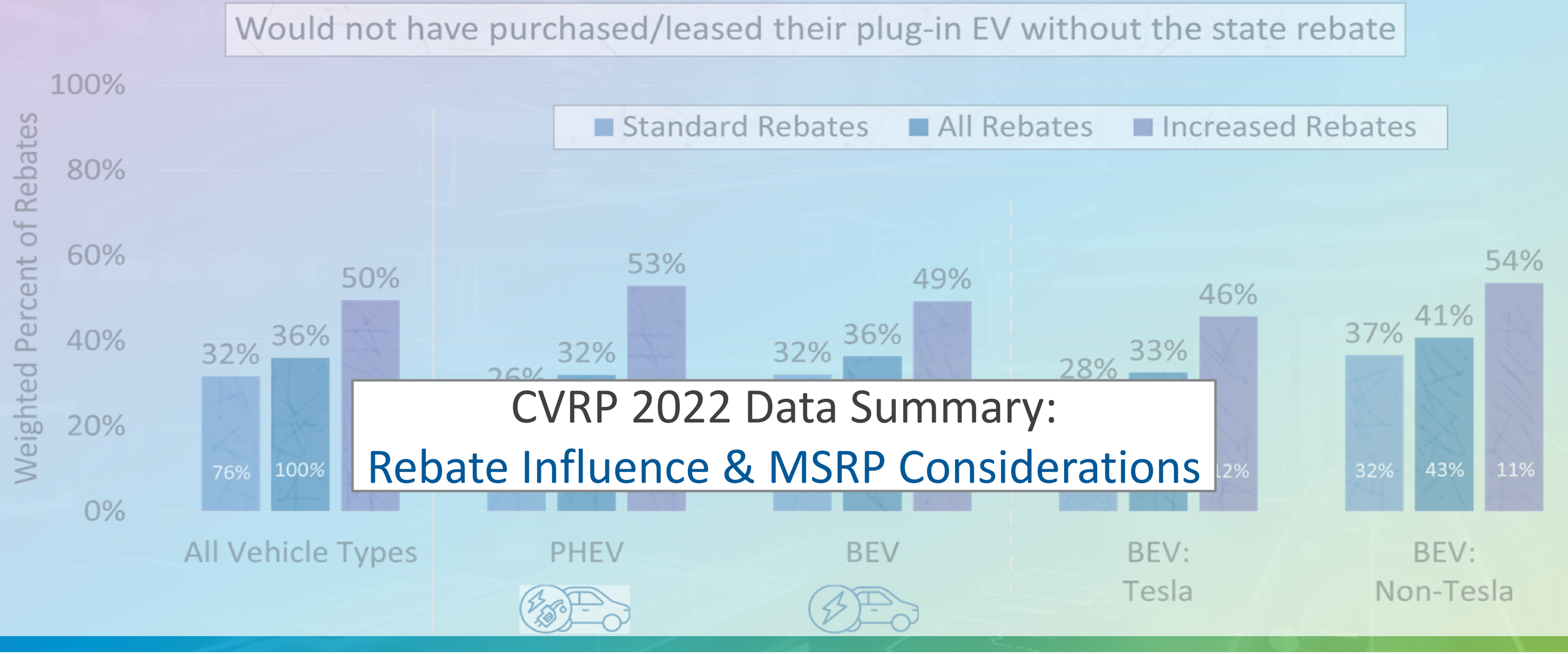

CVRP 2022 Data Summary:
Rebate Influence & MSRP Considerations

March 2025

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with thanks to L. Puckett, J. Galbiati, J. Bowers and others at the Center for Sustainable Energy (CSE)

CALIFORNIA CLEAN VEHICLE REBATE PROJECT℠

Outline: Rebate Influence & MSRP Considerations

- Context: Program Design, Market Dynamics & Data
- Rebate Influence: Over Time, by Vehicle & Consumer Type, by MSRP, by e-Range
- Counterfactual Behavior: What might have happened?
- Designing for Cost-Effectiveness: Free-Rider Abatement Curve
- Wrap Up: Summary & Select Findings

Appendix: Additional Details and Resources

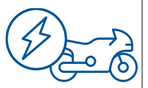
Objectives: Inform Cost-Effective Program Design and Attribution of Emission Reductions

Context

Program Design, Market Dynamics & Data

Base Rebate Amount for Most Individuals **At Lowest Levels**

CALIFORNIA CLEAN VEHICLE REBATE PROJECT™

	as of Mar. 2010	as of Jun. 2011	as of Jul. 2013	as of Jun. 2014	as of Mar. 2016	as of Nov. 2016	as of Dec. 2019
Fuel-Cell EVs 	$3,000–$5,000 ‡	$1,500–$2,500 ‡	$2,500	$5,000	$5,000 *	$5,000**	$4,500***
Battery EVs † 	$3,000–$5,000 ‡	$1,500–$2,500 ‡	$2,500	$2,500	$2,500 *	$2,500**	$2,000***
Plug-in Hybrid EVs 	$3,000	$1,500	$1,500	$1,500	$1,500 *	$1,500**	$1,000***
Zero-Emission Motorcycles 	$1,500	$900	$900	$900	$900	$900	$750
Neighborhood EVs	$1,500	$900	$900	$900	$900	None eligible	None eligible
Commercial Zero-Emission Vehicles	$20,000						

† Includes range-extended battery electric vehicles.
‡ Amounts varied by ZEV type. For definitions, see CCR 1962.1.
** Income-qualified consumers eligible for an additional $1,500.*
*** Income-qualified consumers eligible for an additional $2,000.*
**** Income-qualified consumers eligible for an additional $2,500.*

Evolving Program Design Shapes Outcomes

Color coding:
2022 highlights
Also in effect during 2022

CALIFORNIA CLEAN VEHICLE REBATE PROJECT™

For personal rebates:

as of Mar. 2010
- Incentive stacking permitted
- 36-month ownership requirement
- Rebates per year limit = 20

as of Dec. 2013
- Rebates per year limit = 2

as of May 2014
- 18-month application window

as of Dec. 2014 / Jan. 2015
- 30-month ownership requirement (retroactive)
- Total rebate limit = 2

as of Mar. 2016
- $250k–$500k income cap (PEVs)
- +$1,500 for income-qualified households (≤ 300% FPL), excluding ZEMs

as of Nov. 2016
- $150k–$300k income cap (PEVs)
- ≥ 20 UDDS electric miles
- +$2,000 for income-qualified households (≤ 300% FPL), excl. ZEMs

as of Jan. 2018
- $150k–$300k income cap on stacking HOV decal (only binding on FCEVs)
- Rebate Now San Diego County preapproval pilot with point-of-sale option

as of Jan. 2019
- Stacking with CVAP grant not permitted (retroactive)

as of Dec. 2019
- Total rebates limit = 1 §
- Base MSRP ≤ $60k (PEVs)
- 3-month application window ‡
- ≥ 35 UDDS electric miles
- +$2,500 † for income-qualified households (≤ 300% FPL), excl. ZEMs

as of Apr. 2020
- Stacking with CVAP grant permitted

as of Jan. 2021
- +$2,500 for income-qualified households, ≤ 400% FPL, excl. ZEMs

as of Apr. 2021
- ≥ 30 U.S. EPA electric miles (45 UDDS)
- Rebate Now preapproval option limited to income-qualified households, expanded to include SJ Valley

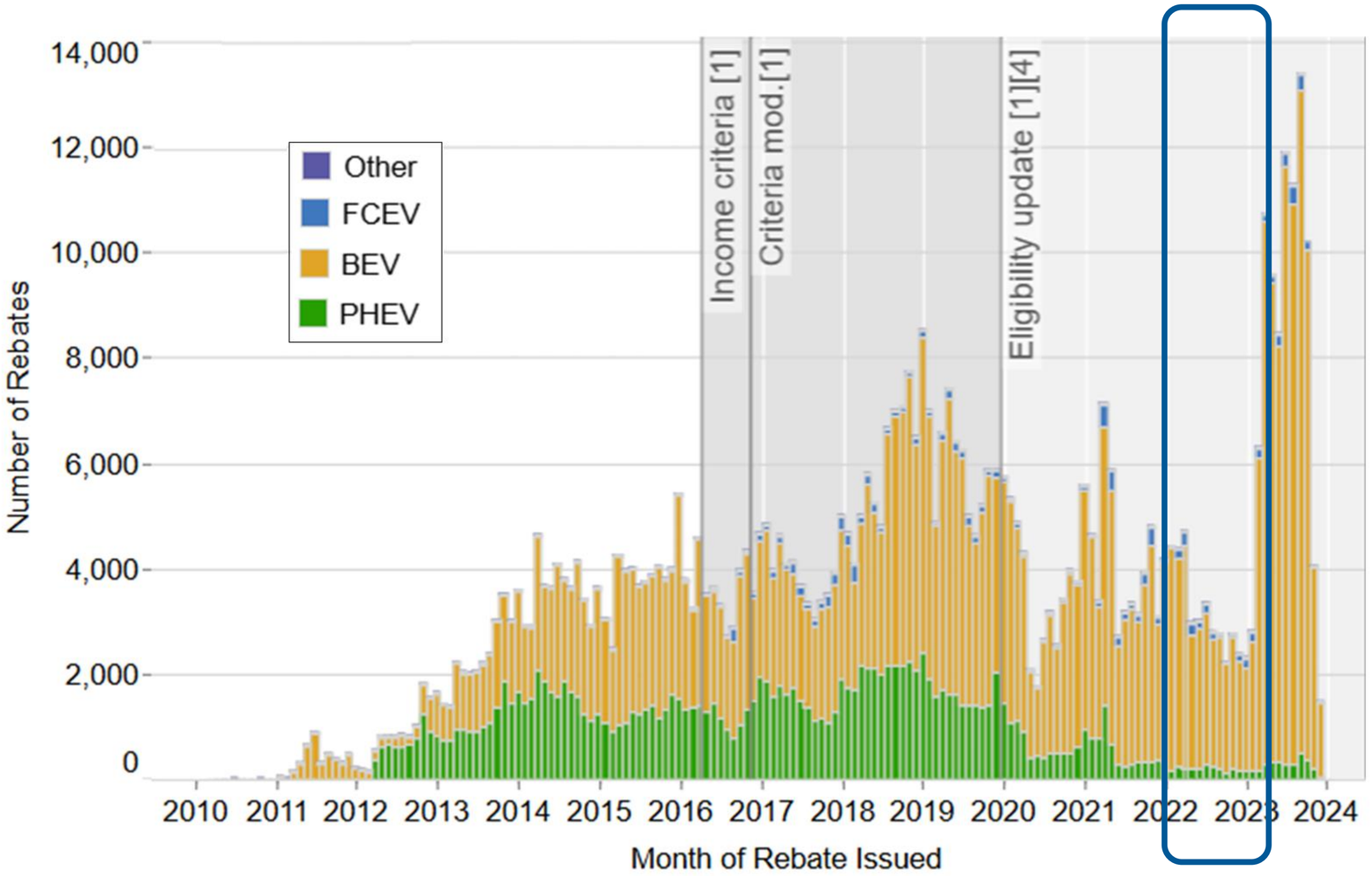
as of Feb. 2022
- Base MSRP: ≤ $60k for Large Vehicles*, ≤ $45k for Cars*
- $135k–$200k income cap (PEVs)
- $135k–$200k income cap on stacking HOV decal (only binding on FCEVs)

as of Jul. 2022
- $150k–$300k income cap on stacking HOV decal (only binding on FCEVs)

PEVs = plug-in EVs. FPL = Federal Poverty Level. ZEMs = zero-emission motorcycles. UDDS = Urban Dynamometer Driving Schedule. HOV = high-occupancy-vehicle. FCEVs = fuel-cell EVs. CVAP = Clean Vehicle Assistance Program. MSRP = manufacturer suggested retail price.

*§ A second rebate can be approved for a FCEV if the first rebate was for a PEV. ‡ COVID exemptions on application window effectively delayed implementation until 4/15/2021. † Change due to $500 decrease in standard rebate amounts (previous slide). * Large Vehicles include minivans, pickups, and SUVs; Cars include all other light-duty vehicle classes (e.g., hatchbacks, sedans, wagons, and two-seaters).*

2022 Saw a Decline in **Applications** When Tesla Model 3 & Y Prices Rose Above the MSRP Cap



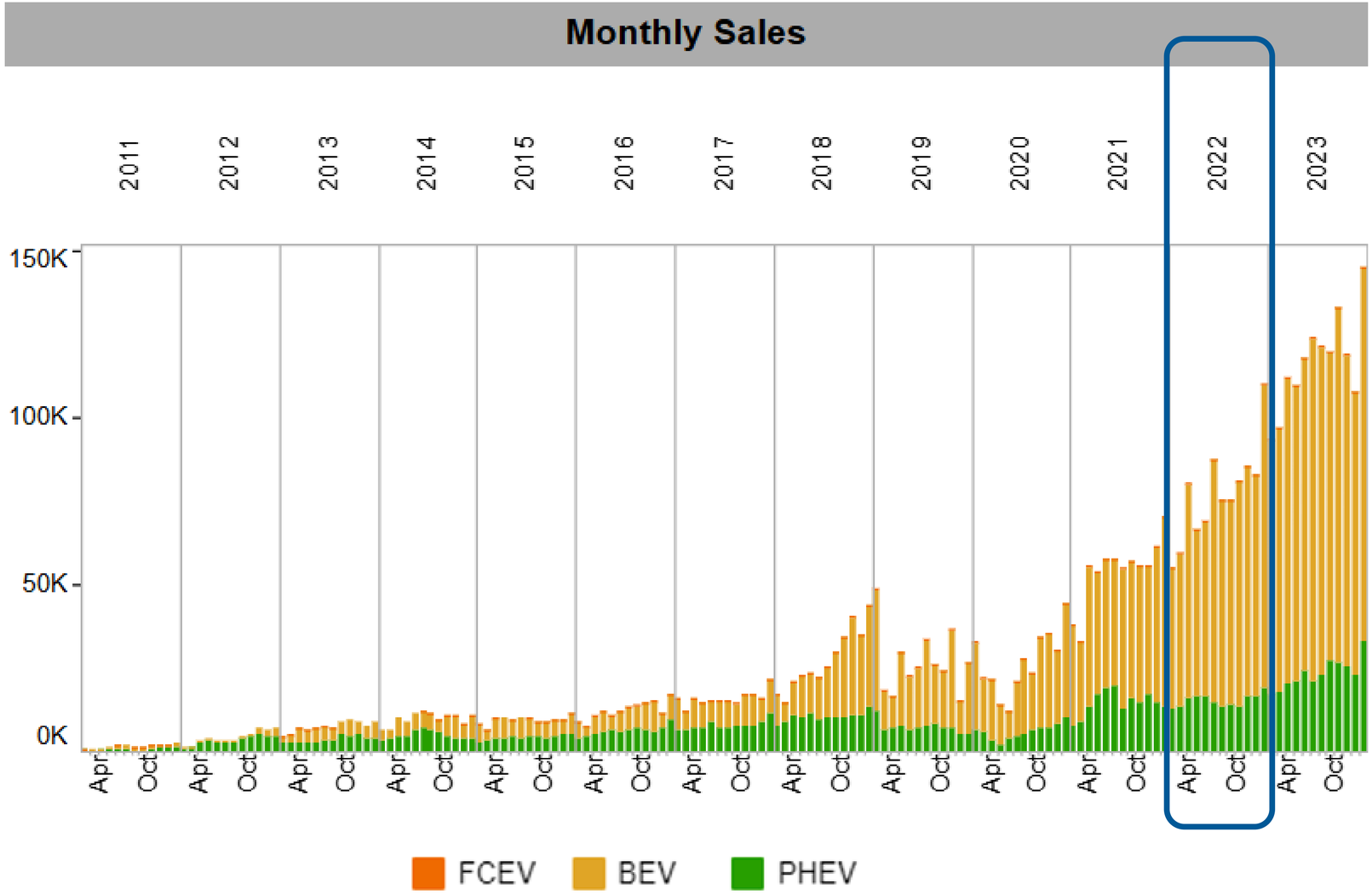
Rebate applications for calendar year 2022 purchases/leases for individuals spanned 1/1/2022 – 3/30/2023.

6% applied in 2023.

Adapted from https://cleanvehiclerebate.org/eng/rebate-statistics (6/24/24), including changing colors and stacking order for ease of comparison across similar slides.

However, Total EV **Sales** in California Continued to Grow

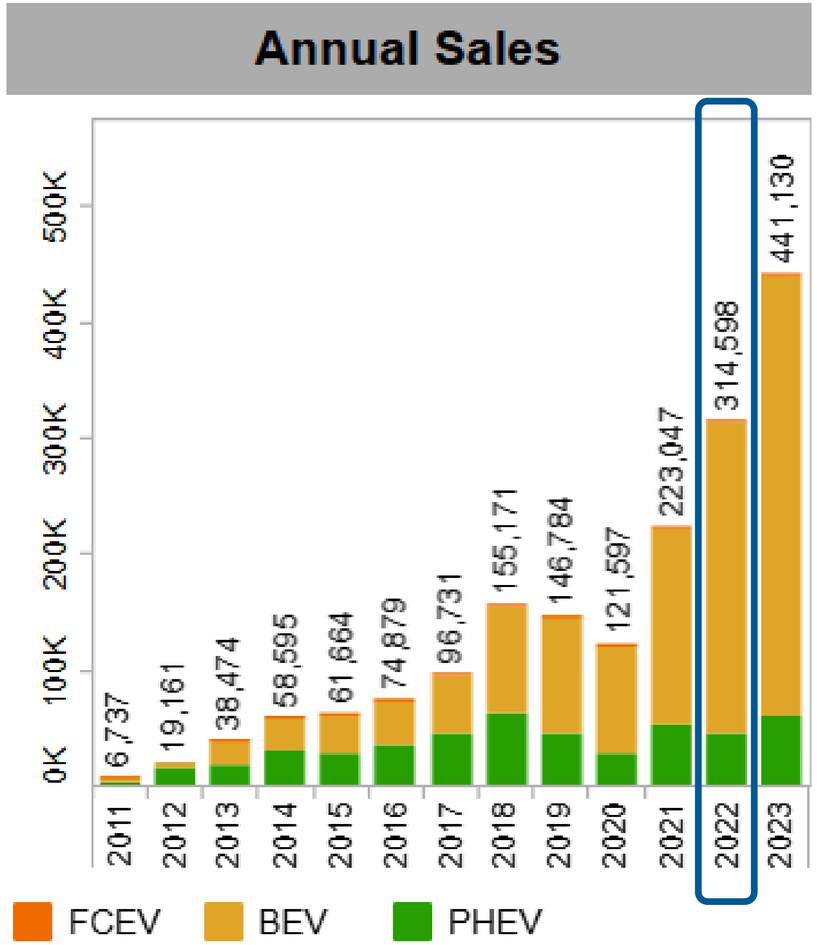
2011–2023



~11% of registered EVs purchased in 2022 received rebates.

Image from https://www.autosinnovate.org/EVDashboard (*6/24/24*)

More Broadly, Electric Vehicle Sales in California Increased 2011–2018, Decreased in 2019 and During the Pandemic, and Rebounded in 2021 and Beyond



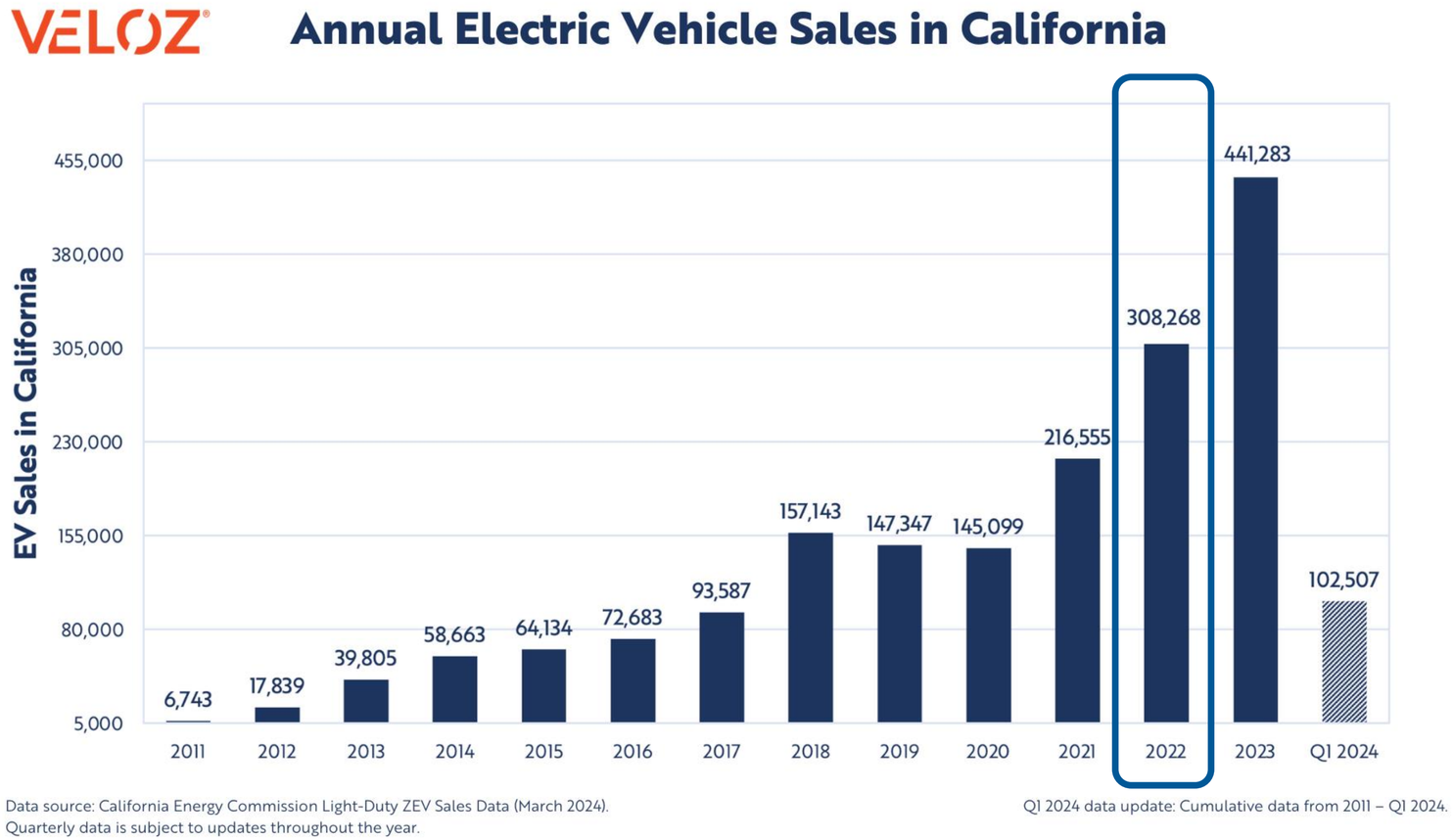


Image 1 from https://www.autosinnovate.org/EVDashboard (6/24/24).

