



COMMUNITY ENGAGEMENT SUMMARY

FUTURE TRANSPORTATION ELECTRIFICATION PROGRAMS AND SERVICES

SINGLE FAMILY RESIDENTIAL, WORKPLACE, PUBLIC,
AND NEW + INNOVATIVE

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ACRONYMS

ACRONYM	FULL NAME
BIPOC	Black, Indigenous, and People of Color
CBO	Community-based Organization
DEI	Diversity, Equity and Inclusion
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FC	Fleet and Commercial
MF	Multifamily
PSE	Puget Sound Energy
TE	Transportation Electrification
TEP	Transportation Electrification Plan
WUTC	Washington Utilities and Transportation Commission
CETA	Clean Energy Transformation Act

EXECUTIVE SUMMARY

OVERVIEW

In May 2019, Puget Sound Energy (PSE) and Hopelink co-hosted an electric mobility workshop with South King County mobility stakeholders, which led to the creation of eight equity-focused Transportation Electrification (TE) pilots with community-based service providers throughout PSE's service area. To scale those pilots into future TE programs and services and keep abreast of community needs, PSE engaged with community members to help support the development of its Phase I future TE programs and services.

In 2021, PSE conducted community engagement work on the topics of Multifamily residential (MF) and Fleet and Commercial (FC) charging.

In 2022, PSE continued its community engagement on the topics of Single Family Residential (SF), Workplace, Public, Public Curbside, and New + Innovative (N+I) charging programs and services. This community engagement report outlines the benefits and barriers customers may face when it comes to TE and how customers suggested future programs and services can alleviate these barriers and maximize the desired benefits.

From January 2022 through October 2022, PSE engaged 81 agencies, municipalities, organizations, and tribal entities and 255 residents in focus groups and surveys to hear directly from them what would be most beneficial as PSE develops Phase II TE programs and services.

KEY FINDINGS

Through interviews, focus groups, workshops, and surveys, **Single Family Residential (SF), Workplace, Public, and Public Curbside charging participants identified four common themes:**

- **Cost:** Cost was consistently highlighted as a significant barrier throughout engagements, specifically the cost of charging infrastructure and maintenance, cost of electric vehicles (EVs), and the potential loss of parking for non EV drivers. When choosing scenarios, the majority of participants selected options with the lowest upfront costs.
- **Installation and maintenance:** The logistics and project management surrounding EVSE installation and maintenance were also highlighted as significant barriers, with the majority of participants selecting scenarios where PSE would both help install and maintain the infrastructure long-term.
- **Education and outreach:** The importance of education and outreach was a consistent thread that connected most conversations, but the comments were nuanced. Most participants noted that targeted and interactive engagement – such as test drives – is necessary to demystify EVs.
- **Flexibility of programs and services:** While similar themes emerged across many engagements, it also became clear how diverse each stakeholder's needs and interests could be. Engagement participants made it clear that a one size fits all solution could not equitably serve community members in diverse geographies with different cultures, resources, access and abilities.

The categories of SF, Workplace, Public and Public Curbside are relatively standard charging programs. **PSE's intent with its New and Innovative (N+I) engagement was to better understand what gaps the community sees in its existing programs and services and determine if there is an avenue for PSE to address those gaps.** As such, the N+I engagement followed a separate process, and the key findings are listed separately here:

- **Partnerships:** Engagement participants consistently noted how critical it is for PSE to create and nurture mutually beneficial partnerships with community-based organizations and other trusted messengers for the communities they are trying to reach. These partners can help amplify programs and support TE education and outreach.
- **Geography:** The difference in accessibility and resources between rural and urban settings was noted frequently in engagements. Participants made specific mention that transportation electrification in rural areas may require more time, money and problem solving.
- **Resources:** Lack of resources continues to be a predominant barrier to transportation electrification for Highly Impacted Communities, Vulnerable Populations and their service providers. The financial investment an individual or group must put into transitioning to electrified transportation was often paired with the lack of time to commit to fostering new ventures and projects.

- **Flexibility:** Each community will approach and respond to TE differently. Continued flexibility, humility, curiosity and community engagement on PSE's part will help develop nuanced and beneficial programs and services for equally nuanced communities.

NEXT STEPS

This report serves as the summary of community engagement for Phase II of PSE's future TE programs, focused on SF, Workplace, Public, Public Curbside and N+I charging. This summary will inform the development of PSE's future tariffs, to be formally filed with the WUTC in 2023. If approved, PSE plans to launch the programs associated with these tariffs in late 2023 and 2024. PSE will share this summary and the progression of the tariffs with all agencies, municipalities, organizations, and tribal entities that provided their perspective during the community engagement process.

COMMUNITY ENGAGEMENT PROCESS

The community engagement process began in January 2022 and concluded in October 2022. The sections below outline the development of the process, from the creation of goals and objectives to the prioritization of audiences, to the development of engagement tools.

COMMUNITY ENGAGEMENT OUTCOMES AND GOALS

In January 2022, PSE in collaboration with their community engagement consultants Maul Foster & Alongi and Triangle Associates, developed the following community engagement outcomes, goals, and participant criteria:

OUTCOMES

- Establish a roadmap for the equitable acceleration of widespread TE that includes the voices of the diverse communities in PSE's electric service area.
- Position the region as a leader in the transition to a cleaner energy future by advancing electrified transportation in Washington State among highly impacted communities, vulnerable populations, and their service providers.
- Remove barriers related to equity and inclusion as stated by community members, with community co-created programs that provide TE access to all customers.
- Solicit feedback and gain understanding from highly impacted communities and vulnerable populations who are interested in using potential TE programs and services, particularly as it relates to ownership preferences, cost share of electric vehicle infrastructure, education and outreach needs, customer acquisition and enrollment, and benefits and barriers to programs and services.

