

March 2019

Accelerating EV Adoption

How utilities can help boost EV sales and provide real value to customers.





Electric vehicles are poised for explosive growth—like going 0-60 mph in less than three seconds.

Consider these statistics and figures:

361,307

the number of all electric vehicles (EVs) and plug-in hybrids sold in 2018¹

2x

the change in market share of EVs in one year. Market share nearly doubled, to 2.1% in 2018 from 1.13% in 2017 and 0.9% in 2016²

10%

the percentage of new cars sold in California that are EVs, the highest market share in the nation³

7 million

the estimated number of EVs on the road by 2025, up from 567,000 in 2016^4

1 "Electric Drive Sales Dashboard." Electric Drive Transportation Association, accessed March 2019, electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952.

- 2 Manthey, Nora. "All-electric car market share on the rise worldwide." electrive.com, 13 December 2018, electrive.com/2018/12/13/all-electric-car-market-share-on-the-rise-worldwide/.
- 3 Coren, Michael J. "In California, electric vehicles now make up 10% of all new cars sold." Quartz, Uzabase, 15 November 2018, qz.com/1465465/in-california-electric-vehicles-now-make-up-10-of-all-new-cars-sold/.
- 4 Cooper, Adam, and Kellen Schefter. "Plug-In Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required." The Edison Foundation Institute for Electric Innovation (IEI) and Edison Electric Institute (EEI), June 2017, edisonfoundation.net/iei/publications/Documents/IEI_EEI%20PEV%20Sales%20and%20Infrastructure%20thru%202025_FINAL%20%282%29.pdf.





And here's a key prediction utilities should love to hear.

20%–38% increase in US electricity consumption by 2050.⁵ This is according to estimates from the National Renewable Energy Laboratory, which cites EV adoption as a large contributor to demand forecasts.

Growing demand means increased sales and revenues for utilities. Utilities can set themselves up for future business growth by playing a role in moving consumers from being interested in EVs to actually purchasing them.

To better understand the role customers want their utility to play and the unique value their utility could add, we conducted research with utility customers in Massachusetts, New York, and Rhode Island.

We are delighted to share our findings. We reveal **four ways** utilities can help accelerate EV adoption. In addition, we highlight **two personas** of likely EV shoppers, sharing not only their motivations, needs, frustrations, and challenges, but also ways utilities can engage with each audience.

What We Did

Our Research Methodology

Online Survey

- 1,000 Respondents
- Residents ages 25+ across the Northeast
- September 2018

Secret Shopping

- 5 Dealerships in Upstate NY
- September 2018

⁵ Mai, Trieu, Paige Jadun, Jeffrey Logan, Colin McMillan, Matteo Muratori, Daniel Steinberg, Laura Vimmerstedt, Ryan Jones, Benjamin Haley, and Brent Nelson. 2018. "Electrification Futures Study: Scenarios of Electric Technology Adoption and Power Consumption for the United States." Golden, CO: National Renewable Energy Laboratory, 2018, NREL/TP-6A20-71500. nrel.gov/docs/fy18osti/71500.pdf.



Who is most interested in purchasing an EV?

Our survey found two demographic segments that have more interest in EVs—affluent consumers with household incomes above \$100K and Millennials. These two segments define the most likely EV customers of today—the luxury car buyers who are in a better position to pay the premium prices EVs go for and the EV customers of tomorrow—the younger generation who recognizes the harmful impacts fossil fuels have had on the environment and the sustainability of our planet.

Our personas at the end of this report detail opportunities for utilities to engage these segments to encourage EV adoption.

These respondents were extremely or very interested in purchasing an EV in the future.

- 22% of all survey respondents
- Age 37% of 25–34 year olds / 25% of 35–54 year olds
- Gender 34% of men / 16% of women
- Race/Ethnicity 31% of African Americans / 29% of Hispanics / 20% of Caucasians
- Income 29% of HHI \$100K+



Green light. The appeal of EVs.

