

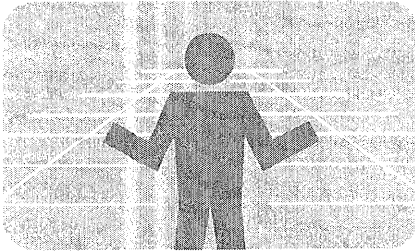
REV UP

ELECTRIC VEHICLES

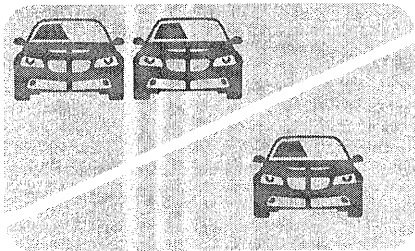
MULTI-STATE STUDY OF THE ELECTRIC
VEHICLE SHOPPING EXPERIENCE



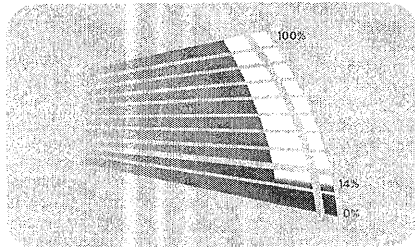
KEY FINDINGS



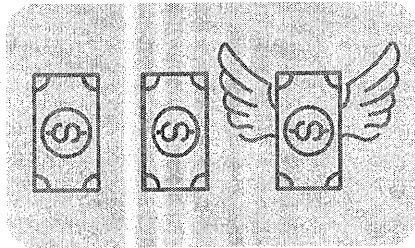
Our volunteers were **2 1/2 times** more likely to find no EV on a dealership lot in the nine other ZEV states than they were in California.



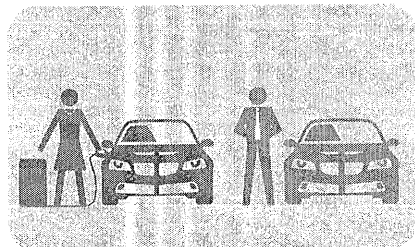
Among the dealerships our volunteers visited that had at least one EV, **the average number of EVs on lots in California was nearly twice the average** number on lots in the nine other ZEV states.



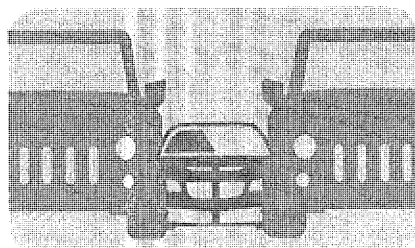
Of our respondents who asked to test drive an EV, **they were told at 14% of the dealerships that the car was not sufficiently charged**, including at **22%** of the Chevy dealerships and at **21%** of the Ford dealerships visited.



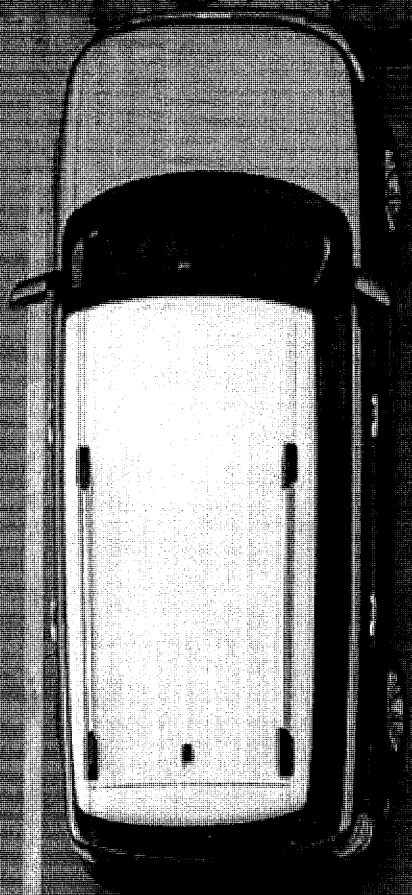
Of the visits to dealerships with at least one EV on the lot, volunteers indicated that **about 33% of the time the salesperson did not discuss the federal and state tax credits and rebates** available to lower the cost of an EV.



Of the visits to dealerships with at least one EV on the lot, volunteers indicated that only **about 50% of the salespeople they spoke with provided information on how to fuel the EV while traveling.**



Of the visits to dealerships with at least one EV on the lot, volunteers found that **42% of the time EVs were either “not prominently displayed” or were only “somewhat prominently displayed.”**



ACKNOWLEDGMENTS

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We appreciate Rev Up EVs early project design advice from Paul Scott, Charles Frank, and Eric Cahill.

Finally, and most importantly, thank you to our 174 volunteers who took the time to call and/or visit more than 300 car dealerships and stores and shared their feedback through the surveys. Some of you even bought an EV during the process!

Cover photo by: Robert Frechette Photographer and John Hancock Real Estate.

End photo by: Jonathan Overly, East Tennessee Clean Fuels Coalition.

INTRODUCTION

To learn more about what is working well and what could be improved in the plug-in electric vehicle (EV)¹ marketplace, the Sierra Club launched *Rev Up EVs* – the first-ever multi-state investigation into the consumer EV shopping experience. Based on surveys from Sierra Club volunteers who called or visited 308 different auto dealerships and stores across ten states to inquire about EVs, we found that there is tremendous room for improvement among the dealerships and the automakers.

Even when accounting for power plant emissions from electricity generation to charge electric vehicles, EVs result in dramatically lower emissions than conventional gasoline-powered cars do. As we move toward cleaner electricity sources to power our grid, EVs become even cleaner. This is why California, Oregon, Maine, Massachusetts, Vermont, Connecticut, Maryland, New York, New Jersey, and Rhode Island have signed onto California's Zero Emission Vehicle (ZEV) mandate. This mandate requires automakers to sell increasing numbers of EVs in those states.

This spring, the Sierra Club's Electric Vehicles Initiative organized 174 Sierra Club volunteers to visit or call auto dealerships (or, in the case of Tesla, "stores") representing 13 automakers in all 10 ZEV states.² Together, these volunteers selected and contacted 308 different dealerships and recorded their experience at each via a brief online survey. We estimate that the number of dealerships included in this study represent approximately 10 percent of all dealerships whose manufacturers could sell EVs in the 10 ZEV states. This study was not designed to be statistically representative, but rather to shed light on trends in the consumer EV shopping experience in these states.