GOALS

- **Goal 1: Drive diversity, equity, and inclusion**
DEI energizes everything we do at PSE. It's about transparency and shining light across all our activities and must be part of how we connect in the community and serve our customers. This is accomplished through the following:
 - Promote procedural equity by giving future customers of these TE programs—highly impacted communities, and vulnerable populations and their service providers—a seat at the design table.
 - Compensate participants for sharing their expertise, stories, and experiences.
 - Apply community engagement outcomes towards program design, with the goal of maximizing benefits and minimizing barriers to accessing the programs.
 - Ensure community feedback is representative of the geographic and demographic diversity of our electric service area.
 - Identify future customers of programs, particularly from highly impacted communities, vulnerable populations, and their service providers in PSE's electric service area.
 - Determine how to more effectively deliver and market these programs to improve engagement and utilization.
- **Goal 2: Partner with customers and community**
We have to partner with our customers and our communities. We don't have all the answers when it comes to creating a clean energy future. Instead, we want to get there in partnership with our customers and do so in a way that involves all voices and prioritizes historically underserved communities. We will use the following approach to continue to support communities in need and help remove barriers:
 - Utilize the outcomes of this community engagement process to create and file TE programs that maximize benefits and minimize barriers.
 - Serve as a conduit between PSE and community members (individuals or groups) to create and strengthen relationships.
 - Manage and meet expectations of external and internal stakeholders throughout this process, keeping stakeholders (including the WUTC) updated and informed as the feedback and engagement process moves forward.

PARTICIPANT CRITERIA

To achieve the above-stated goals, we worked with agencies, municipalities, organizations and tribal entities to ensure inclusion of a diverse set of voices from across PSE's electric service area. The following participant criteria helped guide our invitations for engagement:

- Located in PSE's electric service area
- Wants to use TE programs and services but may experience barriers to access (e.g. access to charging stations, language or cultural barriers, income)
- Additionally, we will prioritize communities who would have barriers to accessing TE without additional financial or advisory support. These communities include:
 - Black, Indigenous, and other People of Color (BIPOC) communities
 - Limited English Proficiency community members
 - Named Communities as listed in the Clean Energy Implementation Plan¹
 - Persons with disabilities and specialized access needs
 - Low-income households
 - Rural communities with limited access to transit

COMMUNITY ENGAGEMENT PROCESS

After the development of the objectives, goals, and participant criteria listed above, the team developed a list of agencies, municipalities, organizations and tribal entities to invite to participate in the engagement process (full list in [Appendix A](#)). The flow chart below describes the cascading nature of the engagement process and how PSE and its consultant team moved from introduction calls to interviews to focus groups to workshops and surveys. The track on the right explains the engagement process taken for SF, Workplace, Public and Public Curbside charging topics. The track on the left outlines the engagement process for the N+I topic. As each engagement tool was used, the team synthesized feedback and incorporated it into the next stage of engagement to inform the questions asked and dive continually deeper with participants.

¹ Named Communities include both Highly Impacted Communities and Vulnerable Populations:

- Highly Impacted Communities are designated by the Department of Health based on the cumulative impact analysis required by RCW 19.405.140 or a community located in census tracts that are fully or partially on "Indian country," as defined in 18 U.S.C. Sec. 1151.
- Vulnerable Populations are communities that experience a disproportionate cumulative risk from environmental burdens due to: Adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, access to food and health care, and linguistic isolation; and sensitivity factors, such as low birth weight and higher rates of hospitalization.

INTRODUCTION CALLS

68, 15-minute introduction calls

Purpose: Understand a potential participant's location in PSE's electric service area, the population they serve and their current interest in or knowledge of TE.

Audience: Agencies, municipalities, organizations, and tribal entities serving Named Communities

FOCUS GROUPS

Three, 90-minute SF focus groups (One in Spanish)

Two, 90-minute Workplace focus groups

Two, 90-minute Public Charging focus groups

One, 60 minute and three, 90-minute Public Curbside focus group

Purpose: Understand TE barriers and benefits. Identify any final gaps in engagement prior to workshops.

Audience: Agencies, municipalities, organizations, and tribal entities that may either implement a TE program for the end users they serve or apply for a TE program as the user of the program.

Alternative tools: Some participants were unable to join the focus groups, and instead joined for a one-on-one interview to discuss the same topics highlighted above. In total, the team conducted 4 additional interviews.

WORKSHOPS

One, 90-minute SF workshop

One, 90-minute Workplace workshop

One, 90-minute Public Charging workshop

Purpose: Further explore TE barriers and benefits and discuss scenarios for future programs and services. Specifically, the application and intake process, advisory services, load management, education and outreach, ownership preferences, and EV and EVSE incentive models.

Audience: Agencies, municipalities, organizations, tribal entities, and residents.

Alternative tools: Some participants were unable to join a workshop, and instead filled out a survey on similar questions posed in the workshop.

N+I IDEATION EXERCISES

Two, 120-minute N+I ideation exercises

Purpose: Understand gaps in PSE's planned charging programs and services.

Audience: Agencies, municipalities, organizations, and tribal entities that provide services to Named Communities

Alternative tools: The team offered one-on-one interviews for participants who were unable to join the ideation exercise. However, no community members opted to schedule an interview.

