2022 Short Term Needs Assessment for Transportation Electrification

Forward

PGE believes an affordable, equitable clean energy future requires a commitment to diversity, equity, and inclusion throughout our business and decision-making processes. Community engagement is based on the belief that those impacted by a decision, program, project, or service system must be involved in the decision-making process. Therefore, to improve and keep current PGE's understanding of the needs of our customers in underserved communities related to transportation electrification, we contracted with Espousal Strategies, LLC, a consultant with expertise in collaborative problem solving, equity & inclusion, and community engagement, to conduct a short-term needs assessment focusing on community-based organizations and direct outreach to members of underserved communities.

Espousal Strategies conducted this research through focus groups and surveys and delivered PGE a final assessment in August 2022, which provided valuable insight and established a starting point for more comprehensive engagement with communities related to transportation electrification going forward. We are incorporating what we learned from the needs assessment into our 2023-2025 TE Plan filing. We will continue that effort with targeted engagement activities as we move to the implementation phase of programs, infrastructure measures, and other activities approved as part of the 2023-225 TE Plan.

Rapid Needs Assessment

Transportation Electrification Plan

Prepared for Portland General Electric by

es·pousal STRATEGIES

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CONTENTS

es·pousal STRATEGIES

www.espousalstrategies.com
Office: 971-410-9407

BACKGROUND

As part of its efforts to explore ways to advance equity and accessibility for underserved communities[1], PGE partnered with Espousal Strategies to conduct a Rapid Needs Assessment to understand these communities' interests in and barriers to using electric vehicles (EVs), resources and information that would be helpful in their communities, and ways that PGE could potentially address issues and concerns around EVs.

This report provides an overview of the research process undertaken by the Espousal Strategies, a summary of key findings and themes from the research, and some key take-aways for PGE to consider as it builds upon its existing efforts and research to advance equity for underserved communities and access to transportation electrification.

PROCESS

The research for project included two means of gathering feedback and input directly from individuals who identify as members of BIPOC and underserved communities. The first component was a series of focus groups primarily aimed at gathering qualitative data, followed by a supplemental survey to complement the focus group findings with quantitative data.

The focus group recruitment was aimed at current PGE customers who identify as members of an underserved community, and participants included both individual community members as well as individuals affiliated with community-based organizations (CBOs) that represent the communities of interest for PGE and could speak to the larger needs of these groups. Some of these CBOS included Latino Network, Urban League of Portland, Hispanic Chamber of Commerce, In Street Trust, Immigrant and Refugee Community Organization (IRCO), APANO, Brown Hope, Coalition of Communities of Color, Next Up!, and Unite Oregon. It should be noted that while these individuals are affiliated with these organizations and brought the broader perspectives of the communities they serve, they participated in the focus groups as individuals and not as representatives of the CBOs.

The supplemental survey was developed as an additional tool to collect feedback around interest in EVs, as well as common barriers and concerns from a larger group of individuals. Outreach for the survey was less targeted than the focus group recruitment in order to collect as many responses as possible, but still aimed at achieving as diverse a sample as possible within the constraints of a limited timeline.

[1] PGE defines underserved communities as: residents of rental housing and multifamily housing, communities of color (BIPOC), communities experiencing lower income, tribal communities, rural communities, and communities adversely harmed by environmental and health hazards.

SUMMARY OF FINDINGS

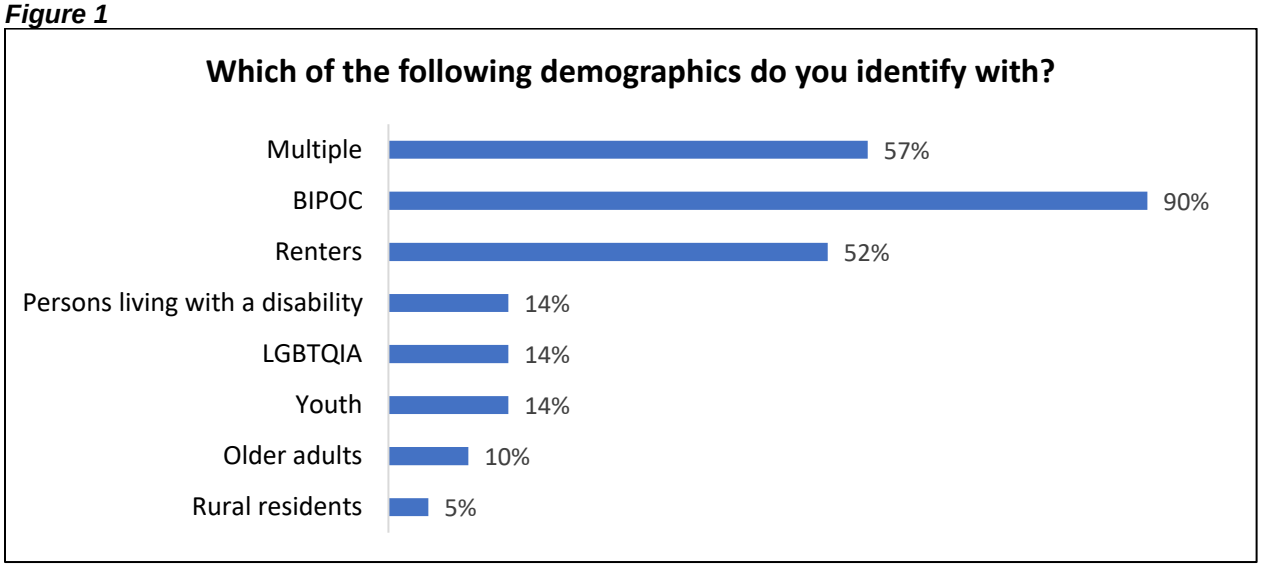
Focus Groups

In order to gain a more in-depth understanding of the specific needs and barriers to EV utilization for underrepresented groups in PGE's service area, the Espousal team hosted three focus group sessions with a total of twenty-one participants.

One of the most valuable aspects of the focus group sessions was the diversity of participants that attended. Through the Espousal team's outreach efforts, attendees recruited for the sessions identified as BIPOC at a rate of 90%, renters at a rate of 52%, as well as a variation of representatives of other groups defined as underserved. Additionally, more than half of all participants identified with more than one demographic category at 57%. **Figure 1** provides a breakdown of the focus group demographics across all three sessions.

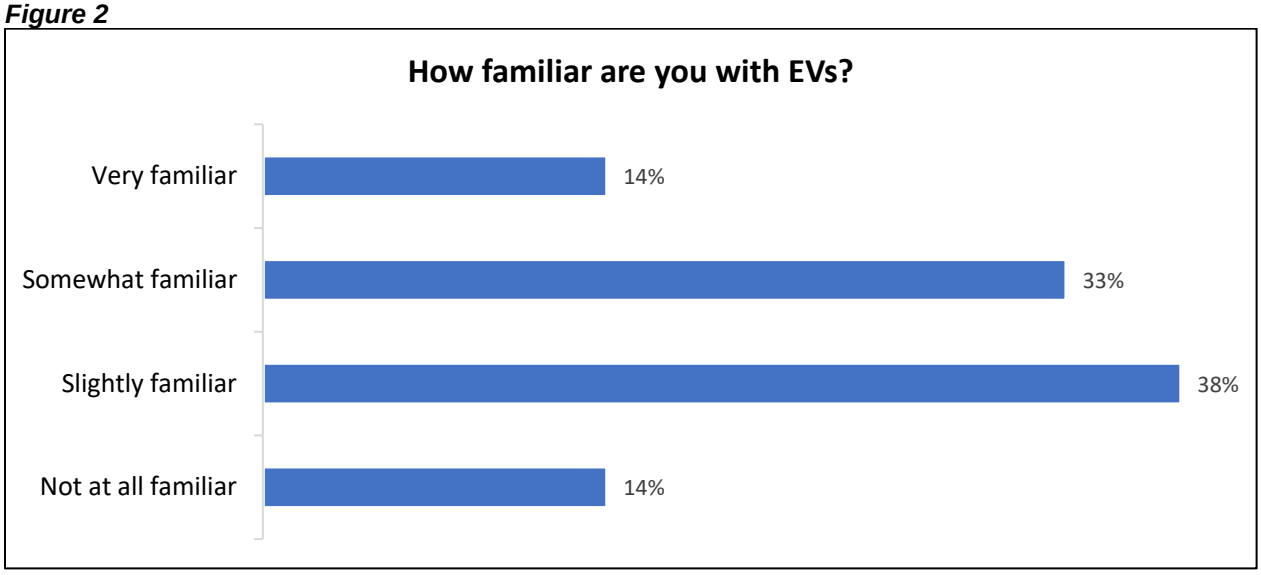
All of the focus group participants reported that they are current PGE customers living within its service area, and represented Clackamas, Marion, Multnomah, and Washington Counties.

Figure 1



In order to establish important context for the focus group discussions, the Espousal team asked participants to report their level of familiarity with EVs. As shown in **Figure 2**, more than one-third reported that they are somewhat familiar with EVs at 38%, followed by 33% stating they are slightly familiar, and the remaining participants citing they are either very familiar or not familiar at all at 14% each.

