



Alliance for
Transportation
Electrification

Plug In

America



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The Missing Piece on Meeting Transportation Electrification Goals: Utility Education and Outreach Programs

White Paper Outline

Executive Summary

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 - II. Today's landscape of E&O: Active but not sufficient
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Plug-in electric vehicles and the shift to transportation electrification (TE) have been proven to provide significant benefits to all customers in utility service territories, the electric grid and to each state. To achieve these benefits, and to meet various climate and air quality goals, many states and cities have adopted specific targets and goals to advance transportation electrification. While many barriers to greater adoption of electric vehicles (EVs) exist, the barriers of education and outreach (E&O) for these vehicles must still be addressed.

This paper examines the current state of E&O in transportation electrification and lays the foundation for why utility investment in ***E&O is the missing piece*** to achieving goals for widespread TE in a state or region. The paper outlines eight key reasons for why utilities should be enabled to invest in E&O for transportation electrification programs.

It concludes with a summary of best practices in utility E&O for EVs, which include test ride and drives, retail experience centers, dealer partnerships and automaker partnerships, and other innovative partnerships.

In summary, broad collaboration and multiple partnerships are essential to leverage utility investments to reach ambitious decarbonization and clean transportation goals.

I.

The barriers of education and outreach to the greater adoption of EVs.



The future of transportation is widely seen to be electric.¹

Plug-in electric vehicles (EVs) can provide significant benefits to all customers in utility service territories, the electric grid and to each state.² Given the number of benefits, it's no surprise that states and utilities around the country are preparing for the accelerated growth of this market through supportive state level policies and utility programs that will shift to an electric transportation future. One of the biggest barriers to greater adoption of these clean vehicles is education and awareness of the vehicles to consumers, regardless of whether that consumer is the owner of a light-duty vehicle or the manager of a fleet of heavy-duty transportation equipment. Not only is education and awareness of EVs as a purchase option needed, but also education on how, when and where to charge, how much charging costs, and other maintenance and battery related issues. One poll showed that less than one in five (18%) Americans in the target audience of the poll have seen, read, or heard "a lot" about electric vehicles, nearly eight in ten (78%) have heard "some or not much," while four percent have heard "nothing at all."³ A recent survey of 1,400 consumers in Pacific Power's territory revealed that well over half of respondents (64 percent) were not aware of any EV initiatives, 70 percent were unaware of the federal tax incentive for EVs, and 77 percent were unaware of the Oregon vehicle rebate.⁴

A July 2019 joint study of Consumer Reports and Union of Concerned Scientist (UCS) survey of consumers found that more than three-quarters (78 percent) were unaware if their state currently offers any rebates or incentives for purchasing or leasing an EV.⁵ Finally, a report published in October 2020 by Resources for the Future showed that while 57% of future car buyers are willing to consider buying an EV, there are significant misperceptions about charging, the maintenance on an EV, battery issues, acceleration of the EV and EV mechanics.⁶ For example, the report states that "22% of Americans believe charging EV batteries is extremely difficult, 24% believe it is very difficult, and 32% perceive it to be moderately difficult."⁷ Moreover, "78% of Americans think finding an EV charging station is at least moderately difficult."⁸ While it may seem natural to view automakers and dealerships as solely responsible for the education and awareness of these vehicles, the following whitepaper explains the necessity and added benefits to all customers for utilities to be involved.

1 According to industry experts and transportation analysts, sales of EVs in the light-duty and medium-heavy duty sectors are expected to surpass sales of internal combustion engine vehicles within the next decade. One analysis is here: <https://about.bnef.com/electric-vehicle-outlook/>. Another analysis is here: <https://www.ucdavis.edu/news/future-car-driverless-shared-and-electric/>

2 Studies in the states of AZ, MA, MD, NY, MN, CT, PA, FL, NM, CO, MI, IL, IN, KY, NC, SC, OH were performed by MJ Bradley and Associates, all showing the state-wide costs and benefits of EVs. See more at: <https://www.mjbradley.com/content/electric-vehicle-cost-benefit-framework>

3 April 2019 poll. See more at: <https://climatenexus.org/wp-content/uploads/2015/09/EV-Poll-Results.pdf>

4 Pacific Power, Oregon Transportation Electrification Plan (p. 32).

5 Consumer Reports and Union of Concerned Scientists, "Electric Vehicle Survey Findings and Methodology," www.ucsusa.org/EVsurvey2019 (pg. 8)

6 See the full report at: <https://www.rff.org/publications/reports/climateinsights2020-electric-vehicles/>

7 <https://www.rff.org/publications/reports/climateinsights2020-electric-vehicles/>

8 <https://www.rff.org/publications/reports/climateinsights2020-electric-vehicles/>



A regulated utility is an ideal entity to help educate customers on the benefits of EVs, the correct charging infrastructure needed and EV charging rates, to the benefit of all customers. The greater the adoption of EVs in a service territory that utilize off-peak charging rates, the more efficient use of existing utility assets and therefore downward pressure on electricity rates to the benefit of all customers.⁹ Similar to education and outreach programs on energy efficiency technologies, which benefit the customer and the grid, utilities should educate their customers on EV technologies that have been proven to reduce rates for all customers and help the grid.

Utilities are also often a trusted voice in the community to provide reliable information on energy resources and use, and this trusted “energy advisor” relationship should extend to purchasing and charging of EV batteries as well. The “fuel of the future” promises to be electricity for the mass adoption of electric vehicles which must be integrated reliably in the distribution grid.¹⁰

Utilities know their customers and the best way to inform customers of new EV rate information in a manner that is not confusing. Whether through emails, bill inserts, websites or social media, there are numerous channels that a utility can use to educate the consumer on charging practices (time to charge, where to charge and even how to charge), types of EVs and charging stations, as well as the fuel economy differences between electricity costs and gas costs, the environmental impact, consumer protection issues to be prepared for, and other emerging EV issues such as battery warranty and maintenance.