N+I FOCUS GROUPS

Five, 90-minute N+I focus groups

Purpose: Dive deeper into five topic areas surfaced in the community ideation exercise.

Audience: Agencies, municipalities, organizations, and tribal entities with a specific interest in the five selected topics.

Alternative tools: Participants that were unable to join for a focus group were offered a one-on-one interview. In total, the team conducted 11 additional interviews.

SURVEYS

One Single Family Residential Survey (English and Spanish)

One Provider Survey

One Public Charging Resident Survey (English, Spanish)

One Public Curbside Survey (English, Spanish, Somali, Arabic)

Purpose: Participants that were unable to join a workshop were able to fill out a survey and respond to similar questions posed in the workshops. An additional 247 participants filled out user or provider surveys.

Audience: Agencies, municipalities, organizations, tribal entities, ride hail drivers, and residents.

COMPENSATION

To reduce engagement barriers for communities who PSE most needs to hear from in the design process, compensation was offered to participants for sharing their expertise, stories, and experiences.

All interview, focus group and workshop participants were compensated \$50/hour for their time. For example, those who attended a 90-minute workshop received \$75, whereas those who attended a 30-minute interview received \$25.

All survey participants were given a \$25 Visa gift card for survey completion.

Participants received compensation through a donation to their organization, a donation to another organization or Visa gift cards. It is important to note that not all participants accepted compensation.

ENGAGEMENT PARTICIPANTS

PSE's engagement aligned with the [community engagement goals](#), prioritizing geographic and demographic diversity.

Participant	Population served	Counties served in PSE electric service area	Topic
Anacortes Family Center	Houseless, low-income	Skagit	SF
City of Lakewood	City of Lakewood Residents	Pierce	
El Centro de La Raza*	Low-income, Latinx	King	
Habitat for Humanity Skagit County	Low-income	Skagit	
Housing Resources Bainbridge	Low-income	Kitsap	
Island County Habitat for Humanity	Low-income	Island	
Kitsap Community Resources	Low-income	Kitsap	
Kulshan Community Land Trust	Low-income	Whatcom	
Lummi Nation	Lummi Nation	Whatcom	
Skagit Community Action Council	Low-income	Skagit	
United Way of Skagit County*	Low-income	Skagit	
Bellingham Housing Authority	Houseless, low-income	Whatcom	Workplace
Boys & Girls Club of Skagit County	Youth	Skagit	
Kitsap Community Resources	Low-income	Kitsap	
Muckleshoot Tribal Transit	Muckleshoot Indian Tribe, low-income	King	
Multi-Service Center	Houseless, low-income	King	
Pierce County	Pierce County residents	Pierce	
Point Roberts Marketplace	Commuters, Canadian visitors	Whatcom, Skagit	
Samish Indian Nation	Samish Indian Nation	Skagit	
Shoemaker Manufacturing	Rural employees	Kittitas	Public Charging
Skagit Valley College	Youth, educators	Skagit	
City of Bainbridge	City of Bainbridge residents	Kitsap	
City of Ferndale	City of Ferndale residents	Whatcom	
City of Lakewood	City of Lakewood residents	Pierce	
City of Lynden	City of Lynden residents	Whatcom	
City of Olympia	City of Olympia residents	Thurston	

Participant	Population served	Counties served in PSE electric service area	Topic
Drivers Union	Rideshare drivers	All	Public Charging
Kitsap Transit	Kitsap County residents	Kitsap	
Mount Vernon Downtown Association	Mount Vernon residents	Skagit	
Pierce County	Pierce County residents	Pierce	
Teamsters 117	Ridehail and truck drivers	All	
Whatcom County	Whatcom County residents	Whatcom	
City of Anacortes	City of Anacortes residents	Skagit	Public Curbside
City of Bellevue	City of Bellevue residents	King	
City of Bellingham	City of Bellingham residents	Whatcom	
City of Bothell	City of Bothell residents	King and Snohomish	
City of Enumclaw	City of Enumclaw residents	King	
City of Ferndale	City of Ferndale residents	Whatcom	
City of Issaquah	City of Issaquah residents	King	
City of Kenmore	City of Kenmore residents	King	
City of Kent	City of Kent residents	King	
City of Kirkland	City of Kirkland residents	King	
City of Lacey	City of Lacey residents	Thurston	
City of Mt. Vernon	Mt. Vernon residents	Skagit	
City of Oak Harbor	City of Oak Harbor residents	Island	
City of Olympia	City of Olympia residents	Thurston	
City of Renton	City of Renton residents	King	
City of Snoqualmie	City of Snoqualmie residents	King	
City of Sumner	City of Sumner residents	Pierce	
City of Tumwater	City of Tumwater residents	Thurston	
City of Yelm	City of Yelm residents	Thurston	
King County	King County residents	King	
Muckleshoot Tribal Transit	Muckleshoot Tribal members	King	
Nooksack Indian Tribe	Nooksack Tribal members	Whatcom	
Pierce County	Pierce County residents	Pierce	
Port Gamble S'Klallam Tribe	Port Gamble S'Klallam Tribal members	Kitsap	
Samish Indian Nation	Samish Indian Nation members	Skagit	
Suquamish Tribe	Suquamish Tribal members	Kitsap	
Thurston County	Thurston County residents	Thurston	
Whatcom County	Whatcom County residents	Whatcom	
Bonney Lake Food Bank	Low-income	Pierce	
Boys & Girls Club of Skagit County	Youth	Skagit	
Chinook Enterprises	People with disabilities and other barriers	Skagit	
City of Tukwila	City of Tukwila residents	King	