Q: Which of the following are reasons why you would consider purchasing an electric vehicle?

| | All Respondents | Extremely/Very Interested in EVs |
|---|-----------------|-------------------------------------|
| To save money on gas or maintenance | 60% | 74% |
| They're good for the environment by relying less on fossil fuels | 52% | 73% |
| They reduce our dependence on foreign oil | 37% | 57% |
| Better performance than gas-powered vehicles | 19% | 36% |
| They're quieter than other vehicles | 19% | 35% |
| To take advantage of rebates on electric vehicles while available | 21% | 34% |
| The cool factor of being one of the first to adopt new technology | 7% | 19% |

For those most interested in EVs, cost savings and environmental benefits are virtually equal drivers for EV consideration, which means an EV balances personal needs with societal needs.

A third of those most interested in EVs—and also a third of 25- to 34-year-olds —view EVs as offering better performance than gas-powered vehicles, which shows they correlate cleaner energy with high performance.

Those most interested in EVs also seek to take advantage of rebates while available. The fate of electric vehicle rebates—up to \$7,500 in federal rebates —is still undecided at this time, but the consensus is the clock is ticking, which creates a sense of urgency.



Red light. Barriers and concerns about EVs.

Q: Which of the following are concerns or obstacles preventing you from considering the purchase of an electric vehicle?

| | All Respondents | Extremely/Very Interested in EVs |
|--|-----------------|-------------------------------------|
| Worried about battery running out when driving | 59% | 56% |
| The price tag | 59% | 64% |
| Lack of convenient access to charge vehicle at home | 48% | 47% |
| Unsure of total cost of ownership | 46% | 47% |
| The hassle of installing a vehicle charger at home | 42% | 43% |
| Lack of knowledge on how to charge, operate, and maintain | 39% | 36% |
| Doubts about performance/vehicle quality | 29% | 19% |
| Concern about future resale value | 24% | 25% |
| Safety concerns | 22% | 20% |
| Lack of credible information about EV benefits | 17% | 14% |
| Available models don't meet my needs for vehicle size or comfort | 17% | 16% |
| Aesthetics / the look of electric vehicles is unattractive | 12% | 9% |
| Too much information to sift through | 10% | 12% |

Range anxiety and sticker shock remain the top barriers to EV adoption. Car battery makers have made great strides in lowering manufacturing costs while improving range.

The price of batteries per kWh dropped almost 70% from 2010 to 2016. The price of EVs will nearly equal the price of internal combustion engine (ICE) vehicles when battery costs average out at \$125–150 per kWh, which they could achieve sometime between 2020 and 2030.⁶ Additionally, new research and development in lithium metal technology indicates battery capacity may triple compared to what's included in today's EV models.⁷

Though there isn't much utilities can do to drive the costs of manufacturing down, they can point consumers toward federal and local rebates.

Finding a charging solution also remains an issue for those considering EVs. Because not everyone is in a situation where home charging is feasible, there is greater importance placed on the availability of public chargers. There are clear opportunities for utilities to support the expansion of this infrastructure in an effort to lower this customer barrier and provide greater value to their customers.

^{6 &}quot;Electric Vehicle Battery: Materials, Cost, Lifespan." Union of Concerned Scientists, 9 March 2018, ucsusa.org/clean-vehicles/electric-vehicles/electric-cars-battery-life-materials-cost#.XG7lbc9KiRs.

⁷ Zurschmeide, Jeff. "Lithium metal batteries could triple EV ranges, and they're getting closer." Digital Trends, Designtechnica Corporation, 21 March 2018, digitaltrends.com/cars/lithium-metal-battery-research-could-triple-ev-ranges/.





What does this mean for utilities?

We have four takeaways to consider.

Insight 1

Customers turn to dealerships for guidance, but their experience may vary. Give dealers a knowledge boost.

Insight 2

Utilities are seen as a trusted resource for EV info, but not a go-to resource. Stay in your lane.

Insight 3

Utilities are in the driver's seat of improving the charging infrastructure —and doing so can strengthen brand reputation metrics.

