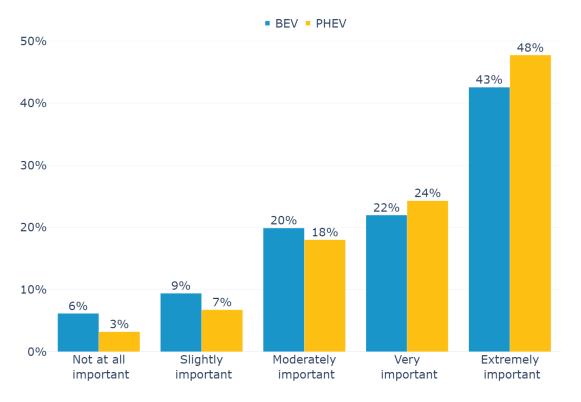


2.3 Program Impact

Respondents were asked several questions to determine how essential the NYSERDA Drive Clean Rebate was to their purchase. Approximately 68% rated the rebate as extremely important or very important in making it possible for them to acquire their car (Figure 6).

Figure 6. Responses to "How Important Was the State Drive Clean Rebate in Making It Possible for You to Acquire Your Electric Car?"

Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 43, p < 0.01, n = 4,833).



In general, there is not a strong relationship between a participant's income and the importance they assigned the Drive Clean rebate (Figure 7). For income levels below \$200,000, the percent describing the rebate as very or extremely important hovers between 68% and 76%, with no clear relationship to income. However, there is a continual drop-off in importance for those who reported a household income of \$200,000 or more, which continues lowering as income increases past \$200,000.

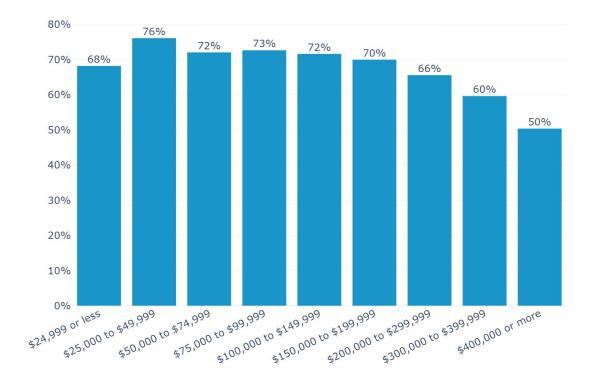


Figure 7. Percent of Respondents Who Stated That the Rebate Was "Very Important" or "Extremely Important" by Income Level

(n = 4,017)

Two questions were asked about the hypothetical purchase or lease decisions in the absence of the rebate (Figure 8 and Figure 9). Approximately 40% of respondents indicated that they would not have purchased or leased their electric vehicle without the Drive Clean Rebate. PHEV drivers were much more likely to indicate that the rebate was essential to their purchase or lease than BEV drivers.

Figure 8. Responses to "Would You Have Purchased/Leased Your Electric Car without the State Car Rebate (Drive Clean Rebate)?"

Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 35, p < 0.01, n = 5,040).

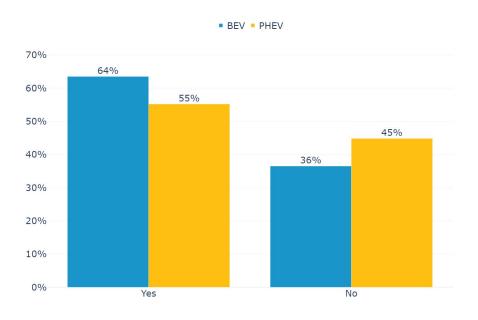
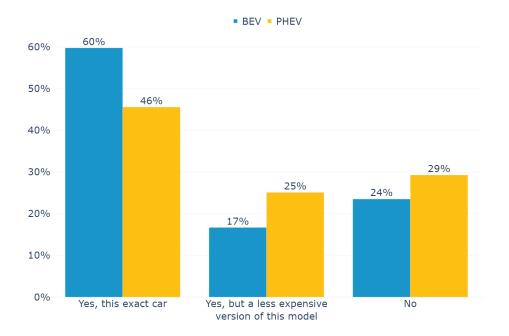


Figure 9. Responses to "If the Drive Clean Rebate Were Not Available for Electric Cars, Would You Still Have Purchased/Leased the Same Car?"

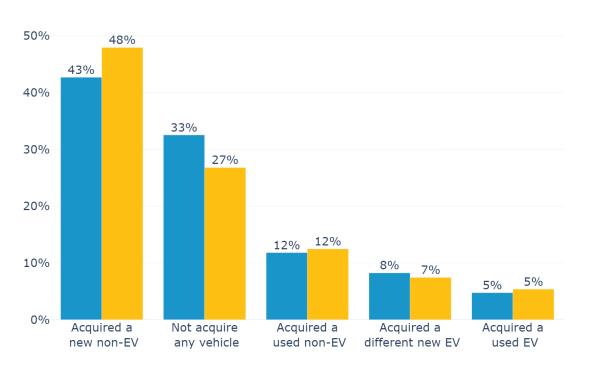
Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 104, p < 0.01, n = 5,039).



Drivers who answered "No" to the question "If the Drive Clean Rebate were not available for electric cars, would you still have purchased/leased the same car?" were asked a follow-up question about what purchase they would have made. Figure 10 shows that BEV drivers were more likely to report that they would not have made any purchase at all, while PHEV drivers were most likely to purchase a new non-electric car instead.

Figure 10. Responses to "If the Drive Clean Rebate Were Not Available for Electric Cars, What Would You Most Likely Have Done?"

Responses from PHEV and BEV consumers are not significantly different (n = 1,303).