Participant	Population served	Counties served in PSE electric service area	Topic
FISH Food Bank	Low-income	Kittitas	N+I
Food Lifeline	Low-income	King	
FORTH Mobility	Pacific Northwest region	Multiple	
Hopelink	Low-income and people with disabilities or other barriers	King	
Ironworkers Local 86	Local ironworkers	King	
Island Transit	Island County residents	Island	
King County Metro	King County residents	King	
Kitsap Conservation District	Kitsap County residents	Kitsap	
Kitsap Transit	Kitsap County Residents	Kitsap	
Muckleshoot Tribal Transit	Muckleshoot Tribe	King	
Multi Service Center	Houseless, low-income	King	
Nooksack Indian Tribe	Nooksack Indian Tribe	Whatcom	
Northwest Agricultural Business Center	Island, King, San Juan, Snohomish, Whatcom County residents	Island, King, Whatcom	
Northwest Cooperative Development Center	Cooperative businesses	Thurston	
Pacific Mobility Group	Consumers, private businesses, and public entities	Island	
Port of Seattle	Port of Seattle staff and visitors	King	
Puget Sound Clean Air Agency	King, Kitsap, Pierce and Snohomish Residents	King, Kitsap, Pierce, Snohomish	
Rooted In Rights	People with disabilities	Multiple	
Skagit Conservation District	Skagit County residents	Skagit	
Skagit Gleaners	Skagit County residents	Skagit	
Sustainable Connections (Cloud Mountain Farm)	Local businesses, governments, non-profits, community members, and civic leaders	Whatcom	
Teamsters 117	Ride share drivers	King	
Transportation Choices Coalition	Washington State commuters	All	
Viva Farms	Limited-resource farmers	Skagit	
Western Washington University	Students	Whatcom	
Whatcom Conservation District	Whatcom County residents	Whatcom	
Whatcom Technical College	Students	Whatcom	
Whatcom Transit Authority	Whatcom County residents	Whatcom	
Women's Transportation Seminar	Local transportation industry	All	
WSU Food Extension – Kitsap	Food processors	Kitsap	
WSU Food Extension – Puyallup	Food processors	King	

*Did not participate in individual engagements but were instrumental in engagement of residents in engaging participants for a SF Spanish Focus Group, as noted in the SF section below.

FEEDBACK

SINGLE FAMILY RESIDENTIAL CHARGING ENGAGEMENT

This section focuses on at-home charging for residential customers with a dedicated parking space.

ENGAGEMENT PARTICIPANTS

Out of 25 community stakeholders contacted, eight participated in introduction calls and six participated in a focus group. Two organizations participated in a housing provider survey, and two organizations engaged individual residents for a Spanish-speaking resident focus group.

Participant	Population served	Counties served in PSE electric service area
Anacortes Family Center	Houseless, low-income	Skagit
City of Lakewood	City of Lakewood residents	Pierce
El Centro de La Raza*	Low-income, Latinx	King
Habitat for Humanity of Skagit County**	Low-income	Skagit
Housing Resources Bainbridge	Low-income	Kitsap
Island County Habitat for Humanity	Low-income	Island
Kitsap Community Resources**	Low-income	Kitsap
Kulshan Community Land Trust	Low-income	Whatcom
Lummi Nation	Lummi Nation	Whatcom
Skagit Community Action Council	Low-income	Skagit
United Way of Skagit County*	Low-income	Skagit

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop
*Recruited participants for resident Spanish focus group	**Participated in housing provider survey	

INTRODUCTION CALLS

Prior to the focus groups and workshops, stakeholders were first engaged through introductory phone calls. In these brief calls, the project team shared PSE’s transportation electrification work to date and learned more about potential participants’ mission, vision and goals, any existing experience with TE and initial barriers to TE access for themselves or their customers. Information collected through these phone calls was used to help frame the design of subsequent engagements.

BARRIERS

Participants briefly identified TE barriers during the 15-minute introduction calls. While these barriers were explored in further detail during the focus groups, they were consistent across all sectors and geographies for the majority of those engaged, and included:

- **Cost:** The cost of a new electric vehicle (EV) and charger installation is a barrier for low-income residents. Housing providers also shared concerns about passing on higher electricity costs or energy burdens to residents.
- **Infrastructure:** Single family residents have a variety of housing and parking situations, which can affect charging availability. Interviewees also shared that single family housing may not have the electrical infrastructure to support EV charging.

- **Education and outreach:** There are many misconceptions or a lack of understanding about EVs and charging, including the cost of charging and maintaining an EV versus a gas-powered vehicle, the necessary infrastructure for charger installation, and affordable options for EVs.