Image 2 from https://www.veloz.org/wp-content/uploads/2024/05/Q1-2024_Annual-EV-Sales-in-CA-1.png

CVRP Consumer Survey **Editions**

(shows rebates to individuals for plug-in EVs* only)

	2013–2015 Edition	2015–2016 Edition	2016–2017 Edition	2017–2020 Edition	2020–2023 Edition (in progress) Interim Datasets	Total
Vehicle Purchase/ Lease Dates	Sep. 2012 – May 2015	April 2015 – May 2016	May 2016 – May 2017	June 2017 – Nov. 2020	Dec. 2020 – Dec. 2022	Sep. 2012 – Dec. 2022
Survey Responses (total *n*)**	19,460	11,611	8,957	32,524	15,482	88,034
Program Population (*N*)***	91,081	45,685	46,839	193,167	86,451	463,223

**Plug-in EVs (PEVs) include PHEVs and BEVs.*

*** Subsequently weighted to represent the program population, see "CVRP Consumer Survey: Weighting Detail" slide for further detail.*

**** Small numbers of rebated vehicles are not represented in the time frames due to application lags. Numbers may not be exactly comparable due to evolving weighting practices.*

CVRP Consumer Survey **Data Used**

(shows rebates to individuals for plug-in EVs* only)

	2013–2015 Edition	2015–2016 Edition	2016–2017 Edition	2017–2020 Edition	2018 purchases/ leases subset	2019 purchases/ leases subset	"2020" purchases/ leases subset	2020–2023 Edition (in progress) Interim Datasets	Interim 2021 purchases/ leases subset	Interim 2022 purchases/ leases subset	Total
Vehicle Purchase/ Lease Dates	Sep. 2012 – May 2015	April 2015 – May 2016	May 2016 – May 2017	June 2017 – Nov. 2020	Jan. 2018 – Dec. 2018	Jan. 2019 – Dec. 2019	Jan. 2020 – Nov.** 2020	Dec. 2020 – Dec. 2022	Jan. 2021– Dec. 2021	Jan. 2022 – Dec. 2022	Sep. 2012 – Dec. 2022
Survey Responses (total *n*)	19,460***	11,611***	8,957***	32,524***	14,757	8,991	4,331***	15,482	7,694***	6,674***	86,920
Program Population (*N*)**	91,081	45,685	46,839	193,167	78,591 (filtered subset of weighted Edition)	61,277 (filtered subset of weighted Edition)	26,463	86,451	45,261	33,685	455,718

**Plug-in EVs (PEVs) include PHEVs and BEVs.*

*** ~8k 2020 purchases/leases were invited to respond to the successive survey edition and are not represented in these data.*

**** Subsequently weighted to represent the program population, see "CVRP Consumer Survey: Weighting Detail" slide for further detail.*

***** Small numbers of vehicles are not represented in the time frames due to application lags. Numbers may not be exactly comparable due to evolving weighting practices.*

CVRP Consumer Survey: **Weighting** Detail

- Each survey edition is individually weighted to represent the program population along the dimensions of vehicle category, vehicle model, buy vs. lease, and county.
  - Vehicle model year* was also included in weighting for the 2017–20 Edition.
  - Year of purchase/lease was included in weighting for 2020–22 Interim Dataset.
    - Weighting for the 2021 subset & 2022 Interim Dataset also included rebate type (Standard Rebate vs. Increased Rebate).
- The 2020 and 2021 purchase/lease subsets were also independently weighted
  - This produced only minor differences compared to the filtered approach used for the 2018 & 2019 subsets.
- Summary of weights, 2022 Interim Dataset:

Min	Median	Mean	Max
0.17 (only 3 records below 0.2)	0.986	1	5.51 (only 3 records above 3.0)

**Not acknowledged in previous postings, which mischaracterized the weighting dimension as year of purchase/lease. Initial testing indicates only very minor differences in weights between the two approaches.*

Multi-State Consumer Survey Data

(circa 2022, shows rebates to individuals for plug-in EVs* only)

	CALIFORNIA CLEAN VEHICLE REBATE PROJECT	MOR-EV Massachusetts Offers Rebates for Electric Vehicles	CHEAPR Connecticut Hydrogen and Electric Automobile Purchase Rebate	NEW YORK STATE	**Total**
Vehicle Purchase/ Lease Dates	Jan. 2022 – Dec. 2022	Oct. 2021 – Dec. 2022	Jul. 2022 – Jun. 2023	Jan. 2022 – Dec. 2022	Oct. 2021 – Jun. 2023
Survey Responses (total *n*)**	6,674	1,309	958	5,472	14,761
Program Population (*N*)***	33,685	4,551	2,308	27,187	67,731

**Plug-in EVs (PEVs) include PHEVs and BEVs.*

*** Subsequently weighted to represent the program population.*

**** Small numbers of rebated vehicles are not represented in the time frames due to application lags. Numbers may not be exactly comparable due to evolving weighting practices.*

Rebate Influence

Over Time, by Vehicle & Consumer Type, by MSRP, by e-Range

Prior Incentive Influence: Select **Presentations & Video**

- ❖ NY Drive Clean Rebate: Vehicle Replacement & Rebate Influence thru 2022 (2024, Mar.).
- ❖ CVRP 2021 Data Compilation: Incentive Influence and MSRP Considerations (2023, Oct.).
- ❖ NY Drive Clean Rebates: Select Impacts Through 2021
- ❖ Lessons Learned About Electric Vehicle Consumers Who Rated the U.S. Federal Tax Credit 'Extremely Important' (2022, Jun. 15). Paper.
- ❖ Targeting Incentives Cost Effectively: 'Rebate Essential' Consumers in the New York State Electric Vehicle Rebate Program (2022, Jun. 13). Paper.
- Conference video: "HEC 2022 Panel - Electrification and Transportation," opening pres. minutes 2–10; 40-min. panel total, (2022, May). Slides.
- ❖ CVRP 2020 Data Brief: MSRP Considerations (2022, Jul.).
- ❖ CVRP 2020 Data Brief: Incentive Influence (2022, May).
- ❖ CARB Video: "Cost-Effectiveness of Greenhouse Gas Emission Reductions Associated with California's Clean Vehicle Rebate Project in 2019 (and 2020)," time 2:01-2:31, (2022, Feb.). Slides.
- Data from Statewide Electric Vehicle Rebate Programs: Vehicles, Consumers, Impacts, and Effectiveness (2021, Jul.).
- EV Purchase Incentives: Program Design, Outputs, and Outcomes of Four Statewide Programs with a Focus on Massachusetts (2020, Dec.).
- What Vehicles Are Electric Vehicles Replacing and Why? (2019, Nov.).
- Electric Vehicle Incentives and Policies (2019, Nov.).
- Proposed FY 2019–20 Funding Plan: Final CVRP Supporting Analysis (2019, Oct).
- Cost-Effectively Targeting EV Outreach and Incentives to "*Rebate-Essential*" Consumers (2018, Oct).
- Targeting EV Consumer Segments & Incentivizing Dealers (2017, Jun.).
- Yale Webinar: "Supporting EV Commercialization with Rebates: Statewide Programs, Vehicle & Consumer Data, and Findings," 58 minutes, (2017, Apr.). Slides.
- Electric Vehicle Rebates in Disadvantaged Communities: Evaluating Progress with Appropriate Comparisons (2016, Oct.)
- Characterizing California Electric Vehicle Consumer Segments (2016).

Reverse chronological as of 3/2024; key sources marked with a diamond bullet. Additional related items.

Prior Incentive Influence Analysis: Select **Publications**

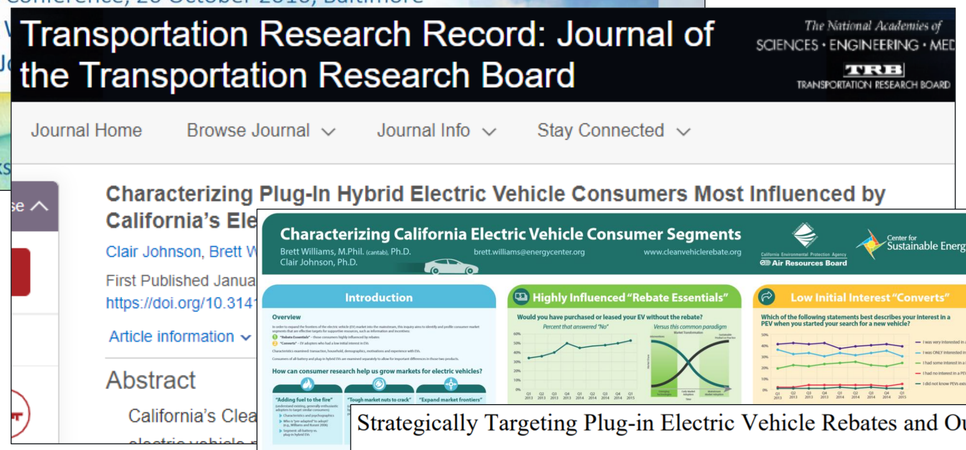
Center for Sustainable Energy™

- ❖ B.D.H. Williams and N. Pallonetti (2023, Mar.), Rebate Influence on Electric Vehicle Adoption in California, *36th International Electric Vehicle Symposium (EVS36)*, EDTA, Sacramento CA, USA. Paper. CSE posting. Precursor slides. Conference slides with updates.
- 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. CSE posting. Precursor slides.
- ❖ 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. CSE posting. Slides.
- N. Pallonetti and B.D.H. Williams (2023, Feb.), *CVRP Greenhouse Gas Emission Reductions and Cost-Effectiveness: 2020 Purchases/Leases*, Clean Vehicle Rebate Project. DOI: 10.13140/RG.2.2.21731.12324.
- 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 Transport. Research Board*, 2677, 866–882. DOI: 10.1177/03611981221118537. Data-summary appendix.
- ❖ B.D.H. Williams (2022, Jun.), Targeting Incentives Cost Effectively: "Rebate Essential" Consumers in the New York State Electric Vehicle Rebate Program, *35th International Electric Vehicle Symposium (EVS35)*, AVERE, Oslo, Norway. Paper. Slides.
- ❖ B.D.H. Williams, J.B. Anderson (2022, Jun.), Lessons Learned About Electric Vehicle Consumers Who Found the U.S. Federal Tax Credit Extremely Important in Enabling Their Purchase, *35th International Electric Vehicle Symposium (EVS35),* Oslo, Norway. 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*, Report 21-30, *Clean Transportation Reports*, NYSERDA.
- B.D. Williams, J. Orose, M. Jones, J.B. Anderson (2018, Oct.), Summary of Disadvantaged Community Responses to the Electric Vehicle Consumer Survey, 2013–2015 Edition, Clean Vehicle Rebate Project Report, San Diego CA. DOI: 10.13140/RG.2.2.36500.58243.
- C. Johnson, B.D. Williams, J.B. Anderson, N. Appenzeller (2017, Jun.), Evaluating the Connecticut Dealer Incentive for Electric Vehicle Sales, Center for Sustainable Energy.
- C. Johnson, B.D. Williams (2017, Jan.), Characterizing Plug-In Hybrid Electric Vehicle Consumers Most Influenced by California's Electric Vehicle Rebate, *Transportation Research Record: Journal of the Transport. Research Board,* 2628, 23–31.

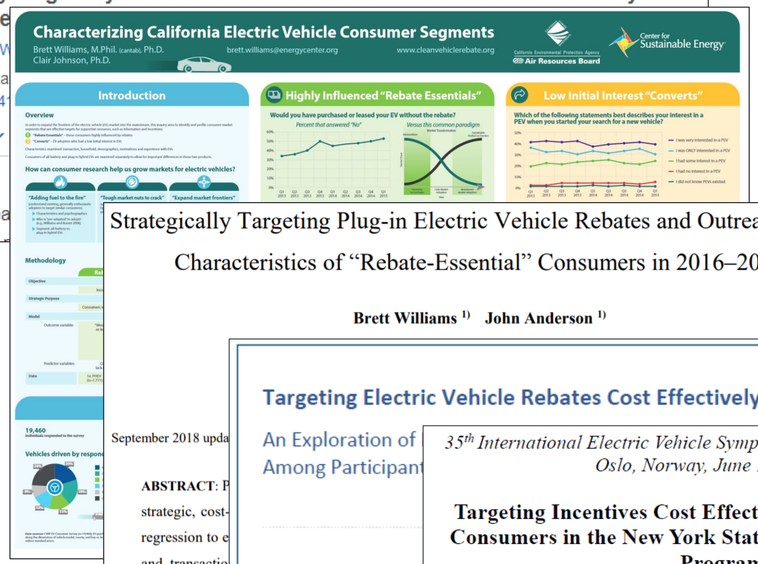
Reverse chronological as of 6/2023; key sources marked with a diamond bullet. Additional related items.

Previous Logistic Regression Work on *Rebate Essentials*: Summary

BECC Conference presentation (Williams & Johnson 2016)



TRR journal article (Johnson and Williams 2017)

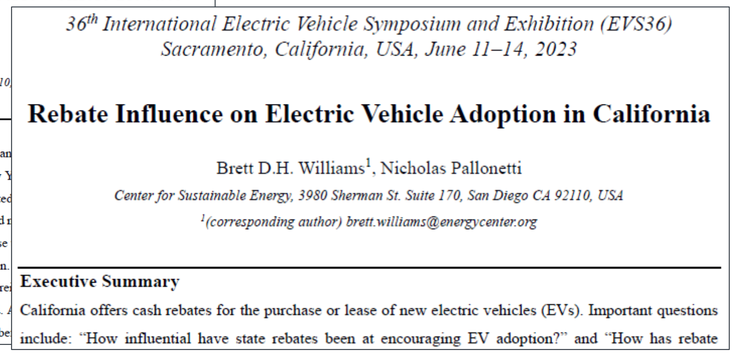


National Academies TRB poster (Williams and Johnson 2017)

EVS 31 paper (Williams & Anderson 2018)

Report for NYSERDA (Williams & Anderson 2021)

EVS 35 paper (NY data) (Williams 2022)



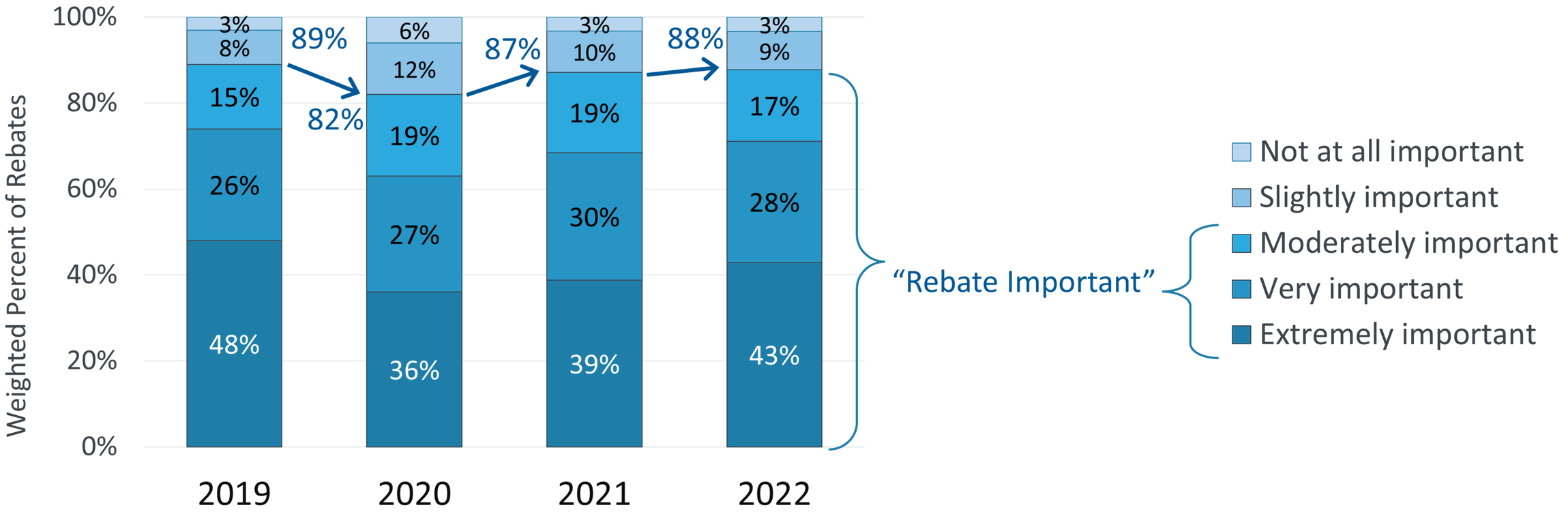
EVS 36 paper
(Williams and Pallonetti 2023)

Rebate Influence Through 2022

Rebate Importance **Continues Bouncing Back from COVID-19**

2019–2022 plug-in EV purchases/leases

How important was the state rebate in making it possible for you to acquire your clean vehicle?



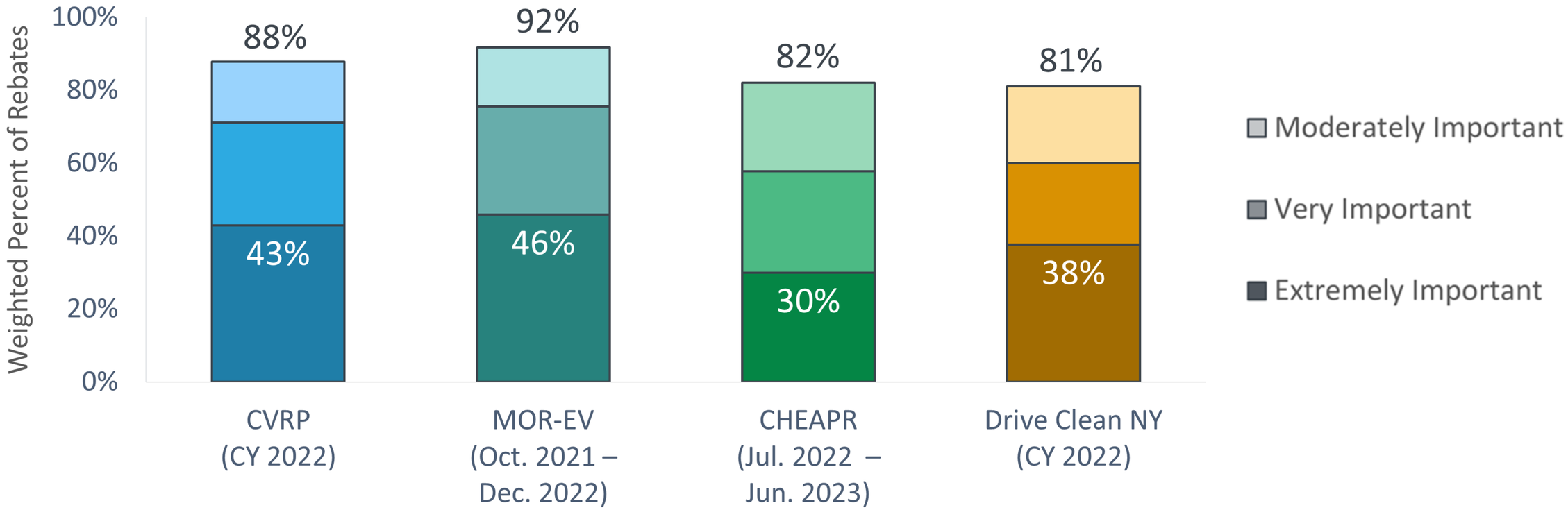
Plug-in EV purchases/leases.

CVRP Consumer Survey, 2017–2020 Edition: 2019 n = 8,875; 2020 n = 4,269. 2020–2022 Interim Dataset: 2021 n = 7,612. 2022 Interim Dataset: 2022 n = 6,599. n-values are filtered and question-specific.

Multi-State Rebate Importance

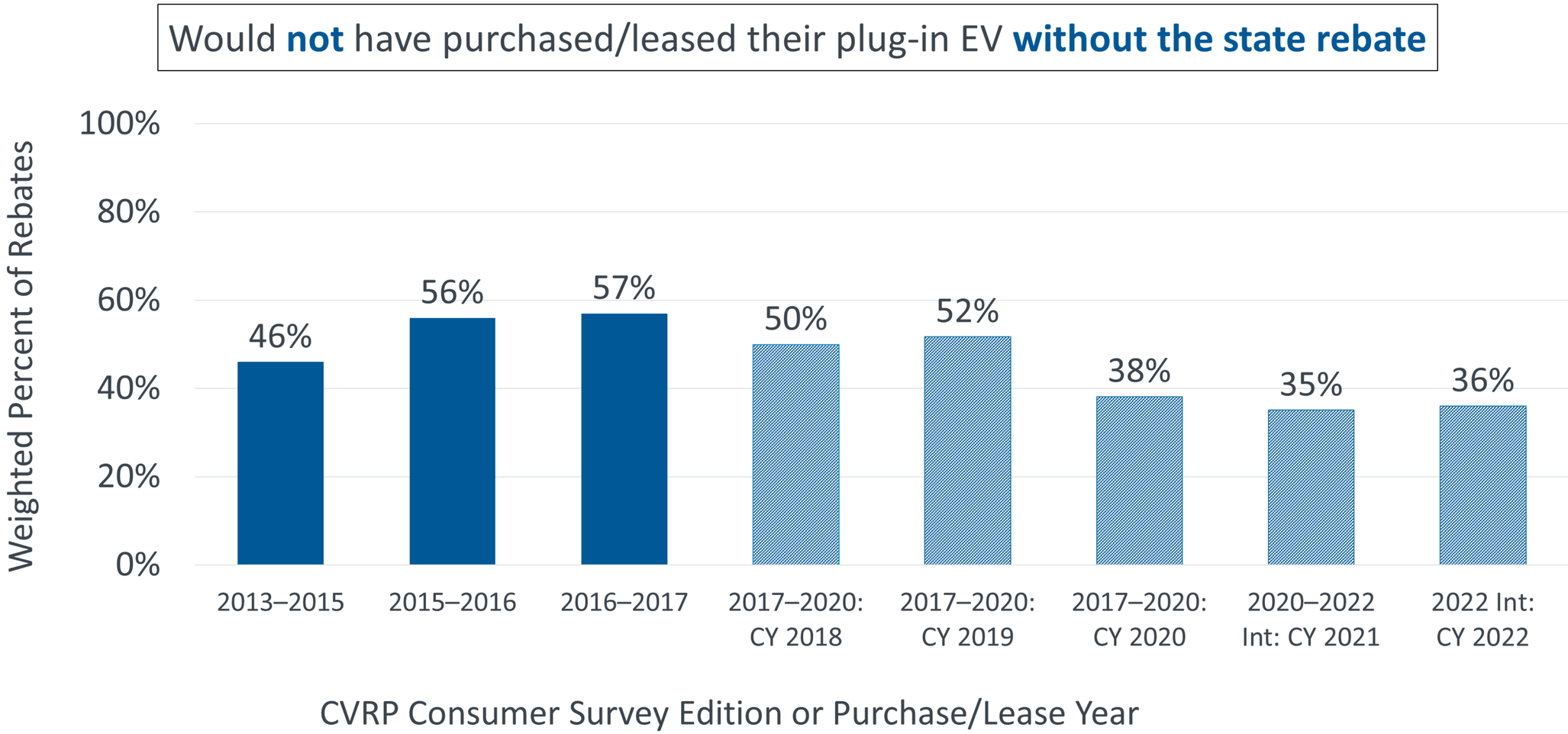
plug-in EV purchases/leases circa 2022

How important was the state rebate in making it possible for you to acquire your clean vehicle?