Insight 4

Voluntary Time of Use Rates are a key to unlock more interest in EVs and set the stage for deeper customer engagement.





Customers turn to dealerships for guidance, but their experience may vary. Give dealers a knowledge boost.

Dealerships are the top destination for information when potential buyers are researching an EV purchase, with six in 10 of all respondents saying they'd consult the dealership. However, not all dealerships are created equal, especially when it comes to delivering on customers' expectations as a reliable, trusted source to lower barriers, answer key questions, and bridge the knowledge gap with consumers on EVs.

In our visits to several dealerships in Upstate New York, we found dealers struggling to answer basic questions many consumers have. Most couldn't tell us how much it costs to charge at home or where to find chargers—though some did point out some helpful apps. When it came to discussing federal or local rebates, we found that we were the ones bringing them up in conversation and some dealers didn't know they were even available.

There also seemed to be little fanfare for EVs in general—with only one dealership out of five having any point-of-sale signage promoting its EV models. And while there were plenty of brochures available for other vehicles, none had EV brochures.

This was not totally unexpected given the low market penetration of EVs and their overall newness. But as more consumers become interested and EVs become a realistic consideration, they need to feel confident and supported in their buying process. Likewise, dealerships will want to feel confident they can address customer questions and provide enough value to customers to make the sale.

Utilities can't and shouldn't do EV marketing on behalf of dealerships, but they can provide resources that dealers can use to put customers at ease. The areas where consumers see utilities being able to provide the most value in combination with dealership resources include a map of charging stations, a guide to EV charging's impact on their electric bill, collateral related to available rebates, and any information pertaining to electric rate plans tailored to EV owners.



of all respondents cite dealerships as a trusted source of info when shopping for an EV (#1 among all respondents)



of those most interested in EVs cite dealerships as a trusted source #3 behind car manufacturers (68%) and vehicle publications (67%)

Giving Dealerships a Full Charge

Here is what those most interested in EVs say would be helpful for utilities to provide to dealerships





Utilities are seen as a trusted resource for EV info, but not a go-to resource. Stay in your lane.

Nearly two-thirds of respondents said their utility would be a trusted resource when shopping for an EV. However, only 17% said they would actually consult their utility. Utilities aren't the first place they would go, or even the second or third. But respondents would still trust information utilities could provide to them.

The opportunity for utilities is to meet customers where they are in the moment of researching or shopping for a vehicle while also being ready for them if they do end up on a utility's website looking for EV-related info.

Meeting them in the moment could come in the form of sponsored content or native in-feed advertising on a vehicle publisher's website. Or it could mean providing collateral to dealerships. Or it's by being at car shows ready to answer their questions about charging and their electric bill.

Despite interest in and enthusiasm for EVs, even those who are most interested in EVs have knowledge gaps—and utilities are in a prime position to address some of the key areas where they need more information. One of customer's key questions is how much does it impact their electric bill to charge at home, and utilities should be ready to provide simple answers. And because utilities will be connecting chargers to the grid, they should also be able to help customers find them.



say utilities are a trusted source of information when considering an EV purchase



say they would actually consult their utility for EV research

Top sources of EV research info:

- Dealerships (59%)
- Vehicle publications (58%)
- Car manufacturers (57%)
- Friends and family (36%)
- Car shows and events (24%)

Knowledge Gaps Exist Even Among the Most Interested.

Areas where those extremely or very interested in EVs admit they are not at all knowledgeable









Utilities are in the driver's seat of improving the charging infrastructure—and doing so can strengthen brand reputation metrics.

It is estimated that 5 million EV chargers will be required to support the estimated 7 million EVs that could be on the road by 2025. As of 2018, there are about 20,000 charging stations with an estimated 57,000 EV outlets.

There's a bit of chicken-and-egg at play here. With interest in EVs growing but concern around range limits and charging on the go, consumers hesitate to consider EVs if they're not seeing chargers readily available in their area. The majority of respondents said they would be more likely to consider an EV if their utility helped expand the charging infrastructure.