⁹ Frost, Jason and Whited, Melissa and Allison, Avi. “EVs are Driving Electric Rates Down” July 2020 Update. Available at: https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf

¹⁰ One report showed that, “Consumers trust utilities to provide accurate information about EVs, more than they trust government and auto industry sources, according to research conducted by an unnamed EEI member utility. This credibility is reinforced by the fact that utilities promote EVs as a class, rather than try to sell any particular make or model.” News article here: <http://www.utilitydive.com/news/got-evs-why-utilities-should-promote-electric-vehicles-to-consumers/417638/#.Vxey9rwiKJQ.twitter> The full research is available here: Transportation Electrification: Utility Fleets Leading the Charge (EEI, 2014) http://www.eei.org/issuesandpolicy/electrictransportation/FleetVehicles/Documents/EEI_UtilityFleetsLeadingTheCharge.pdf

Stakeholders that have engaged in utility petitions for TE programs at Commissions have called for investment in utility E&O on transportation electrification. For example, one principle of the Transportation Electrification Accord (TE Accord) says that:

“Utilities should proactively engage their regulators, consumers and all stakeholders in developing rate designs, infrastructure deployment programs, and education and outreach efforts that benefit all utility customers and allow reasonable cost recovery, while accelerating widespread transportation electrification that supports a reliable and robust grid.”¹¹

A diverse group of organizations have signed the Accord including industry, auto and bus OEMs, Plug-in America and other environmental NGOs, the Alliance for Transportation Electrification (ATE). This is evidence of broad consensus for the principles supporting the foundation of transportation electrification and taking a “big tent” approach in the EV ecosystem, including robust education and outreach activities.

This paper explores in depth these issues primarily for state Public Utility Commissions (PUCs) and other state decision-makers, as well as local government leaders and the governing boards of consumer owned utilities.

¹¹ <https://www.theevaccord.com/>



II.

Today's landscape of E&O: Active but not sufficient



For the significant benefits that an accelerated transition to an electric transportation sector will provide, it is almost a little troubling that there has not – to date – been an even greater focus placed on education and outreach programs. Current efforts on EV education and outreach can be bucketed into efforts at the national, state, city and regional levels. While utilities have petitioned for more ambitious E&O programs, several Commissions have trimmed back those requests arguing that general EV adoption programs should not be implemented with ratepayer funding. However, other Commissions have authorized more robust programs for education in both energy efficiency and EVs through web portals, ride and drive sponsorships, and customer experience centers. This report will attempt to assess this evolving landscape, and set forth some best practices for utility programs in the future.

E&O Programs of Auto OEMs: Data shows that OEM expenditures on EV marketing has historically been limited.¹² One report pointed out that the leading automakers spent less than 10% of their advertising budget on EVs in 2018.¹³ Some automakers have since spent more of their advertising budget on EVs – but certainly not a significant portion of their budgets in the past. However, with the public announcements of numerous PHEVs (plug-in hybrid electric vehicles) and BEVs (battery electric vehicles) in the next couple of years, one can expect that the OEMs will devote more resources here. The automakers are well suited to educate on vehicle performance, functionality, and accessories, but not necessarily on the details of charging the batteries whether at home or using public charging stations, and the plug types, retail rates for electricity, and managed charging techniques. In addition, the automakers must also educate and train their network of franchised dealerships on how to sell EVs and talk about EVs to customers, as these vehicles represent a different way of driving than customers are used to. Furthermore, consumers need to hear from multiple voices as part of their decision making when purchasing a new car, particularly an electric one.

¹² Board of Public Utilities (BPU) of State of New Jersey: Docket No. QO20050357, “Straw Proposal on Electric Vehicle Infrastructure Build-out”, resulting in a Commission Order called “Minimum Filing Requirements (MFR)”, dated Sept. 23, 2020. See letter from Alliance for Automotive Innovation, dated June 17, 2020

¹³ New York Department of Public Service (DPS), Case No. 18-E-0138: “Proceeding on Motion of Commission regarding EVSE Infrastructure”, resulting in a Commission Order on July 16, 2020. See letter from Alliance for Automotive Innovation, dated April 27, 2020

Customer E&O simply cannot be left to the automakers alone. Automakers across the board have recognized the unique role that utilities can play in educating consumers about EVs. The Alliance for Automotive Innovation has commented in a number of public dockets about the unique partnership that exists between automakers and utilities in educating about these vehicles. Some examples are as follows:

“Finally, the inclusion of an “Education and Outreach Plan” is a critical element because utilities have an existing, wide, and broad network for reaching customers. They also have the right level of information to assist customers in understanding important concepts like home charging set-ups, rates, and advantageous times to charge. For example, in the State of California, utilities have long played a role in distributing information, offering competitive charging rates, and working directly with consumers to provide rebates for chargers and charging, all of which result in increased customer awareness and enhanced customer experience; these efforts have greatly contributed to California’s ever-growing EV market. Thus, we cannot underscore enough the importance of implementing a plan for customer outreach as part of Duke Energy Ohio’s proposals.”

While the Straw Proposal doesn’t reference outreach and education, utilities can contribute in a variety of means, from consumer-facing outreach programs that promote electric vehicles to education on charging and rates. Regulators have approved ratepayer-funded programs in several states that provide examples of potential utility engagement on this front. Utilities have the ability to contact large numbers of customers, and can help grow the market through outreach. Additionally, they have a wealth of expertise with respect to the functionality of the grid and the current available information on how vehicle charging has and may impact it. We recommend that BPU not leave these resources on the table.”

“Utilities have a critical role to play in reaching out to and educating consumers about EVs and available rates that may make at home charging a more cost-effective option; however, the Whitepaper doesn’t allow utilities to induce EV sales with ratepayer funds. This needs to be reversed, as utilities could contribute in a variety of means, from consumer-facing outreach programs that promote electric vehicles to education on charging and rates. Regulators have approved ratepayer-funded programs in several states that provide examples of potential utility engagement on this front. Utilities have the ability to contact large numbers of customers, and can help grow the market through outreach. Additionally, they have a wealth of expertise with respect to the functionality of the grid and the current available information on how vehicle charging has and may impact it. DPS should not leave these resources on the table.”

