

NY Drive Clean Rebate: Vehicle Replacement through 2023

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with thanks to J. Bowers, A. Thang, and others at the Center for Sustainable Energy (CSE)

Outline

Are rebates impactful?

- **Vehicle Replacement Rates**
- **Replaced Vehicle Types**

Wrap Up

Appendix

Highlights for 2023 Purchases/Leases

Context

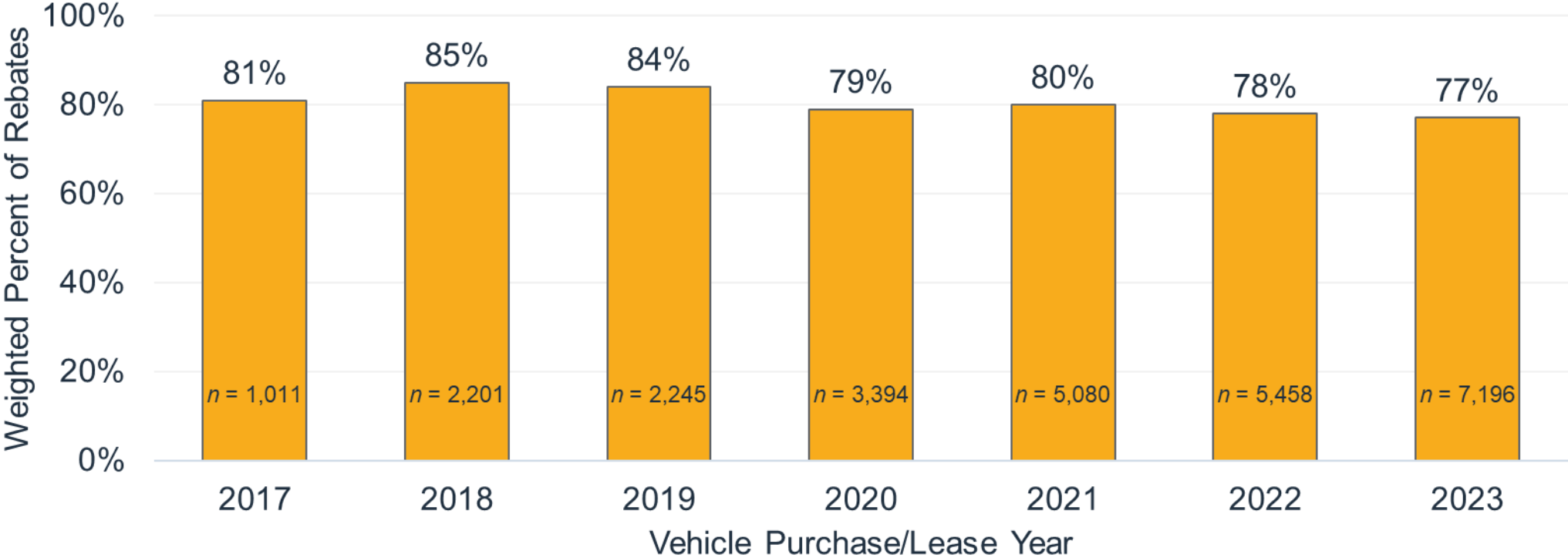
- 2023 was dominated by the Model Y and \$500 rebates
 - See “NY Drive Clean Rebated Vehicle Characteristics through 2023”

Vehicle Replacement

- Replacement rate **remained high at 77%**
- **3/4^{ths}** of replaced vehicles **were gasoline-fueled**
- **1/4th** of replaced vehicles were **10+ years old**