Figure 2



The varying level of familiarity meant that focus group participants had a wide range of perspectives on EVs, with some coming into the sessions with background knowledge and specific, pointed questions and commentary, while others were relatively new to the subject and had more general questions and concerns. This important context provides a foundation for understanding the feedback heard from participants across the sessions, particularly that which may fall outside of issues and needs that PGE has the ability to address through its Transportation Electrification Plan and associated services.

Key Findings & Themes – Focus Group Discussions

In partnership with PGE, the Espousal team developed a series of questions for the focus group sessions to frame discussions around interest in EVs, potential barriers and accessibility issues, and other related concerns for underserved communities. The following provides a summary of the findings and themes heard during the focus group session discussions.

- **There is a lot of interest around EVs.** Nearly all of the focus group participants expressed interest in EVs during the discussions and recognized the value of EVs in terms of reduced environmental impacts and costs associated with gasoline-powered vehicles. When asked whether they have considered purchasing or using an EV, close to every participant in each of the sessions explicitly confirmed that they have.

  One of the focus group participants was particularly interested in E-bikes and E-scooters and was curious about PGE's work around promoting their use. They shared that their interest stemmed from the fact that they can get around just as fast as a car, while the associated costs are significantly lower than other vehicles. Another participant was similarly interested in these vehicles sharing that they are "excited about E-scooters" but that they wonder what the implications are for rights-of-way and safety in their neighborhoods.

- **Costs associated with EVs and their use were consistently cited as concerns.** While there was great interest in EVs for focus groups participants across the board, many identified costs as a key barrier. The following quotes from participants across sessions are examples of some of the concerns cited around costs:

  "I would love an EV, but the cost….I couldn't afford it."

  "I have considered it, but right now, I'm not in a position to buy a car."

  "Gas prices right now, we're trading one bill for another. I've been looking at a hybrid, not a full electric, it seems like it is a better deal when you look at the miles per gallon."

  "They're so expensive. (The PGE presentation) mentions incentives to get an electric car, but I know that the ones that I like, the plug-ins are very expensive…"

  "I've definitely considered buying an EV to reduce my carbon footprint. However, the cost and practicality of an EV doesn't add up for me."

  "Yes (I have considered purchasing an EV), however, vehicle costs are high. There are increased costs to insure, are more costly to buy, have high costs to replace batteries in an electric car, incentives are tied to tax credits."

  "Cost is super important. Currently EVs are almost just as expensive as normal cars and I want to know what it looks like for me to own an EV 2-3 years down the road"

  Overall, focus group participants demonstrated that while they do recognize the potential benefits of EVs, they generally did not view them as affordable. In turn, concerns around costs represented one of the primary reasons why they have not pursued purchasing an EV, as well as one of the most significant barriers to EV use for the underserved communities that they represent.

- **There is limited knowledge about EVs and charging.** During the discussions in each of the focus groups sessions, participants shared several questions and comments that reflected a lack of knowledge and understanding about EVs and charging.

  One participant summarized this issue for underserved communities very well by stating, "*We assume that everybody knows how to buy a car and that there are not barriers. For the littlest of support, people have to jump through a lot of hoops. There is no one number people can call and kickstart a chain reaction to support an individual. People are really tired of begging and pleading for things. If (the) community wants to do it then*

where do they call, what is an easy number? How can we make sure that we remove as many barriers as we can for them? What are those approved dealers? Why can't we come up with approved dealers or agents that will help a community member to buy a car so they don't have to deal with stress that's associated with it?"

This quote highlights how the information gap for underserved communities represents a significant barrier. One of the most salient points raised is the assumption that all people generally understand the process for purchasing a car, when in reality it can be a very complicated process. Members of underserved communities may not have had experience with the process, such as immigrants and refugees. Others may have language barriers that could make understanding the process difficult or prevent them from purchasing a vehicle all together if they do not have access to someone who can interpret for them. Additionally, not all individuals have access to computers or the internet to be able to conduct research to understand more about EVs, or even to find a dealership.

Other areas where focus group participants had questions included repair and maintenance for EVs, the batteries, and the at-home charging units. Some of the specific questions around at-home charging included the following:

> *"How do I know what I need for a charging station, who would come and assess, because one of the (presentation) slides said they would give incentives for the charge station, but what if you also need an electric panel because I have an older home, so let's say my panel needs to be upgraded. Do the differences in the incentives depend on your need?"*
>
> *"Let's say I've decided to get a hybrid or electric car, what would be the turnaround on actually getting it installed in my home If (I own) a single-family home what are the incentives and how much would it actually cost after incentives? Because of the pandemic everything seems to be on back order, so you can't just go out and buy a car and get it installed in your home in timely fashion."*

Another participant expressed concerns about repairs and maintenance, sharing, *"Based on what other people said, my worry is the battery, in case you run into car trouble, will you find someone who can fix the car? That's my biggest worry, because I was in car troubles before and I felt like I could go to anyone for help, but when it comes to EVs I would want to know if there's a mechanic who can do certain things."*

One participant cited concerns about charging station infrastructure, particularly for rural areas, asking, *"How accessible is (charging) in rural areas? My parents live in rural areas, so I go there often. What are the plans to make it more accessible? I feel like I need my everyday day car in the city be an EV but have another car that runs on gas just in case."*

Others felt that they did not know enough about EV technology, and that this was a reason why they have not pursued purchasing an EV. One participant shared, "*I don't know a lot, it is very hard to learn the technology and figure out all the buttons… it seems complicated and overwhelming."* Another echoed these concerns, stating, "*I don't feel like I'm tech savvy and I feel like EVs require that even though EVs are out there, and people use them."*

One of the participants shared an idea for a resource that would be helpful, stating*," I would appreciate a Q&A informative handout that will provide more common questions and answers for us that don't own or have never owned an EV to read and know about those common questions"*

Given all of the questions and concerns related to several different aspects of EVs and charging, it is clear that a general lack of information represents a significant barrier for BIPOC and other underserved communities. As such, progress around equity and accessibility for EV usage cannot be made without addressing the knowledge gap in an intentional and meaningful way.

- **Access to charging stations was a common concern.** Focus group participants across the sessions appreciated the information that PGE provided around its efforts to make EV charging more accessible; however, many were still left with a number of questions and concerns around this issue.

  Some of the participants highlighted specific concerns for renters, including the issue of parking. They expressed that parking is often already limited as it is and were concerned that adding in charging stations or designated EV parking spots would exacerbate the issue. The following quotes highlight some of these concerns:

  > "*For access to charging stations, people don't have access to parking spaces. How are we going to find parking spot, and will they have capacity to move the car? Middle housing right now is only (allowing) for space for one car, even though we have two cars, because we have no public transit.* ***Feels like EVs are only for the privileged and those with garages and driveways****."*
  >
  > "*It cannot be at expense of communities already impacted. If you put charging stations everywhere and only EVs can be parked it takes spaces away from other people who have cars -* ***so if I can't afford to buy an EV does that mean that I have to suffer more? It's like how many more problems do we add to people?"***
  >
  > *"When it comes to chargers at home, I do know a lot of folks wonder about how that impacts community?* ***Looking at charging stations like the sign of a Starbucks moving into a neighborhood.*** *There's going to be an influx of*

people who aren't from your neighborhood, and as we know right now, a lot of folks who are privileged to have an EV might be coming to a neighborhood and seeing people who look different from them and how those interactions can go when you have someone who is living in the neighborhood and someone from outside the neighborhood charging their car? What are all the things that could happen, not to mention property values going up, rent going up in those neighborhoods? Those are some of the concerns I've heard from other focus group sessions."

"The Forth Roadmap conference on EVs, they were talking a major concern being charging stations in low-income neighborhoods and causing gentrification. Because bringing chargers causes more people to move there and kicks out the people who live there. I've been thinking a lot about figuring out the balance between those two things and what is accessible to people and keeping in mind what impact that has on people in those spaces. Other concerns, thinking about older homes and older electricity service and watts and weather concerns in rural areas. Just in general when electricity goes out, things that are not very common and what happens then?