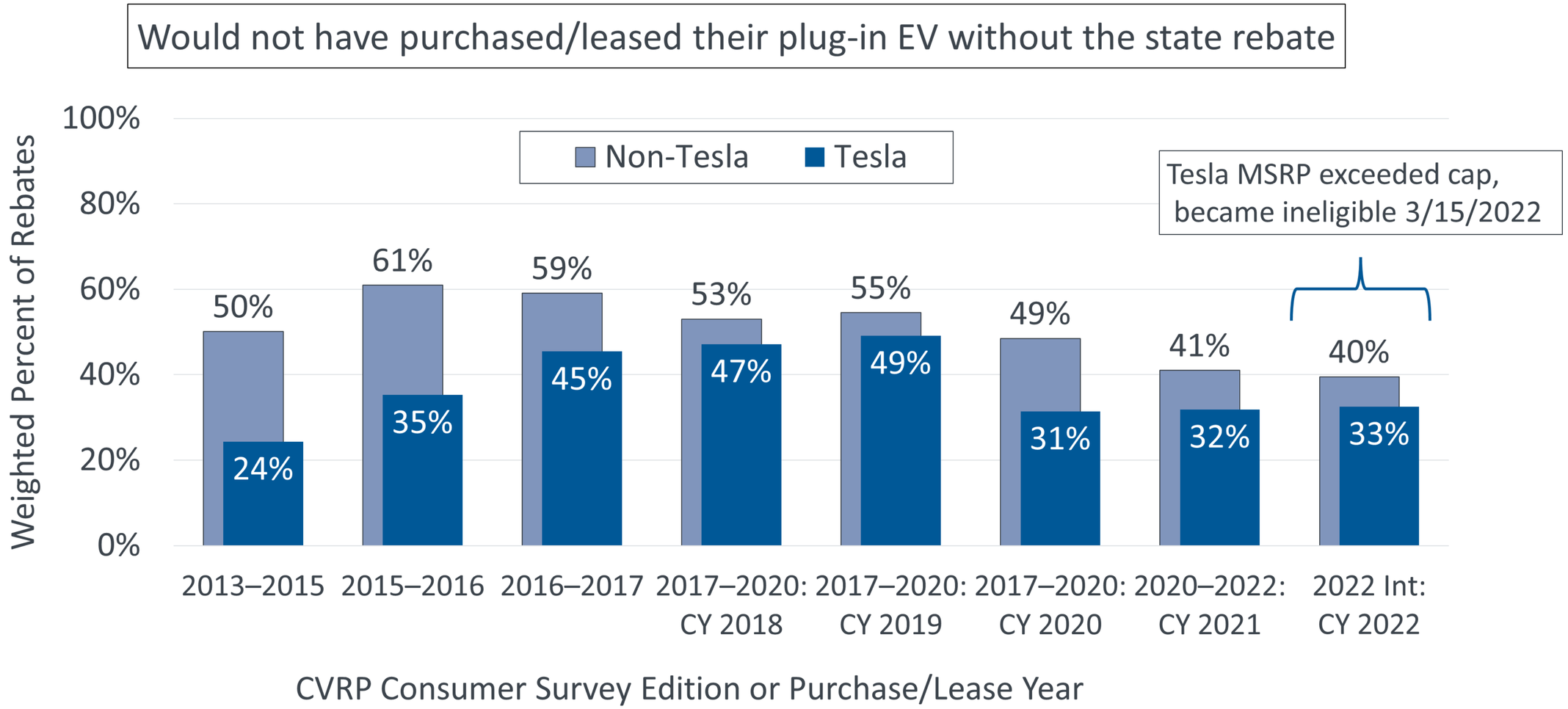
CVRP Consumer Survey: 2022 Interim Dataset. Filtered, question-specific n = 6,599.
MOR-EV Consumer Survey. Filtered, question-specific n = 1,288.
CHEAPR Consumer Survey. Filtered, question-specific n = 931.
Drive Clean NY Adoption Survey. Filtered, question-specific n = 5,274.

Rebate Essentiality Over Time: COVID Effect?



CVRP Consumer Survey, 2013–2015 Edition: n = 19,205. 2015–2016 Edition: n = 11,462. 2016–2017 Edition: n = 8,857.
2017–2020 Edition: CY (calendar year) 2018 n = 14,655; CY 2019 n = 8,929; CY 2020 n = 4,304. 2020–2022 Interim Dataset: CY 2021 n = 7,660.
2022 Interim Dataset: 2022 n = 6,652. n-values are filtered and question-specific.

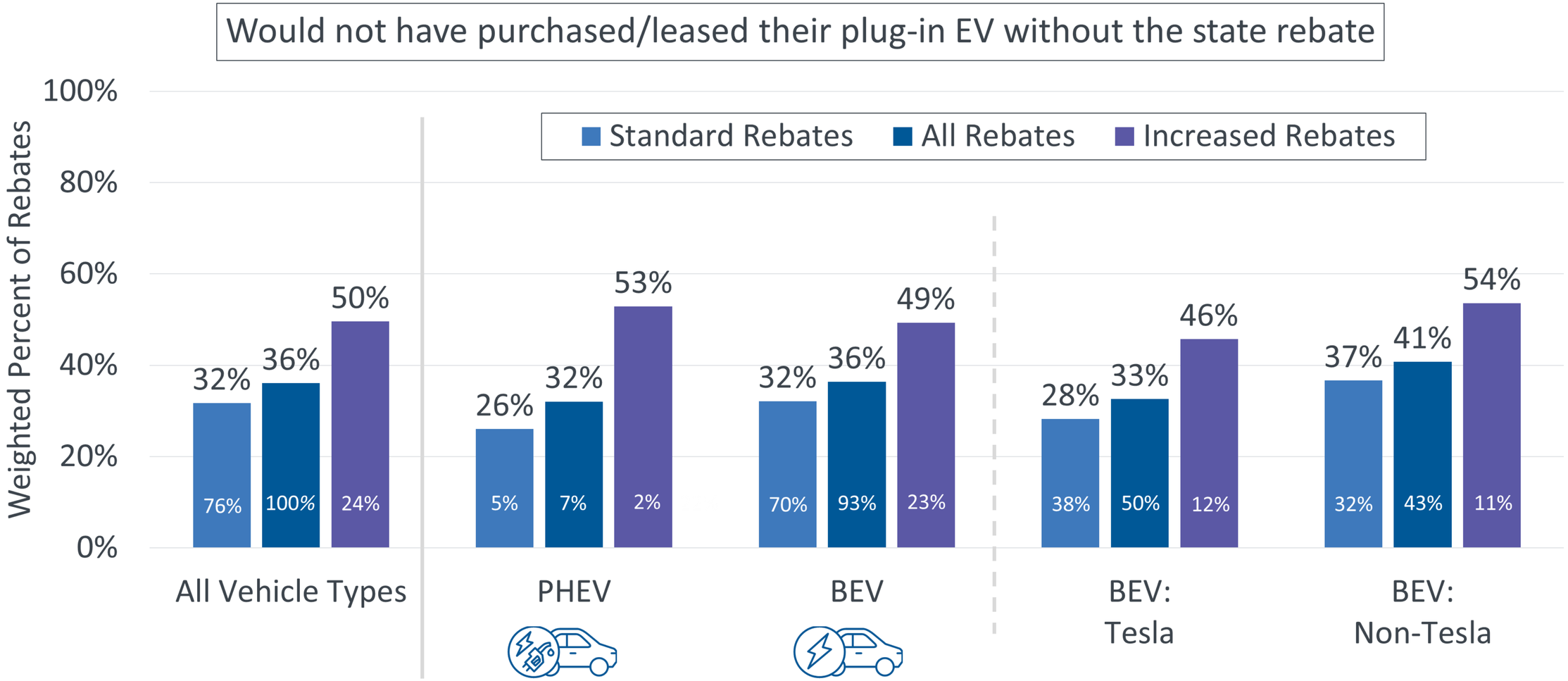
Rebate Essentiality Over Time: **Tesla's Effect**



CVRP Consumer Survey, 2013–2015 Edition: n = 19,205. 2015–2016 Edition: n = 11,462. 2016–2017 Edition: n = 8,857. 2017–2020 Edition: CY (calendar year) 2018 n = 14,655; CY 2019 n = 8,929; CY 2020 n = 4,304. 2020–2022 Interim Dataset: CY 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. n-values are filtered and question-specific.

Rebate Essentiality Overall and by Vehicle and Rebate Type

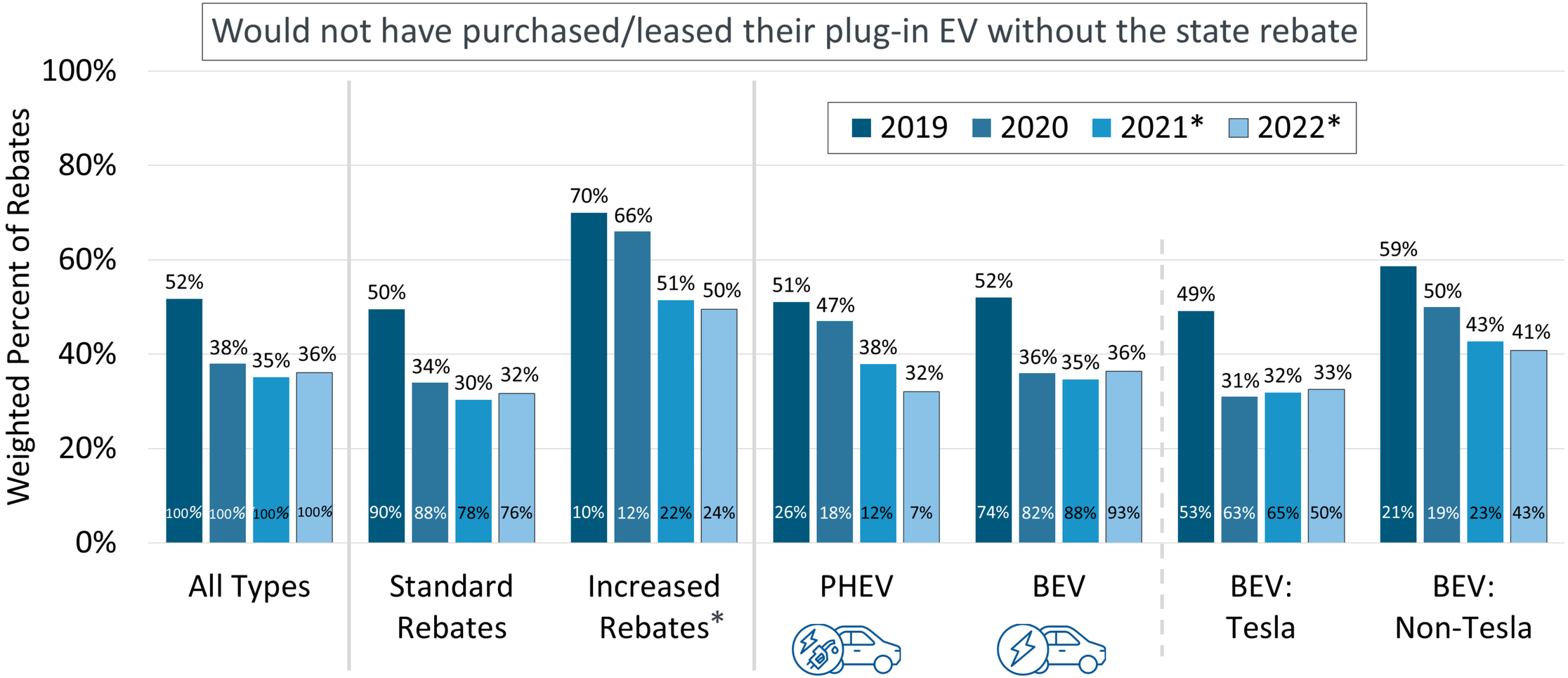
2022 purchases/leases



Rebate Essentiality percentages are calculated using the CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,652.
Percentages in white inside columns indicate the ***portion of a given rebate type (Increased or Standard)*** *given to individual consumers.*

Rebate Essentiality **Over Time**: Overall and by Rebate & Vehicle Type

2019–2022 purchases/leases

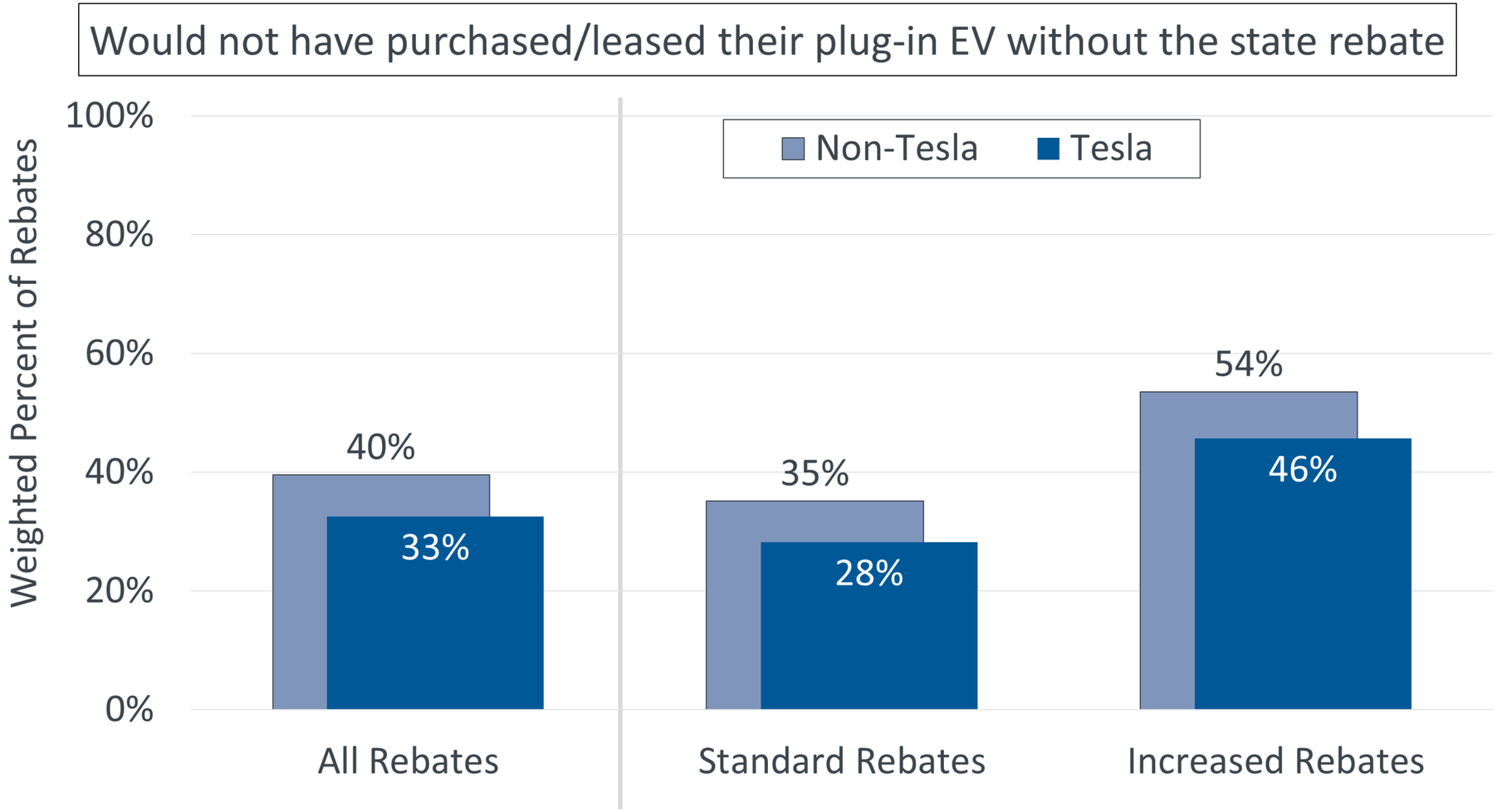


**** Increased Rebate eligibility increased from 300% to 400% of the FPL in 2021.***

*Percentages inside columns are **the portion of total rebates** given to individual consumers. CVRP Consumer Survey, 2017–2020 Edition: 2019 n = 8,929; 2020 n = 4,304. 2020–2022 Interim Dataset: 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. n-values are filtered and question-specific.*

Rebate Essentiality: **Tesla's Effect by Rebate Type**

2022 purchases/leases

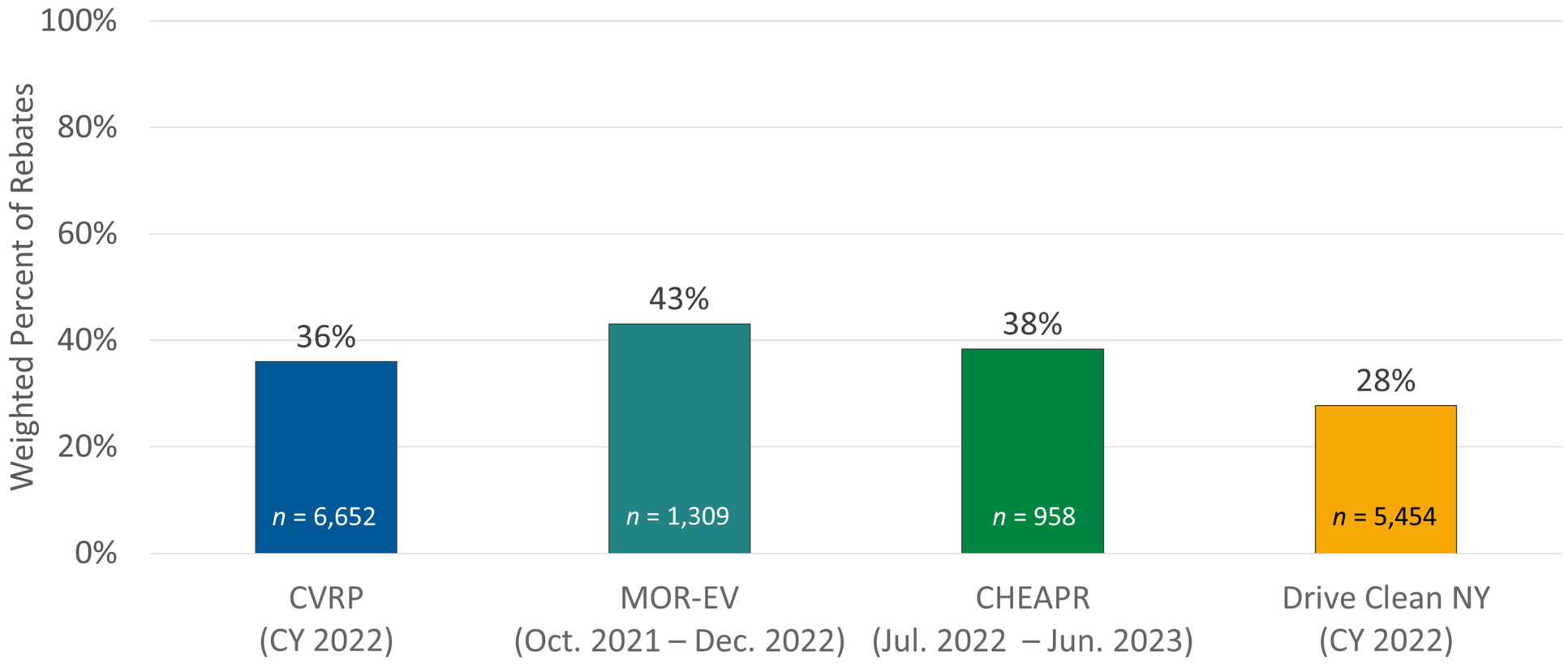


Note: Tesla MSRP exceeded cap, became ineligible 3/15/2022.

CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,652.

Multi-State *Rebate Essentiality*
circa 2022

Would not have purchased/leased their clean vehicle without rebate

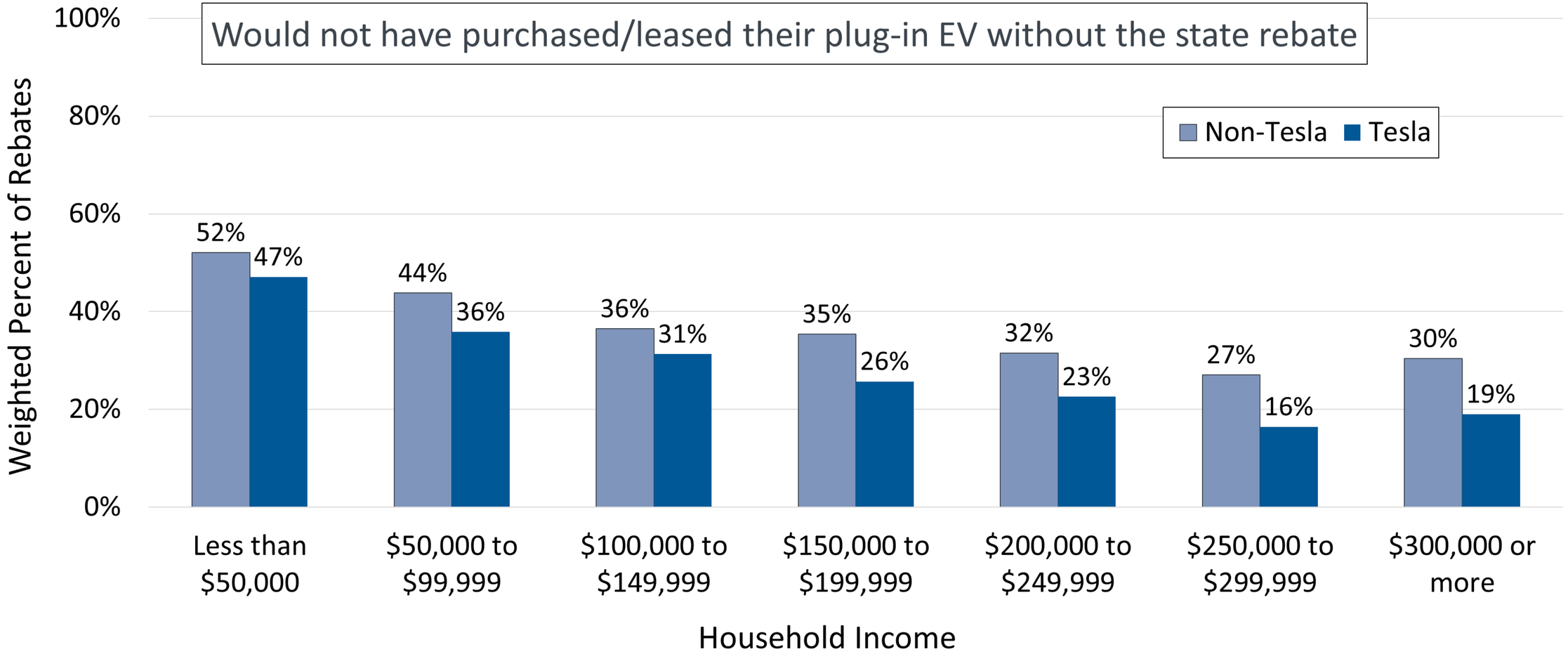


n-values are question-specific.

Overall datasets: 14,761 total survey respondents weighted to represent 67,731 rebate recipients.

Rebate Essentiality Decreases as Income Increases, Lower for Tesla

2022 purchases/leases

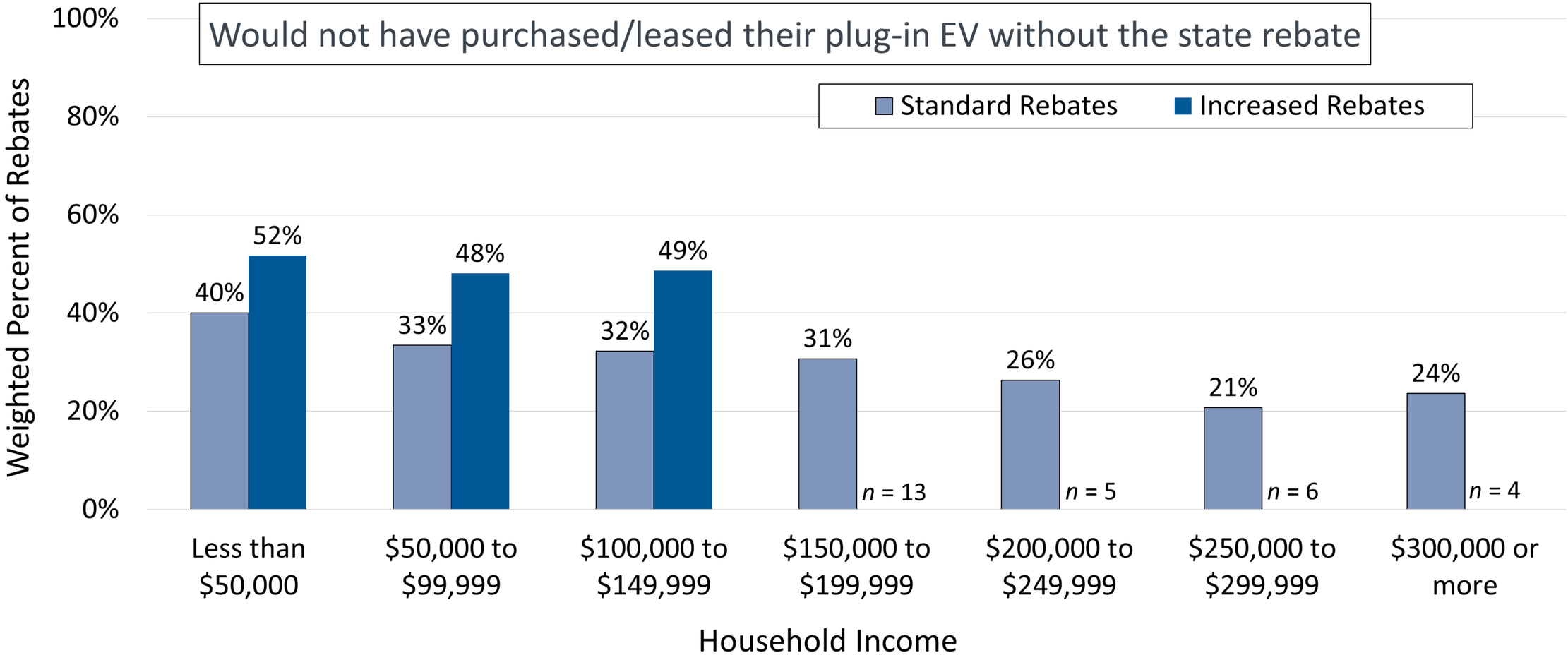


Tesla MSRP exceeded cap, became ineligible 3/15/2022

CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,092.