After increasing, vehicle replacement dipped but remains high

Replaced a vehicle with their rebated *plug-in EV*

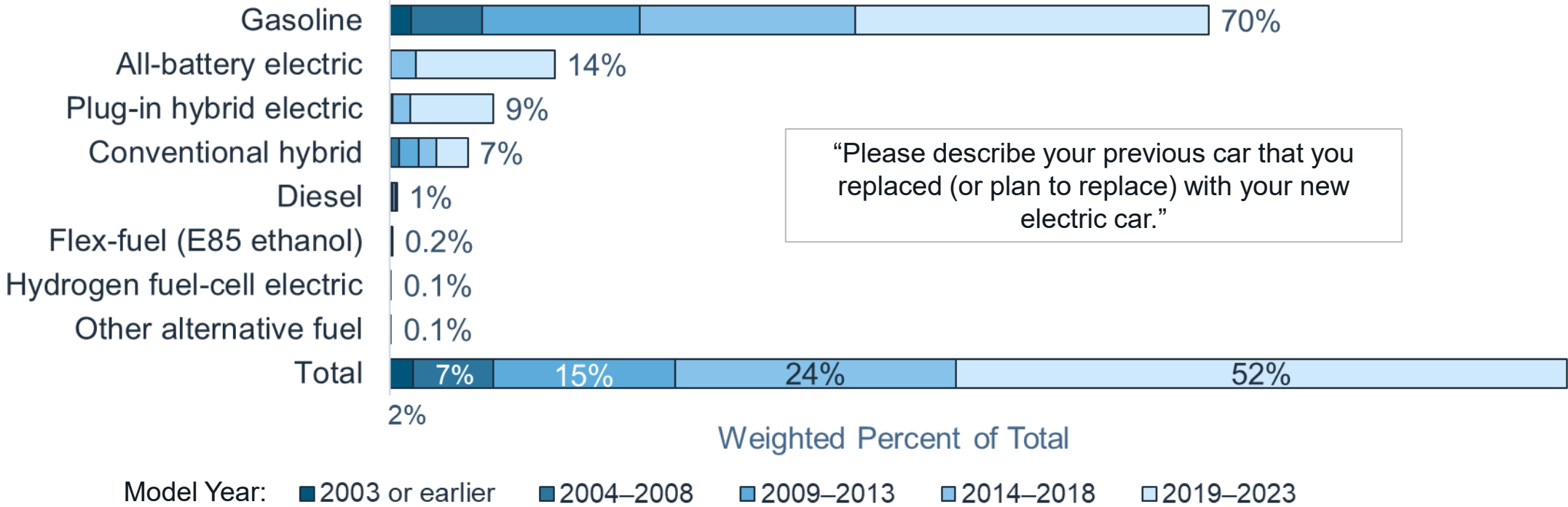


NY DCRP Adoption Survey.
n-values are filtered and question-specific. 2020–2023 weights specific to 2020–2023 purchases/leases, respectively.

Rebated EVs are replacing older, more polluting cars

2023 purchases/leases

1/4th of replaced vehicles were 10+ years old and 3/4^{ths} were gasoline-fueled (incl. 7% conventional hybrid).