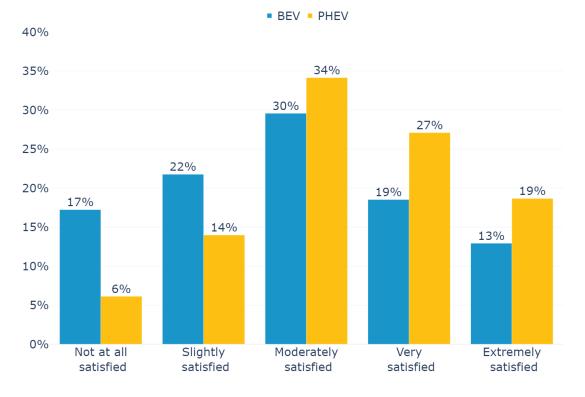


BEV PHEV

Overall, 37% of respondents reported being extremely satisfied or very satisfied with the amount of the rebate. Figure 11 shows that PHEV drivers reported significantly higher levels of satisfaction with the rebate amount than BEV drivers.

Figure 11. Satisfaction with the Amount of the Rebate

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 222$, p < 0.01, n = 4,732).



2.4 Dealership Experience

Dealers appear to be broadly aware of the Drive Clean Rebate, with 69% of respondents reporting that their dealer was aware of the rebate when the respondent first visited the dealership (Figure 12). Respondents had lower initial awareness of the rebate than dealers, with only 54% of respondents indicating they were aware of the rebate before visiting a dealership (Figure 13). BEV drivers were more likely to be aware of the rebate than PHEV drivers.

Figure 12. Responses to "Did Your Dealer Know about the Drive Clean Rebate on Your Initial Visit?"

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 35$, p < 0.01, n = 5,025).

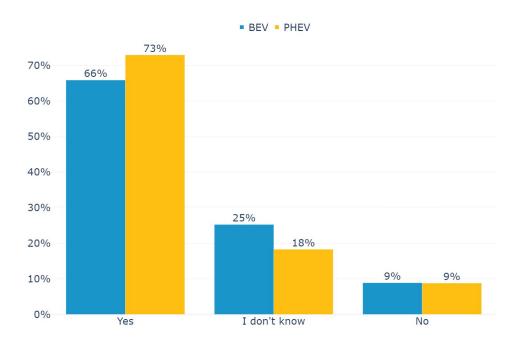
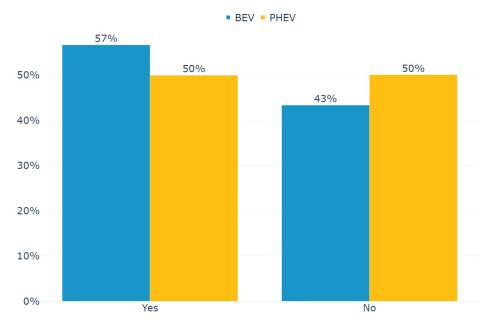


Figure 13. Responses to "Had You Heard about the Drive Clean Rebate Before You Visited a Dealership?"

Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 22, p < 0.01, n = 5,043).



2.5 Charging

Figure 14 shows that most respondents (85%) charge their electric car at their home, with 7% indicating plans to start charging at home. The status of home charging for PHEV and BEV drivers was not significantly different (Figure 14). However, there was a significant difference in access to workplace charging between PHEV and BEV drivers (Figure 15), with BEV drivers more likely to have charging opportunities at or near their workplaces.

Figure 14. Charging at Home[†]

Responses from PHEV and BEV consumers are not significantly different (n = 4,968).

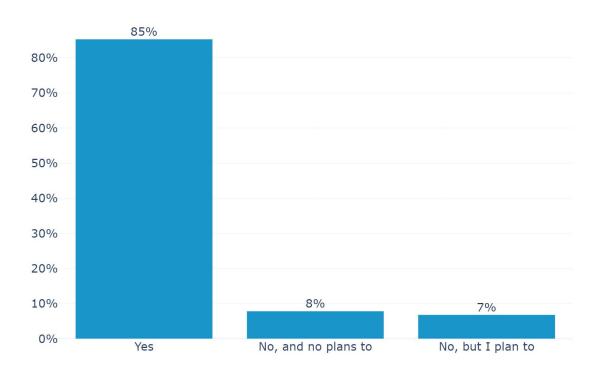
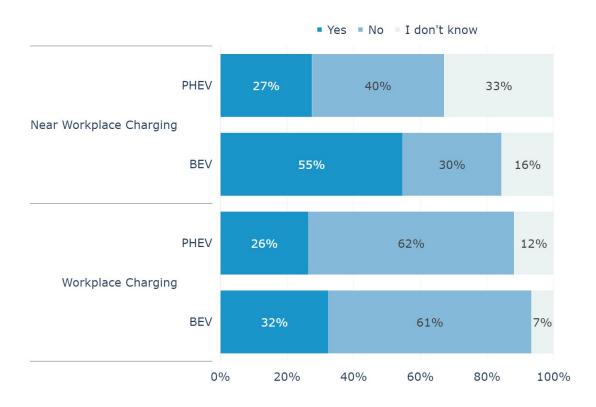


Figure 15. Access to Charging at or Near Work

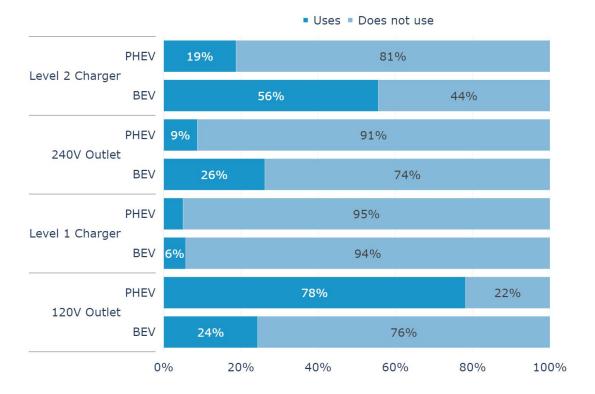
Responses are significantly different for workplace charging (chi-squared test: $\chi 2 = 39$, p < 0.01, n = 3,749) and near workplace charging (chi-squared test: $\chi 2 = 299$, p < 0.01, n = 3,750).



Respondents were also asked whether they currently use or plan to use Level 1 or Level 2 charging at home. Figure 16 shows that PHEV drivers were more likely to use a wall outlet plug for charging their vehicle, while BEV drivers were more likely to use a home charging station. Additionally, BEV drivers were over twice as likely to use Level 2 charging compared to PHEV drivers.