FOCUS GROUP WITH HOUSING AND SOCIAL SERVICE PROVIDERS

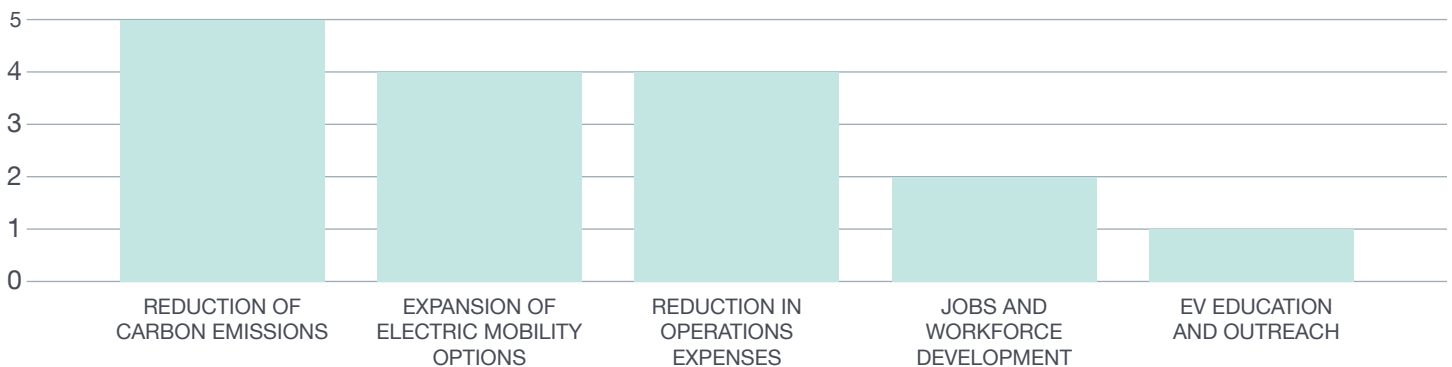
Following the introduction calls, stakeholders were invited to participate in a virtual 90-minute focus group designed to further understand TE barriers and benefits and gather feedback on education and outreach best practices. A total of six participants joined the focus group. This section summarizes the overarching themes heard during that focus group.

BENEFITS

During the focus group, participants were asked to select the TE benefits that were most important to them and their communities. Participants selected all benefits that applied from the list below through a Zoom poll administered during the meeting:

- Expansion of electric mobility options (modes of transportation)
- Reduction of carbon emissions
- Reduction in operations expenses
- EV education and outreach
- Jobs and workforce development

SELECT THE BENEFITS THAT ARE MOST IMPORTANT TO YOU AND YOUR COMMUNITY.



The highest number of participants selected **reduction of carbon emissions and reduction in operations expenses** as the most important benefits to their community, followed by **expansion of electric mobility options, jobs and workforce development**, and lastly, **education and outreach**.

Many of the participants in the provider focus group were non-profit organizations. As non-profits, they articulated the importance of keeping operation costs low while providing benefits to their residents and clients. Many of the clients they serve are low-income and benefit from reduced cost of living, including decreased spending on gas prices. Participants viewed reduction of carbon emissions and improved air quality as an overall benefit for the community, particularly for those experiencing homelessness or those who may be spending additional time outside. Participants also highlighted the importance of finding meaningful and culturally appropriate ways to share basic information about transportation electrification with customers so they can determine how it may benefit them.

BARRIERS

In focus group conversations around barriers, similar themes from the introductory conversations emerged. This included **cost, infrastructure, and education and outreach**. Participants shared **barriers that they as providers experience**, and **that their residents may experience**, as well as suggestions to address or alleviate those barriers.

	Cost	Infrastructure	Education and outreach
Barriers providers experience	<ul style="list-style-type: none"> • Cost to install charging and subsequent increase in housing costs could impact residents and clients • Non-profits have tight budgets and may not be able to accommodate the cost of installing chargers in homes • Concern of increasing the energy burden for their customers 	<ul style="list-style-type: none"> • Lack of charging infrastructure, specifically in rural areas • Concern of properly addressing diverse resident EV needs when transportation habits are different for different residents <ul style="list-style-type: none"> ◦ Some rely on personal vehicles ◦ Some share vehicles with family members ◦ Others rely on public transit 	<ul style="list-style-type: none"> • Understanding the installation and maintenance costs of an EV charger • Understanding grid capabilities to support increased charging demand
Barriers residents or clients experience	<ul style="list-style-type: none"> • Financial hardship and having the disposable income to purchase EVs • Residents do not always have access to bank accounts or credit • EVs are not a top priority for residents who are more focused on day-to-day affordable living 	<ul style="list-style-type: none"> • Parking situations (garage, street parking, shared lot, etc.) vary for single family residents • In shared vehicle or charging scenarios for homes that do not have a garage or dedicated charger, charging may be unreliable or seen as a barrier • Residents are reliant upon personal vehicles due to lack of public transportation and hesitant to make changes to their current transportation habits • Low inventory for used electric vehicles 	<ul style="list-style-type: none"> • Complicated application and intake processes for charging installation programs • Understanding EV range and capabilities • Technology barriers for older populations • Language barriers

Cost was identified as a significant barrier for both residents and providers. Some suggestions participants made to alleviate this barrier were to:

- Provide access to incentive programs that would reduce or eliminate the costs of installation and charging. These programs would allow providers to install charging at homes and apartments, which may encourage residents to purchase EVs.
- Develop a system for customers to charge at a reduced rate during non-peak charging periods.
- Provide or assist with financial assessments for housing providers to help them understand the cost and feasibility of installing chargers.
- Make EVs more accessible to lower-income customers. If customers have easier access to the vehicles, there will be more incentive to use the stations. For example, provide charging stations at residences that offer free charging and cover EV and charger maintenance costs.

Participants shared concerns about the infrastructure required to support chargers in single-family homes, including parking, repairing the electrical wiring in existing homes, or the additional cost of retrofitting homes during construction. Some suggestions to alleviate this barrier were to:

- Plan for a variety of charging options depending on available parking for residents. This could include communal chargers for residents.
- Financially support retrofitting electrical systems and maintenance for existing homes.
- Consider pairing solar installations with charger installations.
- Participants also noted that education and outreach for both providers and residents would help address barriers and made suggestions to:
 - Support applicants during the application and intake process.
 - Clearly articulate the reduced cost of maintenance throughout the lifetime of the EV.
 - Use the trusted messenger model or community groups to share information and/or set examples of TE within their own communities.
 - Share information through a variety of media, including social media, websites, paper, email.
 - Combine information about TE with climate change information and environmental activism.
 - Even if the conversion to electric may not be immediate, take time to develop relationships with communities and engage in long-term outreach to support residents in purchasing EVs when their financial and living situation may allow it.
 - Create culturally relevant education by offering materials in various languages, and in-language or multilingual experiences. Use mapping and other demographic information to ensure that all communities are reached.
 - Provide support for residents and communities that have technology barriers. For example, provide computer access or materials in non-digital formats.
 - Help customers understand how new electrical codes may impact their charging station installations.