Another participant gave examples of challenges they have seen related to EV charging accessibility, particularly for local businesses and nonprofits, stating,

"*It's a big push for property owners in general, including businesses. If you're talking about renting, you could be talking about business and orgs who are renting. I work at a nonprofit and we have an EV through the Drive Change Fund through PGE or Pacific Power, but it's in our agreement to have an electric charging station installed, but it's been a slog to get it from the management company…"*

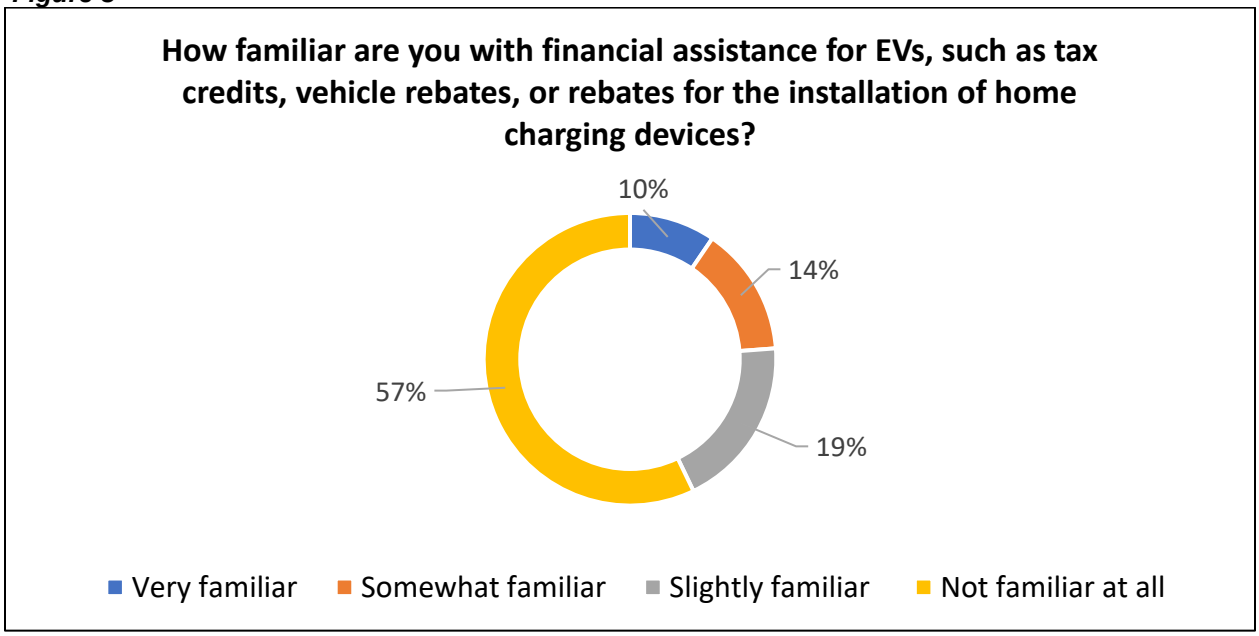
"…I worked at another nonprofit and the charger installation was extremely hard to do in historic neighborhoods because of the building requirements there. I know the thought maybe that historic neighborhoods are inner Portland and often rich, but there's a lot of apartment complexes and renters. There's another bureaucratic thing to weave through - so it is both looking at government and local jurisdictions and making sure there isn't any extra red tape…now the situation is we have the EV (for the nonprofit org) now, and I'm stuck doing public charging and that's a whole other situation."

The feedback around charging demonstrates that while increased accessibility to charging stations in underserved communities is necessary, there are often trade-offs that negatively impact residents and/or local businesses and organizations. This highlights that when considering improvements and ways to advance equity, there may be unintended consequences that actually exacerbate inequities for BIPOC and underserved communities, and that a one-size-fits-all approach is not adequate.

- **Many do not have a clear understanding of financial assistance for EVs, and many also feel that these resources do not go far enough.** While financial assistance for EVs such as tax credits and rebates exist to help make them more affordable and accessible for individuals experiencing lower income, many may not be aware of these resources or understand how to access them. To understand whether this could be a potential barrier for underserved communities, the Espousal team presented a poll question to the focus group participants on this subject.

  As shown in **Figure 3**, when asked to select how familiar they are with financial assistance for EVs, the majority of focus group participants stated that they are not familiar at all at 57%, 19% reported they are slightly familiar, 14% cited that they are somewhat familiar, and only 10% reported that they are very familiar with tax credits and rebates for EVs.

Figure 3



With the vast majority of focus group attendees reporting limited to no knowledge of these financial resources, this indicates a need for educational outreach for BIPOC and other underserved communities specifically around EV tax credits and rebates and how to access them.

Questions and concerns around financial assistance came up various times throughout the discussions in each of the focus group sessions, reflecting the limited knowledge around the subject illustrated by the poll question results.

Some of the participants expressed the need for more information to better understand financial resources, with one participant stating, "*I know it's cheaper but would be nice to*

have more specific numbers something like the equivalent of buying a coffee every day. It's difficult to know what's accessible, you don't know what it means for it to be cheaper. Is it cheaper for someone who is middle class, you don't know? I would want to know how installing one in your house impacts your bill. Knowing what the charge is or how long investment in a charging port is going to take to even out."

Many participants expressed the sentiment that tax credits and rebates do not go far enough to actually make EVs more accessible for underserved communities. One participant asked, *"What is the difference between tax credits vs rebates? If tax credits, how does this help for disabled folks who are limited in income? For example, folks on SSDI?* ***Tax credits don't really help disabled folks on limited incomes to access electric vehicles."*** Another participant stated, *"Even if there are rebates and stuff, that's still really pricy especially in low-income communities, it's way more than rent and you have people who are struggling to pay rent, so it's going to be hard for them to afford a car, even if it is really beneficial in the long run."*

When discussing potential ways that utility providers could make EVs more accessible, one participant shared, *"For sure, one way is the rebates, making a higher rebate for certain communities, low level income, historically under-represented and underserved communities.* ***It would be great to have a focus on what communities they serve, making meaningful connection with community orgs in those areas for marketing and outreach****."*

While PGE may not be able to directly address amounts for incentives and financial assistance such as tax credits and rebates, understanding that these resources do not go far enough to have a meaningful impact on underserved communities and their utilization of EVs is critical context for examining ways PGE can advance equity. It cannot be assumed that the existence of these financial resources is adequate, and it is likely that efforts to advance equity and accessibility, that are within the purview of what PGE can affect, may potentially be limited due to this fact.

Supplemental Survey

The project team administered a supplementary survey to further assess diverse perspectives from individuals in PGE's service area, with a specific focus on underrepresented communities.

In total the survey was completed by 107[2] participants, with 79% indicating that their place of residence is currently serviced by PGE for utilities, 10% indicating that they are not PGE

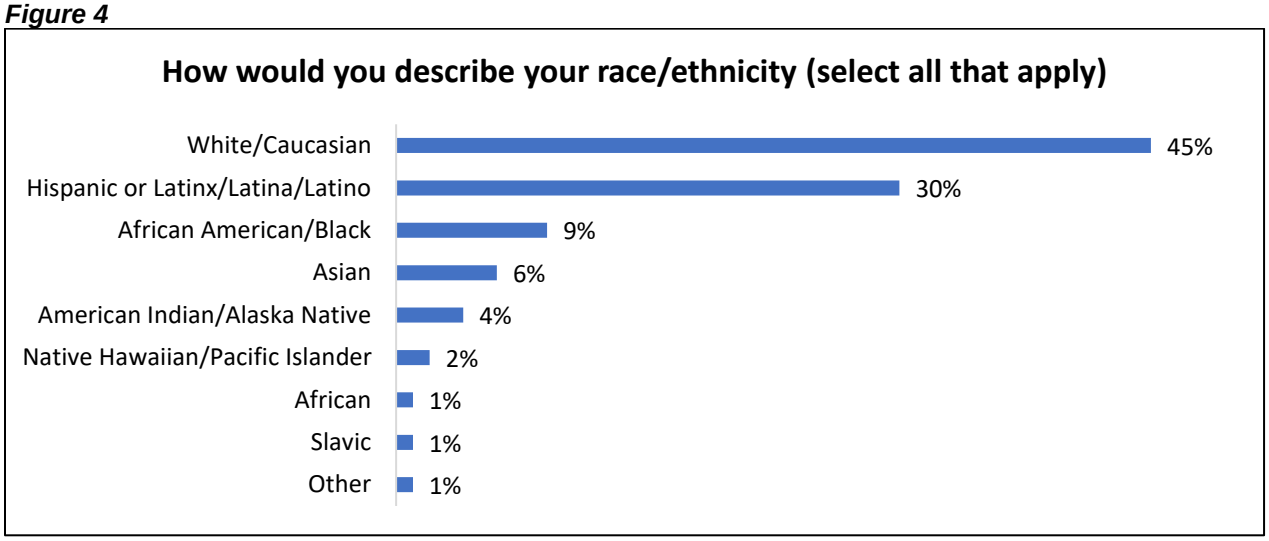
[2] It should be noted that given the sample size, this survey is not statistically representative of PGE's service area. The goal of this supplementary survey was to provide an avenue for collecting more feedback from a wider range of respondents to complement the input collected from the focus groups, with the understanding that this data would not be a truly representative sample. Within the context of the limits of this data and sample size, we note that some of the crosstabulation data would not be considered statistically significant, and any of the analysis of this data is written with the acknowledgement of this fact.

customers, and 11% who indicated they are unsure. While the following data does include participants who indicated that they are unsure, it does not include responses from the eleven participants who explicitly stated that they do not receive utility services from PGE.

Demographic Questions

Given that one of the primary goals of this research for PGE was to understand the specific needs and priorities for underrepresented communities in their service area, the survey included a number of optional demographic questions.