National E&O Programs: As part of the VW Settlement, VW was instructed to create a separate entity, called Electrify America, LLC, and to invest \$2 billion over 10 years into a deploying EV infrastructure and into a brand-neutral education and awareness campaign.¹⁴ In the first cycle of this campaign (Q1 2017 – Q2 2019), \$300M was allocated for these two objectives, excluding California.¹⁵ Cycle 2 is currently underway (Q3 2019 – Q4 2021), Cycle 3 will run Q1 2022 – Q2 2024, and Cycle 4 will run Q3 2024 – Q4 2026. However, of the \$300M allotted to Cycle 1, only \$25M was spent on education and outreach of EVs across the nation.¹⁶ In this first cycle, “Electrify America committed to leverage media to put ZEVs on the big stage in order to help consumers understand that ZEVs not only meet the majority of their needs today, but even more so as the charging infrastructure network grows.” The education and awareness effort included a brand-neutral TV

¹⁴ <https://www.electrifyamerica.com/about-us/>

¹⁵ In California, \$800 million has been allocated over 10 years. <https://www.epa.gov/sites/production/files/2017-04/documents/nationalzevinvestmentplan.pdf>

¹⁶ <https://www.epa.gov/sites/production/files/2017-04/documents/nationalzevinvestmentplan.pdf>

spot, radio, and a bilingual landing page www.plugintothepresent.com that provides an overview of the benefits of both battery electric and hydrogen fuel cell electric ZEVs, with links to third-party websites containing robust content for users.”¹⁷ The results of the campaign in 2019 are as follows:

Table 1 – Cycle 1 Campaign Impressions by Media Type in 2019¹⁸



MEDIA TYPE	2019 NATIONAL IMPRESSIONS
TV	328,000,000
RADIO	N/A
STREAMING AUDIO	117,765,402
SEARCH	N/A
DIGITAL/VIDEO	279,000,608
PODCASTS	4,642,566
SOCIAL	354,293,943
OUT OF HOME (OOH)	46,900,000
TOTAL	1,130,602,519

The cycle 2 investment plan includes an allocation of only \$25M out of \$300M for EV education and outreach too.¹⁹

Other national E&O programs are run by non-profit groups. Plug In America, together with the Electric Auto Association and the Sierra Club, coordinate National Drive Electric Week every year in September, and Drive Electric Earth Day every year in April. These events celebrate the electric car through static displays or ride and drives, or both. Some events are extremely large and boast of attendees of up to 5,000 people, while other events are smaller in scope and have 50 attendees. In 2019, National Drive Electric Week hosted 324 events in all 50 U.S. states. The groups states that approximately 170,000 people attended the 2019 NDEW events.²⁰

State E&O Programs: The only state with a major EV education and outreach campaign underway is California, run by the non-profit Veloz. Called “Electric for All”, the campaign was launched in 2018 with a social and digital media campaign called “Opposites Attract”, and in 2019 launched a campaign with Arnold Schwarzenegger called “Kicking Gas.”²¹

City Level E&O Programs: City run EV education and outreach campaigns or programs are few. However, one great example is the city of Denver, which launched a campaign in Sept. 2018 called “Pass Gas.”²² In addition, in the Denver EV Action Plan released in April 2020, the plan includes an E&O campaign focused on the below key audiences, with equity considerations as well:

- Company owners and decision-makers, including those that maintain fleets of vehicles
- Employees of large companies, as well as small and medium-size businesses
- CCD employees
- Residents of Denver with a focus on underserved communities²³

While a funding level is not specified to run the campaign, it is noted that “Resources and Partners” or “Internal Resources” are needed.

¹⁷ <https://newspress-electrifyamerica.s3.amazonaws.com/documents%2Foriginal%2F264-2018ElectrifyAmericaNationalAnnualReport.pdf>

¹⁸ <https://newspress-electrifyamerica.s3.amazonaws.com/documents%2Foriginal%2F419-2019ElectrifyAmericaNationalAnnualReport.pdf>

¹⁹ <https://elam-cms-assets.s3.amazonaws.com/inline-files/Cycle%20%20National%20ZEV%20Investment%20Plan%20-%20Public%20Version%20vF.pdf>

²⁰ <https://pluginamerica.org/press-release/state-local-leaders-charge-forward-on-progress-during-national-drive-electric-week/>

²¹ <https://www.veloz.org/initiatives/electric-for-all/>

²² <https://www.denvergov.org/content/denvergov/en/climate-sustainability/programs-services/pass-gas.html>

²³ <https://www.denvergov.org/content/dam/denvergov/Portals/779/documents/transportation/DenverVehicleElectrificationActionPlan.pdf>

One other example to note is in the city of Columbus Ohio. Funded by a \$10 million grant and \$40 million from the U.S. Department of Transportation, Columbus won the Smart Cities Challenge for their “Smart Columbus” program, which includes elements of EV E&O.²⁴ Of the total \$50M, Smart Columbus educates consumers about EVs through the Ride and Drive Roadshow, the Electrified Dealer program, and the Smart Columbus Experience Center. While specific funding levels are not entirely clear, the final ride and drive report states: “At scale, each Ride & Drive event cost approximately \$8,000. This included project management, specially trained staff, event execution and logistics, website and digital asset development, reporting, permitting, \$1 million insurance policy, and site management.”^{25 26} Further results of the ride and drives and the positive impact on customer awareness are below:²⁷

From the Smart Columbus Experience Center webpage.

Columbus won the Smart Cities Challenge for their “Smart Columbus” program, which includes elements of EV E&O.²⁵

Results of the ride and drives and the positive impact on customer awareness.



The Smart Columbus Experience Center is a public, interactive venue that, “provides a first-of-its-kind learning destination about how mobility technology and innovation can improve people’s lives and the communities where we live. Since the Experience Center opened in July 2018, over 30,000 visitors from the Columbus region and around the globe have visited the 3,000 square-foot showroom.” Smart Columbus states that 5 full-time paid staff were available at the Experience Center.

²⁴ <https://www.columbus.gov/smartcity/>

²⁵ https://d2rfd3nxvhnf29.cloudfront.net/2020-02/Ride%20n%20Drive%20Final%20Report%20_compressed.pdf

²⁶ <https://smart.columbus.gov/projects>

²⁷ https://d2rfd3nxvhnf29.cloudfront.net/2020-02/Ride%20n%20Drive%20Final%20Report%20_compressed.pdf

Regional E&O Programs: The Northeast States for Coordinated Air Use Management (NESCAUM) non-profit, together with auto manufacturers, launched an EV E&O campaign in 2018 in the northeast called “Drive Change. Drive Electric.”²⁸ This campaign features the program “Destination Electric”, which provides window stickers for businesses that have charging stations available to the public. Six northeast States participate in this campaign. “Destination Electric” is the main component of the program, though there is also a website and a few EV driver stories posted online too. The funding level for the campaign is not mentioned, but more campaign elements and much more funding will be needed to really educate consumers and accelerate the transition to transportation electrification.