Figure 16. Chargers Used[†]

Responses are significantly different for 120v outlet (chi-squared test: $\chi 2 = 1286$, p < 0.01, n = 4,547), 240v outlet (chi-squared test: $\chi 2 = 222$, p < 0.01, n = 4,547), and level 2 charger (chi-squared test: $\chi 2 = 626$, p < 0.01, n = 4,547). There is no significant difference for the level 1 charger (n = 4,547).



2.6 Demographics

Figure 17 shows that a large majority (83%) of respondents are homeowners. About three-quarters (76%) of electric car adopters live in detached houses (Figure 18), the same proportion found in the 2020 Adoption Survey report but a notable decrease from 84% in the 2018-2019 Adoption Survey report.

Figure 17. Responses to "Do You Own or Rent Your Residence?"[†]

Responses from PHEV and BEV consumers are not significantly different (n = 4,911).

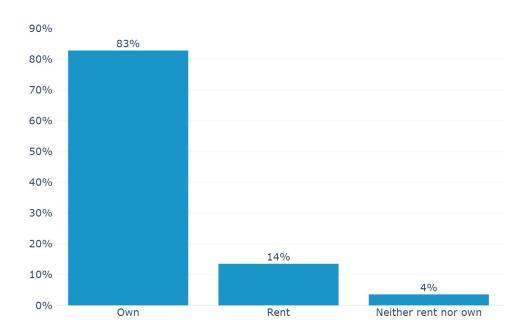
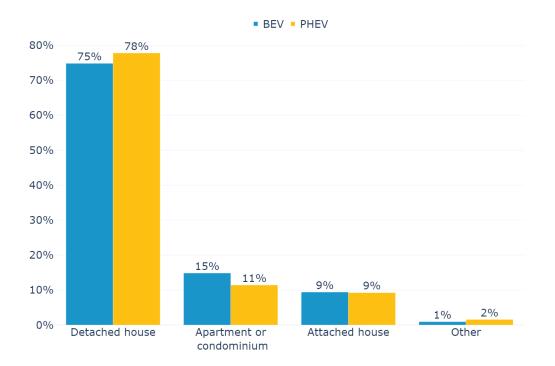


Figure 18. Residence Types

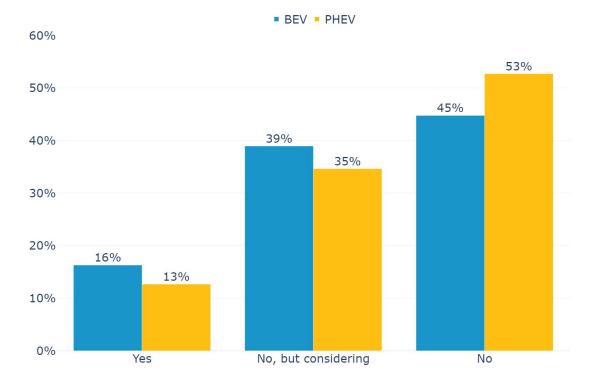
Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 16$, p < 0.01, n = 4,943).



Adoption of solar panels is at 15% overall, with BEV drivers slightly more likely than PHEV drivers to have solar panels installed at their residence (Figure 19).

Figure 19. Responses to "Do You Have Solar Panels at Your Residence?

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 33$, p < 0.01, n = 5,020).



Respondents are 68% male, with females making up a larger portion of PHEV drivers than BEV drivers (Figure 20). The education level of respondents is high, with 78% having a bachelor's or graduate degree; there is a statistically significant difference between the education levels of the PHEV and BEV drivers (Figure 21). Figure 22 and Figure 23 show that, on average, BEV drivers are younger and have higher incomes than PHEV drivers. Most respondents (79%) indicated they are white (Figure 24), while 7% indicated their ethnicity as Hispanic or Latino.

Figure 20. Gender[†]

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 207$, p < 0.01, n = 4,900).

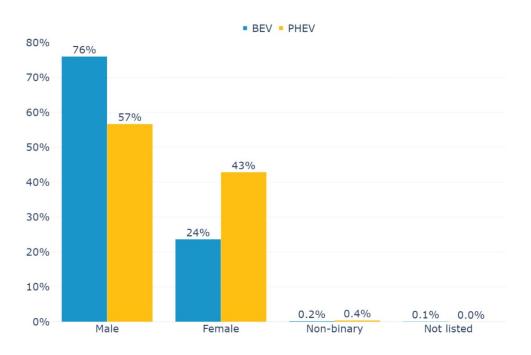


Figure 21. Highest Level of Education Completed

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 10$, p < 0.05, n = 4,903).

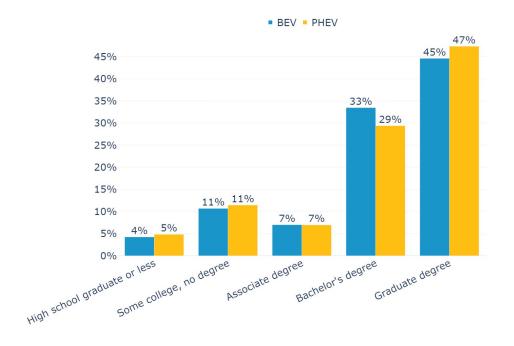


Figure 22. Age

Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 124$, p < 0.01, n = 4,930).

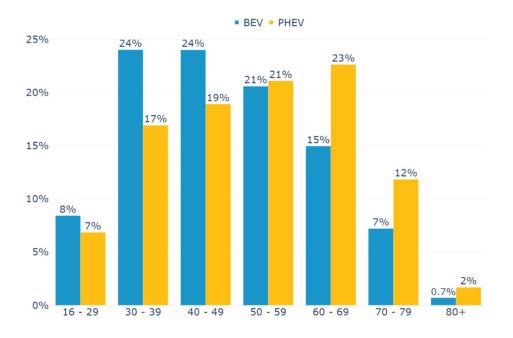


Figure 23. Current Annual Gross Household Income from All Sources (i.e., Before Taxes)

Responses from PHEV and BEV consumers are significantly different (chi-squared test: χ 2 = 128, p < 0.01, n = 4,188).