“EV outreach is important so people will understand how this works. It is incumbent upon PSE and utilities to disseminate this information to their customers.”

SURVEY WITH HOUSING AND SOCIAL SERVICE PROVIDERS

Due to a low availability of housing providers for a virtual workshop, the team created a survey to maximize the number of participants. In the survey, participants were asked to provide feedback on a range of scenarios for the **application and intake process, advisory services, load management, education and outreach, EV incentives, and EVSE ownership and incentives.**

For each feedback category, participants were presented with a range of scenarios. They were asked to select or rank scenarios that were preferable, then were prompted to share what they liked most, what they liked least, and what was missing. The six that participated in the focus group received the survey, and two completed the survey.

APPLICATION AND INTAKE PROCESS

PSE asked participants to identify which scenarios were equitable or not and explain why.

Scenario	Application and intake process scenarios	Participants who thought the scenario would be equitable*
1	Applicants are prioritized based on the total cost of the project.	100%
3	Eligible applicants are prioritized based on whether they operate in areas of high carbon emissions.	50%
2	Eligible applicants are considered on a first-come, first-served basis.	0%

*Total exceeds 100% as participants were able to vote for more than one option.

Both respondents chose scenario 1 as equitable, and one participant chose scenario 3 as equitable. Neither found scenario 2 to be equitable because organizations with more resources and fewer barriers are often the ones that can submit their responses or applications first. One respondent called out that perhaps none of these options were equitable by definition, but that scenario 1 could possibly create a positive outcome for the largest number of people.

“To me, equity is about creating access to the process.”

ADVISORY SERVICES

PSE asked participants to select all the advisory services their organization would use, if offered.

Scenario	Advisory services scenarios	Participants who thought the advisory service would work best for their organization, if offered*
1	PSE provides calculators to help customers assess the total cost of EV and EVSE ownership.	100%
2	PSE partners with customers to review the site(s) and create a long-term plan for EV charger installs.	50%
3	PSE prepares and provides presentations to customer’s critical stakeholders (e.g. Board members)	50%

*Total exceeds 100% as participants were able to vote for more than one option.

Both participants selected scenario 1 but added that a combination of all three scenarios may be necessary to achieve TE for a community or an organization. Respondents suggested services to help navigate the cost of maintenance and access information or testimonials from other users or organizations who have benefitted from TE.

LOAD MANAGEMENT

PSE asked participants to select all scenarios they would prefer, if offered.

Scenario	Load management scenarios	Participants who would prefer the service, if offered*
1	PSE partners with the organization to create a customized charging plan that prioritizes off-peak charging.	50%
2	Pricing at the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately four times less than on-peak charging.	50%
3	Customers are provided with an incentive of up to \$10 per charger per month. The incentive amount is reduced based on the number of on-peak charges that occur.**	50%

*Total exceeds 100% as participants were able to vote for more than one option.

**Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

Responses varied when it came to load management. The respondent who preferred **scenario 1** thought it would keep costs low for employees and residents to ensure they charged during lower-demand times. The respondent who preferred **scenario 2** felt that it rewarded the desired outcomes by incentivizing charging at off-peak times with lower costs.

The respondent that did not chose **scenario 3** thought it would discourage people from adopting EVs by making charging more complicated. Participants also suggested that PSE consider installing free charging stations to increase access for all customers.

EDUCATION AND OUTREACH

Participants were asked to select all education and outreach methods that would work best for themselves and their clients.

Scenario	Education and outreach scenarios	Participants who thought the method would work best, if offered*
2	Customers can attend local rides and drives to test EVs.	100%
1	PSE co-creates materials for the customer to distribute to their clients or constituents.	50%
3	PSE provides EV services as a package with other services (e.g. weatherization or retrofits).	50%

*Total exceeds 100% as participants were able to vote for more than one option.

Respondents preferred **scenario 2, but also supported scenarios 1 and 3**. A combination of all three scenarios would allow flexibility to meet a variety of needs. However, one respondent felt that the bundling in scenario 3 may not be easy to execute for low-income households.

EVSE OWNERSHIP AND INCENTIVE

PSE shared two ownership preference and incentive scenarios with participants and asked for feedback on each.

	Scenario 1	Scenario 2
Charger selection	Customer must select from a pre-determined list.	Customer can select their own charger.
For an L2 (assume \$1,500 per port), customer pays**:	PSE provides an incentive of 75% of costs, up to \$1,200 per port.	PSE provides a flat incentive of \$500 per port.
Maintenance	PSE manages ongoing charger maintenance.	Customer manages ongoing charger maintenance.
Participants who would use the program if offered*	100%	0%

*None of the above was also included as an option.

**Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

All respondents **preferred scenario 1 because having customers be responsible for long-term maintenance may deter them from installing chargers**. They also appreciated the ease of having a single contact for charger maintenance. Despite preferring scenario 1, one participant still suggested that residents should have the option to choose between the two scenarios.