Eight in 10 respondents indicate the EV driving experience would be different and that they'd feel restricted in where they could go because they would need to plan around charging station availability. This reminds us of a story told by one of our KSV colleagues: she had overheard a conversation at a restaurant in which a woman and her daughter spent 20 minutes mapping out their driving route based on charger availability.

Utilities will ultimately be responsible for connecting chargers to the grid. But this also presents an opportunity for utilities to demonstrate their commitment to electrification of the transportation sector and put their brand behind overcoming one of the top barriers inhibiting EV growth. Publicly communicating their efforts to improve the charging infrastructure can be one way to increase customers' trust in their utility and improve J.D. Power scores and similar brand reputation metrics.

So where do consumers want to see chargers? In particular, where they shop and dine—shopping centers, grocery stores, parking garages, on-street near downtown shopping areas, and restaurants were the top locations. Respondents with higher income were more likely to want chargers in office parks. Millennials were more likely to want chargers at apartment buildings and gyms. 82,

of respondents would feel restricted in where they could travel because they would need to plan based on charging station availability



of those most interested in EVs are not at all knowledgeable on where to find chargers on the go

57%

would be more likely to consider an EV if their utility increased charging infrastructure

Where do consumers want EV chargers? The top 5 locations.







Voluntary Time of Use Rates are a key to unlock more interest in EVs and set the stage for deeper customer engagement.

We know EVs will disrupt the way consumers drive. But EVs also have the potential to disrupt the way consumers think about their electric usage and how they pay for electricity at home.

Considering that the majority of consumers are not at all knowledgeable on how much it actually costs to charge an EV at home, coupled with the fact that EV charging will increase their electric demand, customers may be in for a rude awakening when they see a higher electric bill after paying a premium on a vehicle. Utilities are planning to address this by offering lower rates for charging at night with Voluntary Time of Use (VTOU) rate plans in exchange for higher rates during the day.

While time of use rate plans related to demand response programs often face consumer opposition for fear of giving up control, in-home EV charging provides an opportunity to pitch time of use rate plans as a significant cost saver, which addresses one of consumers' key concerns inhibiting EV adoption. It also paints the utility as being more customer-centric and actively finding ways to help consumers realize the cost-savings benefit of EVs so that they're not merely trading fuel costs at the pump for electric costs at home.

The good news is that consumers are largely on board. Two-thirds of all respondents—and 85% of those most interested in EVs—would be interested in VTOU plans and 62% say the availability of those plan options would increase their likelihood of considering an EV.

Furthermore, we see EVs and VTOU plans as a way to open the door to deeper engagement with customers, encouraging them to think more about energy management. In particular, younger customers express greater interest in VTOU plans and 61% indicate they would be interested in learning about the costs associated with using appliances as part of a VTOU plan. Nearly half of those 25–34 would also be more likely to consider an EV if their utility also offered plans that involved solar and/or electric storage options—a signal that younger consumers are looking to go all-in on utility plans that involve cleaner energy and energy management and cost management strategies.

of respondents would be more likely to consider an EV if their utility offered lower rates for charging overnight



of respondents would be interested in VTOU rates

of those most interested in EVs would be interested in VTOU rates

25- to 34-year-olds are the age group most likely to explore new utility plan options



would be interested in VTOU plans



would be interested in learning more about the costs of using other home appliances with VTOU rates



would be even more interested in EVs if their utility also offered plans that included solar and/or electric storage options



Utilities alone can't spark EV purchases.

But playing an active role in addressing pain points and barriers to EV adoption through education, supporting the expansion of EV infrastructure, and offering more customized, variable rate plans can help move the needle on EV adoption.

In the next section, we detail two personas based on customer segments poised for EV growth. Each persona highlights unique opportunities for utilities to provide value to those customers, based on their individual motivations, needs, frustrations, and challenges, as well as their preferred communications channels.





Keith, Age 48, Amherst, NY

The EV Customer Today: Luxury Car Buyers

Interest in EVs

Twenty-nine percent of survey respondents earning \$100K+ are either "extremely" or "very" interested in purchasing an electric vehicle in the future.