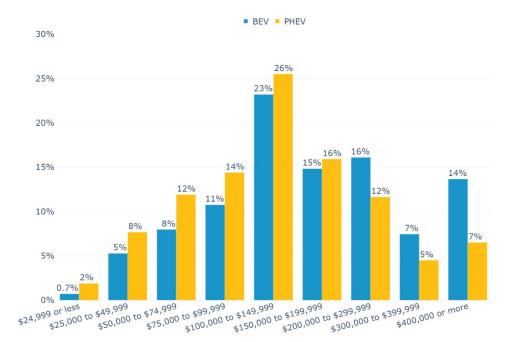
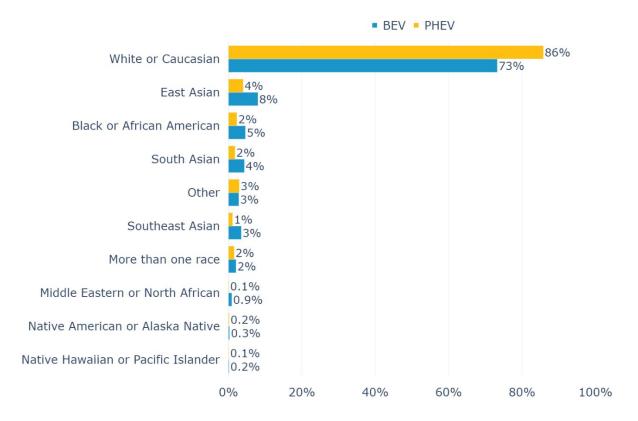


Figure 24. Racial Identity[†]

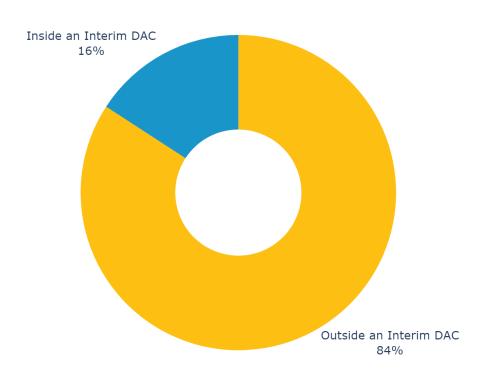
Responses from PHEV and BEV consumers are significantly different (chi-squared test: $\chi 2 = 124$, p < 0.01, n = 4,411).



2.7 Disadvantaged Communities Participation

Disadvantaged communities (DACs) are impacted by economic and environmental burdens and need to be prioritized to achieve environmental justice. New York State has established interim criteria to define DACs.⁶ Based on these criteria, DACs have a higher proportion of minority residents and lower household incomes relative to New York State. Approximately 27% of New York State residents live in a DAC.

Overall, 16% of Drive Clean Rebate Program participants with vehicles acquired in 2021 were within DACs (Figure 25). DAC residents were proportionally represented among survey respondents, making up 15% of respondents.



(n = 22, 167)

Figure 25. Percentage of Participants within an Interim Disadvantaged Communities Status

The vehicle types adopted between DAC and non-DAC residents were similar for program participants, with 59% adopting BEVs and 41% adopting PHEVs within a DAC and 57% adopting BEVs and 43% adopting PHEVs outside a DAC. Survey respondents have similar proportions of representation for DAC and non-DAC residents. However, respondents who reside in a DAC have a slightly higher proportion that adopted a BEV than a PHEV. Sixty-two percent of survey respondents residing in a DAC adopted a BEV versus fifty-nine percent of program participants residing in a DAC (Table 1). Thirty-eight percent of survey respondents residing in a DAC adopted a PHEV as compared to forty-one percent of program participants residing in a DAC (Table 2).

Table 1. BEV Adoption by Interim Disadvantaged Community Status

DAC Status	Program Participants	Survey Respondents
Inside an interim DAC	59%	62%
Outside an interim DAC	57%	56%

Percent of adoptees between program participants and survey respondents.

Table 2. PHEV Adoption by Interim Disadvantaged Community Status

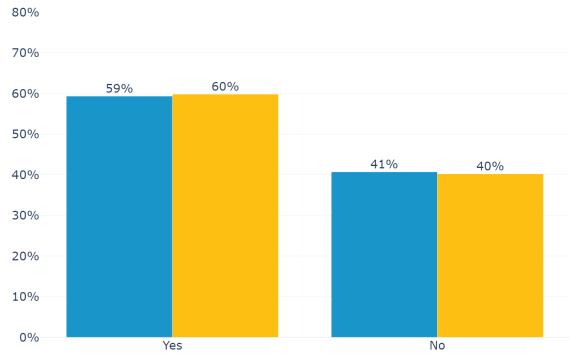
DAC Status	Program Participants	Survey Respondents
Inside an interim DAC	41%	38%
Outside an interim DAC	43%	44%

Percent of adoptees between program participants and survey respondents.

DAC residents did not differ significantly from non-DAC residents on most survey responses, including motivations to purchase their electric car. Interestingly, DAC status did not affect participant rebate essentiality (Figure 26) despite being correlated with lower income (Figure 27). The median income is lower for DAC residents; 66% had a household income of \$149,999 or less, compared to 52% of participants not in DACs.

Figure 26. Rebate Essentiality by Interim Disadvantaged Community Status

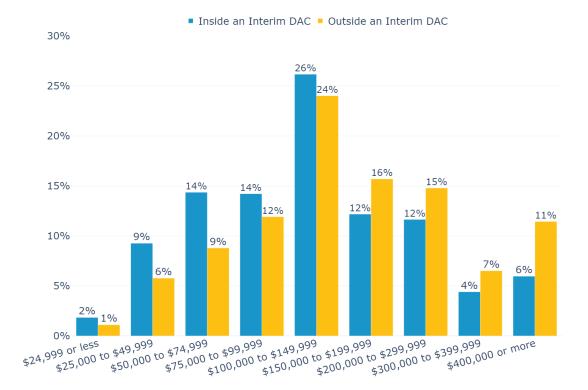
Responses from participants within an Interim DAC and those outside of an interim DAC are not significantly different (n = 4,878).