Our volunteers told us that nearly half the time EVs were not displayed prominently, and that the plug-in cars were often hard to find on a dealership lot. Many volunteers told us that salespeople they spoke with neglected to inform them of state and federal incentives that could lower the cost of an EV. Some people even found themselves unable to test-drive an EV because the dealership had failed to charge it.

Many comments from our volunteers, included throughout this report, help to further illustrate some of the challenges that potential customers face when looking to buy an electric vehicle.

"I couldn't do a test drive because the key was lost. I was encouraged to purchase a non-electric vehicle instead."

LOUISE A.,
NISSAN DEALERSHIP, CONNECTICUT

"I called the dealership and was told that they weren't certified to sell EVs and that their sales department wasn't equipped to handle them."

NANCY P.,
FORD DEALERSHIP, MAINE

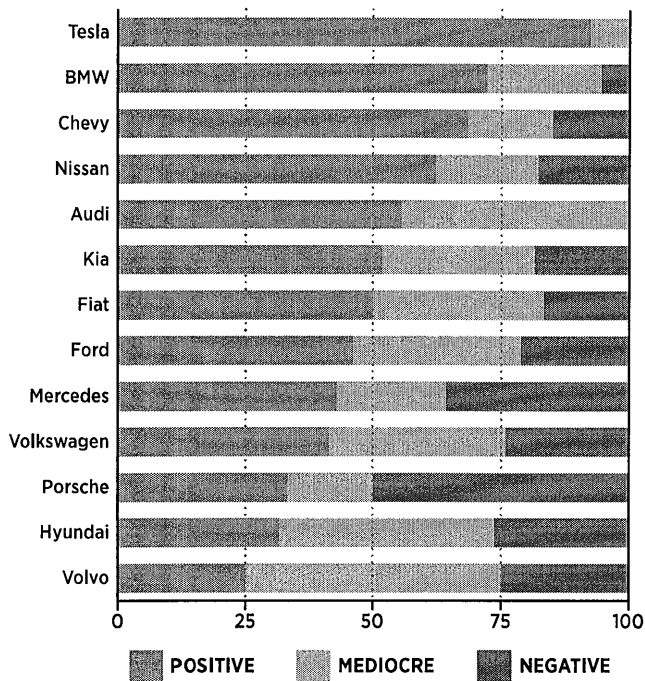
"There were only two EVs on the lot, and neither were charged with sufficient power for a test drive."

KEVIN K.,
MERCEDES DEALERSHIP, CALIFORNIA

In addition to areas in clear need of improvement, we also identified dealerships that are models of excellence when it comes to promoting and selling EVs; we highlight these later in the report. The study shows that some of the automakers and dealers contacted or visited are clearly doing better than others in providing needed EV inventory, sales training, and consumer information.

CONSUMERS' OVERALL EV SHOPPING EXPERIENCE³

Volunteers were asked to rate their overall experience with the dealership on a five-point scale where 1 was "very negative" and 5 was "very positive." Average results for each automaker is as follows:



EV MODELS

We asked volunteers to contact or visit only dealerships that sell vehicles from one (or more) of the following 13 automakers: Audi, BMW, Chevrolet, Fiat, Ford, Hyundai, Kia, Mercedes, Nissan, Porsche, Tesla, Volkswagen, and Volvo. These are the automakers that currently sell EVs in the U.S. Note that we did not include Toyota, Cadillac, or Mitsubishi in our study because they currently sell such low numbers of EVs each month nationwide, and we did not expect our volunteers to find EVs at many of their dealerships, if any (see EV sales graphic above). We also did not include Jaguar, Honda, Subaru, or Mazda because these companies currently have no plug-in models on the market in the U.S.

Manufacturers excluded from the study are much further behind than those included in this study, even those performing poorly. Thus, this study can be considered a review of the performance of those manufacturers that purport to be on the forefront of promoting EV sales around the country.

Total number of plug-in sales by automaker (January to June 2016) as compared to overall U.S. auto sales figures during this same time period:

AUTOMAKER (some sell multiple EV models/brands)	TOTAL EV sales Jan-June, 2016	TOTAL Overall U.S. Car Model Sales	PERCENT EV sales of all U.S. Auto Sales
TESLA	19,030	19,030	100%
GENERAL MOTORS (Chevy, Cadillac)	12,803	1,438,915	0.84%
FORD	10,906	1,345,170	0.81%
BMW	6,214	153,436	4.05%
NISSAN	5,793	798,114	0.73%
VW AG (Audi, Volkswagen)	3,397	247,135	1.38%
FCA (Fiat, Chrysler)	2,220	1,152,259	0.19%
HYUNDAI	1,360	374,060	0.36%
PORSCHE	1,322	26,708	4.95%
VOLVO	1,006	36,653	2.75%
DAIMLER AG (Mercedes, Smart)	740	181,132	0.41%
KIA	613	328,327	0.19%
TOYOTA	42	1,197,800	0.00%
MITSUBISHI	20	51,934	0.04%
HONDA	0	792,355	0%
JAGUAR, LAND ROVER	0	47,639	0%
SUBARU	0	279,458	0%
MAZDA	0	145,354	0%

SOURCES: The Wall Street Journal's Market Data Center for U.S. Auto Sales and Inside EV's Plug-in Sales Scorecard⁴.

In 2012, the California Air Resources Board (CARB) adopted the Advanced Clean Cars program, which included requirements for greater numbers of zero-emission vehicles. These requirements became what is known as the ZEV mandate, which nine other states have adopted. In 2012, the agency committed to conduct a midterm review of the program in 2016, and regulators are currently conducting a mid-term review of these ZEV standards to determine how they might be improved to meet climate, consumer, and EV sales goals. The study described in this report sheds light on the fact that there is much more that automakers and their affiliated dealers can do to be more successful in selling EVs. We believe our study helps to demonstrate that now is the time for automakers to better comply with the standards and for regulators to strengthen the ZEV program so that the auto industry better delivers cleaner cars and an EV shopping experience consumers want and deserve.