Bio

Keith is a lawyer living in the Buffalo area with his wife and three children. His work takes him all over the area, traveling between his office, the corporate offices of his clients, and the courthouses where he makes his cases, sometimes all in one day. As a kid, Keith dreamed of one day owning a BMW. Through his hard work, he's been able to purchase a few over the years. He knows the automotive landscape is changing and now has his eyes on an EV.

Motivational Drivers

• Gas Savings, Comfort, Style, Safety

Preferred Communications Channels

• Direct Mail/Email, Vehicle Publications, Car Manufacturer/Dealer Websites

Demographic Snapshot

- HHI \$100K+
- 46% are between 35 and 54 years old; 37% are 55+
- 75% are homeowners
- More likely to live in affluent suburbs outside of urban areas

Motivations & Needs

- **Savings.** Despite being in a comfortable financial position, Keith is most interested in an EV because of potential savings as a result of not purchasing gas and potentially fewer maintenance costs (70% of those with HHI \$100K+ cite these as appealing features of EVs). He also heard from a colleague there may be rebates and incentives available through the federal and state governments that he wants to take advantage of before they run out (28% of those with HHI \$100K+ said this).
- Features over novelty. While Keith cares about reducing fossil fuel usage (55% of those making HHI \$100K+ care), he doesn't want to choose environmental benefits at the expense of the luxury features and details that he is accustomed to when he purchases a new vehicle.
- **Safety.** With a family to take care of, safety is always top of mind for Keith. He doesn't want to be left on the side of the road with a dead battery and three unhappy kids. He would also need to consider an EV's performance in inclement winter weather. Seventeen percent of those making \$100K+ consider concerns about safety to be an obstacle when purchasing an EV, which is less than the average.



Keith, Age 48, Amherst, NY

Frustrations & Challenges

- Lack of basic knowledge. Despite being interested in EVs and familiar with some of the models available, Keith is admittedly not all that knowledgeable about the ins and outs of owning and maintaining a vehicle. Areas where he could use a little bit more info include the impact on his electric bill when charging at home (81% of those making \$100K+ are "not at all knowledgeable"), how to access rebates and incentives (80% not knowledgeable), and the type of maintenance required (84% not knowledgeable).
- Range anxiety. As previously mentioned, Keith would be worried about running out of battery charge while on the road, which is the top EV concern of those making \$100K+ (63% say this).
- **More planning effort required.** Keith understands that he may have to put a little extra planning into his driving routes, and perhaps may feel a little more restricted in where he could drive based on charger availability (86% of those with HHI \$100K say this).

Utility Opportunities

- Make charging infrastructure more available and accessible. Respondents with higher income are more likely to consider an EV purchase if utilities expand the charging infrastructure locally and regionally. Those making \$100k+ would be more likely to view a map of charging stations in the area on a site created by their utility (84%). By increasing availability and visibility of charging stations, this could help boost confidence and push those considering EVs further along on their buying journey.
- Electrify their homes. Those making \$100K+ are more likely than other income groups' to say they would be more likely to consider an EV if their utility offered rebates for installing a rapid vehicle charger at home. Fully 63% would find value in a buyers guide produced by their utility that would include links to where they could purchase in-home chargers and find qualified installers.
- **Promote education around rate plans and charging costs.** As income increases, so does interest in Voluntary Time of Use rate plans. Seventy percent of those making more than \$100K would be interested in lower overnight electricity rates to charge their vehicles at home in exchange for higher rates during the day. Fifty-three percent indicate they would want their utility to share information about VTOU rates with car dealers, and 79% also would like their utility to provide dealers with information pertaining to costs of charging an EV at home in general.





Melody, Age 32, Somerville, MA

The EV Customer Tomorrow: Millennials

Interest in EVs

Thirty-seven percent of survey respondents ages 25–34 are either "extremely" or "very" interested in purchasing an electric vehicle in the future.