Inside an Interim DAC - Outside an Interim DAC

Figure 27. Income by Interim Disadvantaged Community Status

Responses from participants within an Interim DAC and those outside of an Interim DAC are significantly different (chi-squared test: $\chi 2 = 62$, p < 0.01, n = 4,060).



The only other dimensions where DAC residents differed from non-DAC residents were housing type and vehicle replacement status. DAC residents were two times as likely to live in apartment buildings (Figure 28) and more than twice as likely to report their rebated vehicle as their first or only car, as opposed to adding to their household fleet (Figure 29).



Figure 28. Residence Type by Interim Disadvantaged Community Status

Responses from participants within an Interim DAC and those outside of an Interim DAC are significantly different (chi-squared test: $\chi 2 = 169$, p < 0.01, n = 4,786).

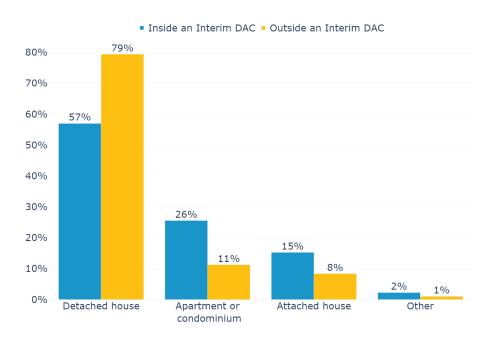
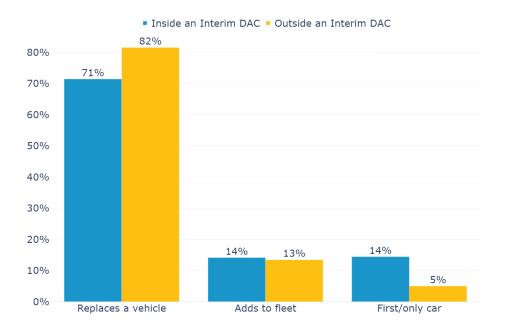


Figure 29. Vehicle Replacement Status by Interim Disadvantaged Community Status

Responses from participants within an Interim DAC and those outside of an Interim DAC are significantly different (chi-squared test: $\chi 2 = 93$, p < 0.01, n = 4,879).



3 Discussion

The Adoption Survey results indicate that participants of the Drive Clean Rebate Program transition to the use of an electric vehicle when they are replacing their household car. A majority (80%) responded that the vehicle rebated had replaced or would replace another household vehicle. This is similar to the results from the previous survey of 79%. There is a slight increase where respondents reported that the rebated car is their first EV or only car as compared to results from the 2020 survey (85% versus 80% respectively).

The transition to electric cars has not yet indicated a favored vehicle technology type as roughly 42% of rebate recipients acquired PHEVs while 58% acquired BEVs. Although this is a decrease from the 2020 Adoption Survey results, where BEVs represented 69% of vehicles, the percentage of BEVs rebated is increasing every year. The motivating factors for participants to acquire an EV have stayed consistent throughout the survey years. Reducing environmental impacts remain the top reason for participants to acquire an EV followed by saving money overall and saving money on fuel costs across the 2020 and 2021 survey results.

The Drive Clean rebate continues to remain an essential part of the EV purchase or lease for participants as 68% rated the incentive to be extremely or very important in making it possible for them to acquire their car. Approximately 40% of respondents indicated that they would not have purchased or leased their electric car without the rebate. These percentages reflect similar results in the previous survey (66% and 41% respectively).

Since the previous survey, the percent of respondents that reported the dealer was aware of the Drive Clean Rebate when they first visited the dealership decreased from 74% to 69%. The percent of respondents that had awareness of the rebate before visiting a dealership remains at similar levels with 54% from this year's results and 56% from 2020 survey results.

DAC participation has increased since the previous survey results 8% to 16%. Rebate essentiality has remained at the same level (60%) for DAC participants despite being correlated with lower income.

The survey provided insight into respondent's electric car adoption experience and revealed similar trends about the participants—like household vehicle composition and motivating factors to acquire an EV. As the EV market matures, the experiences of electric car adopters will continue to evolve.

Appendix A. Adoption Survey Questionnaire

A.1 Introduction

A.1.2 Welcome to NYSERDA's Drive Clean Rebate "Electric Car Adoption Survey."

Congratulations on your new electric car! Please take a few moments to complete the following survey to help our program best support the electric car market in New York State.

Your participation in the survey is voluntary. However, your input is valuable for enhancing the electric car experience for all New Yorkers, and it is important that you try to answer all of the questions. The information you provide will be kept private to the extent permitted by law. The analysis will only use summary level data; no individual respondents will be identified.

The survey will take about 10–15 minutes. Your link is personalized and cannot be shared with others. This means that your progress will be saved, so you can exit and return at a more convenient time to complete the survey.