Many automakers argue they are doing all they can to sell EVs, but that customers are not interested in the cars, especially outside of California. However, a 2016 poll released by the Union of Concerned Scientists and

the Consumers Union found that majorities of drivers in both California and the Northeast express interest in EVs — despite the fact that *fewer than 25 percent* of drivers are aware that federal and state incentives are available when they purchase or lease a new EV. In total, the survey found that 55 percent of drivers in northeastern states and 65 percent of drivers in California express interest in EVs.⁵

The following results reveal the ranked performance of the different automakers' dealerships and the states pertaining to EV inventory, the display of EVs on lots, and salespeople's demonstrated knowledge of rebates/incentives.

SALESPEOPLE WITH EVS ON THE LOT WHO WERE KNOWLEDGEABLE OF REBATES/TAX CREDITS

Based on the average rating given by volunteers on a five-point scale where 1 was “poor” and 5 was “very knowledgeable”

FULL SPEED AHEAD	4-5	Tesla, Fiat
GOING SLOWLY	3-3.9	Audi, BMW, Chevy, Ford, Mercedes, Nissan, Porsche, Volkswagen
BARELY MOVING	2-2.9	Volvo, Hyundai, Kia

STATES WHERE SALESPEOPLE WITH EVS ON THE LOT WERE KNOWLEDGEABLE OF STATE AND/OR FEDERAL REBATES & TAX CREDITS ⁶

Based on the average rating given by volunteers on a five-point scale where 1 was “poor” and 5 was “very knowledgeable”

FULL SPEED AHEAD	4-5	Oregon
GOING SLOWLY	3-3.9	California, Connecticut, Massachusetts, Maryland, New York
BARELY MOVING	2-2.9	Maine, New Jersey, Vermont

DEALERSHIPS/STORES WITH AT LEAST ONE EV ON LOT THAT PROMINENTLY DISPLAYED ELECTRIC VEHICLES^{7,8}

Based on the percentage of “yes” responses given by volunteers

FULL SPEED AHEAD	80-100%	Tesla
GOING SLOWLY	40-79%	Audi, BMW, Chevy, Fiat, Ford, Kia, Nissan, Porsche, Volkswagen, Volvo
BARELY MOVING	<40%	Hyundai, Mercedes

STATES WHERE DEALERSHIPS WITH AT LEAST ONE EV ON THE LOT PROMINENTLY DISPLAYED ELECTRIC VEHICLES⁹

Based on the percentage of “yes” responses given by volunteers

FULL SPEED AHEAD	80-100%	None
GOING SLOWLY	40-79%	California, Connecticut, Maryland, Massachusetts, New York, Oregon, Vermont
BARELY MOVING	<40%	New Jersey

DETAILED FINDINGS AND TESTIMONIALS FROM VOLUNTEERS

ELECTRIC VEHICLE INVENTORY

Consumers deserve sufficient and sustained inventory and selection, so we asked volunteers to count (or estimate) the number of EVs they saw on the lot.¹⁰

Industry experts recommend at least 10 EVs on the lot at any given time.¹¹

- Our volunteers were 2 1/2 times more likely to find no EV on a dealership lot in the nine other ZEV states than they were in California.
- Among the dealerships visited with at least one EV on the lot in California, the average number of EVs on a lot was six.
- Among the dealerships visited with at least one EV on the lot in ZEV states outside California, the average number of EVs on a lot was three.
- 92 percent of all Tesla stores visited had EVs available to be seen.¹²

“The dealer manager said they only stock three EVs at a time, although they go quickly due to the large incentives.”

MARK S.,
KIA DEALERSHIP, CONNECTICUT

“They had no EVs in stock. I was told they didn't have the charging infrastructure because it would cost \$150,000 for the dealer to get the charging infrastructure.”

JOHN D.,
FORD DEALERSHIP, CALIFORNIA

“I called the dealership and was told that they weren't certified to sell EVs and that their sales department wasn't equipped to handle them.”

NANCY P.,
FORD DEALERSHIP, MAINE

“The Volt was their top selling car. They said it flies off the lot. They easily had over 20 of them in stock at the time I visited.”

FELIPE D.,
CHEVY DEALERSHIP, CALIFORNIA





ELECTRIC VEHICLE VISIBILITY

EV-friendly displays and supporting facilities greatly increase customer interest, so we asked volunteers to rate how easy it was for them to spot the EVs on the lot.

- Of the visits to dealerships with at least one EV on the lot, volunteers found that 42 percent of the time EVs were either “not prominently displayed” or were only “somewhat prominently displayed.”

“The website said they had EVs in stock but they had none on the lot when I arrived.”

ALLISON R.,
VOLVO DEALERSHIP, MASSACHUSETTS

“The dealership had charging stations all along its exterior, but parked in front of them were full-combustion models. There were no EVs on the lot for us to test drive. We were told their two EVs were both off the lot being used as customer loaner cars.”

ROBIN W.,
PORSCHE DEALERSHIP, CONNECTICUT

“There were more than 10 EVs on the lot, but they were hard to find.”

KEVIN K.,
KIA DEALERSHIP, CALIFORNIA

“When I couldn't locate a Chevy Volt near where I live in Texas, I called their main headquarters to find out where I could test drive one. I was told there wasn't a Chevy Volt within a thousand miles of me!”

ROBERT L.,
CHEVY DEALERSHIP, TEXAS

“They had four EVs in stock, but they weren't easy to locate.”

MARY N.,
VOLKSWAGEN DEALERSHIP, OREGON

KNOWLEDGE OF ELECTRIC VEHICLES AND CONSUMER INCENTIVES

Trained staff directly contribute to more sales and better consumer service, so we asked our volunteers if the salespeople they spoke with mentioned charging details or federal and state rebates or incentives. We did not instruct volunteers to ask questions about these topics. Rather, we were curious to hear whether these topics would come up organically or if salespeople would bring them up without prompting.

- 39 percent of all salespeople our volunteers spoke with did not discuss charging details with the volunteer (figure does not include dealerships contacted over the phone that shared that no EVs were on the lot).
- 33 percent of salespeople our volunteers spoke with in California did not discuss tax rebates or incentives with the volunteer (figure does not include dealerships contacted over the phone that shared that no EVs were on the lot).

“There were no EVs in stock and he stated that he has no interest in ever selling an electric vehicle... He said the only way he would sell an EV is if VW forced him to.”