Utility E&O Programs: Utility TE programs that include E&O – beyond the general marketing for an EV program – from ratepayer dollars have been small compared to the total utility investment in EV infrastructure and other EV programs. Atlas Public Policy reports that as of August 2019, electric utilities have expended \$20 million in E&O programs, which represents less than 2% of the total \$1.18 billion in approved TE investment overall. Furthermore, E&O programs are included in only 20 of the 55 approved programs; that investment from the 20 utilities is spread over only 11 states.²⁹

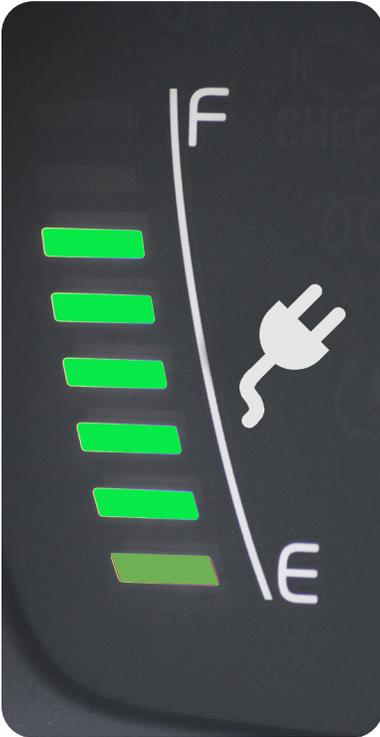
28 <https://driveelectricus.com/>

29 https://www.atlasevhub.com/data_story/less-than-two-percent-of-utility-investment-going-towards-ev-awareness/



III.

Why utility investment in E&O represents a unique opportunity



Utilities are a natural fit to help grow consumer awareness of EVs, to the benefit of all electric customers. There are eight key reasons for why utilities should be enabled to invest in E&O for transportation electrification programs.

They are:

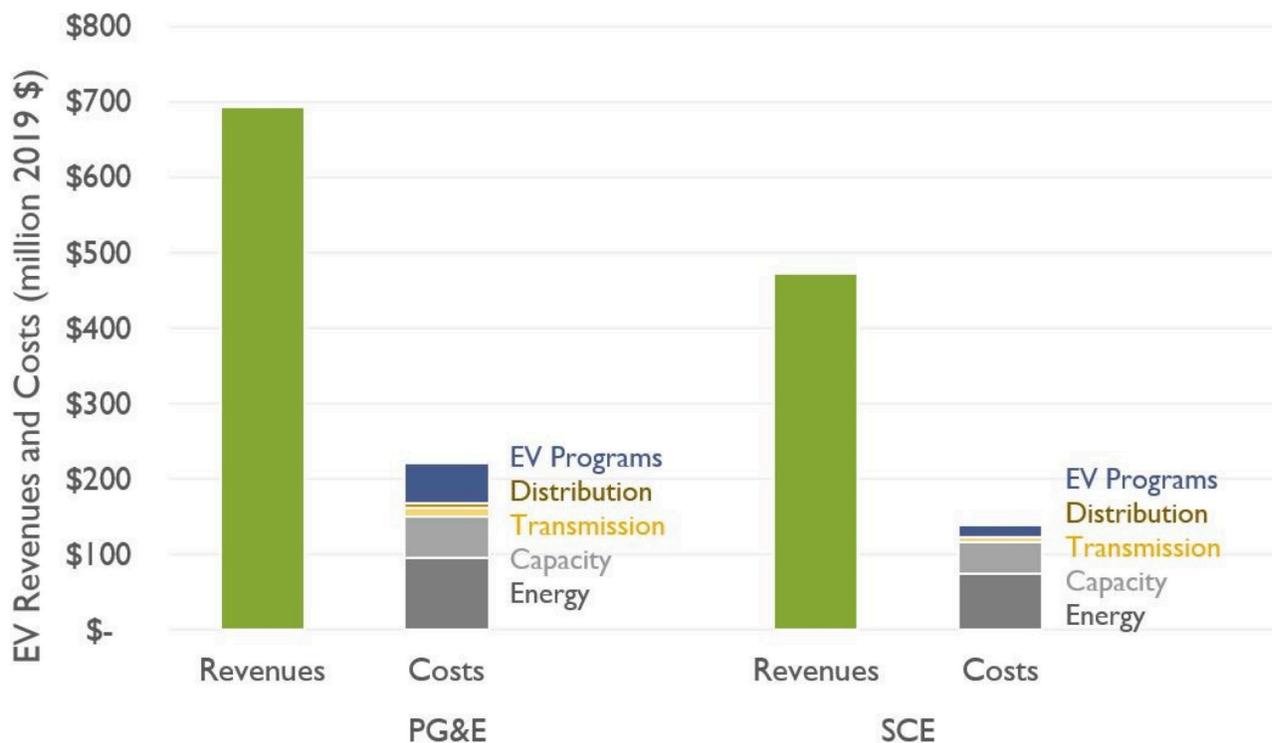
- 1. Electric utility investment in E&O can help accelerate transportation electrification, to the benefit of all customers.***
- 2. Electric utility investment in E&O can help accelerate transportation electrification, to the benefit of the grid.***
- 3. Precedent for electric utility investment in E&O for EVs has been established by E&O investment in energy efficiency technologies.***
- 4. Customers view their electric utility as a trusted resource for information and expect electric companies to provide information about EVs.***
- 5. Electric utility investment in E&O can complement other E&O efforts, but at the appropriate scale needed.***
- 6. Regulators are establishing precedent for approving electric company investment in E&O for EVs.***
- 7. Electric utility investment in E&O can influence both general awareness of EVs and increase program enrollment.***
- 8. Electric utility investment in E&O can target specific gaps in the marketplace.***

These reasons are explained in detail below:

1. Electric utility investment in E&O can help accelerate transportation electrification, to the benefit of all customers.