If you have any questions about this research project or if you experience any technical difficulties, you may contact the Center for Sustainable Energy (CSE), the Drive Clean Rebate Program Administrator for NYSERDA, at:

Phone: (866) 595-7917 Email: NYDriveClean@energycenter.org

Personal Car

Page exit logic: Skip / Disqualify LogicIF: #1 Question "According to our records, you received a rebate for a [contact("nymake")] [contact("nymodel")]. Is this car used primarily for personal use?" is one of the following answers ("No, this car is primarily for commercial/organizational use") THEN: Jump to page 16 - Disqualification (commercial vehicle)

Page exit logic: Skip / Disqualify Logic**IF:** #1 Question "According to our records, you received a rebate for a [contact("nymake")] [contact("nymodel")]. Is this car used primarily for personal use?" is one of the following answers ("My rebate is for a different car") **THEN:** Jump to <u>page 17 - Disqualification (different vehicle)</u>

1) According to our records, you received a rebate for a [contact("nymake")] [contact("nymodel")]. Is this car used primarily for personal use?*

- () Yes
- () No, this car is primarily for commercial/organizational use
- () My rebate is for a different car

Primary Driver

Page exit logic: Skip / Disqualify LogicIF: #2 Question "Are you the primary driver of this [contact("nymake")] [contact("nymodel")]?" is one of the following answers ("No") THEN: Jump to page <u>18 - Disqualification (primary driver)</u>

2) Are you the primary driver of this [contact("nymake")] [contact("nymodel")]?*

() Yes () No

Electric Car Definition

In this survey, we are going to ask you about your experience with your electric car. By car, we

mean passenger cars, SUVs, or light duty trucks. Your car might:

- run entirely on electricity from plugging the car in (all-battery electric car)
- use a combination of electricity from plugging in and gasoline (plug-in hybrid electric car)
- use hydrogen as fuel (hydrogen fuel-cell electric car)

When we refer to **electric cars**, we are referring to all of these.

Electric Car Purchasing Decisions

Logic: Show/hide trigger exists.

3) Which of the following best describes your new electric car purchase or lease?

() It replaces (or will replace) another household car

() It adds to the other cars in my household's fleet

() It is my household's first-ever car

() My household has had cars in the past, but did not have one when we purchased/leased this electric car

Logic: Hidden unless: #3 Question "Which of the following best describes your new electric car purchase or lease?" is one of the following answers ("It replaces (or will replace) another household car")

Please describe the make and model of the car that you replaced (or plan to replace) with your new

electric car.[†]

Make:

() Acura () Audi () BMW () Buick () Cadillac () Chevrolet () Chrysler () Dodge () FIAT () Ford () GMC () Honda () Hyundai () Infiniti () Jaguar () Jeep () Kia () Land Rover / Range Rover () Lexus () Lincoln () Mazda () Mercedes-Benz () Mercury

	() MINI	
	() Mitsubishi	
	() Nissan	
	() Oldsmobile	
	() Pontiac	
	() Porsche	
	() Saab	
	() Saturn	
	() Scion	
	() smart	
	() Subaru	
	() Suzuki	
	() Tesla	
	() Toyota	
	() Volkswagen	
	() Volvo	
	() Other:	 *
Model:		

Please describe the **model year and technology type** of the car that you replaced (or plan to replace) with your new electric car.

Model Year:

() 2021
() 2020
() 2019
() 2018
() 2017
() 2016
) 2015
) 2014
-) 2013
) 2012
-) 2011
) 2010
) 2009
`) 2008
`) 2007
`) 2006
`) 2005
`) 2004

() 2003 () 2002 () 2001 () 2000

() 1999 or earlier

Technology Type:

() Gasoline

- () Conventional hybrid (fueled with gasoline only)
- () Plug-in hybrid electric car (recharged with electricity and/or fueled with gasoline)
- () All-battery electric car (recharged with electricity only)
- () Hydrogen fuel-cell electric car
- () Diesel
- () Compressed natural gas
- () Flex-fuel (E85 ethanol)
- () Other alternative fuel

Electric Car Purchasing Decisions (cont.)

Logic: Show/hide trigger exists.

5) Including your new electric car, how many cars does your household own or lease in total?

[please exclude motorcycles, ATVs, RVs, etc. or any cars not currently registered]

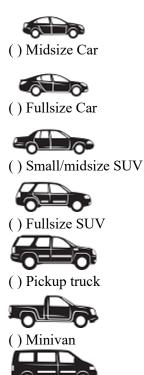
() 1 () 2 () 3 () 4 or more

Logic: Hidden unless: #5 Question "Including your new electric car, how many cars does your household own or lease in total? [please exclude motorcycles, ATVs, RVs, etc. or any cars not currently registered]" is one of the following answers ("2","3","4 or more")

6) Other than your rebated electric car, please describe the car in your household that you will use most often.

Car Type:

() Compact Car



Technology Type:

() Gasoline

() Conventional hybrid (fueled with gasoline only)

- () Plug-in hybrid electric car (recharged with electricity and/or fueled with gasoline)
- () All-battery electric car (recharged with electricity only)

() Hydrogen fuel-cell electric car

() Diesel

() Compressed natural gas

() Flex-fuel (E85 ethanol)

() Other alternative fuel

7) Which of the following statements best describes your interest in acquiring an electric car when you started your search for a new car? Please select one statement.[†]

() I did not know electric cars existed

() I knew electric cars existed, but had no interest in one

() I had some interest in an electric car

() I was very interested in an electric car

- () I was only interested in an electric car but considered multiple makes/models
- () I was only interested in the specific electric car I purchased/leased

8) Is this the first electric car you have ever purchased or leased?

() Yes

() No

Electric Car Purchasing Decisions

9) On a scale of 1 to 5 (with 1 representing "Not at all important" and 5 representing "Extremely important"), please describe how important each of the following factors was in your decision to acquire an electric car.[†]

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)
Saving money on fuel costs	()	()	()	()	()
Saving money overall	()	()	()	()	()
Reducing environmental impacts	()	()	()	()	()
Carpool or High Occupancy Vehicle (HOV) lane access	()	()	()	()	()
Increased energy independence	()	()	()	()	()
Ability to charge at home	()	()	()	()	()
Ability to charge at work	()	()	()	()	()
Ability to charge at public charging stations	()	()	()	()	()
Speed of car refueling	()	()	()	()	()
Car performance	()	()	()	()	()
Car styling, finish, and comfort	()	()	()	()	()
A desire for the newest technology	()	()	()	()	()

Logic: Hidden unless: nyfueltype is exactly equal to "Electric"

10) Which of these factors was the most important reason why you decided to acquire an electric

car? Please select one statement.†

- () Saving money on fuel costs
- () Saving money overall
- () Reducing environmental impacts
- () Carpool or High Occupancy Vehicle (HOV) lane access
- () Increased energy independence
- () Ability to charge at home
- () Ability to charge at work
- () Ability to charge at public charging stations
- () Car performance
- () Car styling, finish, and comfort
- () A desire for the newest technology

Logic: Hidden unless: nyfueltype is exactly equal to "Hydrogen"

11) Which of these factors was the most important reason why you decided to acquire an electric car?