TONY G.,
VOLKSWAGEN DEALERSHIP, MAINE

“I called the dealership and said I'd like to test drive an EV. They said they had several. A few hours later, I received an email stating they had no EVs on the lot and I'd have to visit the Bay Area to find any.”

SALLY E.,
VOLKSWAGEN DEALERSHIP, CALIFORNIA

- 32 percent of salespeople our volunteers spoke with in the nine other ZEV states did not discuss tax rebates or incentives with the volunteer (figure does not include dealerships contacted over the phone that shared that no EVs were on the lot).

“The dealership had no idea about the state and federal tax credits. They said it was the policy of the company to not talk about tax incentives because they were not tax experts.”

LINDA H.,
FORD DEALERSHIP, CALIFORNIA

“EV salesman wasn't working that day, so I was told to come again.”

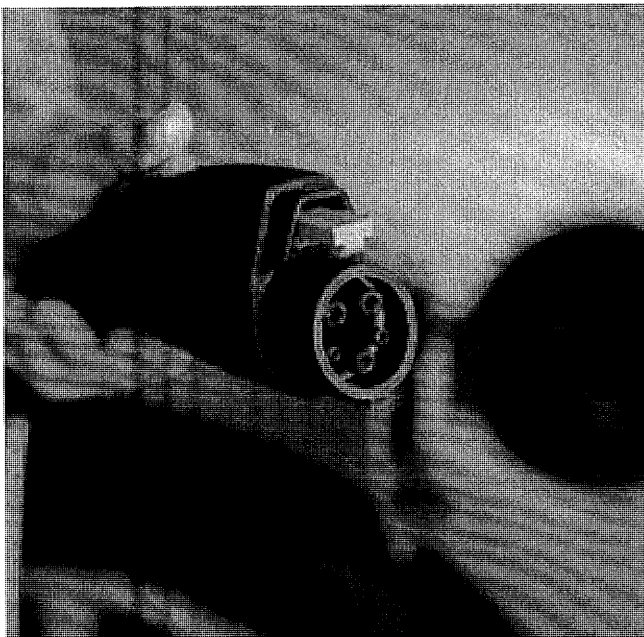
STEPHEN B.,
HYUNDAI DEALERSHIP, CALIFORNIA

“Great experience with salesman. But the closer knew nothing about the cars, took forever to get any information about pricing and got it wrong.”

DAVID L.,
CHEVROLET DEALERSHIP, CALIFORNIA

“The salesperson admitted he did not know too much about EVs. He said he had not received EV training.”

EUGENE C.,
VOLKSWAGEN DEALERSHIP, CALIFORNIA



SALESPEOPLE'S KNOWLEDGE OF CHARGING WHILE TRAVELING¹³

Having salespeople address consumer questions or concerns regarding range is important, so we asked our volunteers if the salespeople they spoke with raised how to charge an EV while away from home. Again, we did not instruct volunteers to ask questions about this topic. Rather, we were curious to hear whether these topics would come up organically or if salespeople would bring them up without prompting.

- 62 percent of salespeople our volunteers spoke with in California did not provide information about charging while traveling.
- 46 percent of salespeople our volunteers spoke with from the nine other ZEV states did not provide information about charging while traveling.

“The first salesperson that I talked to drove an electric Fiat and was very enthusiastic and knowledgeable.”

JOHN D.,
FIAT DEALERSHIP, CALIFORNIA

“He showed me where on the car the charge would be made, but gave no info on how the car could be charged when traveling.”

LOUISE A.,
NISSAN DEALERSHIP, CONNECTICUT

“Salesperson gave inaccurate info about charging options, and he knew nothing about federal or state rebates/tax credits. I gave him some info on that, and he was happy to be educated.”

GINA C.,
FORD DEALERSHIP, MASSACHUSETTS

“Senior sales staff had no idea what the battery electric vehicles' range was. He called it a go kart.”

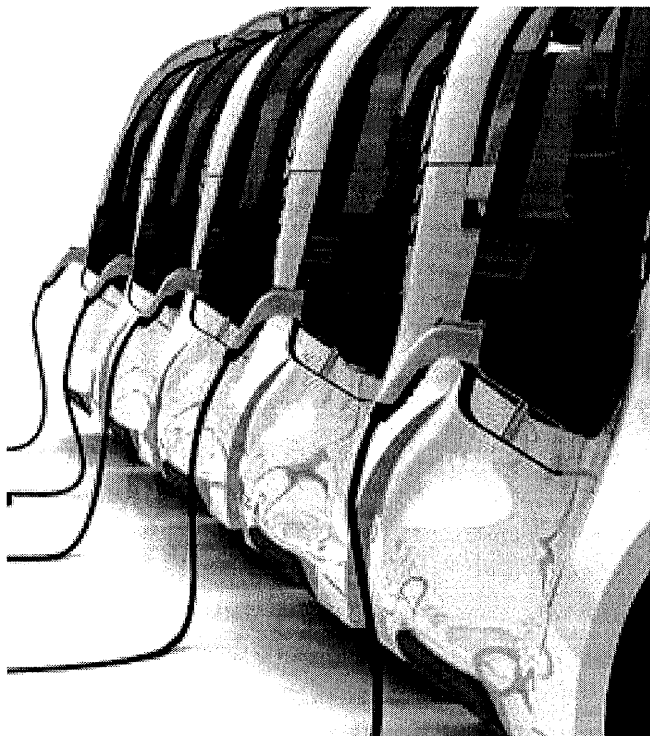
KAT F.,
FORD DEALERSHIP, NEW YORK

BEST PRACTICES & RECOMMENDATIONS

Despite lackluster performance by the overall U.S. auto industry in taking the steps needed to successfully sell EVs, our study revealed that some automakers and their affiliated dealerships *are* successfully marketing and selling EVs. Based on feedback from our volunteers and recommendations made by experts in the field, below is a summary of some best practices and recommendations for both automakers and dealerships who want to successfully sell their EVs.