Rebate Essentiality High for Increased Rebates at all Incomes

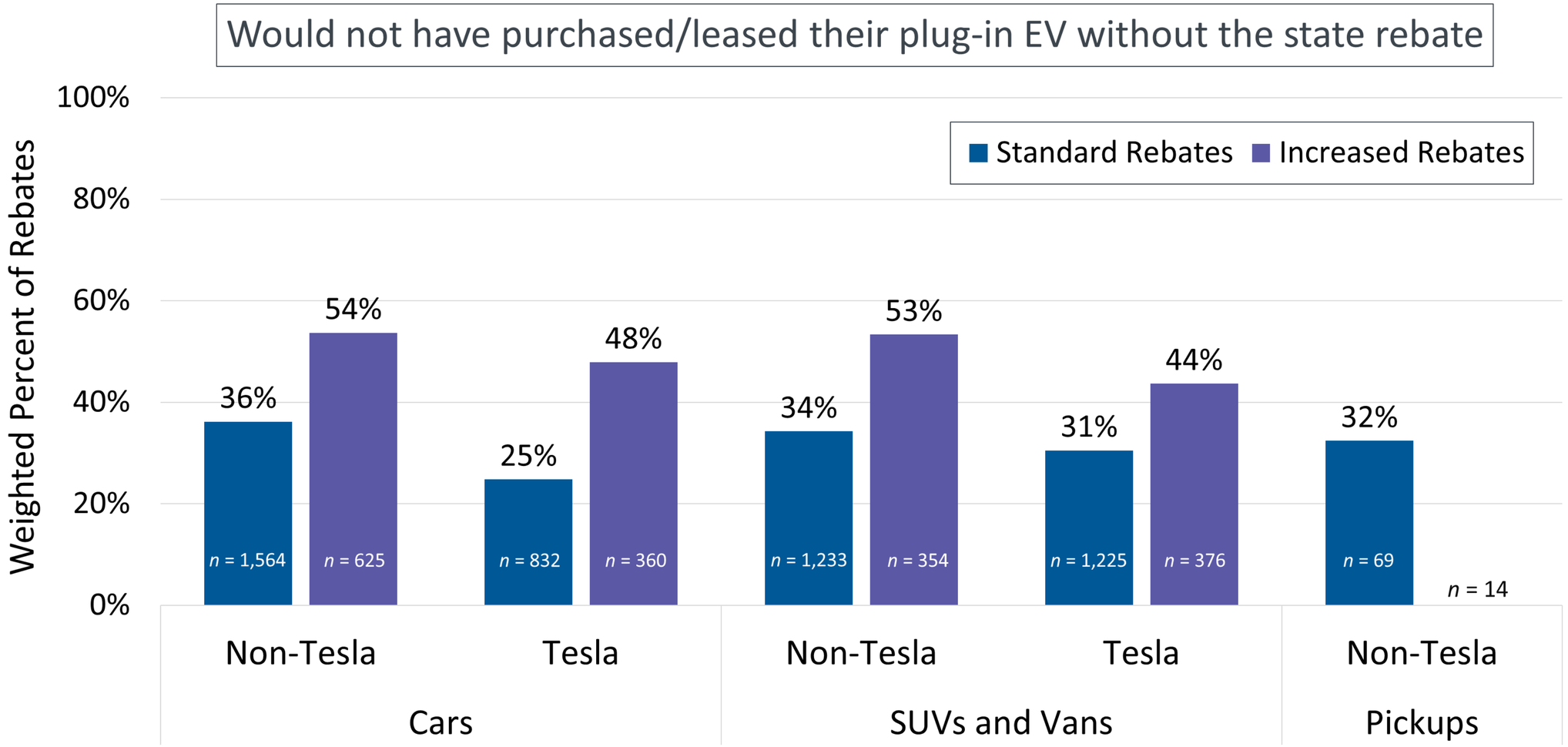
2022 purchases/leases



CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,092.
Results based on n-values < 30 are omitted or highlighted in red throughout.

Rebate Essentiality **Higher for Non-Tesla Vehicles, Increased for Some SUVs**

2022 purchases/leases



Tesla MSRP exceeded cap, became ineligible 3/15/2022

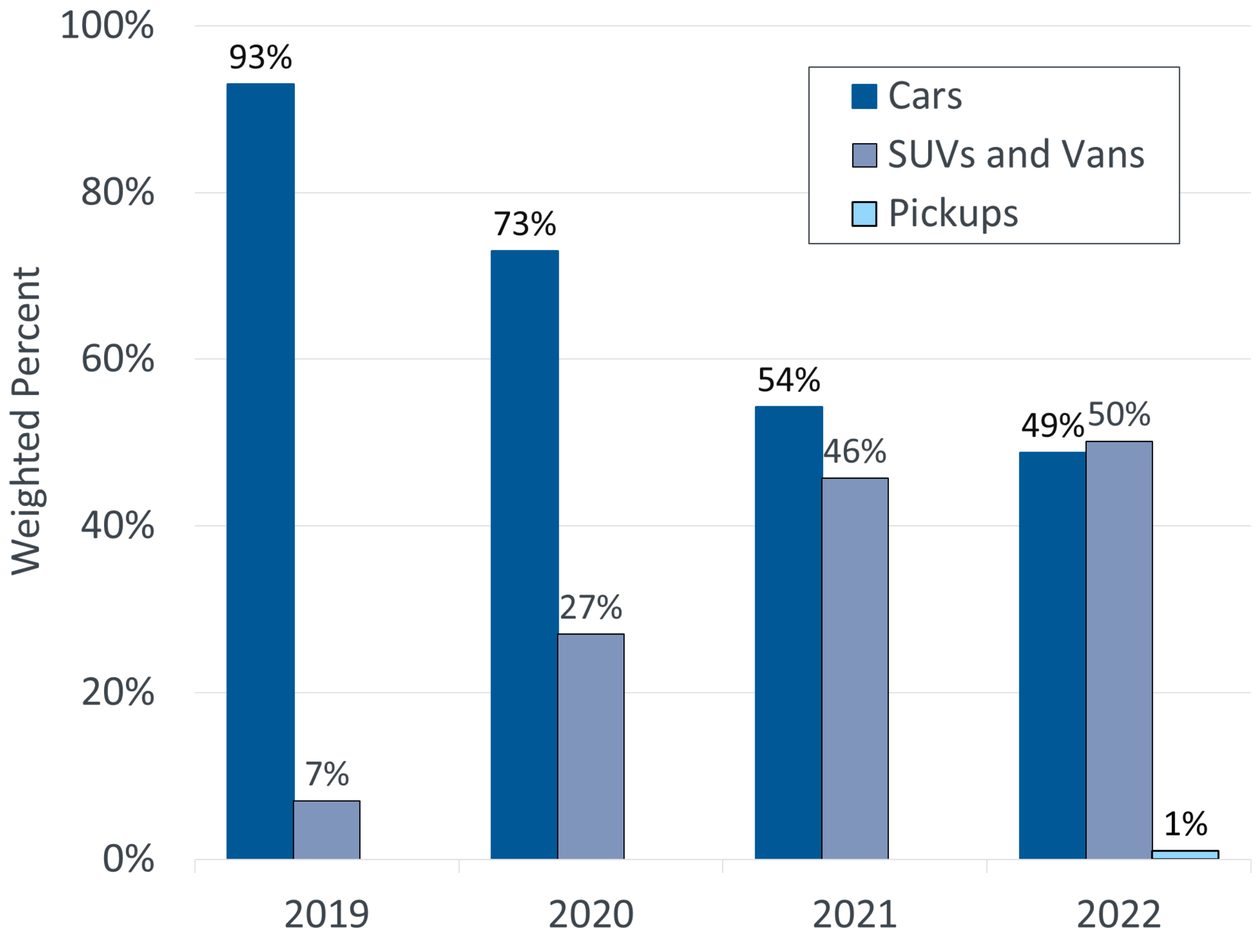
CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,652.

SUVs and Vans Became the Majority for First Time in 2022

Up from 7% in 2019

2022 Plug-In ***Pickups***, **Vans**, and SUVs

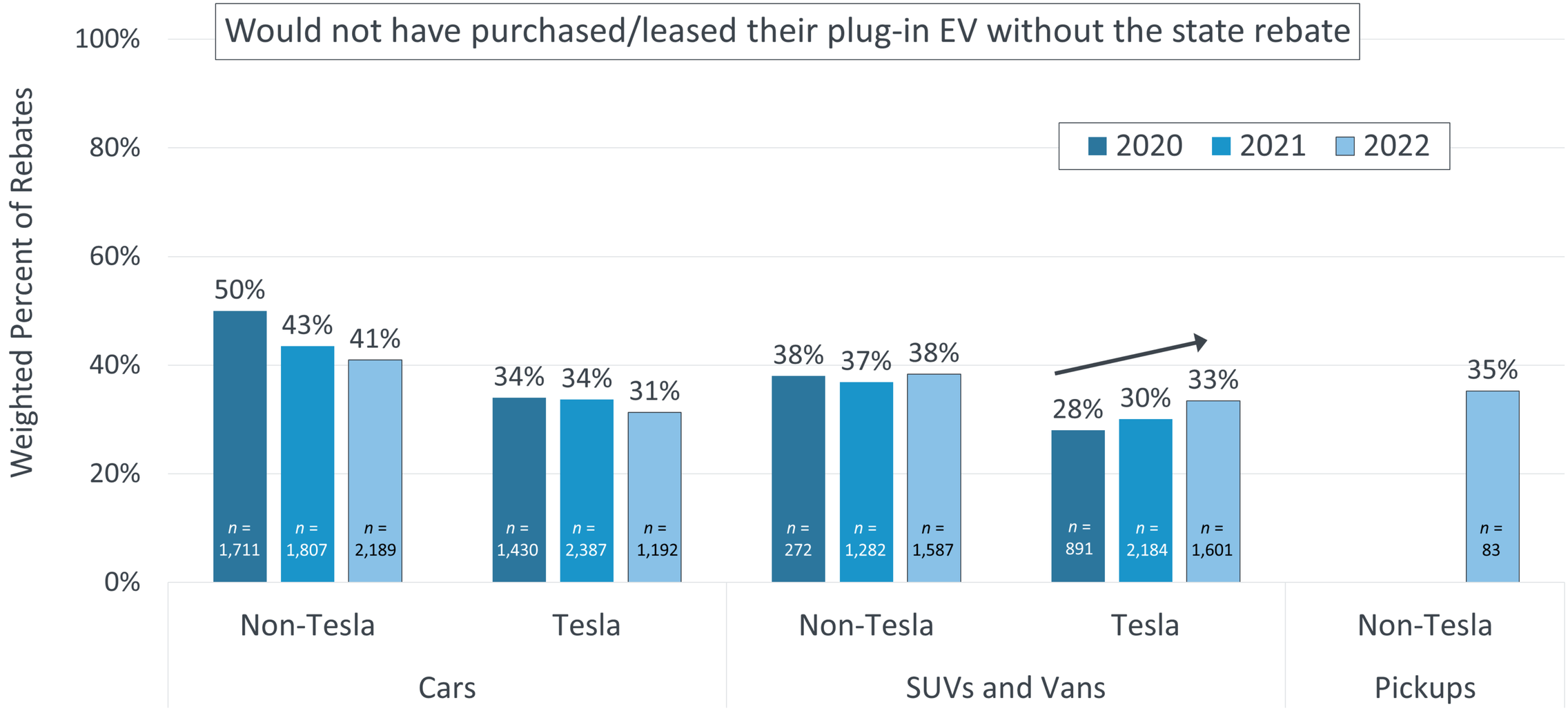
- Audi Q4 e-tron
- Audi Q4 e-tron Sportback Quattro
- Audi Q5 55 TFSI e Quattro PHEV
- **Chrysler Pacifica**
- Ford Escape Plug-In Hybrid
- ***Ford F-150 Lightning***
- Ford Mustang Mach-E
- Hyundai Kona Electric
- Hyundai Santa Fe PHEV
- Hyundai Tucson PHEV
- Kia Sorento PHEV
- Kia Sportage PHEV
- Lexus NX 450h+
- Mercedes Benz EQB 300-4M
- Mercedes Benz EQB 350-4M
- Mitsubishi Outlander PHEV
- Subaru Solterra
- Tesla Model Y
- Toyota bZ4X
- Toyota RAV4 Prime
- Volkswagen ID.4
- Volvo C40 Recharge
- Volvo XC40 Recharge
- Volvo XC60 Extended Range



CVRP Consumer Survey, 2017–2019 Interim Dataset: 2019 n = 6,278. 2017–2020 Edition: 2020 n = 4,331.
2020–2022 Interim Dataset: 2021 n = 7,694. 2022 Interim Dataset: 2022 n = 6,674. n-values are filtered and question-specific.

Rebate Essentiality Over Time: **by Vehicle Class and Tesla vs. Non-Tesla**

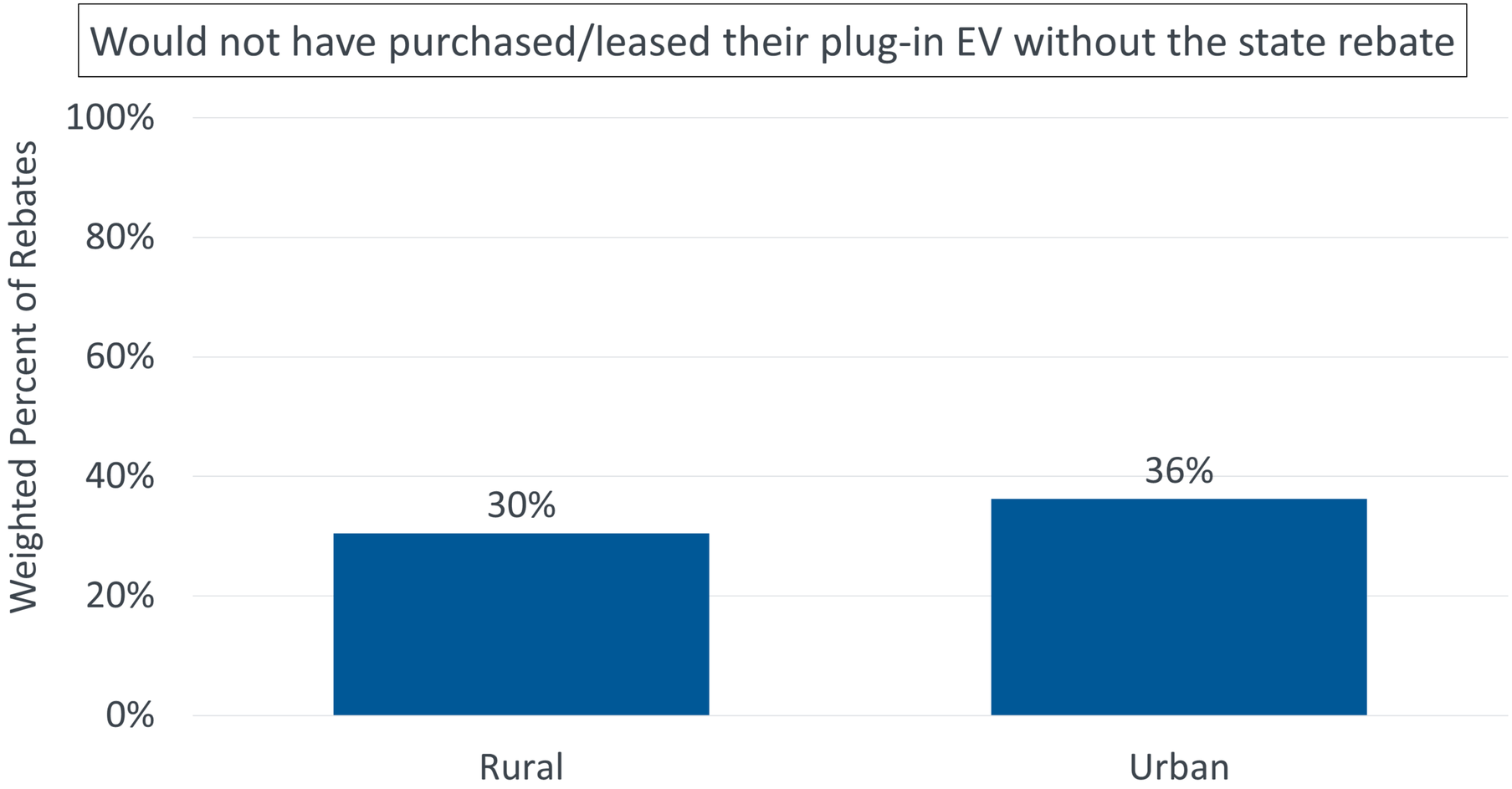
2020–2022 purchases/leases



CVRP Consumer Survey, 2017–2020 Edition: 2020 n = 4,304. 2020–2022 Interim Dataset: 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. Tesla MSRP exceeded cap, became ineligible 3/15/2022. n-values are filtered and question-specific.

Rebate Essentiality Somewhat Higher in Urban Areas than Rural

2022 purchases/leases



CVRP Consumer Survey, 2020–2022 Interim Dataset. Filtered, question-specific n = 6,652.
Urban-Rural classification via 2020 Census Urban Areas.

Rebate Distribution by MSRP

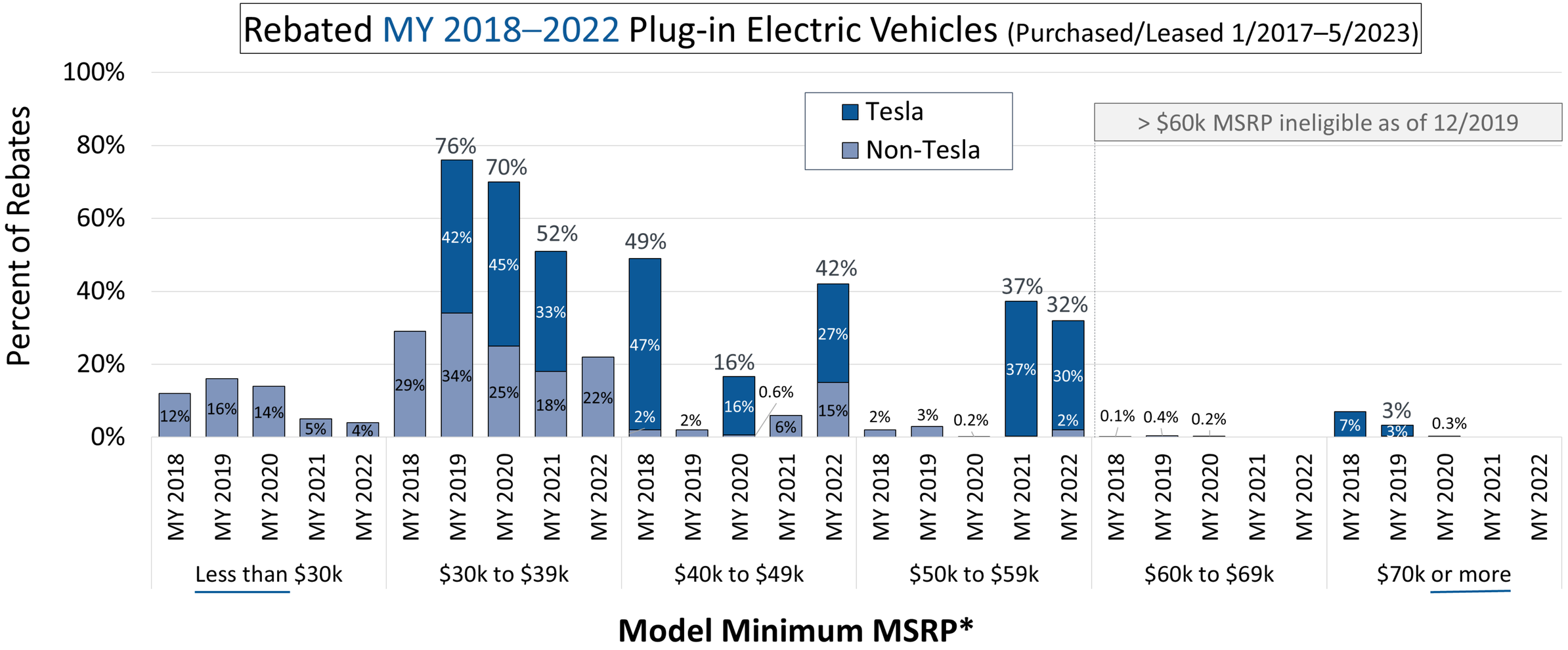
Select State EV Rebate Programs Administered by CSE (in order of launch, as of Dec. 2022)

		CALIFORNIA CLEAN VEHICLE REBATE PROJECT™	MOR-EV Massachusetts Offers Rebates for Electric Vehicles	CHEAPR Connecticut Hydrogen and Electric Automobile Purchase Rebate	NEW YORK STATE
Rebate Amounts	Fuel-Cell EVs	$4,500 (+2,500*)	$3,500	$7,500 (+$2,000*)	≥ 200 e-miles: $2,000 ≥ 40 e-miles: $1,000 < 40 e-miles: $500 Base MSRP > $42k: $500
	All-Battery EVs	$2,000 (+2,500*)	$3,500	$2,250 (+$2,000*)	
	Plug-in Hybrid EVs	$1,000 (+$2,500*)	$1,500	$750 (+$1,500*)	
	Zero-Emission Motorcycles	$750	--	--	--
Program Design Elements	Rebate Adder	*Income-qualified	--	*Qualified by proxy	--
	Point-of-Sale	--	--	Point-of-sale option	Point-of-sale
	Price Cap	Base MSRP: - Large PEVs ≤ $60k - Car PEVs ≤ $45k (as of 2/22)	Purchase price: - PHEVs ≤ $50k - BEVs/FCEVs ≤ $55k	Base MSRP ≤ $50k	Base MSRP > $42k = $500
	E-range Min.	≥ 30 e-miles	≥ 25 e-miles	--	--
	Misc.	Income cap Preapproval option for income-qualified in San Diego County or SJ Valley	--	Used EV program ($7.5k/$3k/$1.125k) $125/$75 dealer sales incentive	--

Electric miles (e-miles) are U.S.-EPA-rated all-electric miles.