Please select one statement.

- () Saving money on fuel costs
- () Saving money overall
- () Reducing environmental impacts
- () Carpool or High Occupancy Vehicle (HOV) lane access
- () Increased energy independence
- () Speed of car refueling
- () Car performance
- () Car styling, finish, and comfort
- () A desire for the newest technology

12) On a scale of 1 to 5 (with 1 representing "Not at all important" and 5 representing "Extremely important"), please describe how important each of the following factors was in making it possible for you to acquire your electric car.[†]

	Not at all important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)	Not applicable
State car rebate (Drive Clean Rebate)	()	()	()	()	()	()
Federal tax incentives	()	()	()	()	()	()
Green Pass or similar toll/E-ZPass discount	()	()	()	()	()	()
Manufacturer or dealer incentives (e.g., low interest rate, cash back)	()	()	()	()	()	()
Special electricity rates for charging at home	()	()	()	()	()	()
Free charging away from home	()	()	()	()	()	()
Free hydrogen fueling	()	()	()	()	()	()

Program Performance

13) Would you have purchased/leased your electric car without the State car rebate (Drive Clean Rebate)?

() Yes () No

Logic: Show/hide trigger exists.

14) If the Drive Clean Rebate were not available for electric cars, would you still have purchased/leased

the same car? Please select one statement.

- () Yes, I would have purchased/leased this exact electric car anyway
- () Yes, but I would have purchased/leased a less expensive version of the same model () No

Logic: Hidden unless: #14 Question "If the Drive Clean Rebate were not available for electric cars, would you still have purchased/leased the same car? Please select one statement." is one of the following answers ("No")

15) If the Drive Clean Rebate were not available for electric cars, what would you most likely have done? Please select one statement.

- () Purchased/leased a different new electric car
- () Purchased/leased a used electric car
- () Purchased/leased a new non-electric car instead
- () Purchased/leased a used non-electric car instead
- () Not made any purchase/lease at all

16) Had you heard about the Drive Clean Rebate before you visited a dealership?

() Yes () No

Program Performance (cont.)

17) On a scale of 1 to 5 (with 1 representing "Not at all satisfied" and 5 representing "Extremely satisfied"), please describe how satisfied you were with each of the following aspects of the Drive Clean Rebate.

	Not at all satisfied (1)	Slightly satisfied (2)	Moderately satisfied (3)	Very satisfied (4)	Extremely satisfied (5)	Not applicable
Promotion	()	()	()	()	()	()
Website	()	()	()	()	()	()
Dealer familiarity with the rebate	()	()	()	()	()	()
Amount of the rebate	()	()	()	()	()	()

Dealership Experience

The following questions will ask about your experience with your electric car dealer. If you visited more than one dealer, please answer the following questions for the dealership where you acquired your electric car.

18) How many electric cars did you see on your dealer's lot? [please provide your best estimate]

() None; electric cars had to be ordered () 1–2

() 3–5 () 6–10 () 11–20 () More than 20

19) Did your dealer know about the Drive Clean Rebate when you first went to visit them?

() Yes () No () I don't know

20) On a scale of 1 to 5 (with 1 representing "Not at all knowledgeable " and 5 representing "Extremely knowledgeable"), please describe how knowledgeable your dealer was about the following topics.[†]

	Not at all knowled geable (1)	Slightly knowled geable (2)	Moderately knowledgeable (3)	Very knowled geable (4)	Extremely knowled geable (5)	l don't recall	Did not discuss
Electric cars in general	()	()	()	()	()	()	()
Total cost of ownership	()	()	()	()	()	()	()
Government financial incentives	()	()	()	()	()	()	()
Other incentives/perks	()	()	()	()	()	()	()
Car performance	()	()	()	()	()	()	()
Environmental benefits of electric cars	()	()	()	()	()	()	()
Electricity rates to charge at home	()	()	()	()	()	()	()
Home charging (outlet/equipment options, installation costs, etc.)	()	()	()	()	()	()	()
Away-from-home charging (workplace, public)	()	()	()	()	()	()	()
Current availability of hydrogen fueling stations	()	()	()	()	()	()	()
Future plans for hydrogen fueling stations in New York	()	()	()	()	()	()	()
Hydrogen safety	()	()	()	()	()	()	()
Hydrogen refueling process	()	()	()	()	()	()	()
Smartphone apps for your EV	()	()	()	()	()	()	()

21) Whether or not these were offered to you, which of the following services would be valuable for a dealer to provide? [select all that apply]

- [] The option to have an extended test drive or loaner electric car before buying/leasing
- [] An electric car specialist to answer questions about cars
- [] Facilitating the installation of a home charging station
- [] Electric car tutorials or workshops for new owners
- [] Free charging at dealership
- [] Free hydrogen fueling at dealership
- [] Other, please specify: _
- [] None of the above

Page entry logic: This page will show when: nyfueltype is exactly equal to "Electric"

Charging

Logic: Show/hide trigger exists.

22) Do you charge your electric car at home?†

- () Yes
- () No, but I am planning to start charging at home
- () No, and I have no plans to start charging at home

Logic: Hidden unless: #22 Question "Do you charge your electric car at home?" is one of the following answers ("Yes", "No, but I am planning to start charging at home")

23) Which charging method(s) are you currently using (or plan to use) when charging at home? [select all that apply][†]

- [] Plugging directly into a 120V outlet (typical household outlet)
- [] Plugging directly into a 240V outlet (e.g., dryer outlet)
- [] Using a level 1 (120V) charging station with a built-in plug
- [] Using a level 2 (240V) charging station with a built-in plug

24) Do you have access to charging at the following locations?[†]

	Yes, and I can charge for free	Yes, but I must pay to charge	No	l don't know	Not applicable
Near your home	()	()	()	()	()
At your workplace	()	()	()	()	()
Near your workplace	()	()	()	()	()

Page entry logic: This page will show when: nyfueltype is exactly equal to "Hydrogen"

Hydrogen Fueling

25) Do you have access to fueling at the following locations?