INVENTORY

Among dealerships our volunteers contacted that had at least one EV, the average reported number of EVs on the lot across all ten states was fewer *than five* (4.6). Note that this figure does **not** include the many dealerships contacted by phone who shared that there were no EVs at all on the lot. Consequently, the actual average is likely much lower. To ensure that consumers are able to test drive an electric car and have their choice of color and trim, etc., industry experts recommend a *minimum of 10 EVs* on a dealership lot.¹⁴ EV experts at Courtesy Chevrolet in San Diego, California (a large dealership)



told one volunteer that they have found it worthwhile to stock *30 or more EVs* at any given time to provide optimal consumer choice.

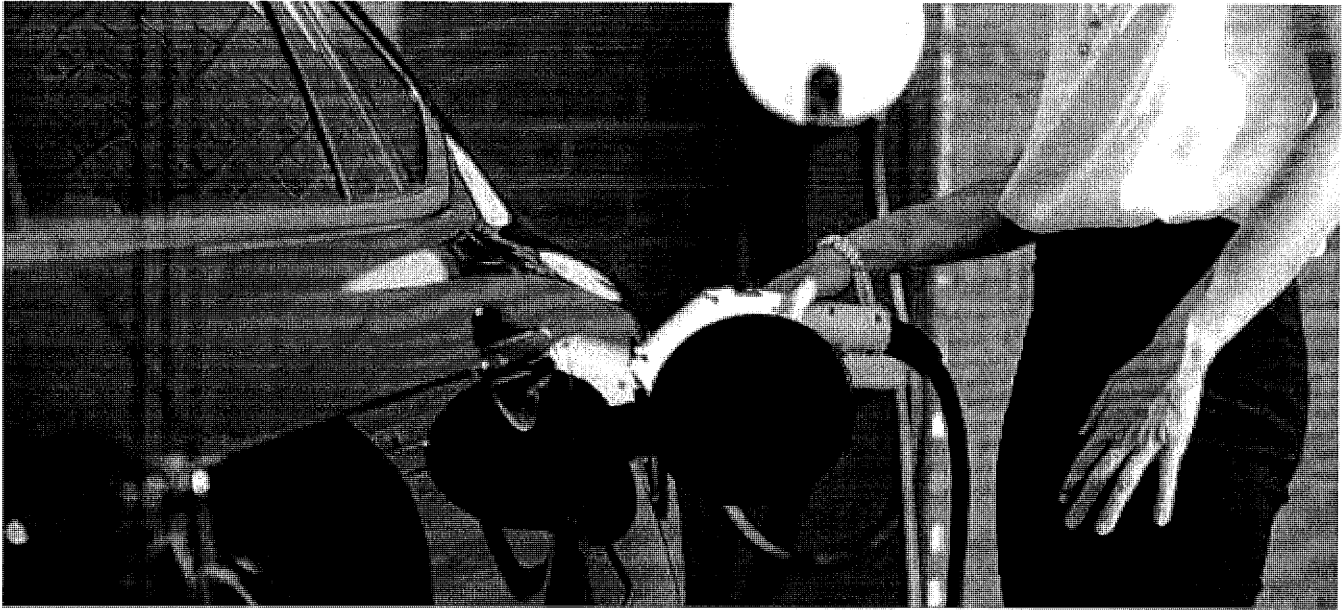
Automakers and their affiliated dealerships both play an important role in EV inventory. To sell more EVs, automakers need to accelerate the number of EVs they manufacture and provide additional financial incentives for dealerships to sell them. Automakers also need to make a much larger number of EVs available to dealerships more evenly across each of the ZEV states and beyond. Dealerships, in turn, need to increase the number of EVs they secure from automakers and display prominently on their lots.

One way to increase EV inventory is to remove barriers through free or affordable dealer certification. Some automakers require dealers to pay certification fees, while other automakers provide dealer certification free of charge. For example, the Nissan dealership in Milford, Massachusetts told us it became certified by Nissan to sell EVs at no cost. According to our volunteer's conversation with a manager at that dealership, Nissan's certification requirements are online quizzes and tests taken periodically by salespeople to ensure they are informed on their EV models.

Other dealers are required to pay costly certification fees. For example, a Volkswagen dealer in Connecticut told one of our volunteers that it had to pay the automaker a \$50,000 certification fee, which includes two EV charging stations, charging station maintenance, and yearly sales and service team training. A volunteer also revealed that a Ford dealership in Maine was not certified to sell EVs because they would have to pay the manufacturer a \$50,000 certification fee, which they could not afford.

VISIBILITY

When EVs are placed alongside other models or are parked in the back of a dealership's lot, it presents an obvious barrier to consumers who may consider purchasing or leasing an EV. In order to promote EV



sales, we believe it is important for dealerships to place them in prominent locations, such as in a showroom, by the side of the road, next to charging stations, or under special canopies.

A volunteer visited the Audi dealership in Wallingford, Connecticut and reported there was an EV inside the showroom with a charging station, as well as one in front of the dealership plugged-in and ready to test drive. Glick Nissan in Massachusetts told one of our volunteers that they always have two to three EVs on hand to offer test drives as well as a 240-volt charging station in front of the dealership, which is open for public use as part of Nissan's No Charge to Charge program. Nissan offers two years of unlimited free public charging for all Nissan Leaf owners at participating dealerships.¹⁵ Not only do charging stations make EVs more visible to customers, but they also help build "range confidence" for both current and potential EV drivers because drivers know they can rely on that dealership as a place to charge up.

EXPERTISE

Articulating to consumers the value of EV technology and incentives can be one of the most effective tools to increase widespread EV adoption. Automakers and auto dealers should engage in certification and training programs to ensure that salespeople have the proper knowledge and enthusiasm about EVs, including charging methods and state and federal rebates and tax credits. When we followed up with the dealerships that received the highest score possible from our volunteers for salesperson expertise, we learned that they have their salespeople participate in regular trainings to keep up

to date on EV technology and public policies. We also learned that some of the most successful dealerships ensure that at least one seasoned salesperson is highly trained on EV technology and consumer incentives.

For example, Audi Stevens Creek in San Jose, California is one of the top-selling Audi dealerships in the nation when it comes to selling their plug-in hybrid electric model, the A3 e-tron. They informed us that every salesperson at the dealership is required to participate in continuing education on the A3 e-tron from Audi of America and to maintain their status as an Audi Brand Specialist. They also offer monthly in-dealership classes and product updates concurrent with the expanding consumer interest in plug-in electric vehicles, and each of their sales and finance department managers are kept up to date on the federal and state rebates and incentives available to their A3 e-tron customers. Some smaller dealerships find it more useful to ensure there is at least one seasoned salesperson who is highly trained on the EV model, charging opportunities, and consumer incentives.