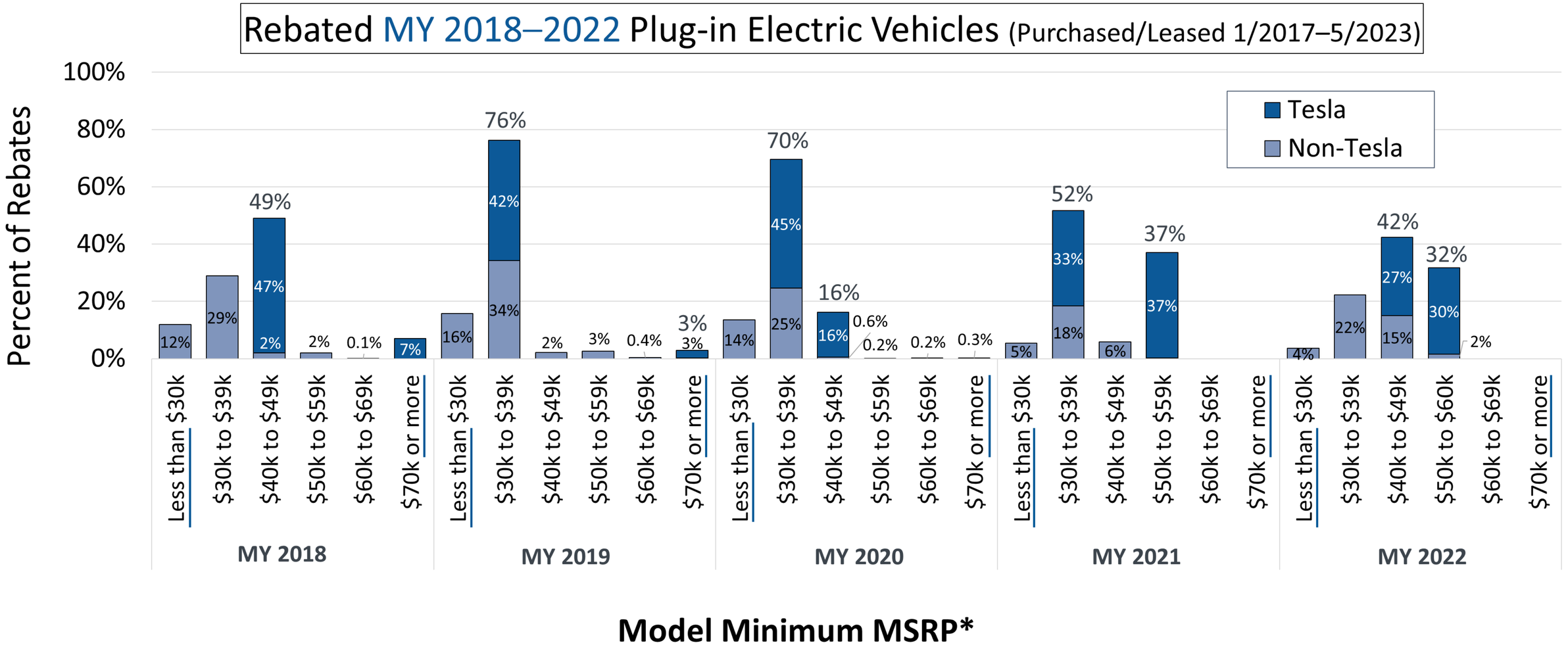
Model-Minimum MSRP by Model Year **Increasing**

Tesla Model Y became popular at high prices



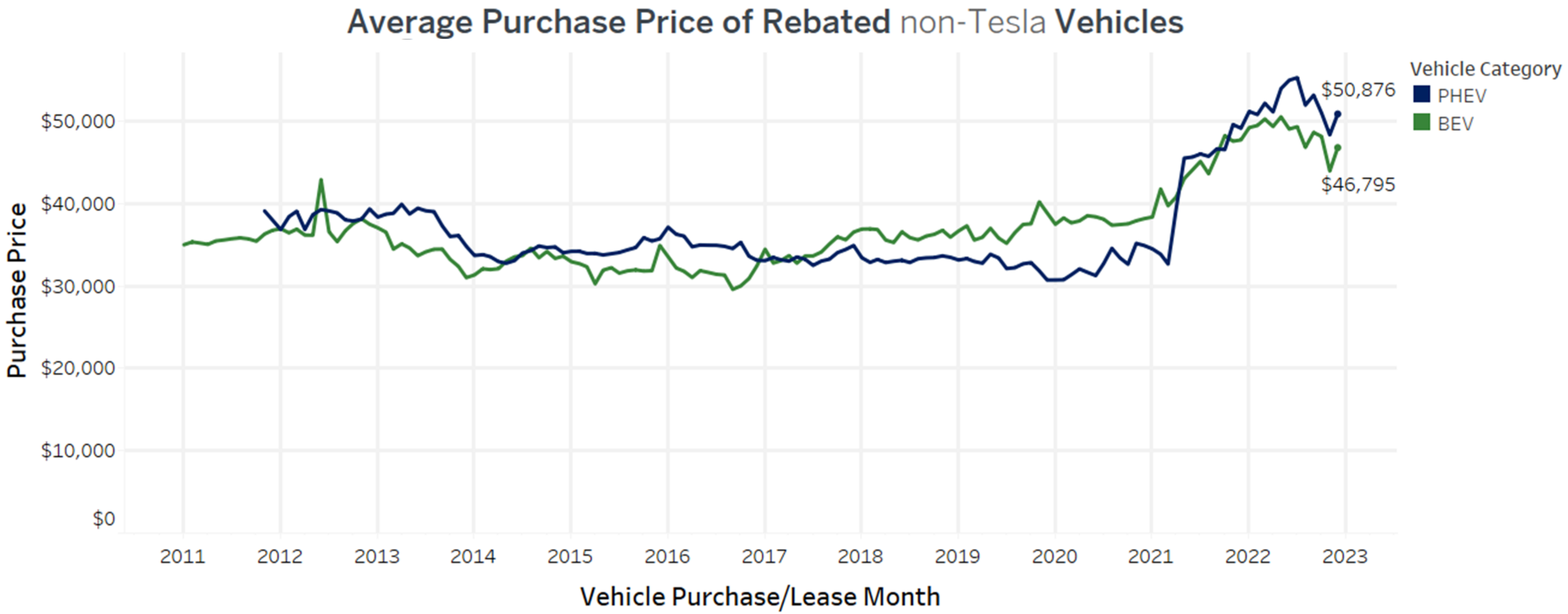
**Does not reflect sales price: Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov. Where MSRPs were unavailable for a given MY, the value for the previous or following MY was used. Tesla MSRPs do change mid-MY: Model 3's assigned $30k to $39k for MYs 2019–2021 and $40k to $49k for MY 2018 and MY 2022; Model Y's assigned $40k to $49k for MY 2020 and $50k to $59k for MYs 2021–2022. MSRP Cap of $60,000 introduced Dec. 2019 and modified Feb. 2022 (see "Program Design Shapes Outcomes" slide for further detail). MY 2018 N = 76,322; MY 2019 N = 55,105; MY 2020 N = 38,122; MY 2021 N = 44,826; MY 2022 N = 35,736.*

Model-Minimum MSRP **Decreased in 2019, Then Increased**
(grouped by model year)



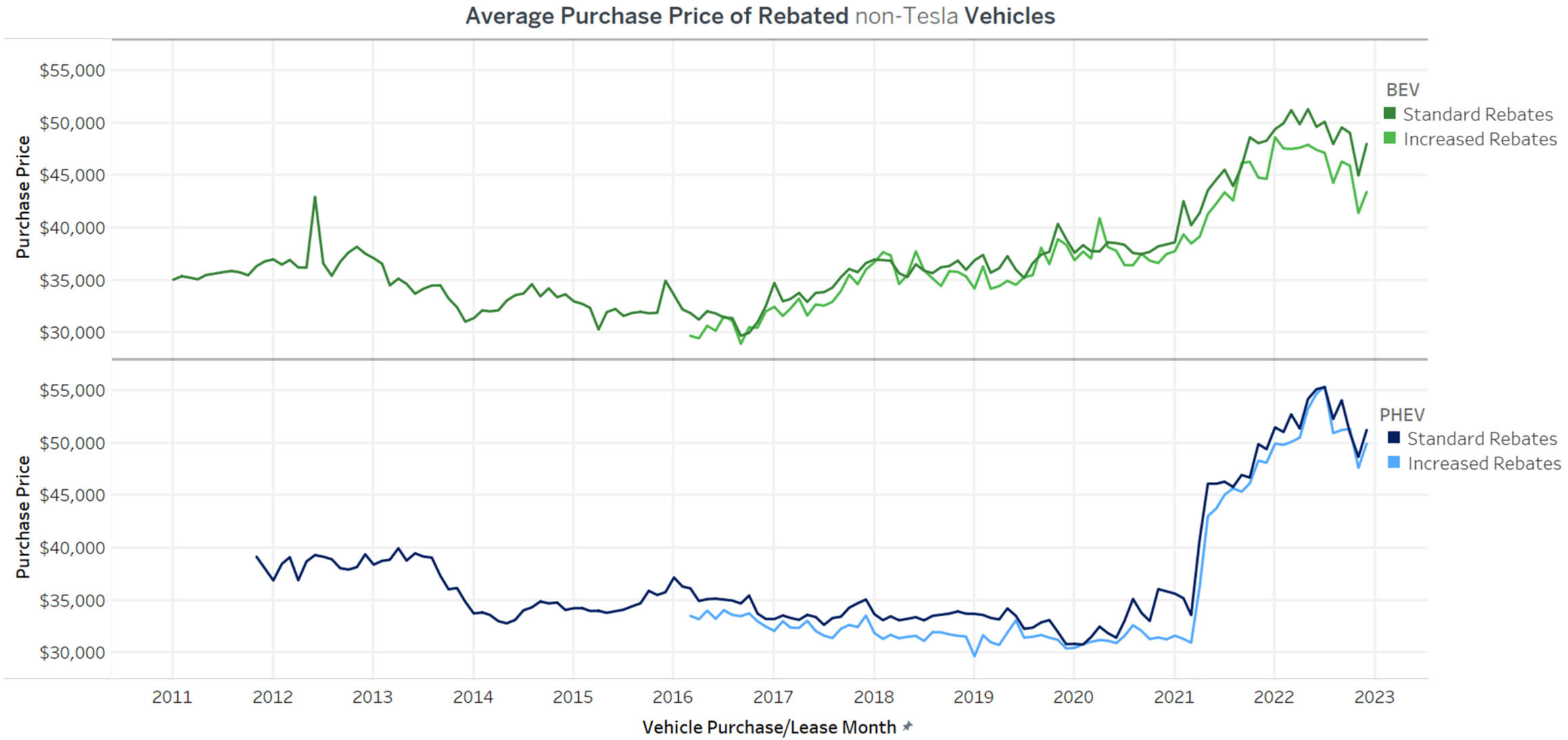
**Does not reflect sales price: Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov. Where MSRPs were unavailable for a given MY, the value for the previous or following MY was used. Tesla MSRPs do change mid-MY: Model 3's assigned $30k to $39k for MYs 2019–2021 and $40k to $49k for MY 2018 and MY 2022; Model Y's assigned $40k to $49k for MY 2020 and $50k to $59k for MYs 2021–2022. MSRP Cap of $60,000 introduced Dec. 2019 and modified Feb. 2022 (see "Program Design Shapes Outcomes" slide for further detail). MY 2018 N = 76,322; MY 2019 N = 55,105; MY 2020 N = 38,122; MY 2021 N = 44,826; MY 2022 N = 35,736.*

Decreasing Manufacturing Costs Don't Always Mean Decreasing Retail Prices



Rebate data as of March 2024.

Decreasing Manufacturing Costs Don't Always Mean Decreasing Retail Prices, for Either a Given Product Or a Consumer Type



Rebate data as of March 2024.

New-Vehicle Average Transaction Price Has Steadily Increased, Converging with non-Tesla EVs

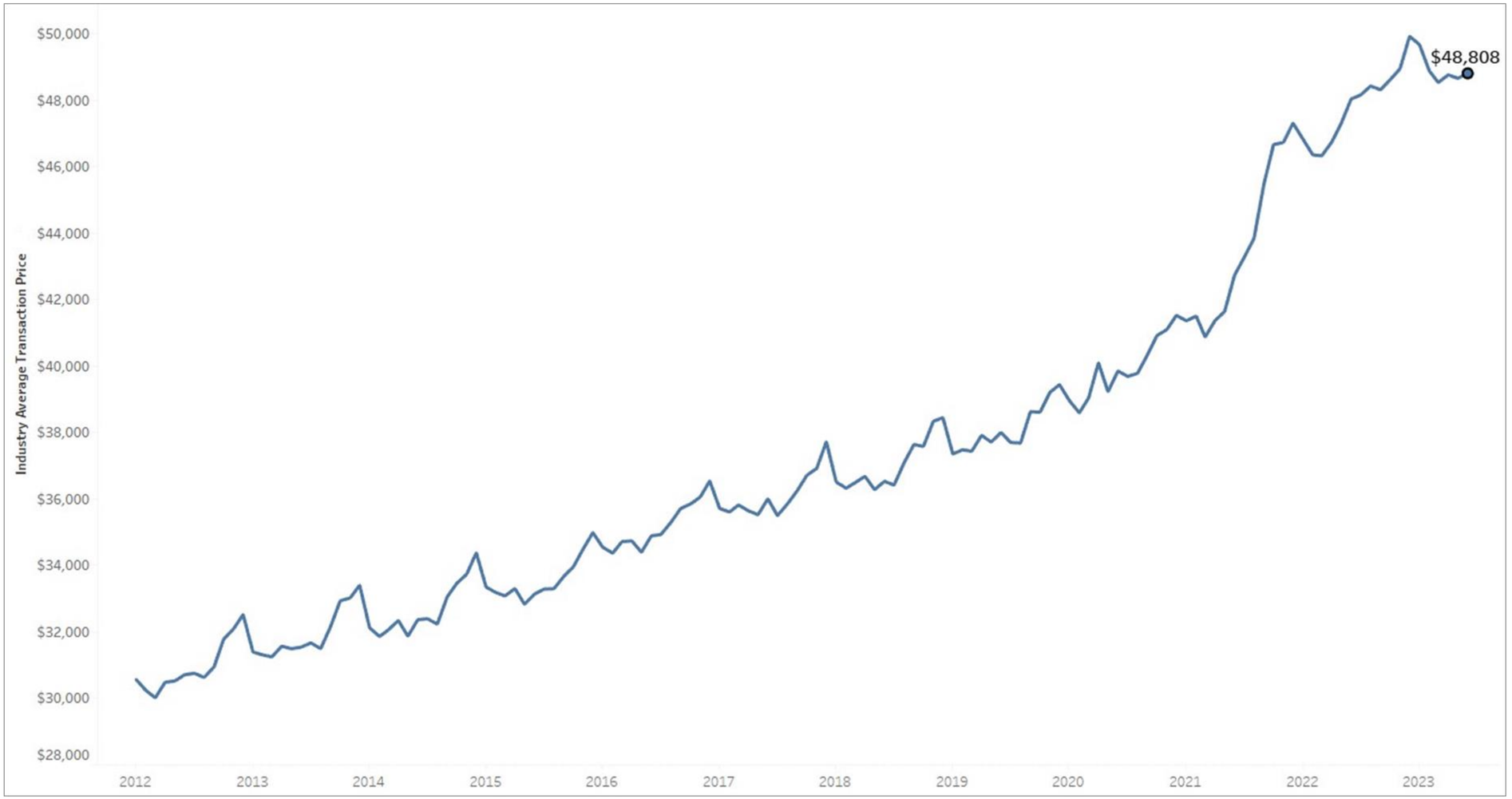


Image source: https://www.coxautoinc.com/market-insights/kbb-atp-june-2023/

Cox Automotive/Moody's Analytics Vehicle Affordability Index: Weeks of Income Needed to Purchase a New Light Vehicle (thru 12/22)

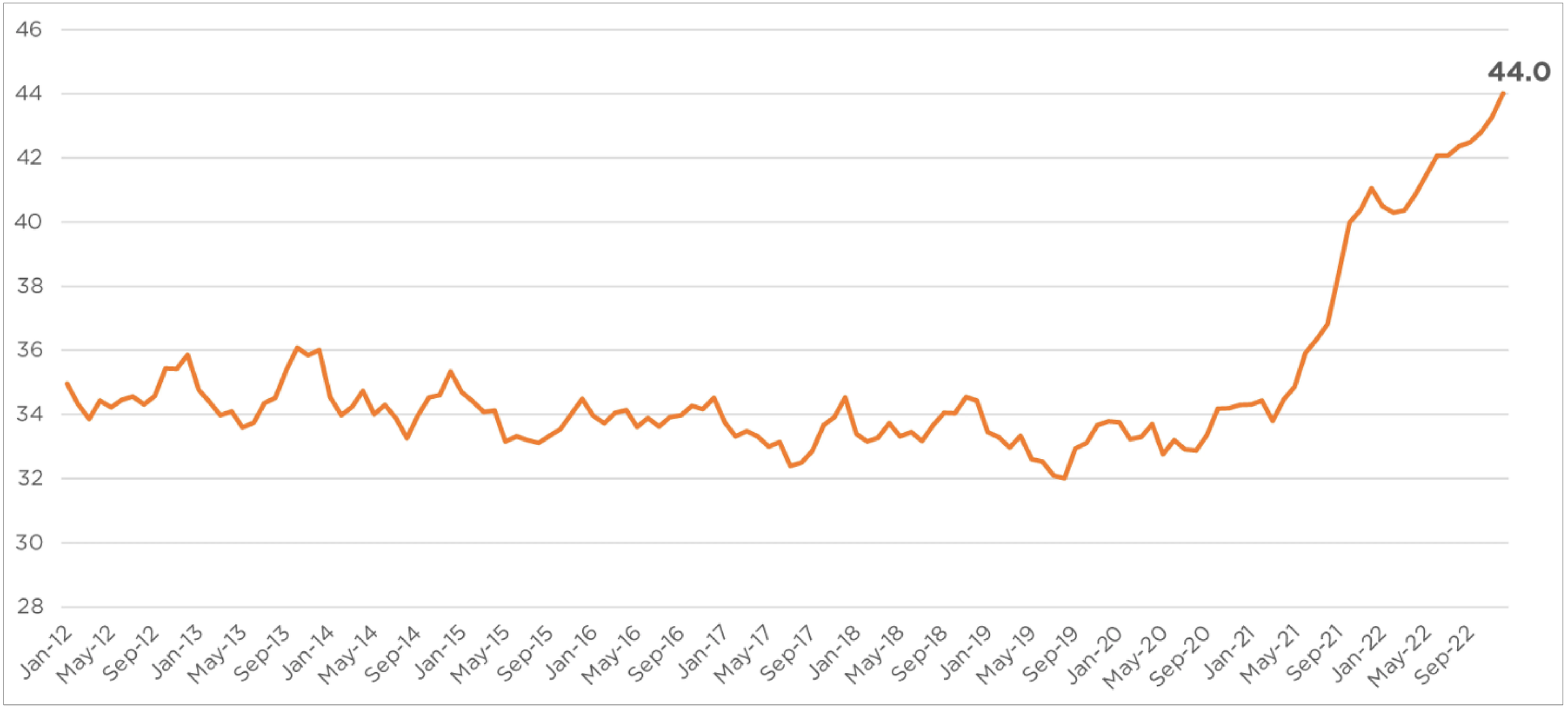


Image source: https://www.coxautoinc.com/market-insights/december-2022-vai/

Rebate Influence by MSRP

MSRP Methodology

2021 & 2022 plug-in EV purchases/leases

Model minimum MSRP:

- Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/model-year (MY) on fueleconomy.gov and does not reflect sale price.
- Where MSRPs were unavailable for a given MY, MSRPs from the previous or following MY were used.

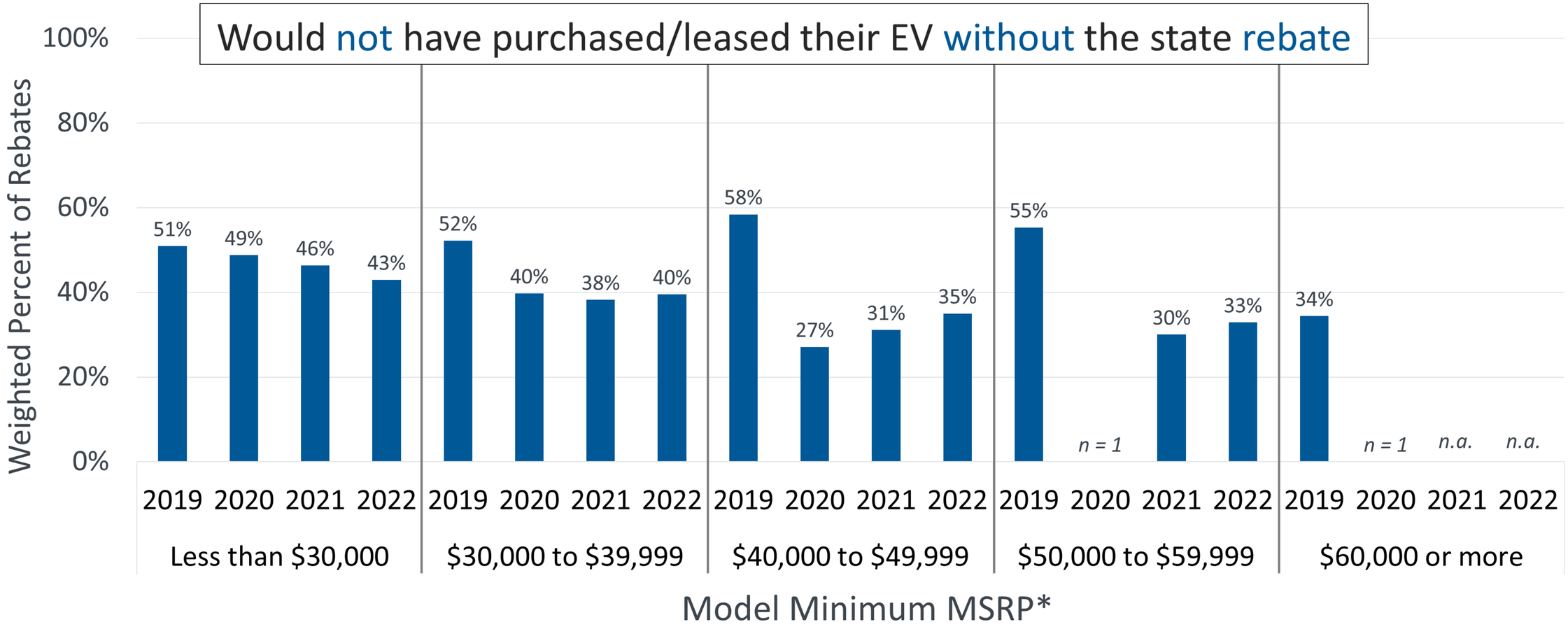
Tesla MSRPs do change mid-MY:

- Tesla Model 3's purchased/leased in 2022 were assigned MSRP = $40,000–$49,999
  - The price increased over the $45k cap for Cars in March 2022
- Tesla Model Y's purchased/leased in 2022 were assigned MSRP = $50,000+
  - The price increased over the $60k cap for Large Vehicles in March 2022
- Tesla Model 3's purchased/leased in 2021 were assigned as follows.
  - MY 2018: $40,000–$49,999
  - MY 2019, 2020, 2021: $30,000–$39,999
    - The price increased to over $40k in October 2021.
  - MY 2022: $40,000–$49,999
- Tesla Model Y's purchased/leased in 2021 were assigned as follows.
  - MY 2020: $40,000–$49,999
  - MY 2021, 2022: $50,000+
    - They were available for less than $50k until at least early April 2021.
      - Including as low as $39,990, as used for MY 2021 when characterizing calendar-year 2020.

Note: MSRP cap modified Feb. 2022 (from cap of $60,000 introduced Dec. 2019) to ≤ $60k for Large Vehicles and ≤ $45k for Cars.
Large Vehicles include minivans, pickups, and SUVs; Cars include all other light-duty classes (e.g., hatchbacks, sedans, wagons, and two-seaters).