The benefits for a transition to an electrified transportation sector are significant. Not only are there savings for consumers and fleet managers on fuel and maintenance costs, improved air quality, and more jobs in the tech and innovation sectors, but multiple studies have shown that EVs generate more revenue than their cost to serve, which puts downward pressure on customer rates. Real world data has also demonstrated this effect in California: the program cost was less than about \$220 million in PG&E territory, and less than \$150 million in SCE territory, but the increased revenue from charging brought in was nearly \$700 million in PG&E territory and \$500 million in SCE territory, to the benefit of all customers.^{30 31}

PG&E and SCE Revenues and Costs of EV Charging, 2012 - 2019



2. Electric utility investment in E&O can help accelerate transportation electrification, to the benefit of the grid.

As the owners and operators of the distribution grid, electric utilities alone can capture the system wide benefits of EVs across all use cases, such as individuals, fleets, and the different charging modes (L1, L2, DCFC). Only the electric utility can influence EV drivers and fleet operators to charge at the proper time that will benefit the grid and more efficiently utilize grid assets. Education and outreach to customers on TE and the utility TE programs is important to establish the relationship between customer and utility as the new load is added to the grid, especially so the customer can understand the benefits of managed charging and charging at off-peak times or on TOU rates. For example, Avista’s final report on their EVSE pilot revealed the following, “Customers choosing the EVSE-only TOU rate consumed 93.7% of charging kWh during off-peak hours. This appears to be most likely due to individual education about the TOU rate and its benefits with participants, demonstrating the potential results of effective customer outreach and education.”³²

30 https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf

31 https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf

32 Avista Corporation, Electric Vehicle Supply Equipment Pilot Final Report (p. 85)



Other examples of utility investment in E&O to the benefit of the grid are demonstrated through the partnership between PG&E and BMW. In this pilot, the ability of EVs to support the grid through smart charging and demand response was measured and tested.³³ Results find that: “The Project has shown the ability for electric vehicles to provide viable grid services using the vehicle telematics system as a basis for communicating grid messages to vehicles. The grid services demonstrated in this pilot included Day Ahead and Real Time Energy, which were modeled after existing proxy demand resources from the California ISO. These grid services have the potential to result in cost savings over time associated with operating and maintaining the grid as well as owning an electric vehicle.”³⁴ In California, the recent Vehicle Grid Integration (VGI) working group report showed that utilities can effectively manage various TE loads to the benefit of the grid, and includes mention of education and outreach programs as part of the policy recommendation section in order to help bring out the benefits of VGI.³⁵

3. Precedent for electric utility investment in E&O for EVs has been established by E&O investment in energy efficiency technologies. Commissions have a history of approving electric utility investment in E&O to advance customer solutions that are widely beneficial. Nearly all electric utilities have robust energy efficiency (EE) programs, including significant investment in E&O of EE technologies. For example, one report states, “Electric companies — encompassing investor-owned electric companies, public power utilities, electric cooperatives, and federal utilities — are the largest providers of EE programs in the United States, with program-related expenditures of \$6.5 billion, comprising 90 percent of the \$7.2 billion in EE expenditures nationwide.”³⁶ In terms of a dollar value associated with the EE E&O investment, a report from LBNL states, “The median and average values for the share of administration and marketing costs were 25% to 27% in the C&I sector compared to 33% in the residential sector.”³⁷ This establishes precedent for utility investment in EV and transportation electrification E&O, as both benefit the grid and all customers.

³³ <http://www.pgecurrents.com/2017/06/08/pge-bmw-pilot-successfully-demonstrates-electric-vehicles-as-an-effective-grid-resource/>

³⁴ <http://www.pgecurrents.com/wp-content/uploads/2017/06/PGE-BMW-iChargeForward-Final-Report.pdf> p. 4

³⁵ https://gridworks.org/wp-content/uploads/2020/09/GW_VehicleGrid-Integration-Working-Group.pdf

³⁶ IEI, Energy Efficiency Trends in the Electric Power Industry (2008-2018) (p. 5)

³⁷ LBNL, The Cost of Saving Electricity Through Energy Efficiency Programs Funded by Utility Customers: 2009-2015 (p. 34)



4. Customers view their electric utility as a trusted energy advisor including EVs.

Utilities are a trusted voice in the community to provide reliable information, even for promoting EVs.³⁸ Utilities know their customers and the best way to inform customers of new EV rate information in a manner that is not confusing. Surveys even show that consumers want their electric utilities to provide information. For example, the Avista final report on their EVSE (electric vehicle supply equipment) pilot found that utility E&O was welcome, particularly in sharing where EVSE will be located: “Constructive feedback included the need for more public charging (especially DC fast charging) and workplace charging, informing and educating the public about EVs and EVSE locations, and improving the reliability and user experience of networked EVSE.”³⁹

In Oregon, Pacific Power is the fourth most trusted source of EV information, after current EV owners, dealerships, and nonprofit organizations.⁴⁰ Another report on utilities as trusted sources for EV information showed that, “Utilities emerged as the entity consumers relied on the most for accurate information about technologies like solar and EVs.”⁴¹ Electric utilities should be technology and brand agnostic, and can offer their customers unbiased feedback on vehicles, charging infrastructure and various EV charging rate options. Usually, regulated utilities will pre-qualify certain EVSE vendors to supply equipment to their customers as long as they meet certain technical requirements. Finally, utilities also have the resources to translate information and resources into various languages for their customers.

5. Electric utility investment in E&O can complement other E&O efforts, but at the appropriate scale needed.

Utility investment in E&O can complement any potential city, state or regional E&O efforts. However, as noted in Section II of this paper, the current state of E&O efforts across cities, states and regions is very limited and inadequate in scale and funding.

As mentioned in Section II, to date, approximately \$1.18 billion has been invested in utility TE programs, with less than 2% being spent on the E&O component.⁴² For comparison purposes, the latest EIA Annual Electric Power Industry Report shows that utilities spent around \$6 billion on energy efficiency programs each year from 2014 through 2017, with half of this investment spent on customer incentives for free or low cost energy audits, free or discounted energy efficient light-bulbs and rebates to customers who purchase energy-efficient or ENERGY STAR-certified major appliances such as refrigerators, freezers, hot water heaters, and air-conditioning equipment. Despite the price tag of \$6 billion dollars of investment – including the education and outreach component for the programs – the EIA report states that, “New energy efficiency program participants saved one kilowatt-hour (kWh) of energy for every 20 cents spent in 2017. However, the lifecycle costs of energy efficiency programs are only about 2 cents/kWh annually. Most of the utility expenditures are one-time, up-front costs, but the energy savings they produce continue for many years, such as discounts for energy-efficient appliances or free

³⁸ One report showed that, “Consumers trust utilities to provide accurate information about EVs, more than they trust government and auto industry sources, according to research conducted by an unnamed EEI member utility. This credibility is reinforced by the fact that utilities promote EVs as a class, rather than try to sell any particular make or model.” News article here: <http://www.utilitydive.com/news/got-evs-why-utilities-should-promote-electric-vehicles-to-consumers/417638/#.Vxey9rwiKJQ.twitter> The full research is available here: Transportation Electrification: Utility Fleets Leading the Charge (EEI, 2014) http://www.eei.org/issuesandpolicy/electrictransportation/FleetVehicles/Documents/EEI_UtilityFleetsLeadingTheCharge.pdf