Additionally, it's important for salespeople to provide accurate and comprehensive information regarding what customers should expect when it comes to charging their EV both at home and while traveling. According to feedback surveys from our volunteers, only 38 percent of salespeople in California with whom our volunteers spoke with, where there was at least one EV on the lot, provided the volunteer with information about charging while traveling, despite the many online charging applications and resources.

RECOMMENDATIONS

ZEV Standards: The California Air Resources Board (CARB) should be commended for its strong ZEV standards, which are essential for ensuring a robust EV market and reaching state EV and emissions reductions goals. As CARB leaders conduct a mid-term review of these standards in late 2016, we urge them to strengthen the standards in various ways so that multi-state EV goals are reached. In particular, we strongly urge CARB to maintain its plan to retire the “travel provision” loophole in the standards by the end of 2017. The travel provision loophole allows automakers to earn credit for selling EVs in all of the ZEV states while only selling EVs in one (California) or a few states.

AUTOMAKERS SHOULD...

- Provide increased EV inventory for more dealerships in more states.
- Provide better deals to dealerships on EV models.
- Provide dealerships with charging stations for EVs.
- Provide dealerships with tools to help consumers locate charging stations.
- Provide dealerships with detailed information on federal and state EV incentives, tax credits, and state and utility rebates/discounts.
- Streamline the process and lower or remove the costs of EV certification for dealerships and their salespeople.
- Significantly increase national EV marketing and advertising.

- Recognize and reward high-performing EV dealerships.

AUTO DEALERS SHOULD...

- Secure more EV inventory from their affiliated automakers.
- Seek out training and certification for their dealership and salespeople on EV models and the process for selling them.
- Provide regular trainings to salespeople on EVs and charging technology, consumer incentives (state and federal rebates, tax credits), and effective EV sales strategies.
- Train one or more salespersons to be an EV expert on staff.
- Make clear to potential EV customers on the web site and on the phone that they should try to schedule their visit when the EV expert(s) on staff is available.
- Display EVs prominently, such as under special canopies and in the showroom.
- Work with local pro-EV groups to participate in test-ride events.
- Help enroll buyers in charging station networks.
- Help prepare state incentive paperwork for customers at point of sale.
- Recognize and reward high-performance EV sales staff.
- Ensure the proper tools and training are available to service/repair staff.
- Advertise their EVs on their web site and in local media.

STATE REGULATORS AND POLICY-MAKERS SHOULD...

- Create and expand consumer incentives, such as purchase/lease rebates, to keep EVs within grasp of middle-class Americans. Additional incentives should be provided to low-income residents.
- Provide grants and incentives for businesses, municipalities, and government agencies to invest in EV fleets and EV charging infrastructure.
- Ensure the long-term funding and stability of EV incentive programs—funding gaps discourage EV purchases.
- Educate the public about EVs and EV incentives.
- Work with dealer groups on salesperson training programs.
- Establish and advertise dealer and manufacturer sales performance “best practices” standards.



TOP PERFORMING DEALERS/STORES

Among the dealerships visited by our survey respondents, the following stores and dealerships received five stars (top marks) from our survey volunteers for overall EV shopping experience performance:

CALIFORNIA

BMW Encinitas, Encinitas
BMW of Vista, Vista
Hansel BMW, Santa Rosa
Weatherford BMW, Berkeley
Courtesy Chevrolet, San Diego
Felix Chevrolet, Los Angeles
FH Dailey Chevrolet, San Leandro
John L. Sullivan Chevrolet, Roseville
Keyes Chevrolet, Van Nuys
Novato Chevrolet, Novato
Paradise Chevrolet, Ventura
Platinum Chevrolet, Santa Rosa
Silver Star Chevrolet, Thousand Oaks
Stewart Chevrolet, Colma
Victory Chevrolet, Petaluma
Albany Ford, Albany
Audi Stevens Creek, San Jose
Bob Baker FIAT, Carlsbad
Jim Bone FIAT, Santa Rosa
Downtown Ford Sales, Sacramento
North County Ford, Vista
Kearny Pearson Ford, San Diego
Future Ford, Sacramento
Folsom Lake Ford, Folsom
Hansel Ford, Santa Rosa
Sunnyvale Ford Lincoln, Sunnyvale
Frank Hyundai, National City
Jim Bone Kia, Santa Rosa
Kia of Downtown, Los Angeles
Dublin Nissan, Dublin
Imperio Nissan, Irvine
Jim Bone Nissan, Santa Rosa
Mossy Nissan, San Diego
North Bay Nissan, Petaluma
Tesla Motors Palo Alto, Palo Alto

Tesla Motors Rocklin, Rocklin
Tesla Motors Burbank, Burbank
Tesla Motors Sunnyvale, Sunnyvale
Volkswagen South Coast, Santa Ana

CONNECTICUT

Audi of Wallingford, Wallingford
BMW of North Haven, North Haven
BMW Ridgefield, Ridgefield
Maritime Chevrolet, Fairfield
Cargill Chevrolet Company, Putnam
Shaker Family Ford, Watertown
Executive Kia, Wallingford
Michael Kia, Groton
Premier Kia, Branford
Bruce Bennett Nissan, Wilton
Porsche of Wallingford, Wallingford
Curran Volkswagen, Stratford
Gene Langan Volkswagen, Glastonbury
Volvo of Danbury, Danbury

MASSACHUSETTS

Flynn Audi, Pittsfield,
Herb Chambers BMW, Sudbury
Central Chevrolet, West Springfield
Mirak Chevrolet, Arlington
Watertown Ford, Watertown
Clay Nissan of Newtown, Newtown
Glick Nissan, Westborough
Milford Nissan, Milford
Flynn Volkswagen, Pittsfield