Rebate Essentiality Decreased in 2020, Then *Increased* for $40–60k EVs

2019–2022 purchases/leases

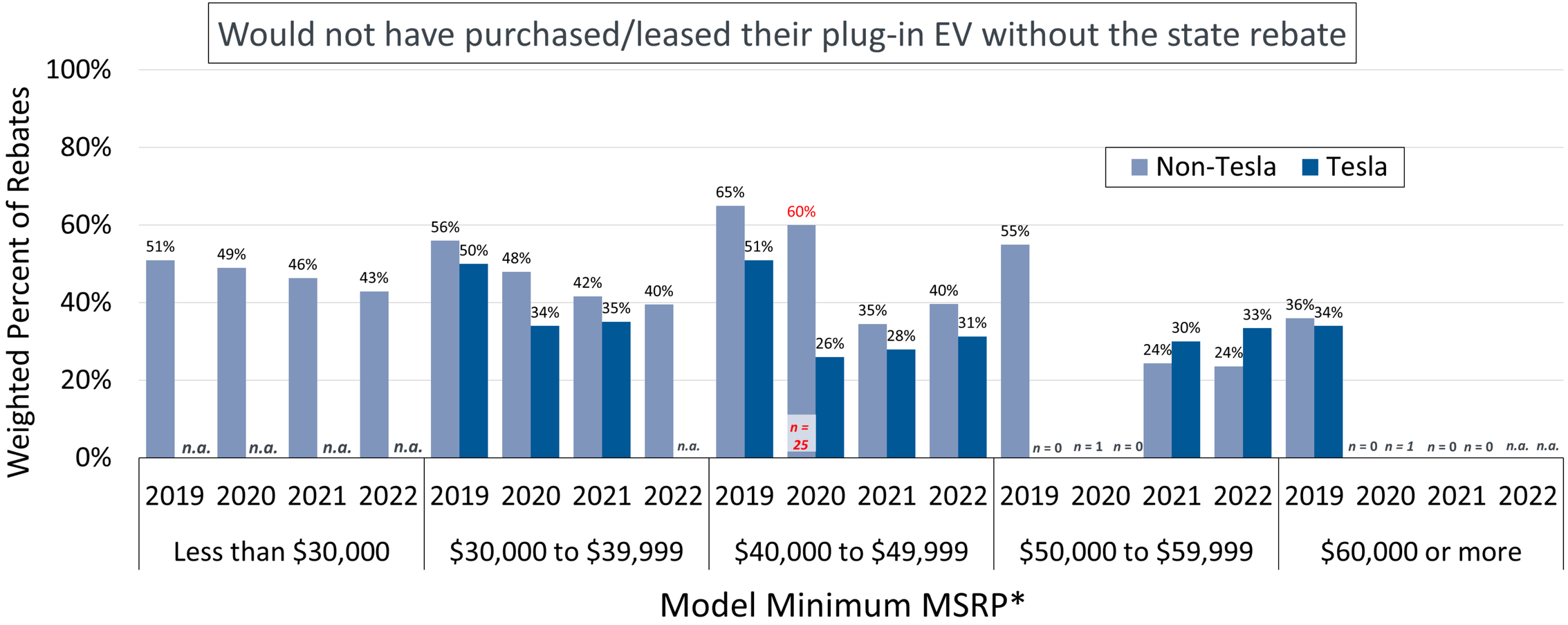


CVRP Consumer Survey, 2017–2020 Edition: 2019 n = 8,929; 2020 n = 4,304. 2020–2022 Interim Dataset: 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. n-values are filtered and question-specific.

Starting 12/2019, PEVs with base MSRP > $60k became ineligible. MSRP cap decreased to $45k for "Cars" starting 2/2022 (see "Program Design" slide for further detail).

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Essentiality by MSRP Over Time: **Non-Tesla vs. Tesla**



CVRP Consumer Survey, 2017–2020 Edition: 2019 n = 8,929; 2020 n = 4,304. 2020–2022 Interim Dataset: 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. n-values are filtered and question-specific.

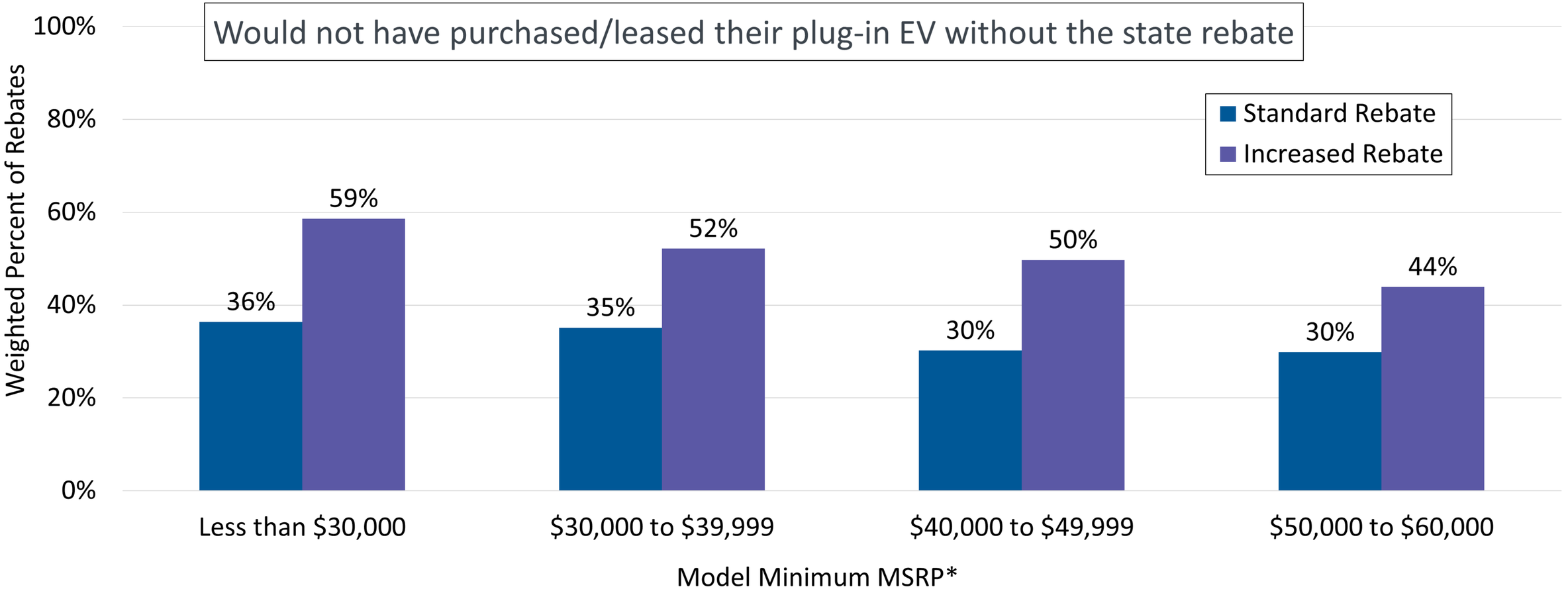
Starting 12/2019, PEVs with base MSRP > $60k became ineligible. MSRP cap decreased to $45k for "Cars" starting 2/2022 (see "Program Design" slide for further detail).

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Influence by MSRP & Rebate Type

Rebate Essentiality decreases with MSRP, **low >$40k for Standard Rebates**

2022 purchases/leases

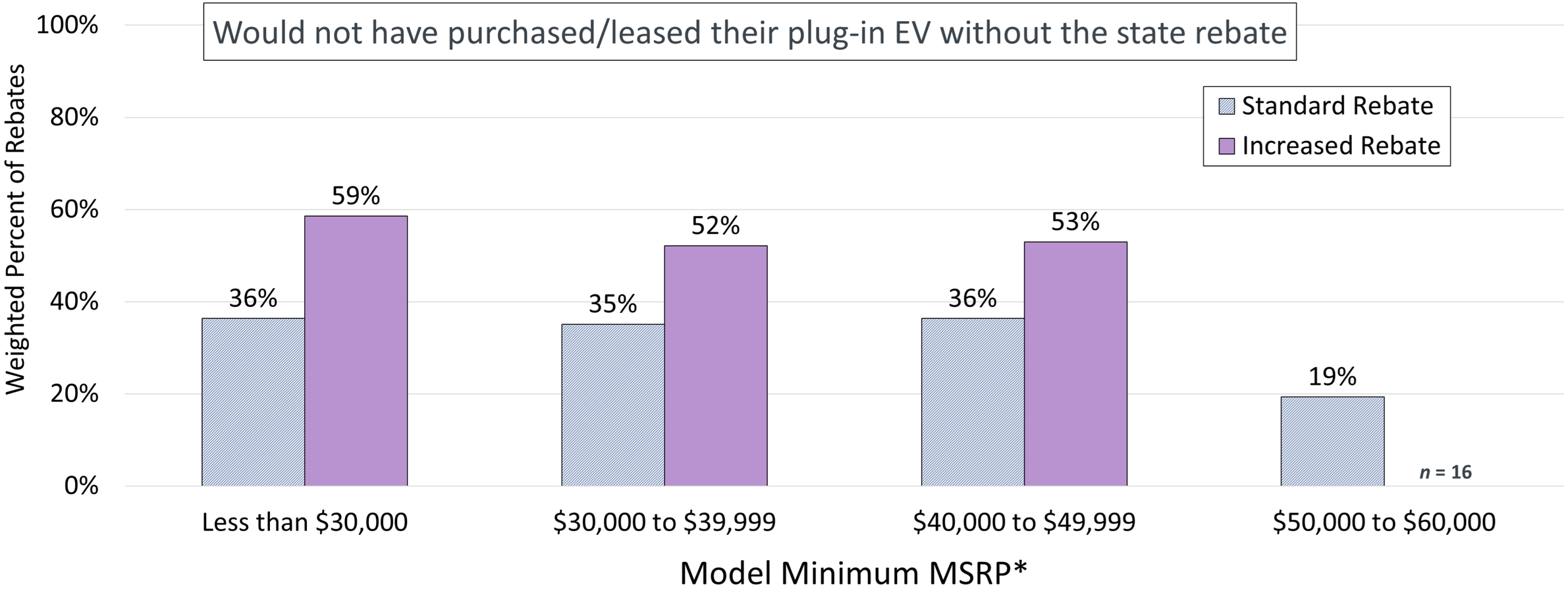


CVRP Consumer Survey, 2022 Interim Dataset: Filtered, question-specific n = 6,652.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Essentiality for Non-Tesla EVs Strong Up to $50k

2022 purchases/leases, **non-Tesla only**



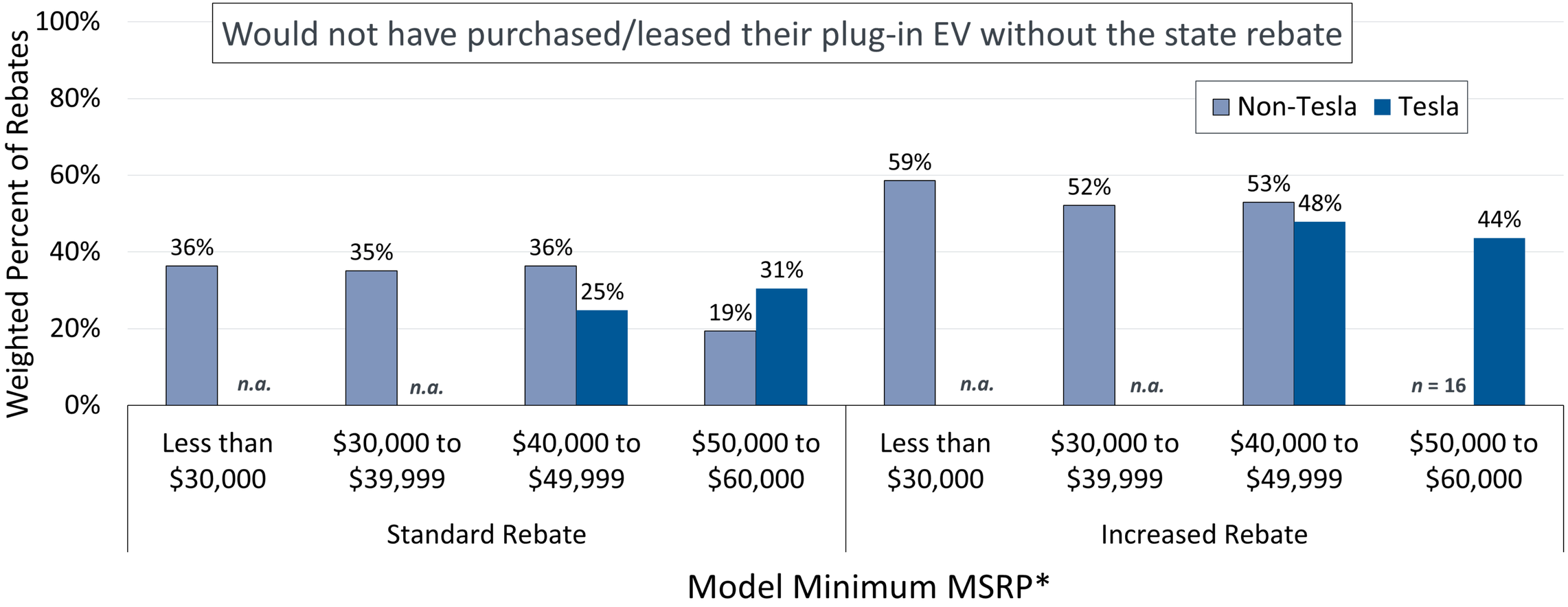
CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 3,859

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Results based on n-values < 30 are omitted or highlighted in red throughout.

Rebate Essentiality by MSRP & Rebate Type: **Non-Tesla vs. Tesla**

2022 purchases/leases



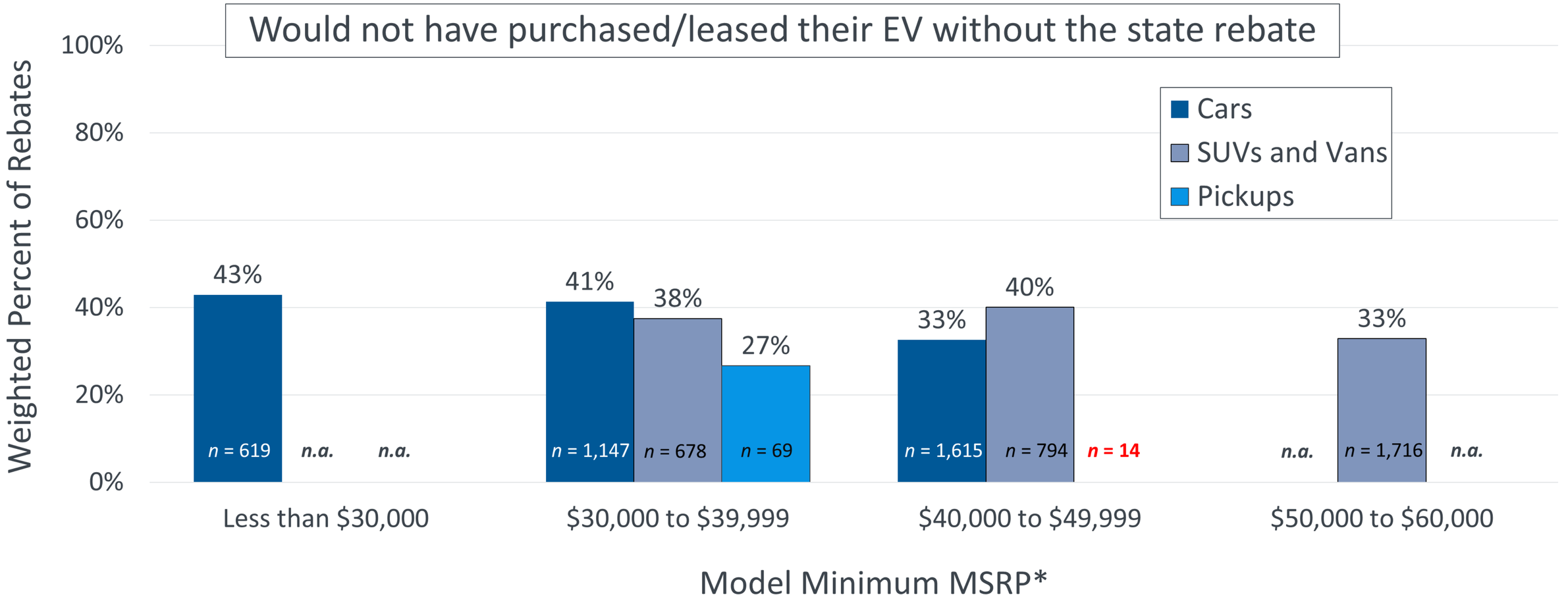
CVRP Consumer Survey, 2022 Interim Dataset: Filtered, question-specific n = 6,652.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Influence by MSRP & Vehicle Type

Rebate Essentiality by MSRP & **Vehicle Type**

2022 plug-in EV purchases/leases

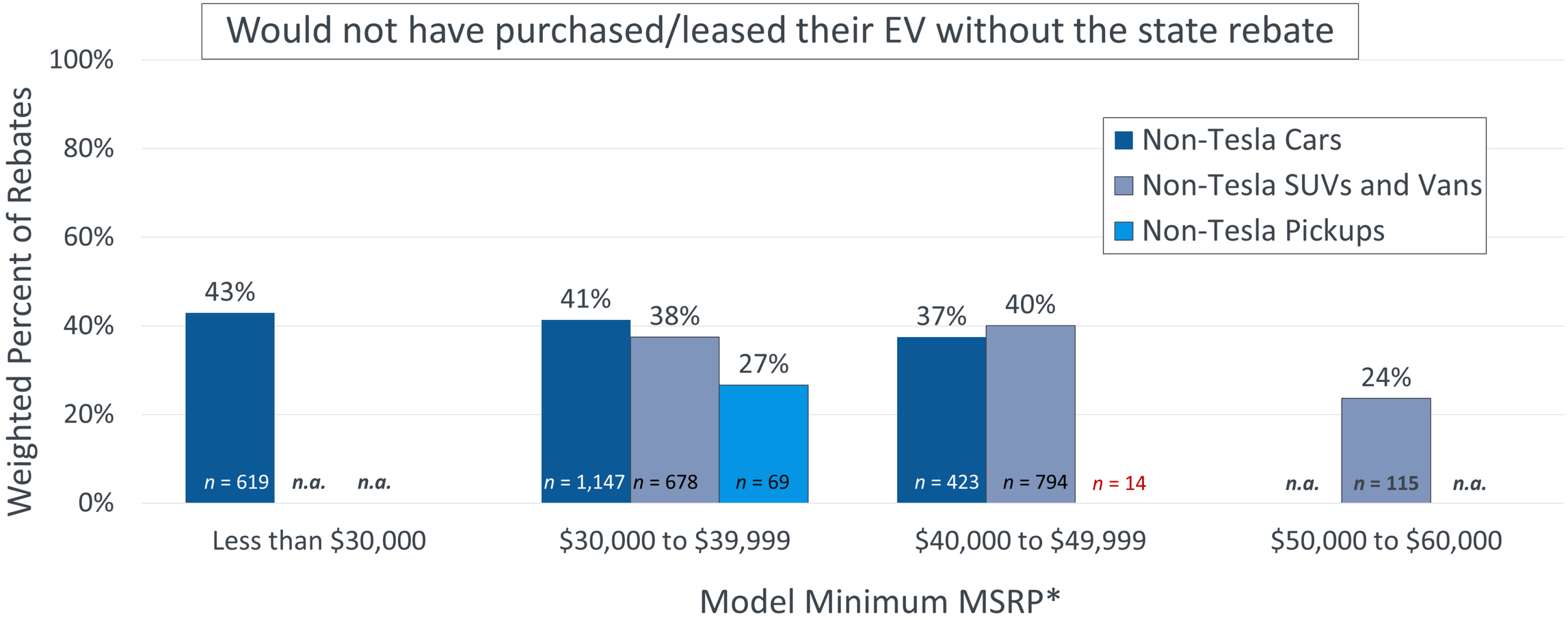


CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,652.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Essentiality for Non-Tesla Cars & SUVs Strong Up to $50k

2022 purchases/leases, **non-Tesla only**

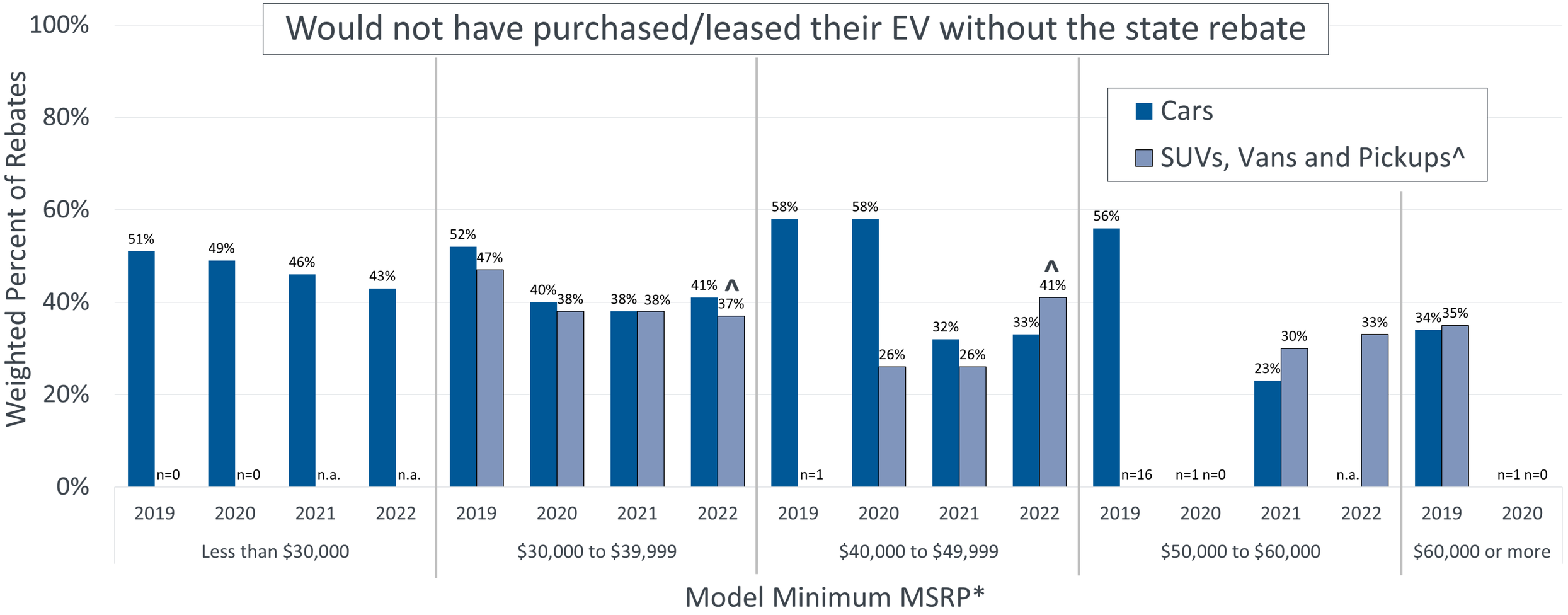


CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 3,859.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Essentiality Has Decreased for Cars, Increased for Luxury non-Cars

2019–2022 plug-in EV purchases/leases



*CVRP Consumer Survey, 2017–2020 Edition: 2019 n = 8,929; 2020 n = 4,304, 2020–2022 Interim Dataset: 2021 n = 7,660. 2022 Interim Dataset: 2022 n = 6,652. n-values are filtered, and question-specific. ^ Pickups only available in 2022. * Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Influence by MSRP & Income

Rebate Essentiality by Income and MSRP: It's A Bit Complicated

2022 plug-in EV purchases/leases

Model Minimum MSRP*

Income	Less than $30,000	$30,000 to $39,999	$40,000 to $49,999	$50,000 to $60,000
Less than $100,000	45%	45%	43%	38%
$100,000 to $199,999	44%	35%	32%	30%
$200,000 to $299,999	28%	35%	20%	25%
Over $300,000	Insufficient Data (I.D.)	I.D.	I.D.	I.D.

CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 6,092. Insufficient Data: cells with n < 30.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Essentiality Higher for Increased Rebates

2022 plug-in EV purchases/leases

Model Minimum MSRP*

Income

Standard Rebate

	Less than $30,000	$30,000 to $39,999	$40,000 to $49,999	$50,000 to $60,000
Less than $100,000	31%	36%	35%	33%
$100,000 to $199,999	39%	34%	31%	29%
$200,000 to $299,999	29%	34%	20%	25%
Over $300,000	Insufficient Data (I.D.)	I.D.	I.D.	I.D.