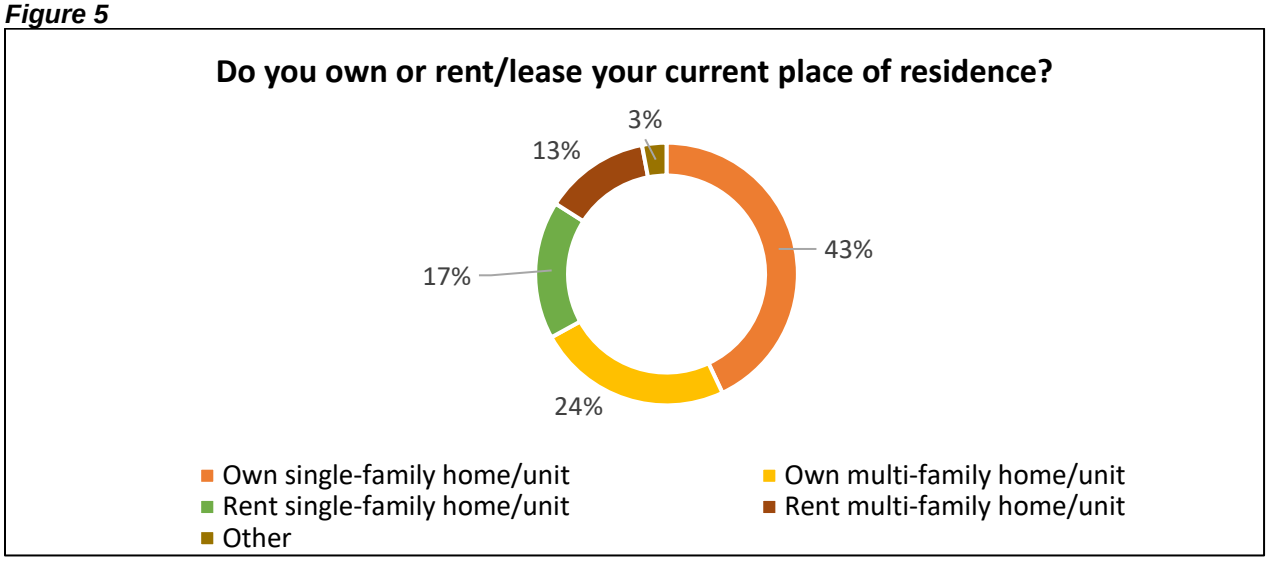
Figure 4



As illustrated in **Figure 4**, the demographic makeup[3] of the survey respondents was relatively racially diverse, with the majority (54%) identifying as non-white and/or BIPOC. Close to one third of the respondents identified as Hispanic or Latinx/Latina/Latino at 30%. The next highest BIPOC category was African American/Black at 9%, followed by Asian at 6%.

[3] Note that not all of the survey participants provided their race/ethnicity, with 20 out of 96 skipping this question. The data included about race/ethnicity in this report reflects only those who provided this information.

Figure 5



Renters were another demographic group that the project aimed to reach. Overall, renters made up approximately 30% of survey respondents, while 67% indicated they own their residence. The specific breakdown by residence type is shown in **Figure 5**.

Figure 6

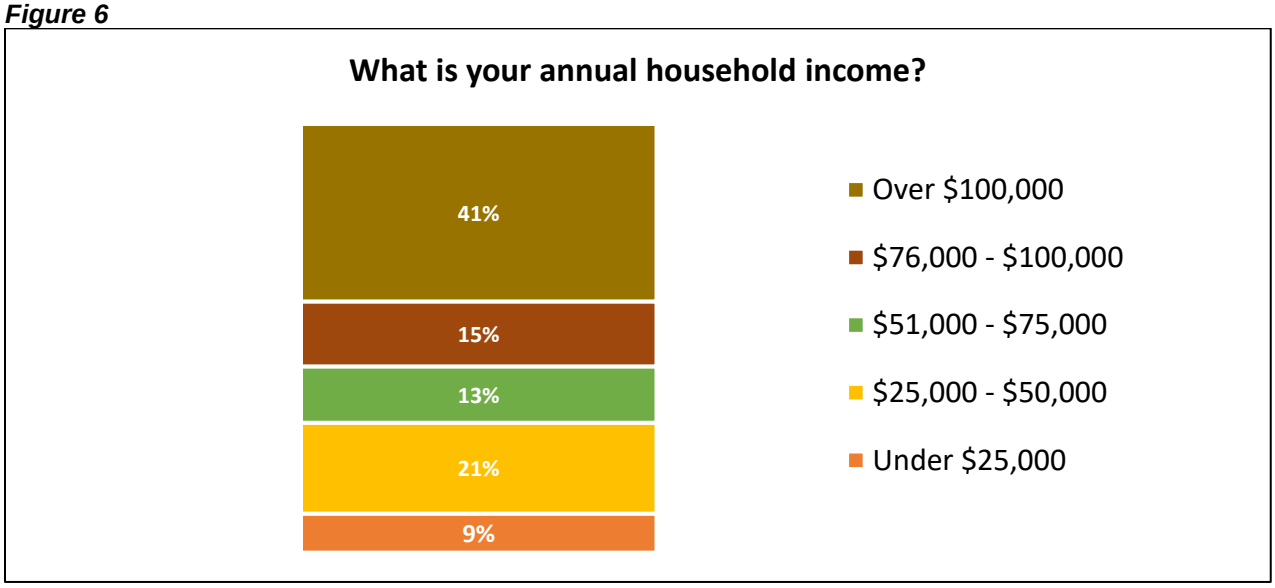


Figure 6 provides a breakdown of the survey respondents by household income[4], with nearly one-third reporting annual income of less than $50,000.

[4] As with the race/ethnicity data, not all respondents chose to report their annual income level with 21 skipping this particular question. The income-related data referenced in this report reflects only those who reported this information.

Figure 7

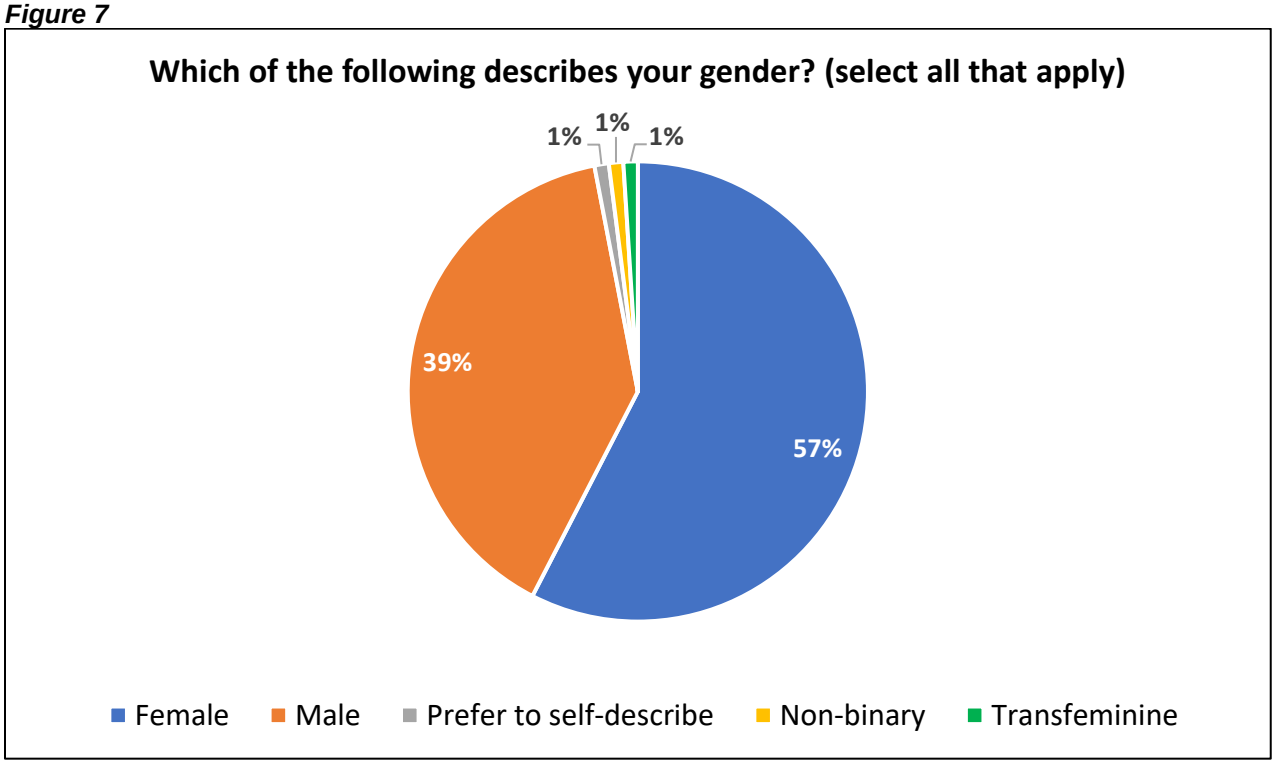
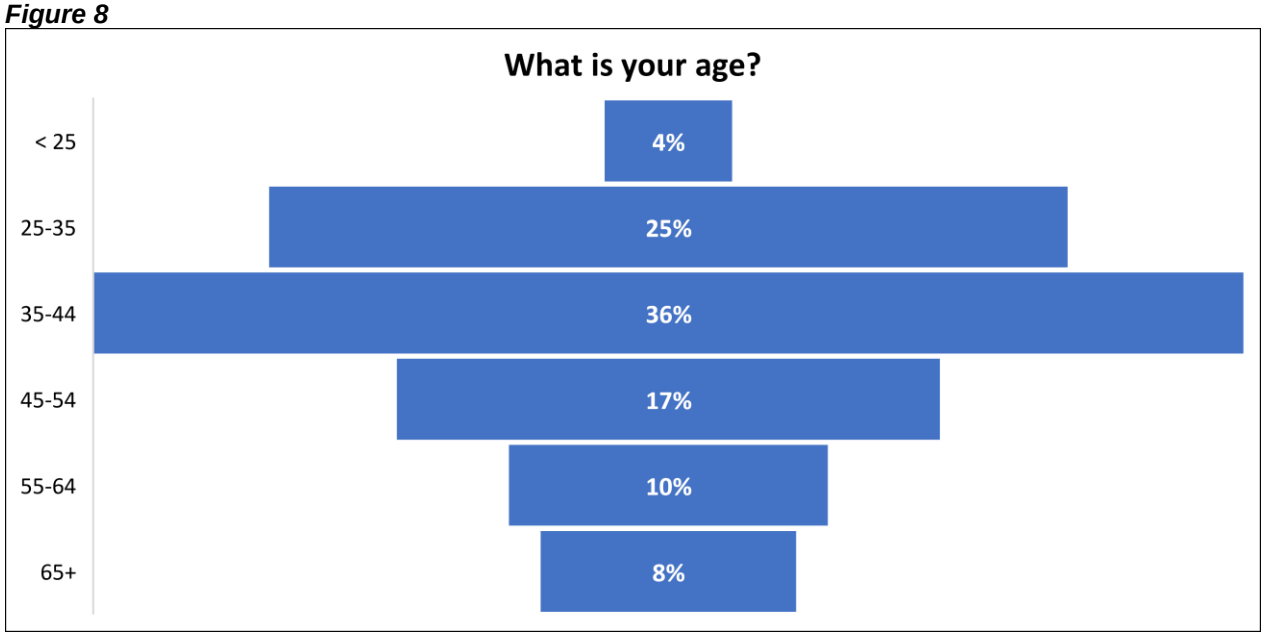