	Yes, and I can refuel for free	Yes, but I must pay to refuel	No	l don't know	Not applicable
Near your home	()	()	()	()	()
Near your workplace	()	()	()	()	()
On the way to/from your workplace	()	()	()	()	()

Household and Demographic Characteristics

In this final section, we will be asking some questions about you and your household so we can learn more about the characteristics of electric car adopters in New York State. The information you provide will be **kept private** to the extent permitted by law. The analysis will only use summary level data; no individual respondents will be identified.

26) Do you own or rent your residence?*[†]

() Own

() Rent

- () Neither rent nor own
- () Prefer not to answer

27) What type of residence do you live in?*

- () Detached house (single family home)
- () Attached house (e.g., townhome, duplex, triplex)

*

- () Apartment/condominium
- () Other, please specify:
- () Prefer not to answer

28) Do you have solar panels at your residence?

() Yes, I have solar panels installed

- () No, but I am considering installing them
- () No, and I have no plans to install them

29) How many people live in your household, including yourself?

() 1 () 2 () 3 () 4 () 5 () 6 () 7 () 8 () 9 or more

30) How many licensed drivers live in your household, including yourself?

() 1 () 2 () 3 () 4 () 5 () 6 () 7 () 8 () 9 or more

Household and Demographic Characteristics

31) What is your age?*

- () 16–20
- () 21–29
- () 30–39
- () 40–49 () 50–59
- () 60–69
- () 70–79
- () 80+
- () Prefer not to answer

32) What is your gender?**

- () Female
- () Male
- () Non-binary/third gender
- () Prefer to self-describe:
- () Prefer not to answer

33) What is the highest level of education you have completed?*

- () High school graduate or less
- () Some college, no degree
- () Associate degree
- () Bachelor's degree
- () Graduate degree
- () Prefer not to answer

34) What is your current annual gross household income from all sources (i.e., before taxes)?*

() Less than \$25,000
() \$25,000 to \$49,999
() \$50,000 to \$74,999
() \$75,000 to \$99,999
() \$100,000 to \$149,999
() \$150,000 to \$199,999
() \$200,000 to \$299,999
() \$300,000 to \$399,999
() \$400,000 or more
() Prefer not to answer

35) Are you Hispanic or Latino/a?*

- () Yes
- () No
- () Prefer not to answer

36) How do you prefer to describe your racial/ethnic identity? [select all that apply]*[†]

Other Comments

Please be sure to click "Submit" at the bottom of the page to complete the survey.

37) What has been the best part of your experience purchasing or leasing an electric car?

38) Please share any feedback about how the Drive Clean Rebate could be improved in the box below.

*

39) Please share any additional comments about your electric car experience or this survey in the box below.

Page entry logic: This page will show when: #1 Question "According to our records, you received a rebate for a [contact("nymake")] [contact("nymodel")]. Is this car used primarily for personal use?" is one of the following answers ("No, this car is primarily for commercial/organizational use")

Disqualification (Commercial Vehicle)

Unfortunately, you do not qualify for this survey at this time. You indicated that the car associated with your survey invitation is not being used primarily as a private car.

However, we welcome you to provide any feedback you have about the Drive Clean Rebate in the comment box below.

If you have any questions, please email <u>NYDriveClean@energycenter.org</u>. We thank you for your time and appreciate your interest.

40) Please share any comments in the box below.

Page entry logic: This page will show when: #1 Question "According to our records, you received a rebate for a [contact("nymake")] [contact("nymodel")]. Is this car used primarily for personal use?" is one of the following answers ("My rebate is for a different car")

Disqualification (Different Vehicle)

Unfortunately, you do not qualify for this survey at this time. You indicated that the car associated with your survey invitation is a different car than the one for which you are receiving this rebate.

However, we welcome you to provide any feedback you have about the Drive Clean Rebate in the comment box below.

If you wish to take the survey for another private car receiving a rebate, please look for the survey invitation associated with that car, or email NYDriveClean@energycenter.org with any questions.

41) Please share any comments in the box below.

Page entry logic: This page will show when: #2 Question "Are you the primary driver of this [contact("nymake")] [contact("nymodel")]?" is one of the following answers ("No")

Disqualification (Primary Driver)

Unfortunately, you do not qualify for this survey at this time. You indicated that you are not the primary driver of the rebated car.

However, we welcome you to provide any feedback you have about the Drive Clean Rebate in the comment box below.

If you have any questions, please email NYDriveClean@energycenter.org. We thank you for your time and appreciate your interest.

42) Please share any comments in the box below.

Thank you!

Thank you for your participation in this survey. Your feedback is greatly appreciated and will help inform and support the development of electric car markets in New York State. If you have any questions about this research project, you may contact the Center for Sustainable Energy (CSE), the Drive Clean Rebate Program Administrator for NYSERDA, at:

Phone: (866) 595-7917 Email: NYDriveClean@energycenter.org

Endnotes

- ¹ An option kept from the previous version of the survey. Rebates processed are confirmed to match the vehicle acquired, thus respondents who selected this option are removed from analysis to preserve the validity of responses.
- ² Excludes businesses and government entities.
- ³ An option kept from the previous version of the survey. Rebates processed are confirmed to match the vehicle acquired, thus respondents who selected this option are removed from analysis to preserve the validity of responses.
- ⁴ Raking, also known as iterative proportional fitting, is a technique used to match distributions from a sample to the known distributions of the broader population.
- ⁵ Fuel type abbreviations are: Conventional Hybrid Electric Vehicle (CHEV), Fuel-Cell Electric Vehicle (FCEV).
- ⁶ The interim criteria identified for a disadvantaged community as defined by New York State. https://www.nyserda.ny.gov/ny/disadvantaged-communities

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