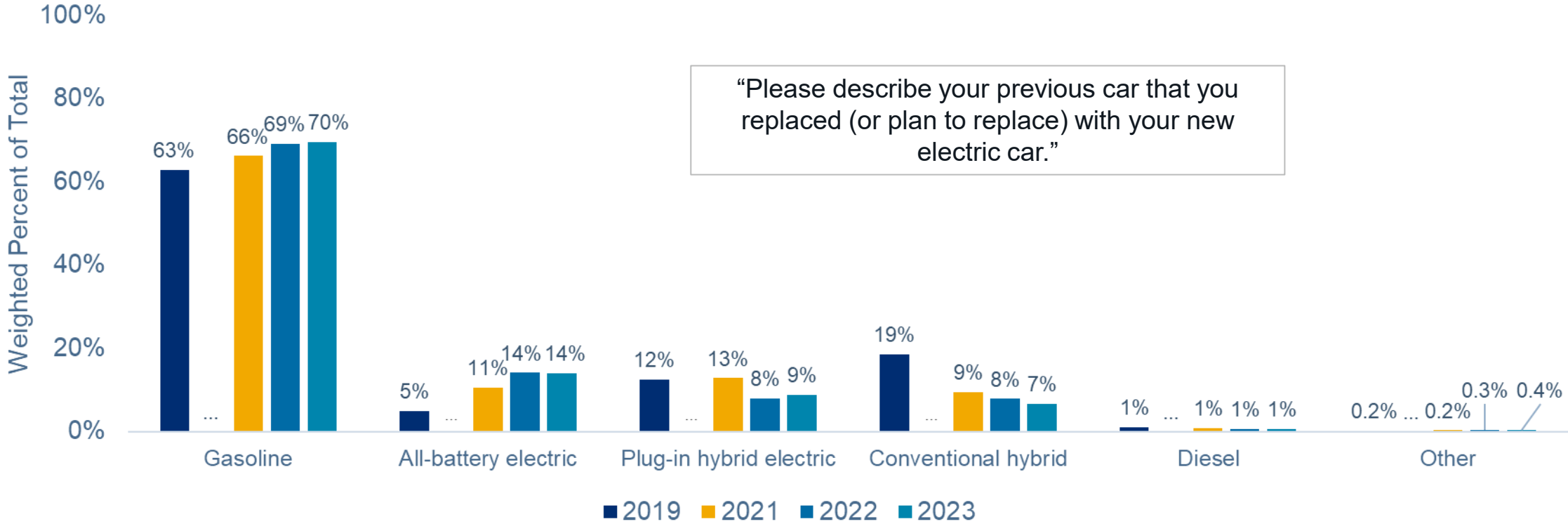


NY DCRP Adoption Survey. Filtered, question-specific n = 5,554

What Vehicle Types Have Rebates Helped Replace?

2019 & 2021–2023 purchases/leases

Gasoline and BEV replacement increased over time, PHEV and Hybrid decreased.



NY DCRP Adoption Survey. 2019 *n* = 1,290. 2021 *n* = 4,079. 2022 *n* = 4,268. 2023 *n* = 5,554. *n*-values are filtered and question-specific. Other includes Flex-fuel (E85 ethanol), Hydrogen fuel-cell electric, Other alternative fuel, Compressed natural gas.

Summary of Select Findings for 2023 Purchases/Leases

Context

- 2023 was dominated by the Model Y and \$500 rebates, saw a rebound in leasing
 - See “NY Drive Clean Rebated Vehicle Characteristics through 2023”

Vehicle Replacement

- Replacement rate **remained high at 77%**, despite some decline post-COVID-19
- **~1/4 were 10+ years old, ~10% were 15+ years old**
- **3/4^{ths} of replaced vehicles were gasoline-fueled** (incl. 7% conventional hybrid)
 - Non-hybrid **gasoline vehicle replacement has been increasing** (70% for 2023, up from 63% for 2019)
- Replaced vehicle details similar from 2022 to 2023