Figure 8



Finally, the majority of respondents identified as female at 57%, and the most common age group was 35-44 at 36% followed by 25-35 at 25%.

Subject Matter Questions

In order to contextualize transportation habits and preferences, the EV subject matter portion of survey began with an inquiry into the most common modes of transportation the respondents use on a normal basis.

Figure 9

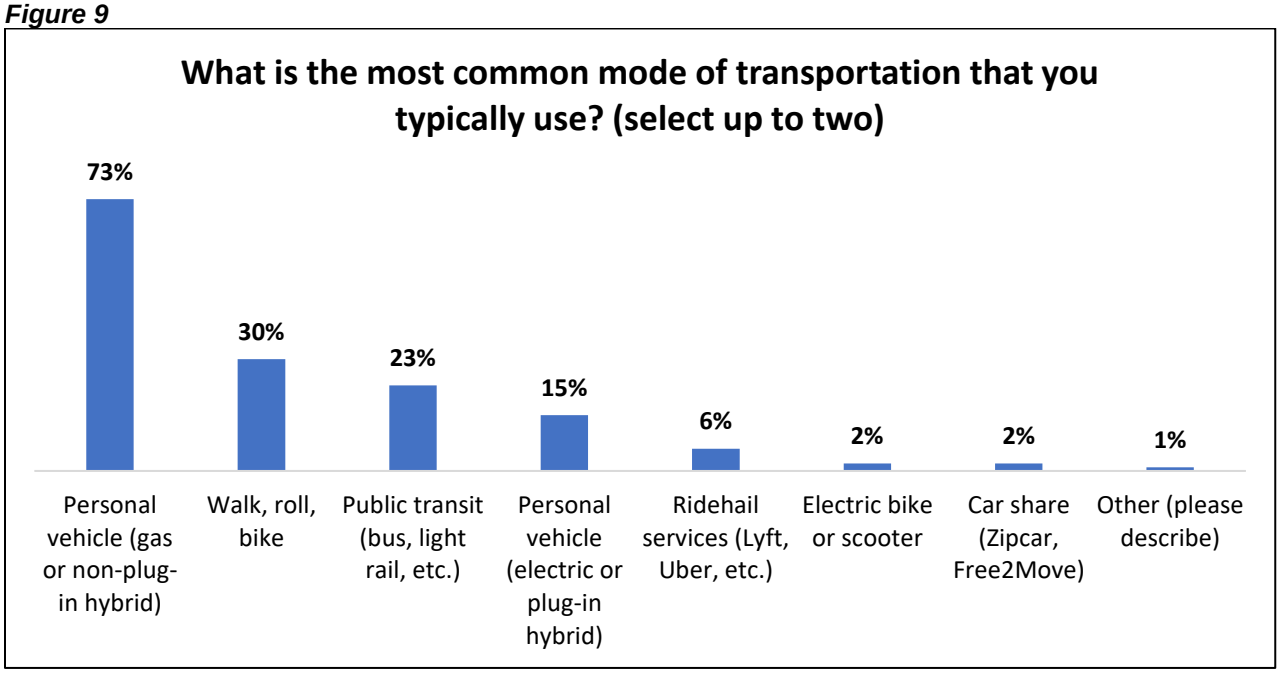


Figure 9 shows that the vast majority of respondents reported using a personal vehicle as one of their two most common modes of transportation, 73% of whom use a gas or non-plug-in hybrid and 15% use an electric or plug-in hybrid.

Figure 10

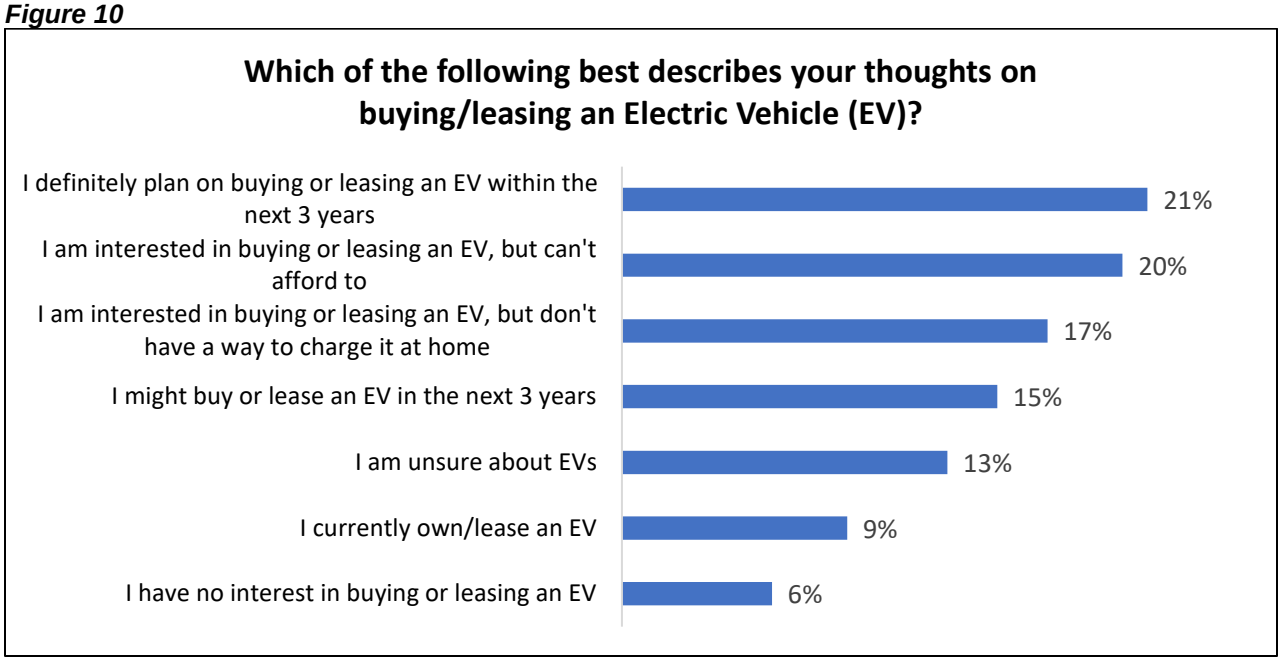
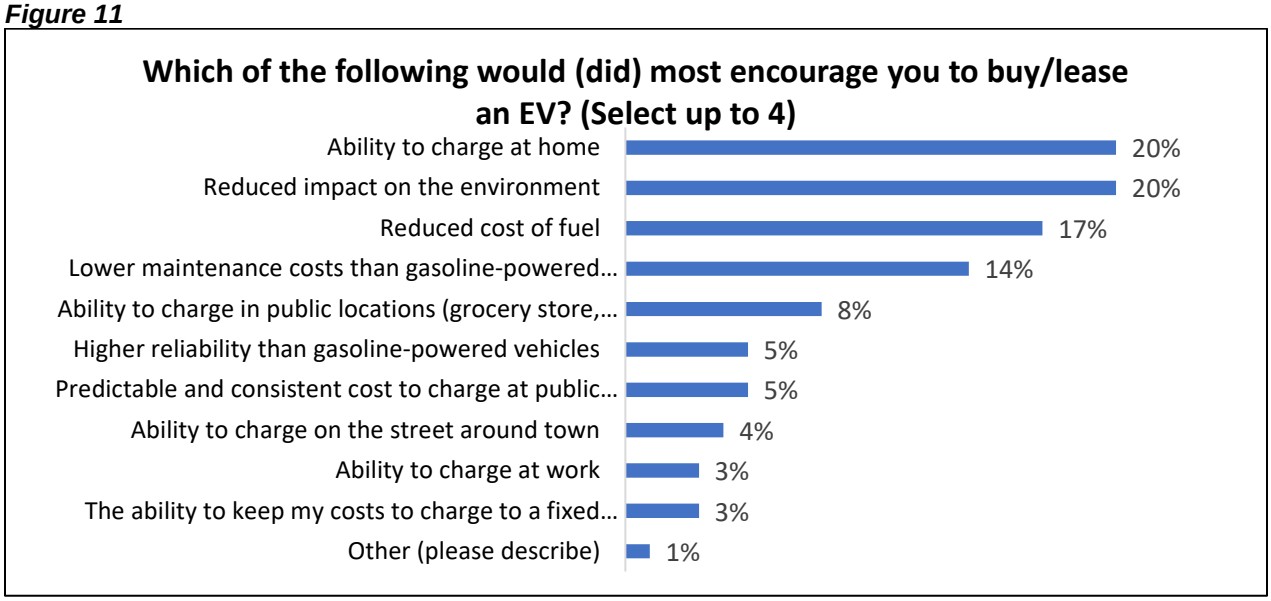