³⁹ Avista Corporation, Electric Vehicle Supply Equipment Pilot Final Report (p. 24)

⁴⁰ Pacific Power, Oregon Transportation Electrification Plan (Attachment 1)

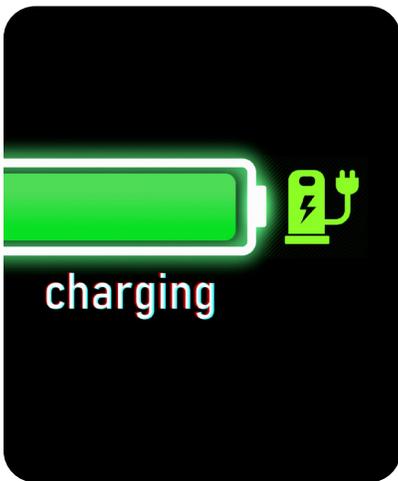
⁴¹ Smart Grid Consumer Collaborative, Consumer Driven Technologies (p. 18)

⁴² https://www.atlasevhub.com/data_story/less-than-two-percent-of-utility-investment-going-towards-ev-awareness/

energy-efficient lightbulbs.”⁴³ The same case can be made for the investment in utility TE programs and the E&O component of the programs: despite the scale that may be needed (much more than the current \$1.2 billion total utility program investment), the savings from downward pressure on rates can be significant. In short, to see the savings customers have seen from utility energy efficiency programs, the funding scale must substantially increase.

6. Regulators are establishing precedent for approving electric company investment in E&O for EVs.

Some commissioners have already mandated electric utility investment in E&O as part of their TE activities. For example, Washington UTC policy guidance adopted three years ago states: “Utility electric vehicle charging service programs must include an education and outreach component targeted to potential EV drivers in a utility’s service territory. Education and outreach is necessary to drive market transformation, and we find that the costs of these efforts can be included in the cost of service, provided that they are not ‘promotional advertising.’”⁴⁴ In addition, Arizona Corporation Commission (ACC) policy guidance states, “Public Service Corporations are encouraged by the Commission to develop educational and outreach programs (subject to Commission oversight) as they relate to Electric Vehicles, Electric Vehicle Infrastructure, and the Electrification of the Transportation Sector and may request cost recovery for Electric Vehicle programs including education and outreach programs.”⁴⁵ The California Public Utilities Commission, MN Commission and Michigan PSC have also already approved investment in EV E&O programs for their utilities. Other examples include: DTE in Michigan was approved for \$1.6 million for their EV E&O programs, Baltimore Gas and Electric was approved for about \$2.4 million for their EV E&O program, and NV Energy was approved for \$706 thousand for their EV E&O program.⁴⁶



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7. Electric utility investment in E&O can influence both general awareness of EVs and increase program enrollment.

General awareness and narrower education of utility programs on EVs are both needed to address different barriers to adoption. Electric utilities can influence both in an effective manner. For example, in California, the shift to time-of-use rates required a large campaign to educate customers about the change. To prepare customers for the shift, San Diego Gas & Electric created a customized campaign (e.g. English, Spanish, direct mail, and email, etc) targeting 4.2 million customers and generated 527 million impressions through mass medium activities. Awareness by residential households transitioning to a TOU rate increased from 47% to 74%.⁴⁷ Ride and drives supported by utilities can increase general awareness, but also provide the opportunity to educate about the utility EV charging rates. Ideally, electric utilities should be allowed to invest in E&O for EVs broadly.

⁴³ <https://www.eia.gov/todayinenergy/detail.php?id=38872#:~:text=Utility%20spending%20on%20new%20energy,on%20residential%20and%20commercial%20customers.&text=Demand%20response%20programs%20typically%20offer,air%2Dconditioning%20systems%20when%20needed>

⁴⁴ Washington Utilities and Transportation Commission, Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services (p. 41)

⁴⁵ <https://docket.images.azcc.gov/0000195197.pdf>

⁴⁶ https://www.atlasevhub.com/data_story/less-than-two-percent-of-utility-investment-going-towards-ev-awareness/#:~:text=To%20date%2C%20electric%20utilities%20across,approved%20transportation%20electrification%20investment%20overall.&text=Overall%20educational%20investment%20is%20spread%20across%2020%20utilities%20in%2011%20states

⁴⁷ Refer to SDG&E TOU tariff and the results of education campaign in this progress report to the CPUC on residential rate reform:

https://www.sdge.com/sites/default/files/regulatory/R.12-06-013%20SDGE_Q1_2020_PRRR_5%201%202020%20FINAL.pdf



Furthermore, utilities are more suited for the general awareness of EVs amongst consumers than other groups. For example, Pacific Power argued in its TE Plan that it can have more influence of consumer awareness and education than other issues like vehicle supply chain or regulatory/policy issues that could accelerate EV adoption.⁴⁸

8. Electric utility investment in E&O can target specific gaps in the marketplace.

Electric utilities are also key players that can fill specific gaps in the marketplace. For example, rural communities are often harder to reach for specific EV E&O efforts, but utilities serve many rural customers. One report states, “Bridging the education gap and creating awareness around EV benefits amongst the rural population plays an important role to influence EV production and deployment in rural landscape.”⁴⁹ Utilities also have unique access into disadvantaged communities, low-income communities, and have the resources to provide information in different languages.

Furthermore, utilities are the best suited to instruct the second, third and fourth owners of an EV to help the customer get on the right charging rate and to understand charging times. Eventually the second hand market for EVs, and the third hand market, will be much larger than the first owner market. Many moderate and low-income drivers make up this segment of drivers, who may also need assistance with their charging rate through disadvantaged customer assistance programs.

Electric utility EV TOU and other managed charging rates can also be cross marketed with any complementary city, state or regional EV E&O efforts, and likewise, the electric utility can inform customers of any state purchase incentives available. Electric utility EV programs can also be cross marketed with other utility energy efficiency programs. There are a few emerging best practices for utility investment in EV E&O thus far. These best practices include test ride and drives, retail experience centers, dealer partnerships and automaker partnerships, and other innovative partnerships.

⁴⁸ Pacific Power, Oregon Transportation Electrification Plan (p. 35)

⁴⁹ Pacific Power, Oregon Transportation Electrification Plan (p. 35)

IV.