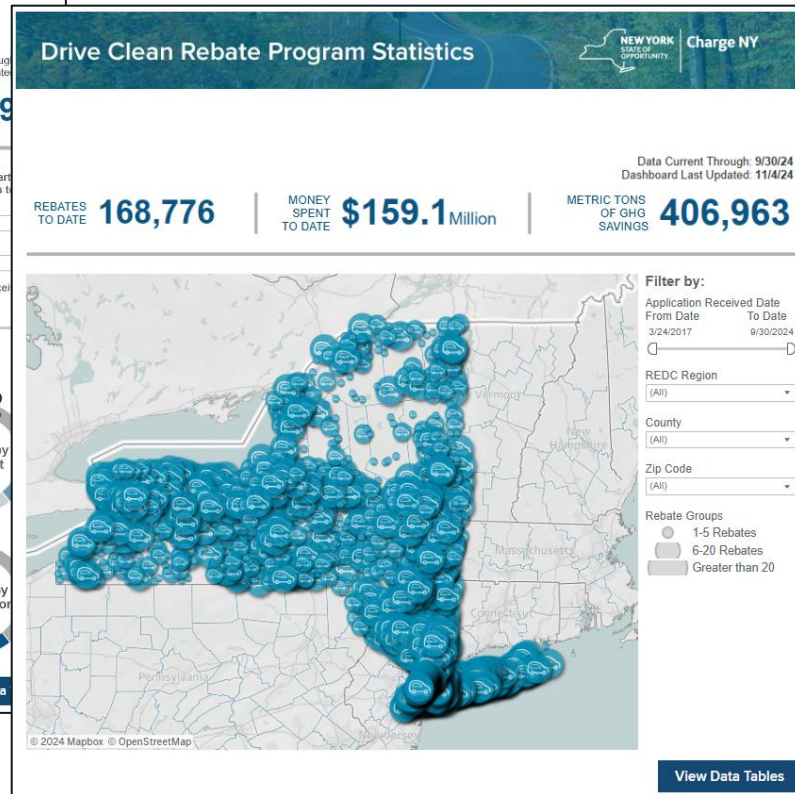
Appendix

- **Additional Details**
- **Resources**

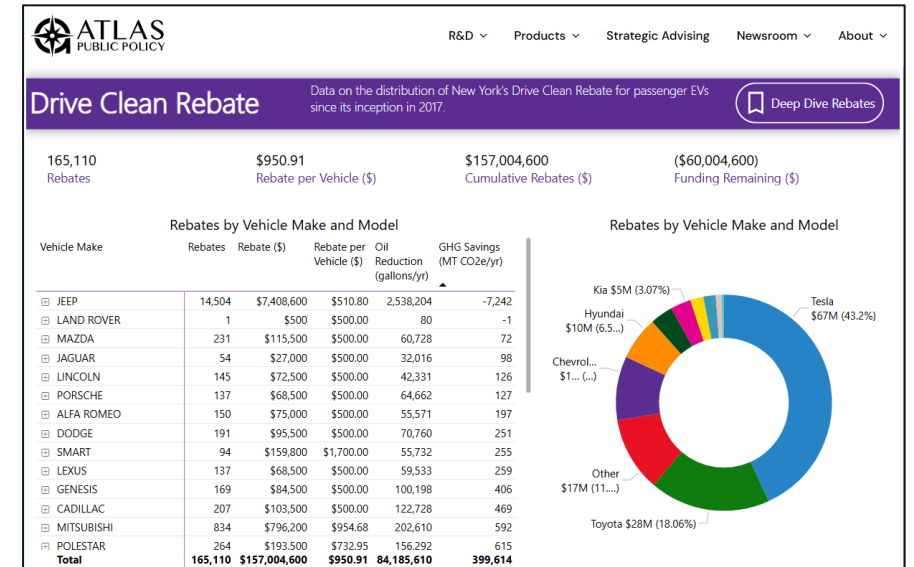
Acronyms

- **BEV – Battery Electric Vehicle**
- **DCRP – Drive Clean Rebate Program (NY statewide)**
- **e-mile – EPA-rated all-electric mile of driving range**
- **EPA – U.S. Environmental Protection Agency**
- **EV – Electric Vehicle (including PHEVs and BEVs; FCEVs not in the NY data)**
- **FCEV – Fuel-Cell Electric Vehicle**
- **MSRP – Manufacturer's Suggested Retail Price**
- **NY – New York State**
- **PHEV – Plug-in Hybrid Electric Vehicle**

For Additional, Up-to-date Program Data (images as of 11/4/2024)



[Drive Clean Rebate Program Statistics Dashboard](#)



[EvaluateNY Dashboard](#)

Rebate design shapes outcomes

Program design changed mid-2021

Category	Purchase/lease dates <u>through</u> June 30, 2021	Purchase/lease dates <u>after</u> June 30, 2021
Fuel-Cell EVs*, All-Battery EVs (BEVs), and Plug-in Hybrid EVs (PHEVs)	≥ 120 e-miles [†] : \$2,000 ≥ 40 e-miles: \$1,700 ≥ 20 e-miles: \$1,100 < 20 e-miles: \$500	≥ 200 e-miles: \$2,000 ≥ 40 e-miles: \$1,000 < 40 e-miles: \$500
Misc.	MSRP > \$60,000 = \$500 Point-of-sale	MSRP > \$42,000 = \$500 Point-of-sale

* FCEVs eligible but unavailable in NY; none rebated. † Electric miles (e-miles) are U.S.-EPA-rated all-electric miles.

Program data: a large number of applications and surveys

Survey data statistically represents all participants

		Annual →				
Vehicle Purchase/Lease Dates	3/23/2017 – 12/31/2019	1/2/2020 – 12/31/2020	1/1/2021 – 12/31/2021	1/2/2022 – 12/31/2022	1/1/2023 – 12/31/2023	Total
Survey Responses (<i>n</i>) [¶]	5,474	3,480	5,087	5,472	7,225	26,738
Program Applicant Population (<i>N</i>) [§]	21,843	13,038	23,098	27,187	46,237	131,403
Program as % of Market *	~56%	~72%	~65%	~66%	~61%	~63%

¶ Subsequently weighted to represent the program population along the dimensions of vehicle technology (PHEV vs. BEV), model, buy vs. lease, and county.