Figure 10 illustrates that when asked to describe their thoughts on buying or leasing an EV, the overwhelming majority indicated that they have at least some level of interest in EVs, with only 6% stating that they have no interest, and 13% reporting that they are unsure about EVs.

One in five participants expressed that they definitely intend to purchase or lease an EV within the next three years, with another 15% reporting that they might purchase or lease an EV within the next three years. Nine percent of survey participants reported that they currently lease or own an EV.

Some of the data highlighted potential barriers for some survey participants, as more than a third expressed that they are interested in an EV, but either can't afford to (20%) or do not have a way to charge it at their place of residence (17%). Renters in particular indicated that cost was a concern, as 35% reported that they are interested in an EV but cannot afford to buy or lease one.

Figure 11



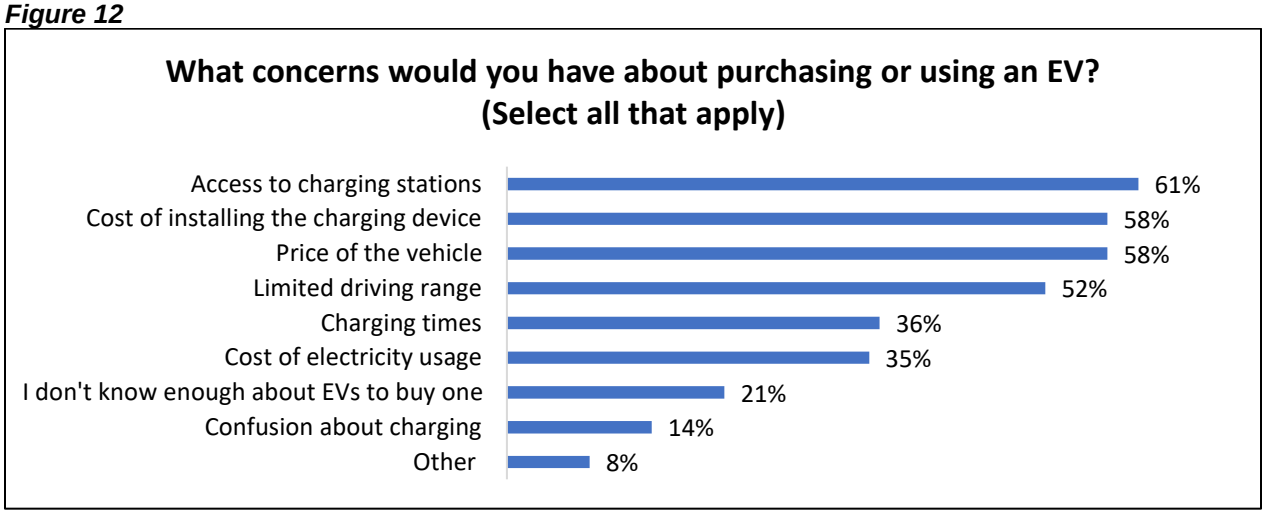
To assess some of the motivating factors behind EV use, as well for potential behavior changes related to EV utilization, the survey asked respondents what would most encourage them to buy or lease an EV (or what did motivate them if they currently own an EV).

Figure 11 shows that the four most-selected options were ability to charge at home and the reduced impact on the environment as the top two motivating factors (each selected by 20% of participants), followed by the reduced cost of fuel (17%) and the lower maintenance costs of EVs compared to gasoline-powered vehicles (14%).

When examining by race/ethnicity, there were no differences of note between BIPOC and White respondents.

The ability to charge at home ranked as the top motivating factor for homeowners, with 70% selecting this option, indicating potential for financial assistance like tax credits and rebates to have an impact on encouraging greater EV adoption and use. Renters similarly ranked this high as a motivating factor at 48%.

Figure 12

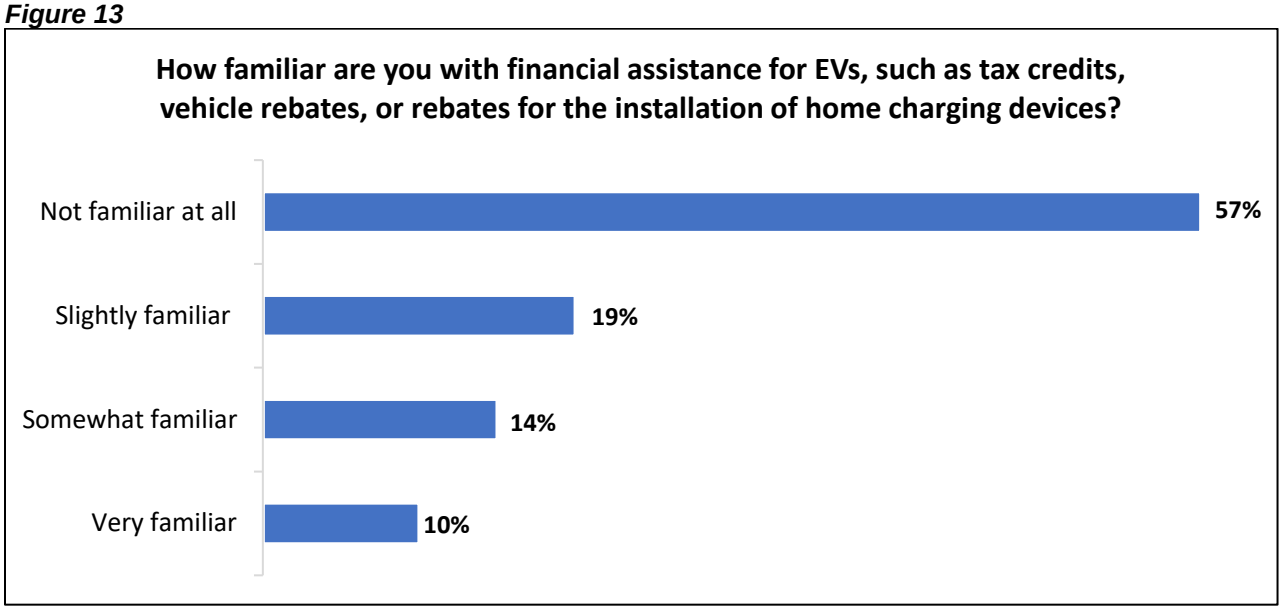


One of the key objectives of this research was to identify some of the barriers to the utilization of EVs and to understand the concerns that individuals in PGE's service area have about EV use. The survey addressed this directly by asking participants to share their top concerns related to purchasing or using an EV.

Figure 12 illustrates that the top concerns cited included those related to characteristics of EVs (i.e., purchase price and limited driving range) as well as those focused on the necessary infrastructure for EV use (i.e., access to charging stations, the cost of installing charging devices, and the cost of electricity usage). These concerns were consistent across demographic groups.

Additionally, some of the responses indicated a need for more knowledge about EVs with 21% respondents saying that they don't know enough about EVs to buy one, and 14% reporting that they are confused about charging. The gap in knowledge was pronounced for BIPOC respondents, with 36% reporting that concerns over lack of familiarity with EVs is a barrier to purchasing them. Similarly, 35% of respondents with annual incomes below $50k cited this concern as a barrier.