MARYLAND

BMW of Towson, Towson
Lindsay Ford, Wheaton
Chevy Chase Nissan, Bethesda

MAINE

Starkey Ford Inc, York

NEW JERSEY

Smith Motor Company, Washington
Tesla Short Hills Mall, Millburn

NEW YORK

BMW of the Hudson Valley, Poughkeepsie
Chevrolet 112, Medford
Gault Chevrolet, Endicott
Paddock Chevrolet, Kenmore
Joe Basil Chevrolet, Lancaster
Robert Green Chevrolet, Monticello
West Herr Chevrolet of Williamsville, Williamsville
Romeo Chevrolet Buick GMC, Lake Katrine
Healey Chevrolet, Poughkeepsie
Fuccillo Kia, Schenectady
Porsche of Clifton Park, Clifton Park
The Westchester Tesla Motors, Westchester

OREGON

BMW of Salem, Salem
Capitol Chevrolet, Salem
Wentworth Chevrolet, Portland
Kia of Portland on Broadway, Portland
Power Kia, Salem
Mercedes-Benz of Beaverton, Beaverton
Gladstone Nissan, Gladstone
Dick Hannah Volkswagen, Portland
Herzog-Meier Volkswagen, Beaverton
Tesla Portland-Washington Square, Portland
Primasing Motors, Lebanon
Ron Tonkin Central Sales, Portland

VERMONT

Lamoille Valley Ford Inc., Hardwick

METHODOLOGY

This study was conducted by the Sierra Club from early April through mid-June, 2016, with an emphasis on contacting dealerships in California and the nine states that have signed on to the California Air Resources Board's ZEV mandate: Oregon, Connecticut, New York, New Jersey, Maine, Maryland, Massachusetts, Rhode Island, and Vermont.

The study was designed with the guidance of industry experts and policy analysts. We also worked with a researcher from the University of California in Santa Barbara who provided guidance and analysis on data collection. This was not an academic study, but rather an attempt to paint a descriptive picture of what people are experiencing when they shop for EVs in the 10 ZEV states. What is working well? Where can improvements be made?

Through email and phone outreach, the Sierra Club's Electric Vehicles Initiative organized 174 Sierra Club volunteers to survey 308 auto dealerships and stores. This represents about 10 percent of all dealerships whose manufacturers could sell EVs in the 10 ZEV states.

Through a [web tool](#)¹⁶ housed on the Sierra Club website, volunteers in the ZEV states used their zip codes to see a list of the nearest dealerships/stores that could sell EVs. We asked volunteers to indicate the date they expected to call or visit a dealership, which we tracked and used to schedule our volunteer follow-up emails and calls. Once a dealership was contacted and included in our study, it was removed from the web tool. In cases where one dealership or store was surveyed twice by two different volunteers, one volunteer survey was randomly selected for inclusion in our analysis.

Thirteen automakers were included in the survey: Audi, BMW, Chevrolet, Fiat, Ford, Hyundai, Kia, Mercedes, Nissan, Porsche, Tesla, Volkswagen, and Volvo. Additional explanation is provided earlier in this report on why these and not others were included.

Before calling or visiting dealerships and completing the survey, volunteers were prepared with a short [how-to video presentation](#)¹⁷ that gave an overview of how EVs work, what tax credits and incentives are available at the federal and (often) state levels, and what to look for when calling or visiting dealerships. There was no script

for the participants, and volunteers were not instructed to hide their participation from auto dealers. Our volunteers were not "secret shoppers." Many volunteers were in the market for an EV, so their survey was submitted to reflect their actual buying or leasing experience. Some shared with salespeople that they were associated with Sierra Club, whereas others did not. Similarly, some shared with salespeople a [Sierra Club electric vehicles fact sheet](#),¹⁸ and others did not. Overall, a comfortable and organic shopping experience was encouraged.

Volunteers were asked to observe the following:

- Whether EVs were available,
- How many EVs were on the lot,
- How prominently EVs were displayed,
- How enthusiastic salespeople were about talking to them about plug-in models,
- How knowledgeable salespeople were about EVs and charging logistics, and
- How knowledgeable salespeople were about the state or federal tax credits and rebates.

After calling or visiting a dealership, volunteers reported their findings through an [online survey](#).¹⁸ Data from these surveys were analyzed to identify trends, best practices, and areas for improvement in the EV shopping experience.

We encouraged volunteers to first call or check a dealership's website to learn if they had any EVs in stock. If they did have at least one EV in stock, we asked volunteers to visit the dealership in person, ideally test drive an EV, and submit a survey about their experience. If a dealership did not have any EVs in stock, we asked volunteers to submit a survey to let us know. Given the nature of our methodology, our report does not present findings on EV availability, for the most part, because we do not have sufficient data on that subject.

The results cited in this report are based on feedback surveys submitted by Sierra Club volunteers who were asked to call and subsequently visit various auto dealerships in ten states across the country. In particular, we highlight tests of significance for any comparisons across automakers and states. This study was not designed to be statistically representative, but rather to shed light on trends in the consumer EV shopping