Best practices for utility E&O



Test ride and drives: The best way for a consumer to make the switch to driving electric is to experience a test drive in an EV. Ride and drive events significantly increase interest, increase sales and expose customers to the technology.⁵⁰ Data from an NREL study shows that after a ride and drive, 67% of follow-up survey respondents did additional research after a ride and drive, and 25% purchased an EV. Furthermore, 98% would buy another EV and 99% would tell their friends to buy an EV too.⁵¹ These studies show that getting potential EV buyers in an actual vehicle for a driving experience (or “butts in seats”) is one of the most effective means to increase EV adoption. Utilities are uniquely poised to support ride and drive events organized at workplaces or at local community events, such as farmers markets or local fairs. Not only can utilities help by financially supporting ride and drive events, but also by hosting a booth that allows utility employees to educate customers on EV rates and other utility programs and offerings.

Retail experience centers: Retail experience centers have also been an identified area for a partnership between the utility and local stakeholders. These experience centers are generally funded by multiple partners, but become the “go-to” location to learn more about EVs, available incentives and any utility EV programs. Examples of retail experience centers are the GO FORTH Electric Showcase in Portland OR, the Smart Columbus Experience Center in Columbus OH and the EV Discovery Centre in Toronto Ontario. Each of these centers involve partnerships amongst cities,

local towns, municipal utilities, investor owned utilities, automakers, charging station companies, dealerships and other non-profits.⁵² Retail experience centers can also host interactive tools that explain EV charging in an easy manner and show the charging stations available to EV drivers in a town, city, state and even regional level. One such interactive tool is the Chargeway Beacons⁵³ and program, which easily explains electricity as fuel. Unfortunately, such retail customer experience centers have been forced to close temporarily during the Covid-19 pandemic (hence putting more emphasis on internet or web portal-based E&O efforts), but most observers expect these centers to resume activities robustly once the pandemic is vanquished.

⁵⁰ A series of ride and drives in northern Colorado showed that after the ride-and-drive, those claiming to be “likely” or “very likely” to buy a PEV went from 42 to 57%. Furthermore, 78% had never driven a PEV before the event. Dealerships confirmed that sales rose after the event. Other test drives show that people interested in purchasing a PEV went from 23% to 55%. See footnote 34 in Electrification Coalition: State of the Plug-In Electric Vehicle Market: http://www.electrificationcoalition.org/sites/default/files/EC_State_of_PEV_Market_Final_1.pdf

⁵¹ <https://roadmapforth.org/program/presentations19/MarkSinger.pdf>

⁵² See more at: <https://forthmobility.org/showcase> and <https://smart.columbus.gov/get-involved/experience-center>

⁵³ <https://www.chargeway.net/>



Dealer partnerships: Partnerships between electric utilities and dealerships on programs are another key component of utility EV E&O investment. Through hosting a ride and drive event, utilities can refer interested consumers directly to local dealerships to purchase the EV, and after a purchase is complete, the dealer can refer customers back to the utility to sign up for the right EV charging rate. Plug In America directly provides this service between dealers, utilities and potential EV drivers through the PlugStar program.⁵⁴ The PlugStar program has been utilized by SCE, SMUD, SDG&E, Ameren and New Jersey utilities. Data shows that dealers trained through the program are four times more likely to sell an EV. Some of the dealerships that have gone through the training program also host the Chargeway Beacons, which, as noted above, easily explains how electricity as a fuel to consumers. The Chargeway Beacon has been deployed in at least four different states in partnerships with Portland General Electric, Pacific Power, Avista Utilities, Austin Energy and Indianapolis Power and Light.⁵⁵

Other examples of utility and dealer partnerships include Xcel in Minnesota, which provided training and outreach to dealers to educate them about EV rates and charging options. Additionally, the company provided an incentive to dealers who drove customers to enroll in the Company's EV Service Pilot.⁵⁶ In 2019, Xcel partnered with two local dealerships to offer incentives on EVs which was advertised concurrently with the Twin Cities Auto Show which resulted in the sale of 43 plug-in hybrid Mitsubishi Outlander vehicles.⁵⁷

Automaker partnerships: Partnerships with automakers on EV programs are a key best practice for utility EV E&O investment. These partnerships can lead to unique programs not just for the utility employees, but also for the general public. For example, utilities can offer group-buy programs to consumers through partnering with an automaker. The Nissan Fleetail program led to significantly increased EV sales in the participating utility service territories. One report states, "The utilities serve as a communications resource for the program. They do outreach to their customers via social media, websites, flyers, bill inserts and public events. These Fleetail deals ran in late 2016 with a \$10,000 discount on the 2016 Nissan LEAF and were organized in partnerships with Xcel Energy, Kansas City Power & Light, and Austin Energy. Since then, more than 20 OEM-Utility partnerships have emerged in 14 states across the country."⁵⁸ For Kansas City Power & Light, the program helped to sell over 200 Nissan LEAFs in 5 months.

Innovative partnerships: Utilities have also explored successful partnerships with car-sharing companies and other emerging subscription-based car programs. For example, Georgia Power partnered with Lyft to incentivize EV driving. The program allowed for qualified EV drivers to receive a \$500 bonus when they signed up to drive for Lyft within a certain timeframe, and after they had completed 30 rides within 30 consecutive days. The program allowed for information about EVs and the Georgia Power EV programs to be shared with the Lyft drivers and the riders.

⁵⁴ <https://plugstar.com/>

⁵⁵ For more information about the Chargeway Beacon in PacifiCorp service territory, see the PacifiCorp Transportation Electrification Update, April 21, 2020, <https://edocs.puc.state.or.us/efdocs/HAH/um1810hah153320.pdf> (pg. 11)

⁵⁶ <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={D0E9CB5F-0000-CF14-9BCC-5EC9F3F41564}&documentTitle=201711-137482-01> (pg. 20)

⁵⁷ <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B0BF0F6B-0000-CF2D-9F65-F327035855DC}&documentTitle=20195-153306-02> (pg. 8)

⁵⁸ <http://www.swenergy.org/Data/Sites/1/media/documents/transportation/sweep-group-buy-report-2018-07-25.pdf>

V.

Summary and Conclusion



Utility investment in E&O is the missing piece to achieving goals for transportation electrification. Regulated utilities have successfully educated consumers on the benefits of new and emerging technologies in the past, which benefited both consumers and the grid.

Utilities are well situated to play a similar role in encouraging greater EV adoption in partnership with other firms and organizations such as auto OEMs and EV charging providers.