Bio

Melody owns a small bakery in Somerville, where she's lived since she graduated culinary school. She spends her morning making donuts and pastries, and then delivers her creations to local businesses. She had been driving a car she purchased used while in college, but she's saved up and is now in the market for something more reliable for her short, daily trips.

Motivational Drivers

• Performance, Technology, Environment, Gas Savings/Efficiency

Preferred Communications Channels

• Dealership, Social Media, Blogs, Word of Mouth

Demographic Snapshot

- Ages 25–34
- HHI: 40% between \$35,000-74,999; 29% \$75K+
- 60% are renters
- More likely to live in urban areas

Motivations & Needs

- **High performance and reliability.** Like many others in her generation, Melody views electric vehicles as "better performing" vehicles compared to gas vehicles (33% of 25- to 34-year-olds say this). She sees them as an evolution of what a car should be and hopefully will be as they are poised to enter the mainstream.
- A new driving experience. Melody believes driving an EV would be a new, more enjoyable driving experience (58% of 25- to 34-year-olds said they would enjoy driving more). And if she does end up with an EV one day, she imagines she would drive more cautiously to protect her investment (62% of millennials would).
- Efficiency and sustainability. What draws Melody most to considering an EV is the gas savings (69% of 25- to 34-year-olds cite this) and the idea of ditching fossil fuels (57%). Even if an EV isn't in the cards for now, she will keep fuel efficiency top of mind in any vehicle purchase.



Melody, Age 32, Somerville, MA

Frustrations & Challenges

- **Dealer disappointment.** Melody assumed that car dealerships would be a prime source of info on EVs (62% of those 25–34 cite dealerships as a trusted source), but the few salespeople she talked with didn't really seem all that interested in selling EVs, had a hard time answering questions about how much it costs to charge them, and weren't sure about which rebates were available. She was also surprised at how EVs didn't seem to be featured on signage in the dealerships.
- Lack of convenient access to charger. One of Melody's biggest obstacles is wondering where she could charge her vehicle. She lives in an apartment in Somerville and keeps her car parked on the street, but she doesn't recall seeing a charger there or in the surrounding area.
- **Price tag reality.** Melody knows she will be potentially stretching her budget if she gets an EV (60% of 25- to 34-year-olds say price is an obstacle), so she is dependent on available rebates and incentives and gas or maintenance savings over time to make the car more affordable. She would consider leasing instead of buying to reduce up-front costs.

Utility Opportunities

- Increase communication and education. Seventy percent of those ages 25–34 would see their utility as a trusted source of information when shopping for an EV, which is more than older audiences. It may not be the primary place to go, but they would feel confident in the information if they saw their utility's name on educational resources. Previous research indicates this age group would welcome more communication from their utility on ways they could make better energy choices.
- Make a visible commitment to EVs. Sixty percent of 25- to 34-year-olds would be more likely to consider an EV if their utility increased the number of charging stations in their community and in the region. This age group was also the most likely to say that if a utility provided a website where they could compare models and access rebate information (42%), they would be more likely to consider an EV. 48% would check out a test drive event sponsored by their utility, which was greater than other age groups.
- **Provide a new utility experience.** The group of 25- to 34-year-olds have a high degree of interest in Voluntary Time of Use rates (68% are extremely/very interested) and in addition, they were more likely than other age groups to say they were interested in learning how VTOU rates could apply to household appliance usage (61% would be interested), indicating that they would potentially shift energy usage to off-peak hours. This age group also said they would be more likely to consider an EV if their utility offered plans for solar and/or home battery storage (49% would be interested), indicating they are thinking about the bigger picture of new energy solutions.

KSV is a full-service, data driven marketing and advertising agency specializing in energy and sustainability.

For more than 40 years, KSV has worked with a host of energy and energy product companies building brand awareness and meeting client KPIs through creative marketing solutions. Founded in 1977, the firm has offices in New York City and Burlington, Vermont.

The agency is a certified B Corporation, founding member of the MAGNET Energy Network and a WBENC certified woman-owned business.