Increased Rebate

	Less than $30,000	$30,000 to $39,999	$40,000 to $49,999	$50,000 to $60,000
Less than $100,000	55%	54%	51%	43%
$100,000 to $199,999	78% (*n* = 32)	42%	43%	53%
$200,000 to $299,999	Insufficient Data (I.D.)	I.D.	I.D.	I.D.
Over $300,000	I.D.	I.D.	I.D.	I.D.

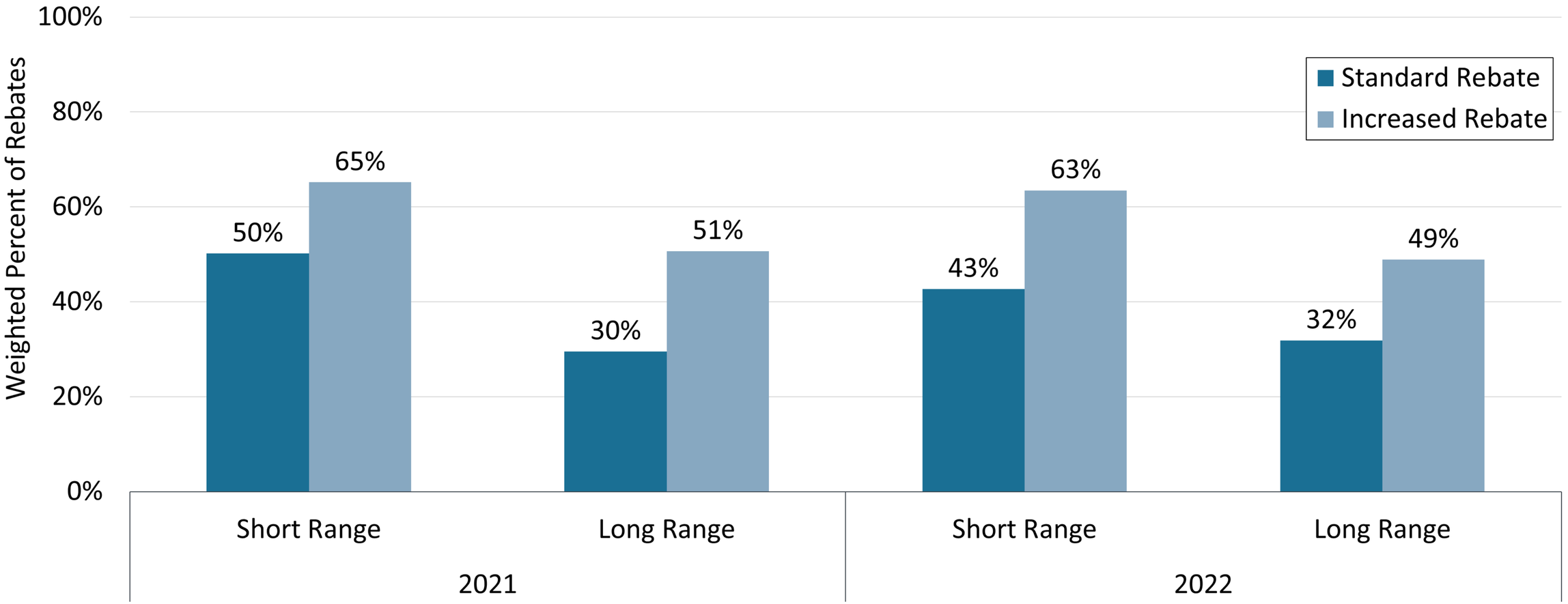
CVRP Consumer Survey, 2022 Interim Dataset. Standard Rebate: n = 4,441. Increased Rebate: n = 1,651. n-values are filtered and question-specific. Insufficient Data: cells with n < 30.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

Rebate Influence by Electric Range

Rebate Essentiality Higher for BEVs with Range < 200 Miles

2021–2022 purchases/leases



CVRP Consumer Survey, 2020–2022 Interim Dataset: 2021 n = 6,702. 2022 Interim Dataset: 2022 n = 6,145. n-values are filtered, and question-specific.

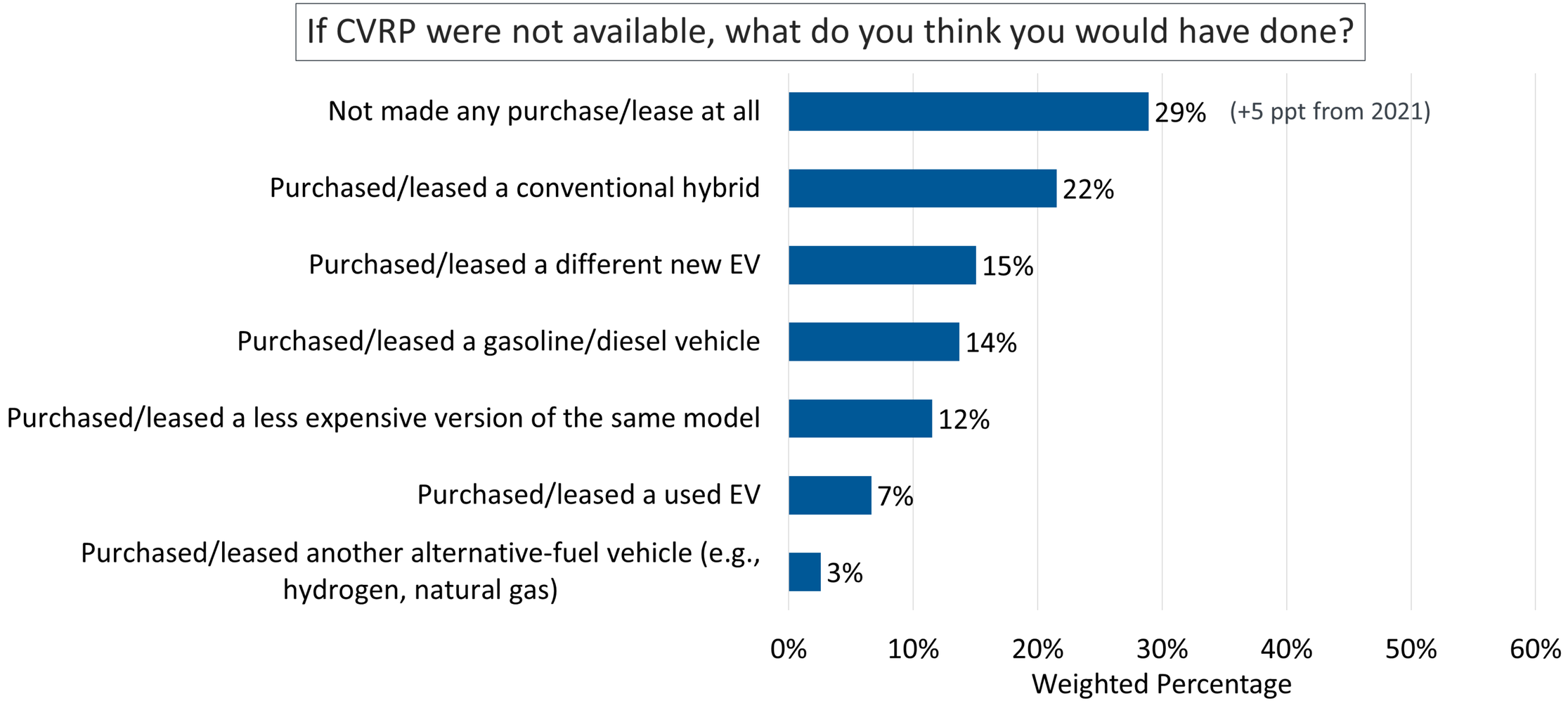
** Long Range: >= 200 miles. Where range was unavailable for a given MY, ranges from the previous or following MY were used. Nissan LEAF was assumed to be the 40kW-hr battery variant (short range), and LEAF Plus was assumed to be 62 kW-hr battery variant (long range).*

Counterfactual Behavior

What might have happened without the rebate?

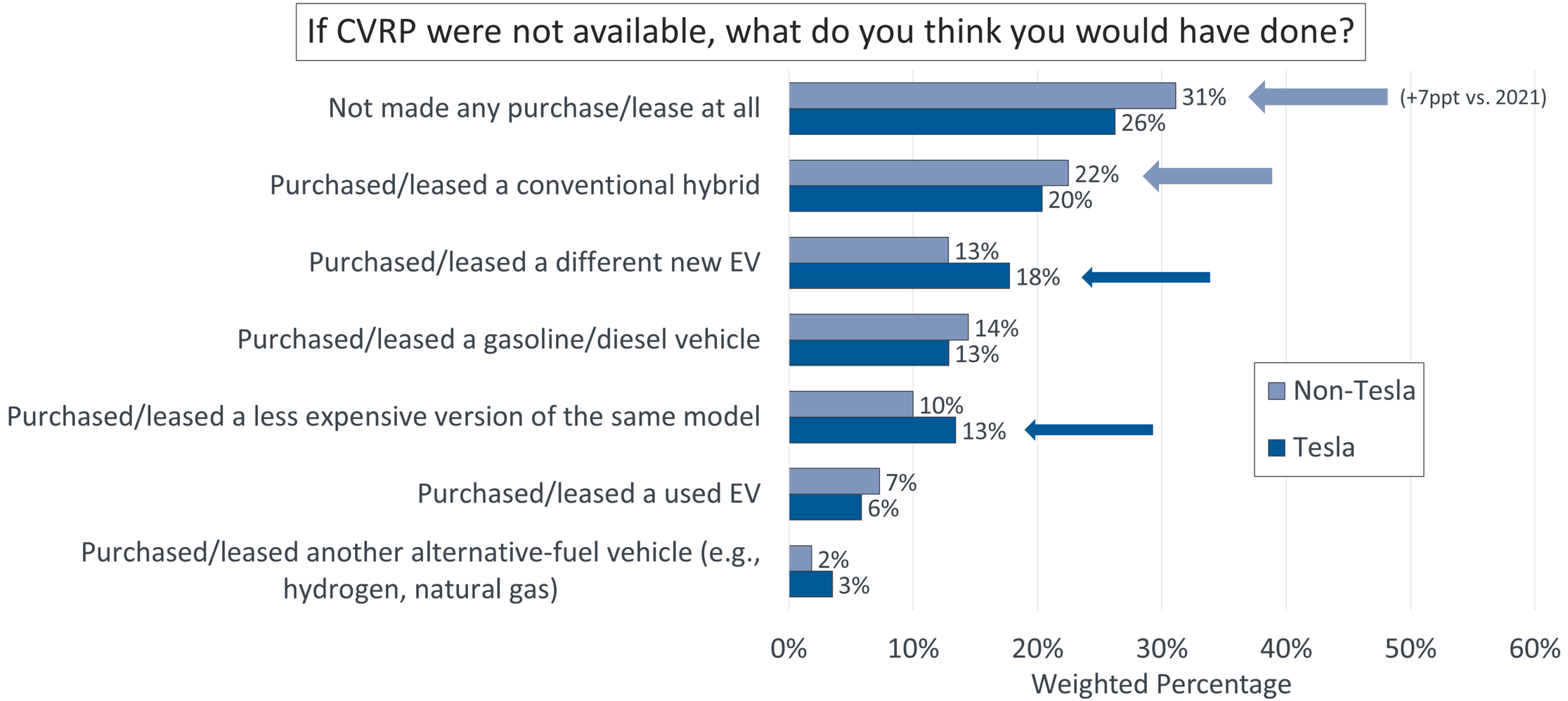
What might have happened without the rebate?

2022 purchases/leases



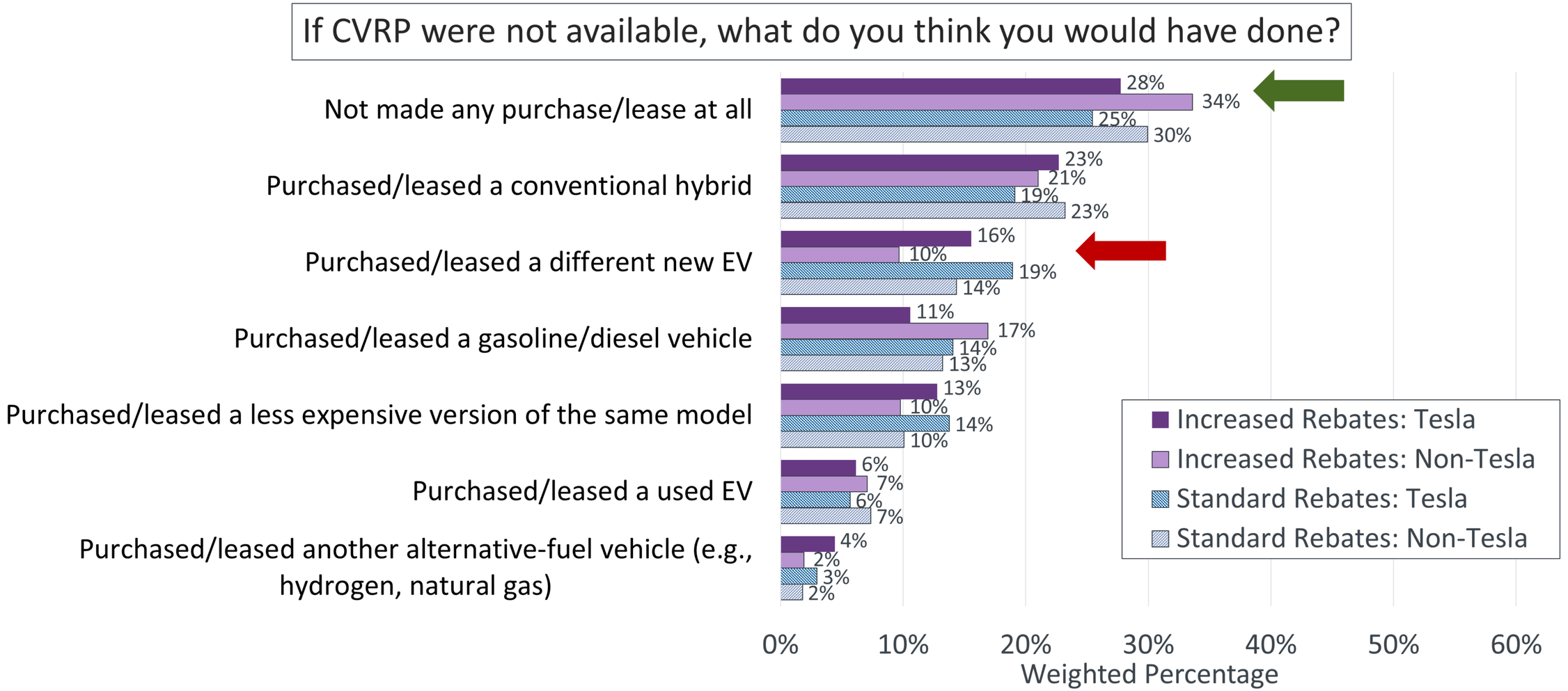
This follow-up question shown only to those that responded they would not have acquired their EV without the rebate.
Plug-in EVs purchased/leased in 2022. CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 2,434.

2022 Tesla consumers more likely to have still acquired a **new EV**, **Non-Tesla consumers** more likely to have **made no purchase or** gone with a **hybrid**



This follow-up question shown only to those that responded they would not have acquired their EV without the rebate.
Plug-in EVs purchased/leased in 2022. Tesla MSRP exceeded cap, became ineligible 3/15/2022. CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 2,434.

2022 Increased Rebate recipients: More likely to have not purchased/leased, Less likely to have gone for a different new EV (but differences shrinking)



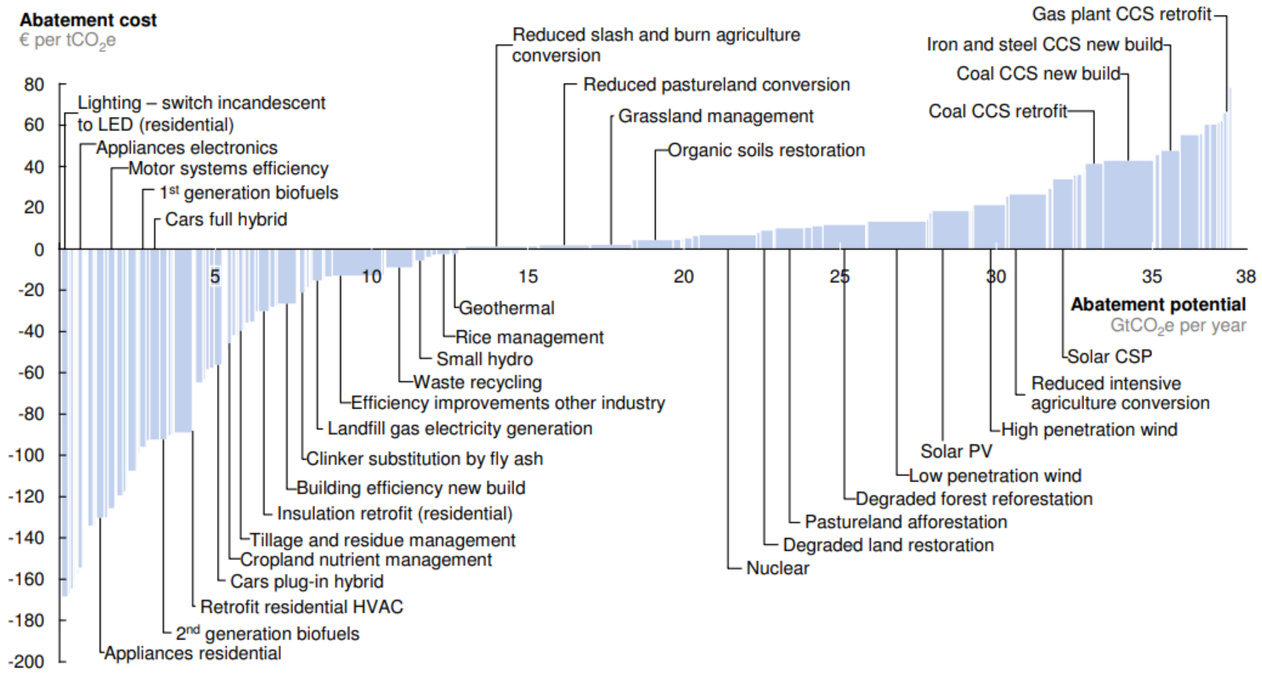
This follow-up question shown only to those that responded they would not have acquired their EV without the rebate.
Plug-in EVs purchased/leased in 2022. Tesla MSRP exceeded cap, became ineligible 3/15/2022. CVRP Consumer Survey, 2022 Interim Dataset. Filtered, question-specific n = 2,434.

Designing for Cost-Effectiveness with the Free-Rider Abatement Curve

McKinsey GHG Abatement Cost Curve

Exhibit 6

V2.1 Global GHG abatement cost curve beyond BAU – 2030

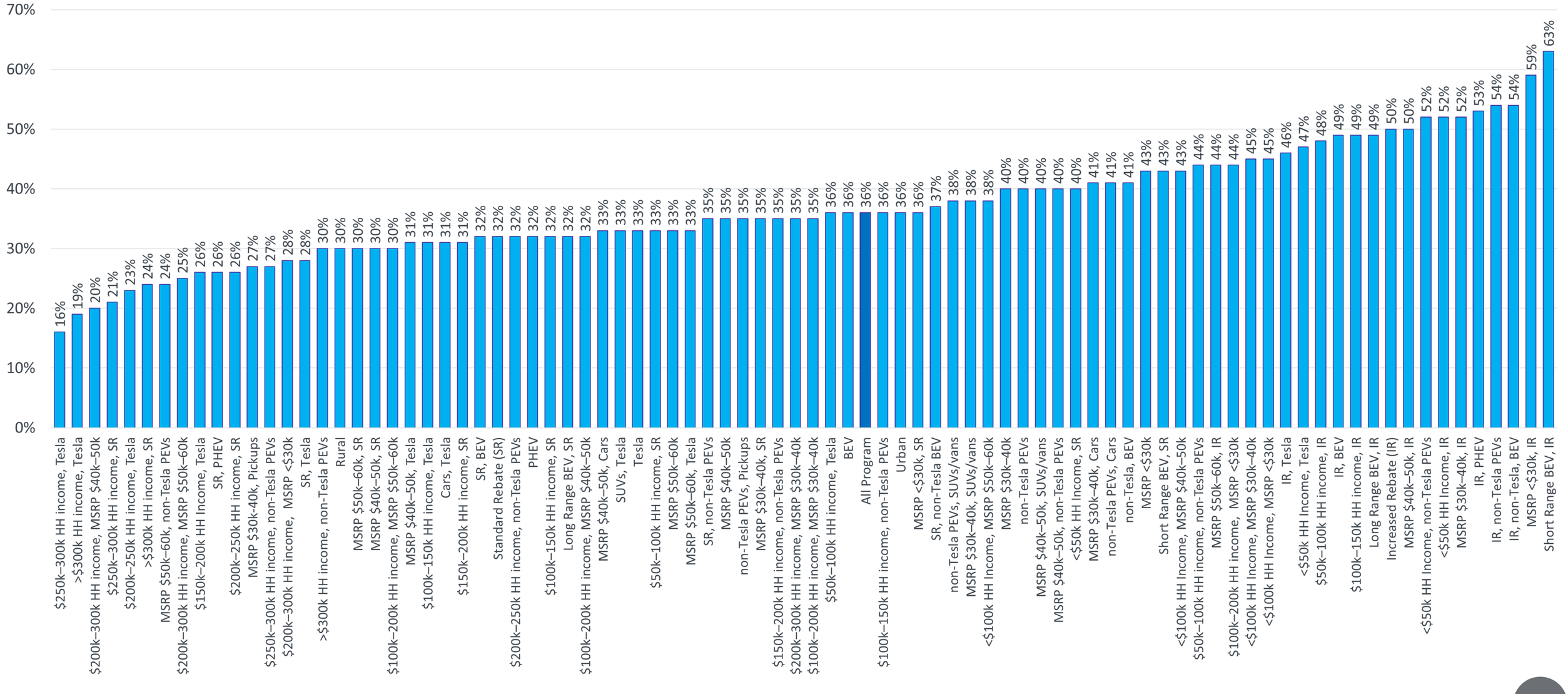


Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €80 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
Source: Global GHG Abatement Cost Curve v2.1

https://www.mckinsey.com/capabilities/sustainability/our-insights/impact-of-the-financial-crisis-on-carbon-economics-version-21#