Participants found two barriers in **scenario 2**: the cost of purchasing the charger, and the responsibility of researching all the available options may slow down the process. Participants also suggested that PSE work hand in hand with the state or local governments.

“The cost is prohibitive for low-income people who perhaps could benefit the most from lower monthly and long term [reduction of] cost of ownership.”

EV INCENTIVES

PSE offered three incentive models for EVs or electric multimodal options.

Scenario	EV incentive scenarios	Participants who thought the scenario would work best, if offered*
2	EVSE installation is accompanied by an EV incentive to income-eligible residents.	100%
3	PSE provides incentives for electric scooters or bikes for residents to utilize.	100%
1	PSE helps customers locate state, federal, or private grants and provides letters of support.	50%

*Total exceeds 100% as participants were able to vote for more than one option.

Both respondents preferred **scenario 2 and 3**, and only one respondent preferred **scenario 1**. Respondents did not provide any additional feedback on the scenarios.

Respondents shared the following feedback at the end of the survey:

- The transition to transportation electrification goes beyond the sales of electric vehicles will have to involve partnerships with other industries.
- EVs are cost-prohibitive, and low-income populations would benefit most from lower monthly and long-term cost of ownership.

RESIDENT FOCUS GROUP, IN SPANISH

In addition to the focus group with housing and social service providers, PSE held a 90-minute focus group, in Spanish, designed to understand TE barriers and benefits, and education and outreach best practices through the lens of residents within the Spanish-speaking community. This section summarizes the overarching themes heard during the SF Spanish-speaking focus group with residents.

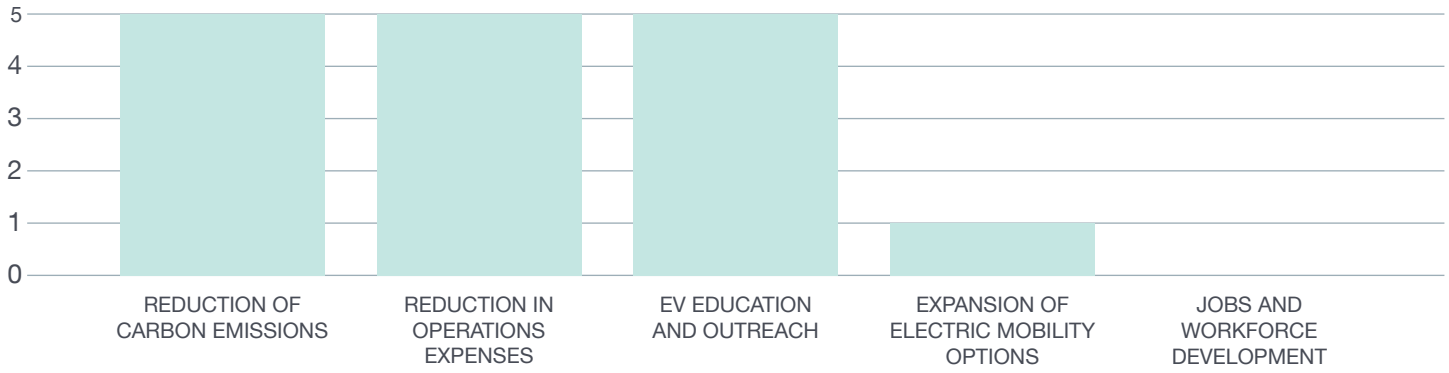
PSE collaborated with two community-based organizations, El Centro de la Raza and United Way of Skagit County, to distribute flyers and share information to their communities and networks about the focus group. A total of five residents joined the focus group.

BENEFITS

During the focus group, participants were asked to select the transportation electrification benefits that are most important to them and their communities. Participants selected all benefits that applied from the list below through a Zoom poll administered during the meeting:

- Expansion of electric mobility options (modes of transportation)
- Reduction of carbon emissions
- Reduction in operations expenses
- EV education and outreach
- Jobs and workforce development

SELECT THE BENEFITS THAT ARE MOST IMPORTANT TO YOU AND YOUR COMMUNITY.



All five participants chose **reduction of carbon emissions, reduction in operation expenses, and EV education and outreach** as the three most important TE benefits. One participant noted that **expansion of electric mobility options** will expand TE access and benefit low-income communities.

Overall, participants expressed that taking care of the planet was an important value for them and their communities. Although reduction of operating costs was among the top benefits of TE, the benefits to the planet and future generations were highest priority. Participants agreed that the transition to electrified transportation is an exciting change that is needed to combat climate change. Currently, TE awareness is growing in their communities, and is a topic of conversation within their families, with neighbors, and in their work settings. Participants suggested that PSE should focus on reaching communities that would benefit most from the transition to TE, such as low-income and immigrant communities. EV education and outreach was also mentioned as instrumental to the success of TE.

“Visualizo un mundo donde nuestras comunidades tienen acceso a transporte eléctrico.”
“I visualize a world where our communities have access to electric transportation.”

BARRIERS

Participants were then asked to discuss barriers that residents face in accessing TE. Similar themes from the focus group with housing and social service providers emerged, including **cost, infrastructure, and education and outreach**. Participants also shared a few suggestions to address or alleviate those barriers.