Figure 13

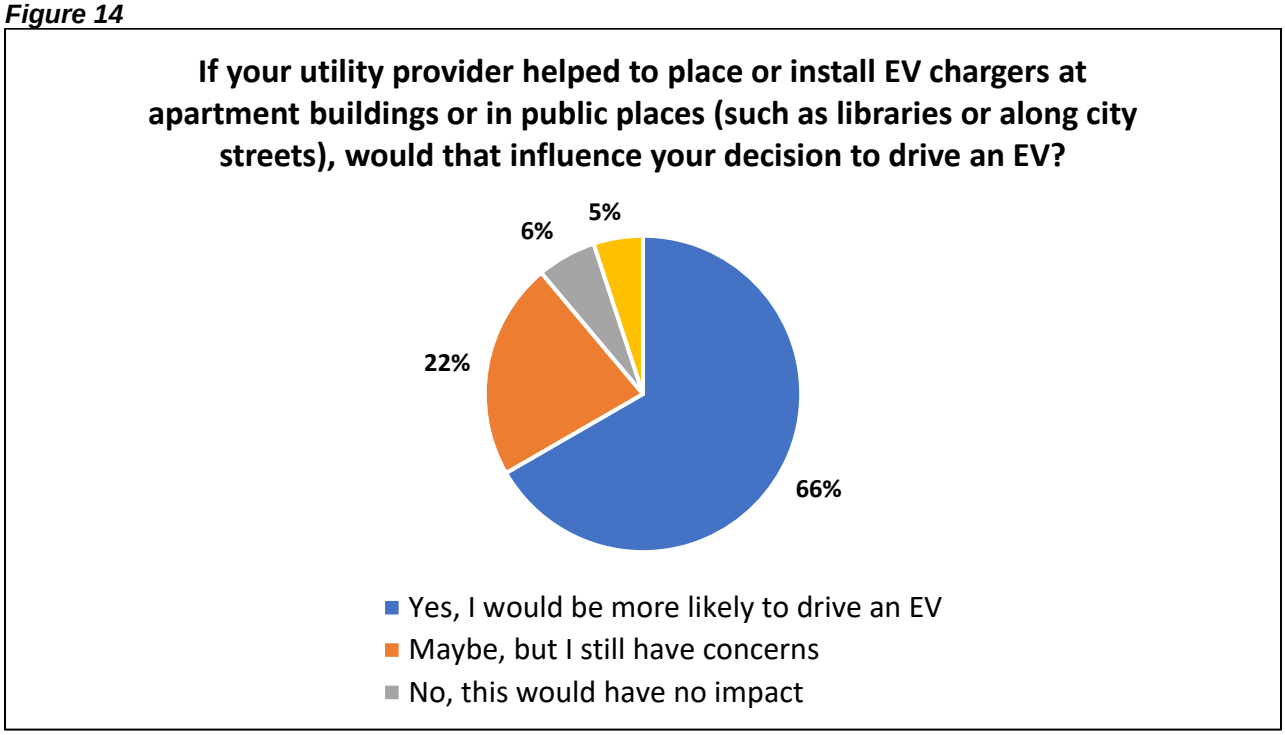


Given that many respondents cited concerns related to cost of either the vehicle itself or to charging and electrical usage, it is important to understand how familiar the participants generally are with financial assistance for EVs such as tax credits and rebates.

Figure 13 shows that when asked, more than half (57%) of participants cited that they are not familiar with financial assistance for EVs at all, and 27% reported that they are a little familiar. Only 8% of participants reported that they are either very familiar or moderately familiar with EV tax credits and rebates. Additionally, 69% of those who reported they have no interest in or are unsure about EVs also reported that they have no familiarity with EV financial assistance, representing a potential contributing factor in their lack of interest.

The lack of familiarity with financial assistance for EVs was pronounced across different key demographics. A large portion of respondents who identified as BIPOC reported that they have no familiarity with these resources at 69%, along with renters at 65% and 57% of lower-income respondents. While the data for all survey participants demonstrate a need for greater information-sharing about EV financial resources, the results for these key demographics indicate that making intentional efforts to reach out to these groups could have a positive impact for advancing equity in the utilization of EVs.

Figure 14

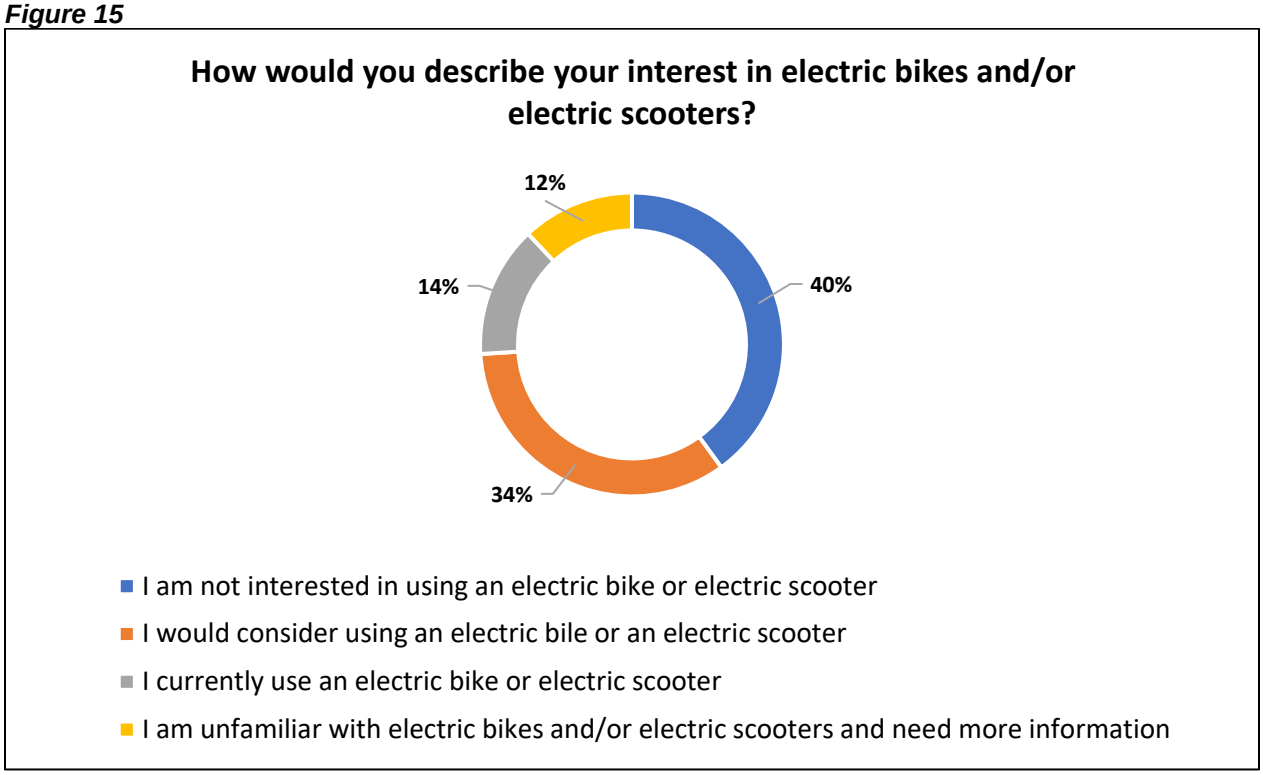


In order to further understand potentially motivating factors for behavior changes related to EV use, as well as solutions that PGE could potentially provide for existing barriers, the survey asked participants whether their utility provider offering assistance for the installation of EV chargers at apartment buildings or in public places would have an impact on their decision to drive an EV. As demonstrated in **Figure 14,** most participants cited that this assistance would make them more likely to drive an EV at 66%.

For all respondents, 22% reported that assistance with charging infrastructure may make EV use more likely for them but would still have some concerns that could impact their decision. For BIPOC respondents, 26% reported that they would still have concerns, and 35% of lower-income individuals cited this as well.

Only 6% of participants stated that charging assistance would have no impact on their decision to drive an EV, while another 5% cited that they are unsure.

Figure 15



For the last question related to electric vehicle usage, the survey asked participants how they would describe their interest in electric bikes and/or electric scooters.

Overall, participants reported somewhat limited interest and knowledge related to electric scooters and bikes, with 40% citing that they are not interested in these vehicles and 12% reporting that they are unfamiliar with them and need more information.

Approximately one-third of respondents reported that they would consider using an electric bike or scooter (34%), and 14% stated that they currently use these vehicle types.

These trends remained consistent when analyzed across demographic groups.

KEY TAKE-AWAYS

As a result of the analyses of the focus group sessions and supplemental survey, the Espousal team has identified some key take-aways for PGE to consider in its efforts to advance equity and understand the needs of underserved communities.

- **There is a clear need and desire for information around EVs, charging, financial resources, and various other associated issues.** The focus group sessions and the survey results both clearly indicated that while there is interest in EVs, there is also a knowledge gap for BIPOC and underserved communities, and this represents a key barrier to the purchase and use of EVs. Many focus group attendees shared that educational outreach is one of the primary things that PGE could do to assist these communities.