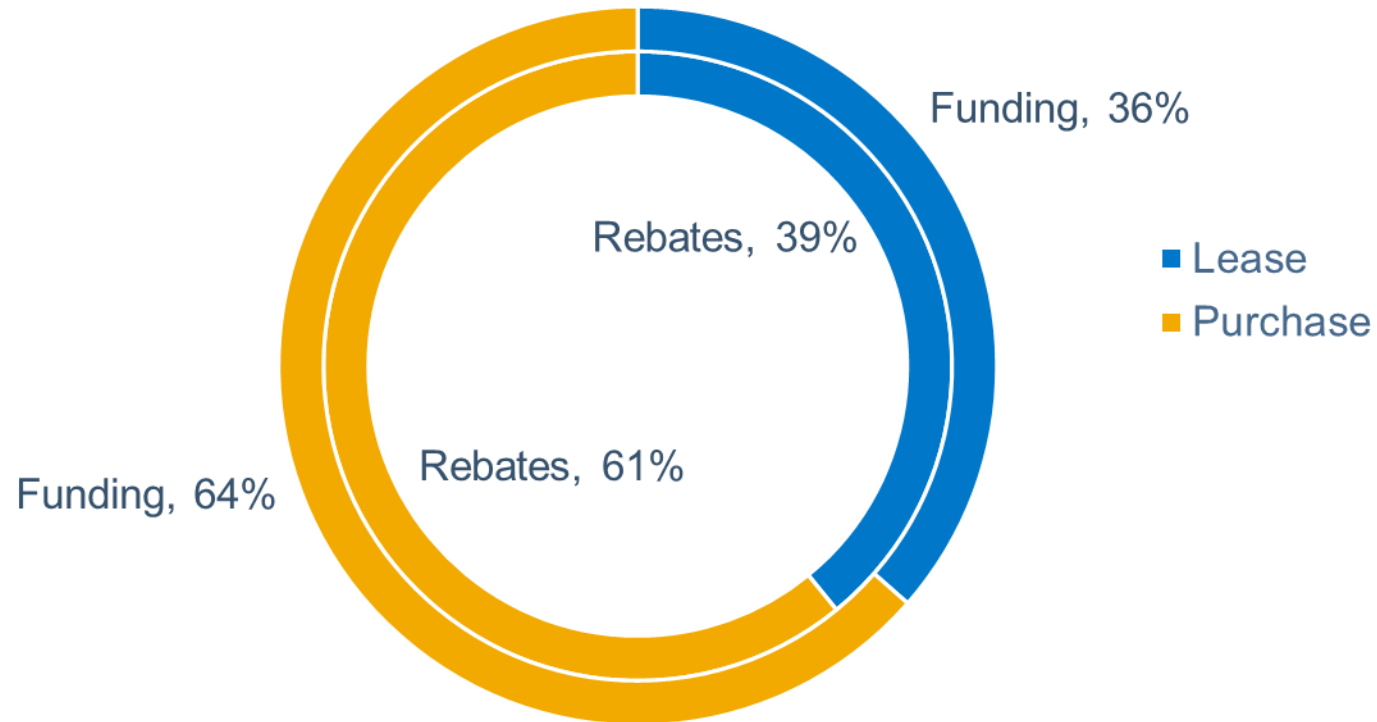
§ Small numbers of rebated vehicles are not represented in the time frames due to application lags.

* Based on approximate comparisons to total EV sales from [Autos Innovate EV Dashboard](#) (AAI & CSE 2024).

Most funding & rebates went to purchased vehicles

However, leases nearly doubled from 19% of rebates in 2022, restoring historical balance
(Federal-tax-credit “leasing loophole” for foreign-assembled vehicles at work?)

Funding & Rebates by Purchase vs Lease (2023 purchases/leases)



NY Drive Clean Rebates: Select Related Analysis



Rebate Impacts (DCRP Resources)

- ❖ B.D.H. Williams and N. Pallonetti (2024, Mar.). [Presentation: “NY Drive Clean Rebate: Vehicle Replacement & Rebate Influence thru 2022.”](#) New York State Drive Clean Program (DCRP), NYSERDA. [Slides](#).
- ❖ B.D.H. Williams and N. Pallonetti (2023, Mar.), [New York State’s Drive Clean Rebate for Electric Vehicles: Measures of Impact](#), for procs. *36th International Electric Vehicle Symposium (EVS36)*, EDTA, Sacramento CA, USA. [Paper](#). [CSE paper posting](#). [Slides](#).