They will play an essential role in rate design, the types of charging infrastructure, and how to move the customer's charging load to off-peak hours, among others. By implementing the best practices on utility E&O for EVs, greater adoption of EVs in a service territory can occur, leading to downward pressure on rates to the benefit of all customers.

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This report was spearheaded by the tremendous work of our two co-chairs: committee chairs, Katherine Stainken, Policy Director of Plug in America, PIA and Kellen Schefter, Manager of Transportation Electrification for EEI. The task force has held numerous conference calls, brainstorming sessions, and invited both ATE members and outside experts to brief the task force on best practices in this area.

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Resources



PLUG-IN AMERICA (PIA): <https://pluginamerica.org/>

Web site offers many resources and information related to the purchase of a PEV, federal and state incentives, and reports and essays.

PLUG STAR: <https://plugstar.com/>

Web site, linked to the PIA site above, offers a wealth of information on shopping for EVs, including available models (by zip code), dealers, prices, fuel cost comparison.

EI (Edison Electric Institute)

<https://www.eei.org/issuesandpolicy/electrictransportation/Pages/default.aspx>

Trade association for the IOUs (investor-owned utilities). Its electric transportation web portal includes EV-related information on policy, forecasts, and data including a 2019 study on vehicles and charging stations by 2030:

NRECA (National Assn of Rural Electric Cooperatives): Trade association for the rural cooperative utilities. It does not maintain a separate public-facing web site for EVs, but information on some of the EV programs of rural coops may be found here:

<https://www.electric.coop/?s=electric+vehicle>, or this web site which many NRECA members use: <https://www.chooseev.com>

ELECTRIFY AMERICA: <https://www.electrifyamerica.com/>

The for-profit corporation spun off from Volkswagen as part of the consent decree related to the settlement of issues with federal EPA and CARB. Its focus is primarily infrastructure build-out through phased investments, but it engages in E&O and marketing programs as well.

VELOZ (leading the electric car revolution): <https://www.veloz.org/>

A non-profit organization based in California that focuses on E&O and marketing for EVs including short movies, digital campaigns, forums and webinars in California.

SMART COLUMBUS: <https://smart.columbus.gov/>

Smart Columbus is a project, co-funded with USDOT, that is designed to promote EV adoption and e-mobility in central Ohio. It includes infrastructure projects, and certain E&O activities including a retail Smart Columbus Experience Center.

NECAUM (NE States for Coordinated Air Use Management): a 501(c)3 non-profit association of the air quality agencies in the 11 northeast states that has several programs to promote EVs, infrastructure, and clean transportation. Commissioned a study of study of EV marketing and advertising by OEMs and auto dealers in 2018, with Sierra Club.

<https://www.nescaum.org/documents/2018-ev-marketing.pdf/>

SYNAPSE ENERGY: <https://www.synapse-energy.com/sites/default/files/EVs-Driving-Rates-Down-8-122.pdf>

February, 2019. Synapse Energy has done several studies on the impact of EV adoption of electric rates and consumers, including this study actual load profile data from the California IOUs.

AVISTA CORP, Final Report on EVSE Pilot, Washington UTC, Docket 160082, October 2019:

<https://utc.wa.gov>

Docket UE-160082. See Final Report in docket especially pp. 19-27 on E&O, Community and Low-Income, and Consumer Surveys which indicated a high overall level of satisfaction from Avista customers with the initial pilot programs.

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION (WUTC):

In June 2017, the UTC approved and published comprehensive policy guidance on the utility role in accelerating EV investments as well as promoting adoption and E&O activities. Docket Number: UE-160799. Document can be accessed at:

www.utc.wa.gov/EVPolicy, or a docket search. <https://www.utc.wa.gov/aboutUs/Lists/News/DispForm.aspx?ID=453&ContentTypeId=0x010400FF58A04FBD57384DB60A5ECF52665206>

ATLAS PUBLIC POLICY, EV Hub: www.atlaspublicpolicy.com

Atlas provides robust data and analysis on EV adoption and infrastructure deployment, including several joint papers with ATE on Vehicle to Grid Integration (VGI) and Investments in Public EV Infrastructure. Maintains a resource library on EV Hub that includes many papers and data related to E&O: https://www.atlasevhub.com/materials/resource-library/?fwp_resource_tag=education-outreach. For specific article on utility investments approved by Commissions in E&O see: https://www.atlasevhub.com/data_story/less-than-two-percent-of-utility-investment-going-towards-ev-awareness/, dated August 25, 2019.

FORTH, or FORTH MOBILITY: www.forthmobility.org

Forth is a non-profit association based in Portland OR that does work regionally and nationally on a broad range of issues for advancing electric, smart, and shared mobility. It has several programs on consumer engagement and manages the Electric Showcase for ride and drives and consumer education. It organizes the annual Roadmap conference.

ELECTRIFICATION COALITION: <https://www.electrificationcoalition.org/>

A non-profit association established to promote EVs and clean transportation to ensure national security, environmental and economic benefits. Recently established a new State EV Accelerator program to focus initially on five states (VA, MI, NV, NC, PA) and carry out “boot camps” for state policymakers, which include an E&O component in addition to policy measures.

UNION OF CONCERNED SCIENTISTS (UCS) and Consumer Reports:

Joint report, July 2019: “Electric vehicle survey: findings and methodologies”

https://advocacy.consumerreports.org/press_release/evsurvey2019/

Both UCS and Consumer Reports have active programs to monitor EV adoption and infrastructure, and assess the major environmental and economic opportunities for electrification as well as the major challenges.

VOLVO AND HARRIS POLL STUDY:

<https://www.media.volvocars.com/us/en-us/media/pressreleases/248305/poll-finds-americans-feel-electric-vehicles-are-the-future-of-driving>

Volvo Cars and Harris Poll conducted this survey in February 2019 to gauge the attitudes of current (and potential) EV drivers toward the consumer experience, and the major barriers and benefits. Range anxiety (lack of charging stations) and lack of price parity were cited as major barriers.

NATIONAL RENEWABLE ENERGY LABORATORY (NREL): USDOE national laboratory located in Boulder CO that carries out R&D on renewable and clean energy resources, and has an active EV adoption and infrastructure program. Refer to this recent study published in July 2020: [Plug-In Electric Vehicle Showcases: Consumer Experience and Acceptance \(nrel.gov\)](https://www.nrel.gov/transportation/plug-in-vehicle-showcases-consumer-experience-and-acceptance/)

For further information, please contact us.



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