  One focus group participant shared, *"Having things in different languages, so different communities can see it, and be like, 'oh this is something I can see myself getting.' If they see themselves in the marketing, they will be more likely to purchase. Reaching out to CBOs and community orgs, since they're already working with the communities, so if it's coming out of their mouth there is more trust, is very different than someone from a company - as long as that person has all the right information, because if there's questions they don't know how to answer then they'll be like, 'well you don't know, so that's not something I want to spend a lot of money on.'*

  PGE could consider partnering with community-based organizations to reach BIPOC and underserved communities and provide information about EVs and the work PGE is doing to make them more accessible. These partnerships could help PGE ensure that its materials are accessible, that they reach a wide variety of demographics, and that they touch on the information that BIPOC and underserved communities are seeking around EVs.

  Without addressing the information gap for these communities in a meaningful way, efforts to advance equity and accessibility will be limited in their potential for positive impact.

- **Costs associated with EVs are a key concern and barrier.** The focus group sessions and the survey results illustrated that many individuals from BIPOC and other underserved communities see cost as a significant barrier to their ability to purchase and use an EV. The concerns around this issue covered various costs associated with EVs including vehicle price, charging, installation of home-charging devices, repairs and maintenance, and electricity rates.

  Additionally, the focus group sessions demonstrated that many individuals from BIPOC and other underserved communities do not believe that financial resources such as rebates and tax credits do enough to mitigate the burden of EV costs, particularly the up-front costs.

  While PGE cannot have a direct impact on some of these costs, such as vehicle prices, understanding these concerns is crucial context for any strategies it may develop to

address equity and accessibility, as individuals from underserved communities see this as a primary barrier in their ability to purchase and use EVs. When undertaking educational outreach efforts, PGE could consider helping individuals to understand the issues that are within its purview to address and those that are not, as well as some other resources they could turn to for financial assistance.

- **When addressing issues like accessibility for charging devices, a one-size-fits-all approach will not suffice.** The focus group sessions revealed a number of concerns related to EV charging and accessibility. While there is a clear need and desire for better access to charging stations in underserved communities, many individuals from these communities have concerns around the potential negative impacts this could have. It is important that PGE understands all of the trade-offs and ways that installing these stations could affect underserved communities and neighborhoods.

  This particular issue could represent another opportunity for PGE to work with community-based organizations to understand some of the needs and concerns of specific neighborhoods and communities, and to come up with creative solutions to improve accessibility without exacerbating inequities.

- **PGE should consider further exploration into underserved communities' interest in other forms of transportation electrification.** The research for this project centered primarily around EVs, however, a few questions were included in the supplemental survey and focus group questions that covered E-bikes and E-scooters. As mentioned in the focus group findings section, a couple of participants expressed interest in E-bikes and E-scooters and the potential for cost savings that their use could result in.

  Given that cost was identified as one of the key barriers, and with 23% of survey respondents reporting that they use public transportation as one of their primary modes of transportation, PGE should consider further research into understanding the needs and interests of underserved communities in other forms of transportation electrification such as micro-mobility, E-bikes and E-scooters, and public transit. With many focus group participants expressing that they feel EVs are out of their reach, this could be a potential alternative that could help to advance equity and access for underserved communities. However, it is important to note that when planning any future engagement around this subject, PGE should consider and address the knowledge gap issues that were identified in this research in order to maximize the effectiveness of equity-centered community outreach.

APPENDIX A: SUPPLEMENTAL SURVEY QUESTIONS

Subject Matter Questions

1. **Is your place of residence currently serviced by Portland General Electric for utilities?****
    a. Yes
    b. No
    c. Unknown

2. **What is the most common mode of transportation that you typically use? (Select up to two)**
    a. Personal vehicle (electric or plug-in hybrid)
    b. Personal vehicle (gas or non-plug-in hybrid)
    c. Public transit (bus, light rail, etc.)
    d. Rideshare (Lyft or Uber)
    e. Car share (Zipcar or Free2Move)
    f. Walk, roll, or bike
    g. Electric bike or scooter
    h. Other

3. **Which of the following best describes your thoughts on buying/leasing an EV?**
    a. I currently own/lease an EV
    b. I *definitely* plan on buying or leasing an EV within the next 3 years
    c. I *might* buy or lease an EV in the next 3 years
    d. I am interested in buying or leasing an EV, but can't afford to
    e. I am interested in buying or leasing an EV, but don't have a way to charge it at home
    f. I am unsure about EVs
    g. I have no interest in buying or leasing an EV

4. **Which of the following would(did) most encourage you to buy/lease an EV? (select up to 4)**
    a. Reduced cost of fuel
    b. Lower maintenance costs than gasoline-powered vehicles
    c. Higher reliability than gasoline-powered vehicles
    d. Ability to charge at home
    e. Ability to charge at work
    f. Ability to charge in public locations (grocery store, libraries, etc.)
    g. Reduced impact on the environment

h. Ability to charge on the street around town
i. The ability to keep my costs to charge to a fixed monthly amount through a subscription
j. Predictable and consistent cost to charge at public charging locations (grocery stores, libraries, etc.)
k. Other (Please describe) _____

5. **How familiar are you with financial assistance for EVs, such as tax credits, vehicle rebates, or rebates for the installation of home charging devices?**
    a. Not familiar
    b. A little familiar
    c. Moderately familiar
    d. Very familiar

6. **What concerns would you have about purchasing or using an EV? (select all that apply)**
    a. Price of the vehicle
    b. Access to charging stations
    c. Cost of installing the charging device
    d. Cost of electricity usage
    e. Limited driving range
    f. Charging times
    g. Confusion about charging
    h. I don't know enough about electric vehicles to buy one
    i. Other

7. **If your utility provider helped to place or install electric vehicle chargers at apartment buildings or in public places (such as libraries or along city streets), would that influence your decision to drive an electric vehicle?**
    a. Yes, I would be more likely to drive an EV
    b. Maybe, but I still have concerns
    c. No, this would have no impact
    d. Unsure

8. **How would you describe your interest in electric bikes and/or electric scooters?**
    a. I currently use an electric bike or electric scooter
    b. I would consider using an electric bike or an electric scooter
    c. I am not interested in using an electric bike or an electric scooter
    d. I am unfamiliar with electric bikes and electric scooters and need more information

Demographic Questions

9. **What is your zip code?**** _____

10. **How would you describe your race/ethnicity? (select all that apply)**
    a. African
    b. African American/Black
    c. American Indian/Alaska Native
    d. Asian
    e. Hispanic or Latinx/Latina/Latino
    f. Middle Eastern
    g. Native Hawaiian/Pacific Islander
    h. Slavic
    i. White/Caucasian
    j. Other (Please describe) _____

11. **Do you own or rent/lease your current place of residence?**
    a. Own single-family home/unit
    b. Own multi-family home/unit
    c. Rent single-family home/unit
    d. Rent multi-family home/unit
    e. Other

12. **What is your annual household income?**
    a. Under $25,000
    b. $25,000 - $50,000
    c. $50,000 - $75,000
    d. $75,000 - $100,000
    e. Over $100,000

13. **Including yourself, how many people live in your household?**
    a. Open response but require a #

14. **Which of the following describes your gender? (select all that apply)**
    a. Male
    b. Transmasculine
    c. Female
    d. Transfeminine
    e. Non-binary
    f. Gender queer
    g. Prefer to self-describe _____

15. **What is your age?**
    a. Under 25
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65+

Note: ** indicates questions where responses are required, while all other questions will be optional (can be skipped)

APPENDIX B: DISCUSSION GUIDE QUESTIONS

Poll Questions

1. **Do you identify with any of the following equity priority communities?**
    a. Black, indigenous, and people of color (BIPOC)
    b. Residents of rental housing
    c. Residents of multifamily housing
    d. Communities experiencing lower income
    e. Tribal communities
    f. Rural communities
    g. Individuals experiencing disabilities
    h. Limited English proficiency

2. **How familiar are you with electric vehicles (EVs)?**
    a. Not familiar
    b. A little familiar
    c. Moderately familiar
    d. Very familiar

3. **How familiar are you with financial assistance for EVs, such as rebates, tax credits, etc.?**
    a. Not familiar
    b. A little familiar
    c. Moderately familiar
    d. Very familiar

4. **What concerns would you have about purchasing or using an EV?**
    a. Price of the vehicle
    b. Access to charging stations
    c. Cost of installing the charging device
    d. Cost of electricity usage
    e. Limited driving range
    f. Charging times
    g. Confusion about charging
    h. I don’t know enough about electric vehicles to buy one

5. **If your utility provider helped to install electric vehicle chargers at apartment buildings or in public places (such as grocery stores or along**

city streets), would that influence your decision to drive an electric vehicle?

a. Yes, I would be more likely to drive an EV
b. Maybe, but I still have concerns
c. No, this would have no impact
d. Unsure

Open Discussion Questions

6. **Have you considered purchasing or using an electric vehicle? Why or why not?**

7. **Is there anything about using an electric vehicle that you feel you need more information about? (Such as charging, access to charging stations, resources for home installation of charging devices, etc.)**

8. **In your view, what are some of the things that make it harder for you to use an electric vehicle?**
9. **What questions or concerns do you have about charging EVs at home?**

10. **In your view, what are some ways that you feel electric utility providers could make EVs more accessible?**