Consumer Segmentation (NYSERDA Contract 66267 & Derivative Products)

- ❖ B.D.H. Williams and J.B. Anderson (2024, May). [Expanding Electric Vehicle Adoption in Disadvantaged Communities](#). *Transportation Research Record: Journal of the Transportation Research Board*. <https://doi.org/10.1177/03611981241242753>. [Paper](#). [CSE posting](#). Open-access data-summary [appendix](#). TRB 2024 [slides](#).
- ❖ B.D.H. Williams (2024, Jan. 9). [Presentation: “Amplifying Electric Vehicle Adoption in Disadvantaged Communities, Consumer Segmentation Roadmaps, and Additional Equity Considerations.”](#) *103rd Annual Meeting of the Transportation Research Board*. NASEM, Washington DC, USA. [Slides](#). [TRB posting](#).
- ❖ B.D.H. Williams and J.B. Anderson (2022, Sep.), [From Low Initial Interest to Electric Vehicle Adoption: “EV Converts” in New York State’s Rebate Program](#), *Transportation Research Record: Journal of the Transportation Research Board*. <https://doi.org/10.1177/03611981221118537>. [Paper](#). Open-access [data-summary supplement](#).
- ❖ B.D.H. Williams (2022, Jun.), [Targeting Incentives Cost Effectively: “Rebate Essential” Consumers in the New York State Electric Vehicle Rebate Program](#), for procs. *35th International Electric Vehicle Symposium (EVS35)*, AVERE. [Paper](#). [Slides](#).
- ❖ B.D.H. Williams (2021, Oct.), [An Electric-Vehicle Consumer Segmentation Roadmap: Strategically Amplifying Participation in the New York Drive Clean Rebate Program](#), NYSERDA Report 21-30, [Clean Transportation Reports](#). Also linked to [ResearchGate](#).

Incorporated Into Multi-state Analysis

- B.D.H. Williams (2024, Aug. 27). [Moderation and Presentation: “Evaluating and Advancing the Equity of Electric Vehicle Adoption: Opening Remarks and Lessons from State Rebate Programs.”](#) *Transportation Symposium on Energy, Environment, and Livable Economies*. NASEM Transportation Research Board, Denver. [TRB posting](#).
- B.D.H. Williams (2021, Jul. 28), [Presentation: “Data from Statewide Electric Vehicle Rebate Programs: Vehicles, Consumers, Impacts, and Effectiveness,”](#) *Collaboration for ZEV Success*, Multi-state ZEV Task Force and Alliance of Automotive Innovation. [Slides](#). [CSE posting](#).
- B.D.H. Williams (2020, Dec.), [Presentation: “EV Purchase Incentives: Program Design, Outputs, and Outcomes of Four Statewide Programs with a Focus on Massachusetts,”](#) *Behavior, Energy & Climate Change Conference 2020*, ACEEE, UC Berkeley CIEE, and SEEPAC. [Slides](#). [CSE posting](#).
- B.D.H. Williams (2019, Oct.), [Presentation: “Transportation Electrification: Incentives.”](#) *REV2019 Conference*, Burlington VT. [Slides](#). [CSE posting](#).
- Williams, B. D., & Jones, M. (2018, June 20). [Presentation: “Electric Vehicle Rebates: Exploring Indicators of Impact in Four States.”](#) *EV Roadmap 11 Conference*. [ResearchGate DOI](#). [CSE posting](#).

Reverse chronological within each section, as of 5/2024; key resources marked with a diamond bullet.

Related Resources: Replaced Vehicles



These can provide further inspiration on next steps/options – for example, analysis that has already been prototyped and taken further for CVRP can be considered low-cost menu items for DCRP.

Presentations

- ❖ [CVRP 2022 Data Brief: Vehicle Replacement](#) (2024, Oct.). [CVRP posting](#).
- ❖ [NY Drive Clean Rebates: Vehicle Replacement & Rebate Influence thru 2022](#) (2024, Mar.).
- ❖ [NY Drive Clean Rebates: Select Impacts Through 2021](#). [Paper](#). (2023, Jun. 12).
- ❖ [Data from Statewide Electric Vehicle Rebate Programs: Vehicles, Consumers, Impacts, and Effectiveness](#) (2021, Jul.)
- ❖ [What Vehicles Are Electric Vehicles Replacing and Why?](#) (2019, Nov.)

Publications

- B.D.H. Williams and N. Pallonetti (2023, Mar.), [New York State’s Drive Clean Rebate for Electric Vehicles: Measures of Impact](#), *36th International Electric Vehicle Symposium (EVS36)*, EDTA, Sacramento CA, USA. [Paper](#). [Slides](#).
- N. Pallonetti and B.D.H. Williams (2023, Mar.), [Vehicle Replacement: Findings from California’s Clean Vehicle Rebate Project](#), *36th International Electric Vehicle Symposium (EVS36)*, EDTA, Sacramento CA, USA. [Paper](#). [Precursor slides](#).

For More Information



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