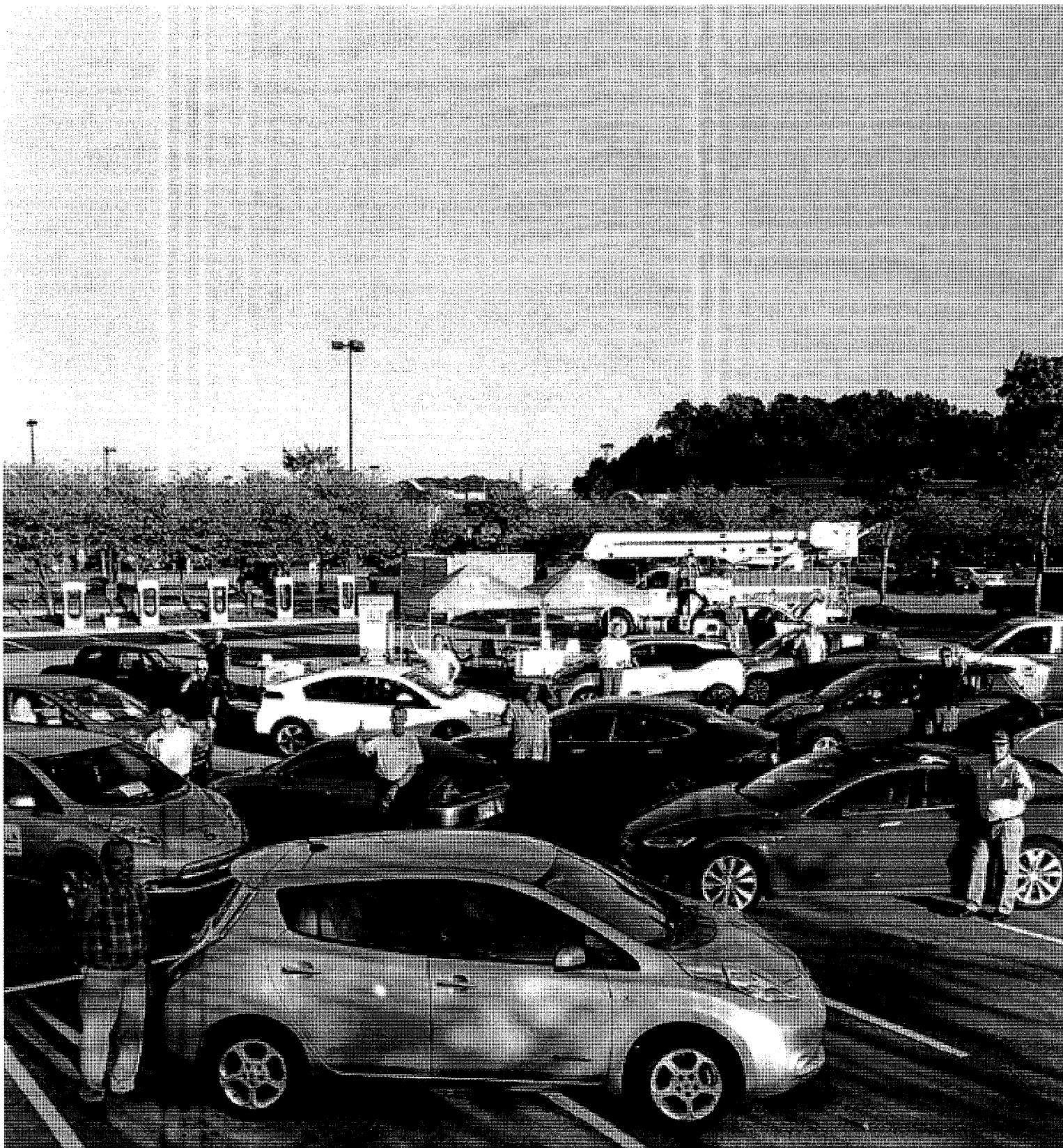
experience. We know there to be some barriers to unbiased results that are present in the data, such as use of a non-random sample selected by volunteers themselves, and the potential for non-response bias and measurement error. However, we believe the report does provide a useful reflection of EV shopping trends in the ZEV states.

REFERENCES AND LINKS

1. Union of Concerned Scientists, May 2016. "Driving Habits, Vehicle Needs, and Attitudes toward Electric Vehicles in the Northeast and California."
2. California's Air Resources Board (CARB) Zero Emission Vehicle (ZEV) Program.
3. Cahill, E.C. (2015). *Distribution Strategy and Retail Performance in the U.S. Market for Plug-in Electric Vehicles: Implications for Product Innovation and Policy* [Doctoral dissertation]. University of California, Davis, CA.
4. Carney, Heath. "A Dealership Perspective: How We Can Sell Millions of EVs." *Charged EVs* March, 2016.
5. Sierra Club's Rev Up EVs questionnaire <https://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/RevUpEVsSurvey.pdf>.
6. Sierra Club's Rev Up EVs how-to Prezi video for volunteers https://prezi.com/vgxwm4g_gnpt/sierra-clubs-rev-up-evs-campaign/?utm_campaign=share&utm_medium=copy.
7. *Charging Up: The Role of States, Utilities, and the Auto Industry in Dramatically Accelerating Electric Vehicle Adoption in Northeast and Mid-Atlantic States*. Sierra Club, Acadia Center, Conservation Law Foundation; October 2015.

NOTES

1. In this report, "EV" refers to both full battery electric vehicles and plug-in hybrid electric vehicles.
2. Note that because of its unique nature as a ZEV-only auto manufacturer, Tesla is excluded from some cumulative data presented in this report.
3. Data reflects surveys from all ten ZEV states.
4. Revised Fiat/Chrysler sales for 2016: http://www.nytimes.com/2016/07/27/business/flat-chrysler-revises-5-years-of-sales-data-recanting-vaunted-winning-streak.html?_r=0
5. Union of Concerned Scientists and Consumers Union, May 2016. *Driving Habits, Vehicle Needs, and Attitudes toward Electric Vehicles in the Northeast and California*. <http://www.ucsusa.org/sites/default/files/attach/2016/05/Electric-Vehicle-Survey-Methodology.pdf>
6. Insufficient data in this category for Rhode Island.
7. Defined as being along the road, under canopies, inside the showroom, or next to charging stations.
8. Fiat, Porsche, and Volvo excluded due to insufficient data.
9. Insufficient data in this category for Rhode Island and Maine.
10. Among auto dealerships with at least one electric vehicle on the lot.
11. Carney, Heath March 2016. "A Dealership Perspective: How We Can Sell Millions of EVs." *Charged EVs*
12. Since Tesla operates stores and not dealerships, the company is restricted in the number of stores it can operate in many states so the numbers of EVs at their stores available for test drive are not relevant in comparison to dealerships. Also important to note is that some Tesla stores are in malls or places where you can't actually drive the car right then and there.
13. Among dealerships/stores with at least one EV on the lot.
14. Carney, Heath March 2016. "A Dealership Perspective: How We Can Sell Millions of EVs." *Charged EVs*.
15. Nissan's No Charge to Charge program: <http://www.nissanusa.com/electric-cars/leaf/charging-range/charging/no-charge-to-charge/>
16. Sierra Club's Rev Up EVs web tool. <http://content.sierraclub.org/evguide/rev/signup>
17. https://prezi.com/vgxwm4g_gnpt/sierra-clubs-rev-up-evs-campaign/?utm_campaign=share&utm_medium=copy
18. <https://drive.google.com/file/d/0B9TkicZ17h2tZDBXNJRUVcxRUxtWDgOOGZGMmZtTDZqbVc0/view>
19. <https://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/RevUpEVsSurvey.pdf>



Sierra Club National
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5500

Sierra Club Legislative
50 F Street, NW, Eighth Floor
Washington, DC 20001
(202) 547-1141

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