PEV *Rebate Essentiality*

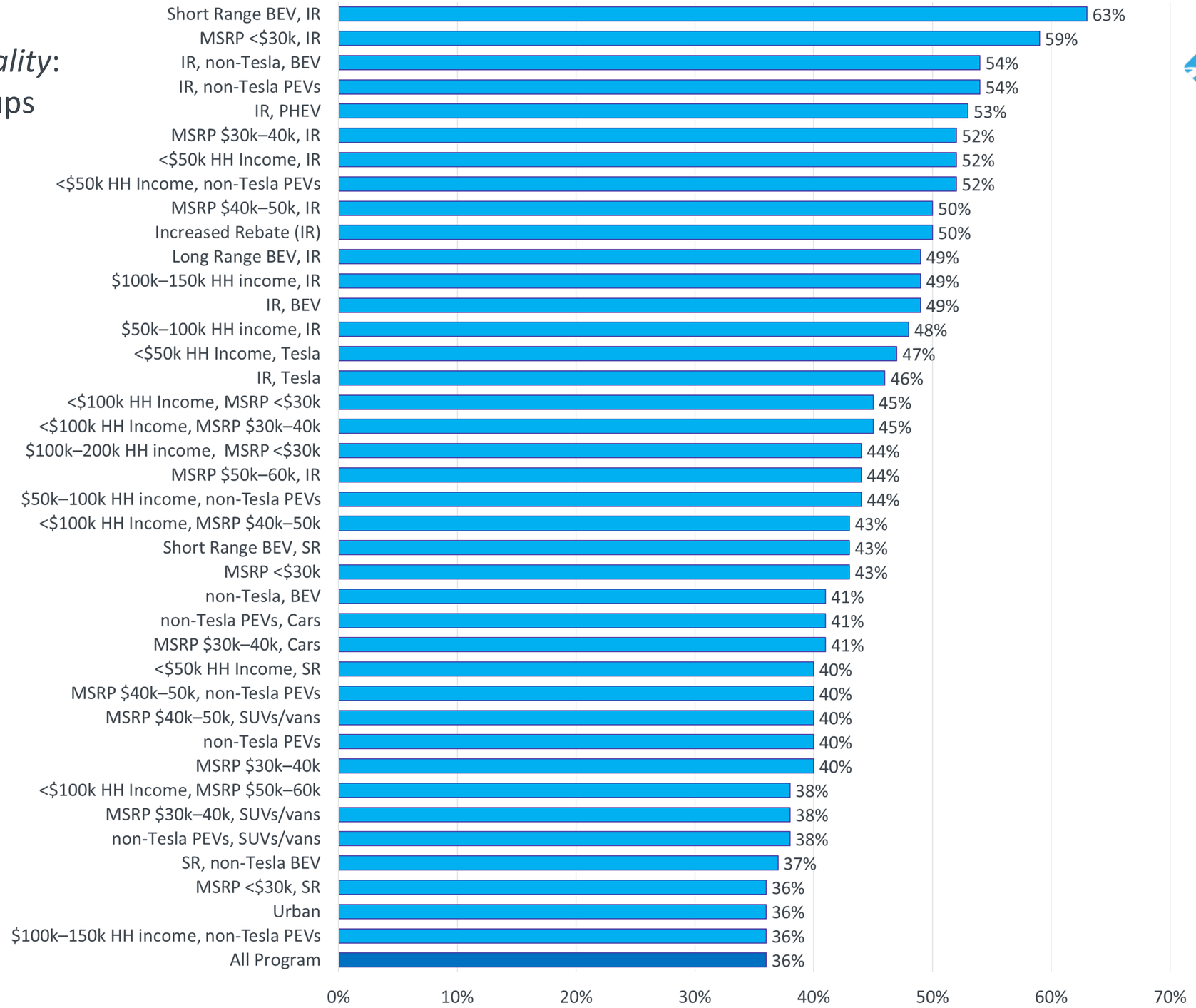
(2022 Purchases/Leases)



Compiles analyses from slide deck

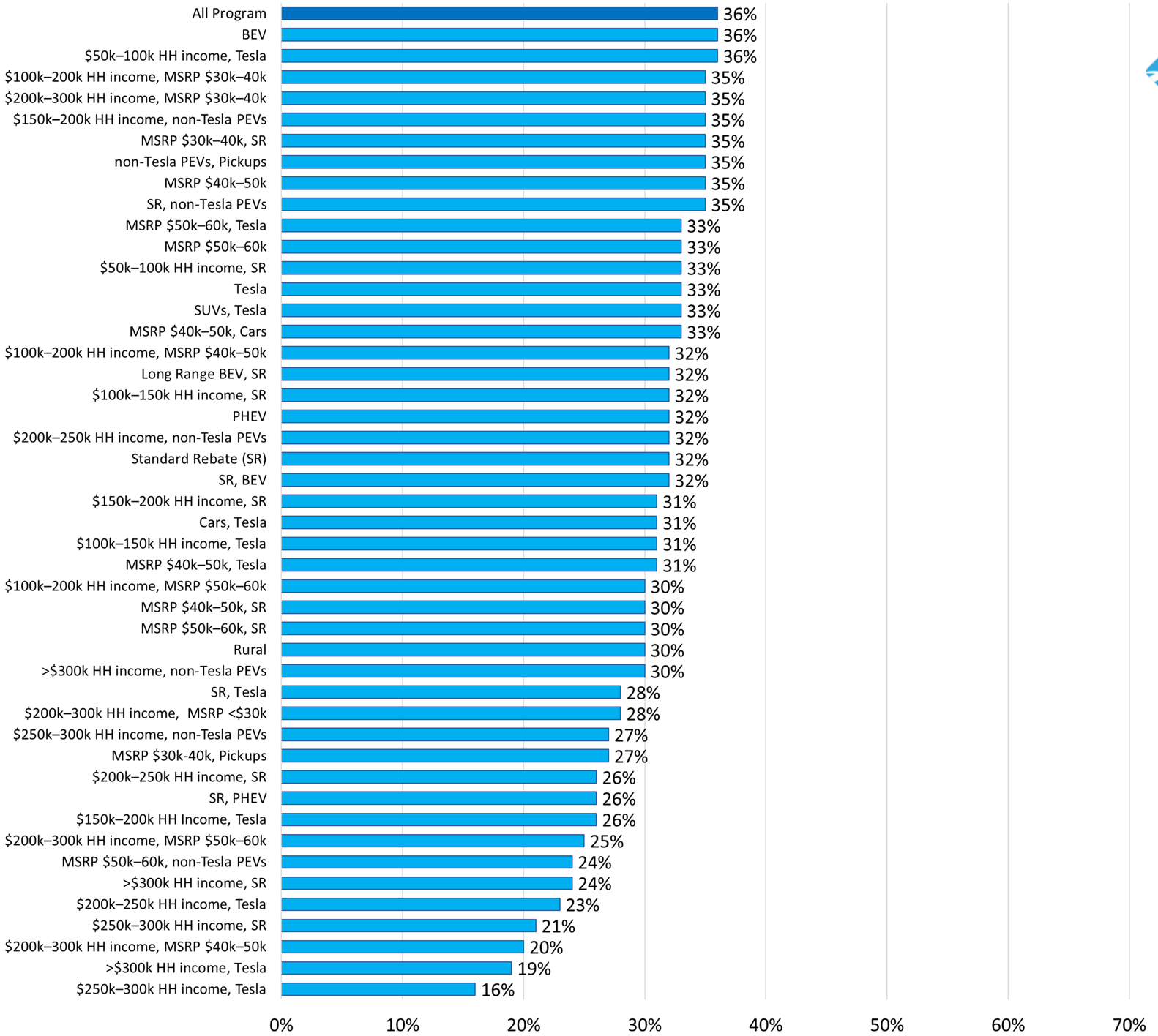
PEV *Rebate Essentiality*: Above average groups

(2022 Purchases/Leases)



Compiles analyses from slide deck

Free-Rider Hunting: Below average groups
(2022 Purchases/Leases)



Compiles analyses from slide deck

Next Steps

- Examine rebate influence by additional factors
- Utilize Free-Rider Abatement Curve approach to rank-order and assess impact of program-change recommendations. See…
  - Pallonetti, N., Williams, B. D. H., & Sa, B. (2025, Jan.). *CVRP Greenhouse Gas Emission Reductions and Cost-Effectiveness: 2022 Purchases/Leases*.
  - Williams, B.D.H., and Pallonetti, N. (2024, April). Presentation: "CVRP 2021 Data Brief: Vehicle Replacement." *Program Reports,* Clean Vehicle Rebate Project. dx.doi.org/10.13140/RG.2.2.15112.64006. CVRP posting.
  - Williams, B.D.H., and Pallonetti, N. (2024, March). Presentation: "NY Drive Clean Rebate: Vehicle Replacement & Rebate Influence thru 2022." NYSERDA. dx.doi.org/10.13140/RG.2.2.15816.33289
  - B.D.H. Williams and N. Pallonetti (2023, Mar.), Rebate Influence on Electric Vehicle Adoption in California, *36th International Electric Vehicle Symposium (EVS36)*, EDTA, Sacramento CA, USA. Paper. CSE posting. Precursor slides. Conference slides with updates.
- Examine 2023 data

Wrap Up

Summary & Select Findings

Summary & Select Findings: 2022 Rebate Influence

Context:

- MSRP cap, e-range minimum, decreased standard rebate, and income caps create guardrails. Income cap decreased to $135k–$200k and MSRP cap for Cars decreased to $45k in Feb. 2022; eligibility for the Increased Rebate broadened to 400% FPL in 2021.
- Standard Rebate typically at/near historic lows; average vehicle transaction prices unusually high.
- COVID-19 and fallout; in 2022, SUVs become majority of rebated EVs for the first time.

Rebate Influence (2022):

- *Rebate Importance*: enabler of EV acquisition for 88% (up from 82% in 2020).
- *Rebate Essentiality*: decreased in 2020, primarily for Tesla consumers, followed by decreases for non-Tesla in 2021; steady into 2022.
  - 33% for Teslas, 32% for PHEVs (down from 38% in ‘21), 41% for non-Tesla BEVs, 50% for Increased Rebate recipients.
- Influence decreases as income increases, lower for Tesla.
  - Higher for Increased Rebates, lower for Tesla.
- Expensive/attractive offerings (long-range BEVs, Teslas) had lower *Rebate Essentiality*, but influence on Tesla SUVs *increased.*
  - Difference between Tesla and non-Tesla was bigger than difference between cars and SUVs/vans.
- Trend toward lower-MSRP cars through 2019 reversed in 2020 and 2021 with growth of Tesla Model Y and in 2022 with higher Model 3 pricing.
- Rebate influence decreases as MSRP increases.
  - Evidence is still weak for MSRP caps below $60k for Increased Rebates.
- Rebate influence lower for vehicles with > 200-mi electric range.
- In absence of the rebate, Tesla consumers more likely to still have acquired a new EV, non-Tesla consumers more likely to have not made any purchase/lease at all.

Designing for Cost-Effective Emission Reduction and EV Market Growth

- Process for converting results into a “Free Rider Abatement Curve” to rank-order program-design recommendations.

Appendix

Additional Details & Resources

Funding Availability **Has Been Regularly Disrupted**
(as of Dec. 2022)

CALIFORNIA CLEAN VEHICLE REBATE PROJECT™

Table 4: CVRP Waitlists

Waitlist Year	Start Date	End Date	Length in Days
2011*	Jun. 20	Sept. 30	102
2013*	May 1	Jun. 30	60
2014	Mar. 28	Jul. 22	116
2016	Jun. 11	Sept. 28	109
2017**	Jun. 30	Nov. 20	143
2019**	Jun. 5	Sept. 23	110
2021	Apr. 23	Sept. 15	145

** Dates approximate.*

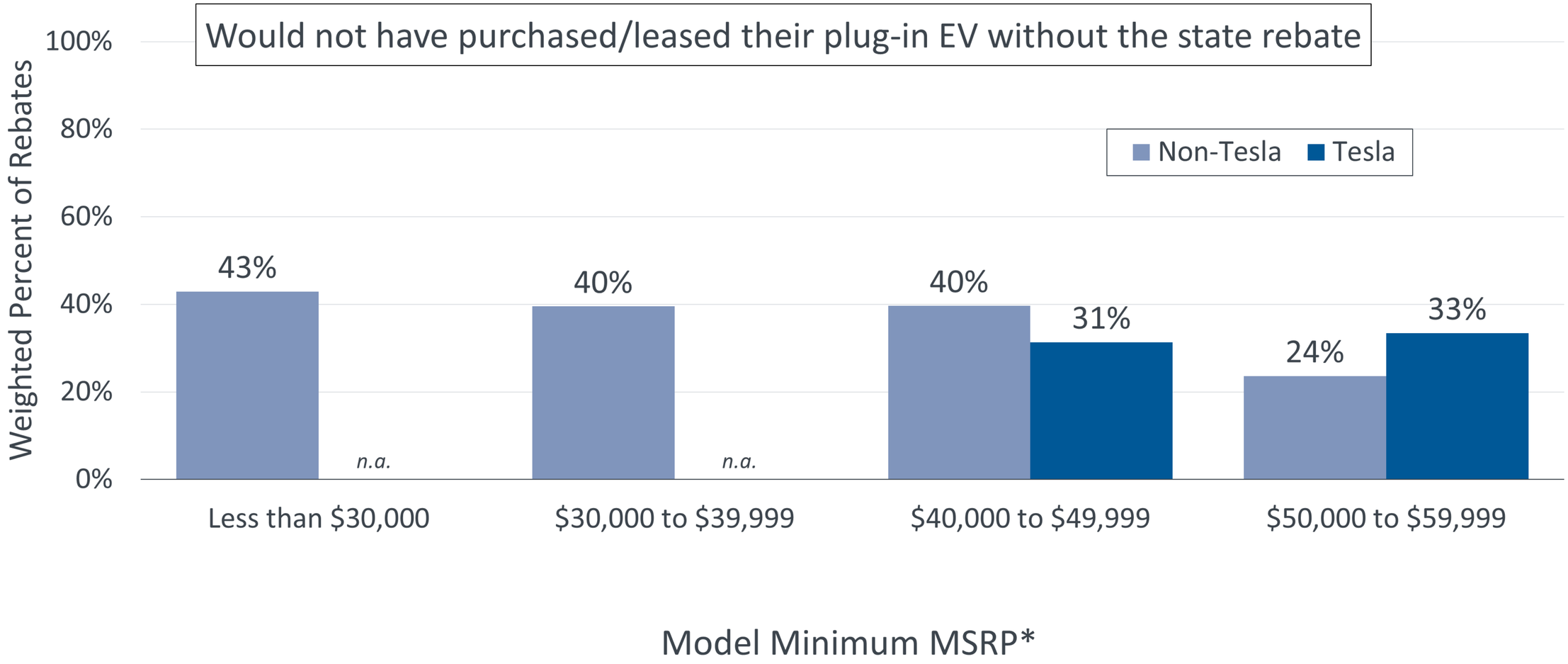
*** For standard applications only; no waitlist for income-qualified increased rebates.*

***Note**: Tesla MSRP exceeded cap, became ineligible 3/15/2022.*

Table adapted from https://cleanvehiclerebate.org/sites/default/files/attachments/Disruptions_Fact_Sheet_9_2021.pdf

Rebate Essentiality Decreases with MSRP, Often Lower for Tesla

2022 purchases/leases

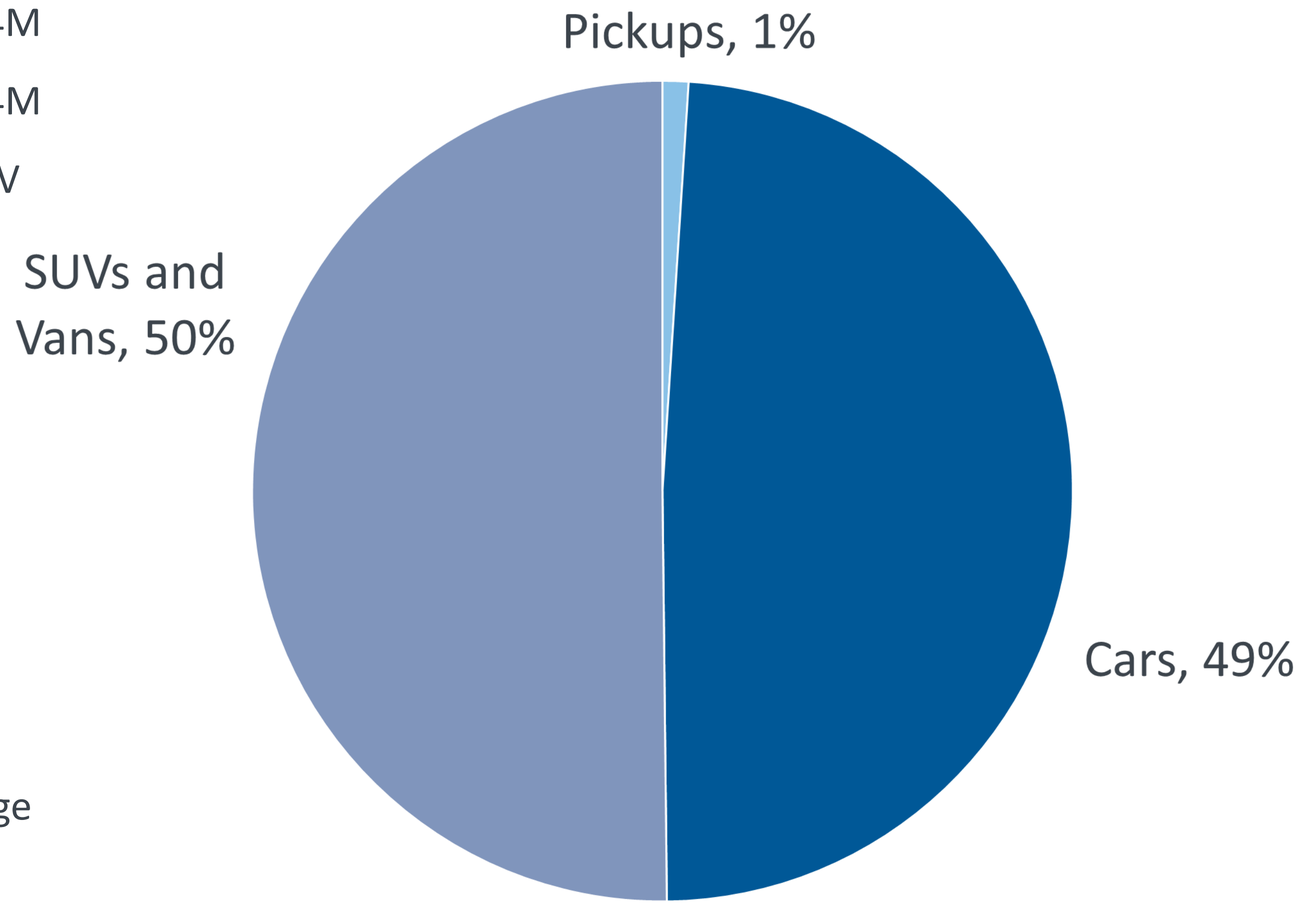


CVRP Consumer Survey, 2022 Interim Dataset: Filtered, question-specific n = 6,652.

** Each vehicle was assigned the minimum Manufacturer's Suggested Retail Price (MSRP) for that model/MY on fueleconomy.gov and does not reflect sale price. See "MSRP Methodology" slide for further detail.*

2022 Plug-In EV SUVs, Vans, and Pickups; Up from 7% in 2019

- Audi Q4 e-tron
- Audi Q4 e-tron Sportback Quattro
- Audi Q5 55 TFSI e Quattro PHEV
- Chrysler Pacifica
- Ford Escape Plug-In Hybrid
- Ford F-150 Lightning
- Ford Mustang Mach-E
- Hyundai Kona Electric
- Hyundai Santa Fe PHEV
- Hyundai Tucson PHEV
- Kia Sorento PHEV
- Kia Sportage PHEV
- Lexus NX 450h+
- Mercedes Benz EQB 300-4M
- Mercedes Benz EQB 350-4M
- Mitsubishi Outlander PHEV
- Subaru Solterra
- Tesla Model Y
- Toyota bZ4X
- Toyota RAV4 Prime
- Volkswagen ID.4
- Volvo C40 Recharge
- Volvo XC40 Recharge
- Volvo XC60 Extended Range



CVRP Consumer Survey, 2020–2022 Interim Dataset. Filtered n = 6,674.

Summary & Select Findings: **2021** Rebate Influence

CALIFORNIA CLEAN VEHICLE REBATE PROJECT™

Context:

- Eligibility for the Increased Rebate broadened to 400% FPL; Standard Rebate typically at/near historic lows.
- $60k MSRP cap, e-range minimum, decreased standard rebate, and income caps create guardrails.
- COVID-19 and fallout.

Rebate Influence (2021):

- *Rebate Importance*: enabler of EV acquisition for 87% (up from 2020); 93% for Increased Rebate recipients.
- *Rebate Essentiality*: decreased in 2020, primarily for Tesla consumers, followed by decreases for non-Tesla in 2021.
  - 32% for Teslas, but 38% for PHEVs, 43% for non-Tesla BEVs, 51% for Increased Rebate recipients.
- Influence decreases as income increases, lower for Tesla.
  - Substantial influence up to $300k for non-Tesla households.
- Attractive offerings (SUVs, long-range BEVs, Teslas) had lower *Rebate Essentiality.*
  - Difference between Tesla and non-Tesla was bigger than difference between cars and SUVs/vans
- Trend toward lower-MSRP cars through 2019 reversed in 2020 and 2021 with growth of Tesla Model Y
- Rebate influence decreases as MSRP increases for Standard Rebates
  - Evidence weak for MSRP caps below $60k for Increased Rebates
- In absence of the rebate, Tesla consumers more likely to still have acquired a new EV, Increased Rebate recipients more likely to have not made any purchase/lease

Designing for Cost-Effective Emission Reduction and EV Market Growth

- Process for converting results into a “Free Rider Abatement Curve” to rank-order program-design recommendations

Select State EV Rebate Programs Administered by CSE (in order of launch, as of June 2023)

		CALIFORNIA CLEAN VEHICLE REBATE PROJECT™	MOR-EV Massachusetts Offers Rebates for Electric Vehicles	CHEAPR Connecticut Hydrogen and Electric Automobile Purchase Rebate	NEW YORK STATE	OREGON CLEAN VEHICLE REBATE PROGRAM	chargeup New Jersey
Rebate Amounts	Fuel-Cell EVs	$4,500 (+3,000*)	$3,500	$7,500 (+$2,000*)	≥ 200 e-miles: $2,000 ≥ 40 e-miles: $1,000 < 40 e-miles: $500 Base MSRP > $42k: $500	≥ 10 kWh: $2,500 (+$5,000*) < 10 kWh: $1,500 (+$5,000*)	--
	All-Battery EVs	$2,000 (+5,500*)	$3,500	$2,250 (+$2,000*)			$25/e-mile: $2k max for MSRP < $55k; $4k max for MSRP < $45k
	Plug-in Hybrid EVs	$1,000 (+$5,500*)	$1,500	$750 (+$1,500*)			--
	Zero-Emission Motorcycles	$750	--	--	--	$750 (and NEVs)	--
Program Design Elements	Rebate Adder	*Income-qualified	--	*Qualified by proxy, income, or location	--	*Income-qualified	--
	Point-of-Sale	--	--	Point-of-sale	Point-of-sale	Point-of-sale option	Point-of-sale
	Price Cap	Base MSRP: - Large PEVs ≤ $60k - Car PEVs ≤ $45k (as of 2/22)	Purchase price: - PHEVs ≤ $50k - BEVs/FCEVs ≤ $55k	Base MSRP ≤ $50k	Base MSRP > $42k = $500	Base MSRP ≤ $50k	Trim-specific MSRP < $55k
	E-range Min.	≥ 30 e-miles	≥ 25 e-miles	--	--	--	--
	Misc.	Income cap Preapproval option for income-qualified in San Diego County or SJ Valley	--	Used EV program ($7.5k/$3k/$1.125k with point-of-sale option) $125/$75 dealer sales incentive	--	Used EVs also qualify Program suspended as of 5/1/2023	Program suspended as of 4/17/2023

Electric miles (e-miles) are U.S.-EPA-rated all-electric miles. NEV = Neighborhood EV.

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Center for Sustainable Energy® (CSE) is a national nonprofit that accelerates adoption of clean transportation and distributed energy through effective and equitable program design, administration, and evaluation.

- Administer cutting-edge programs valued at over $4 billion for governments, utilities and the private sector across the U.S.
- Leader in data-driven incentive program design and administration for:
    - Electric vehicle and EV charging incentive programs
    - Renewable energy incentive programs (solar and storage)
- Headquartered in San Diego with more than 250 employees across the nation

Objective and trusted

- Governments, utilities and the private sector trust CSE for its data-driven and software-enabled approach, deep domain expertise and customer-focused team.
- CSE's fee-for-service business model frees it from the influence of shareholders, members and donors, and ensures its independence.
- CSE's data and insights have informed policy at the local, state and federal level.

One mission —

DECARBONIZE.®

Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

Center for Sustainable Energy®

Recommended citation:

B.D.H. Williams and N. Pallonetti (2025, Mar.), Presentation: “CVRP 2022 Data Summary: Rebate Influence & MSRP Considerations,” prepared by the Center for Sustainable Energy for the Clean Vehicle Rebate Project, California Air Resources Board, Sacramento USA.

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Center for Sustainable Energy™

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