Cost	Infrastructure	Education and outreach
<ul style="list-style-type: none"> • Financial hardship and disposable income to purchase EVs • Purchasing an EV is a big financial commitment • Understanding the cost of electricity for charging an EV at home 	<ul style="list-style-type: none"> • The slow speed at which charging infrastructure is being built • Lack of charging infrastructure in public leads to range anxiety when traveling longer distances • Community is reliant upon personal vehicles for commuting and personal use 	<ul style="list-style-type: none"> • Language barriers • Fear of not knowing enough information to purchase EV • Understanding how to maintain a charger at home and who to go to for EV problems

Cost was identified as a significant barrier for residents to purchase EVs. Some suggestions participants made to alleviate this barrier were to:

- Offer financial incentives to low-income residents for purchasing an EV.
- Provide clear educational materials such as fact sheets for residents to understand the cost of charging an EV at home.
- Make information on cost easy to understand and accessible by providing materials in various languages.

Many participants believed that the lack of current charging infrastructure in both residential housing and in public settings is a barrier that deters residents from purchasing an EV or from considering TE as a viable option. Some suggestions participants made to alleviate this barrier were to:

- Plan for a variety of charging options depending on available parking for residents. For example, create programs that offer both charger installations for single family residents with a personal garage as well as those that use street parking.

Participants emphasized that one of the largest barriers for residents was a lack of awareness around EVs. Purchasing a new vehicle is a big financial commitment and residents prefer to buy what is familiar to them instead of taking a financial risk. Some suggestions participants made to alleviate this barrier were to:

- Provide in-language information and educational materials to residents.
- Hold in-person and virtual engagements in various languages.
- Offer training and financial incentives for mechanics that work locally in communities. In addition, advertise to residents which mechanics are available for EV issues.

UNDERSTANDING TE NEEDS FOR SINGLE FAMILY RESIDENTS

To better understand TE needs for SF residents, participants were also asked to answer questions about the types of residences and parking situations in their communities, primary modes of transportation, ownership and maintenance preferences, and billing preferences.

No two participants had the same housing and parking situation. Two participants lived in standalone homes with either a garage or access to street parking, one lived in a mobile home with a single car garage, and one lived in a multifamily residential setting. This emphasized the diversity of housing and parking situations to consider when developing SF TE programs. All participants mentioned that there is a lack of access to EV charging in their neighborhoods.

Personal vehicles are the primary mode of transportation for participants and their communities. This was partly due to limited access to public transit options and weather conditions in the region. A participant also observed that Latinos tend to own their own vehicle due to long commutes, job type, cultural reasons, among others. Community members also use public transportation and shared rides (e.g. Uber), but with less frequency.

While participants acknowledged the benefits of electric bikes for older populations and increased use of electric scooters by youth, they personally did not anticipate using these mobility options due to personal preference and the benefits to health when using traditional bicycles. Participants shared that if there was a financial incentive to purchase or use them, that would increase their interest and use in these options.

Most participants said they would prefer to own and maintain an EV charger themselves. This would increase the participants' self-sufficiency goals and reduce their reliance on PSE. Participants shared they would need in-depth education on how to maintain their own charger and problem-solve issues that may arise to feel confident enough to own it. One participant said that they would not mind if PSE owned and maintained the charger, if they provided a financial incentive for installation.

When paying for charging directly through their electricity bill, a participant suggested PSE create a line item outlining the energy usage and cost for charging the EV at home.

EV EDUCATION AND OUTREACH

Participants were asked to share what would make their community excited about TE and how to successfully share that information. They were also asked to provide feedback on language needs or technology barriers associated with communication.

Participants shared the following education and outreach best practices and ideas for PSE to consider:

- Create and distribute materials in multiple languages.
- Find opportunities to talk with people directly or in a one-on-one setting.
- Continue to offer in-language focus groups and workshops.
- Connect with and educate communities that use their car to get to work, particularly those that travel south in the Puget Sound area, about the benefits of TE.
- Offer food during events to increase participation.
- Diversify communication and outreach strategies (e.g. emails, fairs, markets, and social media networks) as different generations like to receive information in different ways.
- Target various groups on social media to increase awareness around TE (e.g. Skagit Latin Mall Facebook Live, Latinos in Seattle, Mexicano/as in Seattle, etc.).
- Partner with trusted community-based organizations (e.g. El Centro de la Raza, Community Action Skagit, C2C, etc.) and with schools to distribute information.

Overall, all participants highlighted that **creating in-language materials and offering in-language events** are crucial to increase TE engagement in the Spanish-speaking community as it helps people feel comfortable and builds trust. They would like to see conversational-style engagements that allow simultaneously for dialogue and learning. Specifically, residents shared that growing awareness of the benefits of EV ownership will increase their confidence in making decisions during the EV purchasing process.

“Espero aprender más para poder tomar la decisión de comprar un EV.”

“I hope to learn more so I can make the decision to purchase an EV.”

WORKSHOP WITH RESIDENTS

After the focus group, housing or social service providers were asked to share information about the resident workshop with their clients. The 76 residents who completed the survey also received an invitation to participate in a virtual one-hour workshop in English. In the workshop, participants provided feedback on resident-focused charging program scenarios that were formed as a result of feedback received in previous focus groups.

Ultimately, three residents participated in the workshop. To see additional feedback from residents, please see the survey with residents' section of this document for those results.

ENGAGEMENT PARTICIPANTS

Two participants signed up for the workshop after receiving the invitation upon survey completion, and were part of the target population identified by the PSE Customer Insights Team for the survey, which included the following parameters:

- Located in PSE's electric service territory
- Below 60% of the Area Median Income
- Likely residing in a single-family dwelling
- Either a homeowner or renter
- Balance of urban, suburban, and rural residents
- Mixture of climate concern
- All located within PSE's named communities

One participant signed up for the workshop after receiving information from the Kulshan Community Land Trust, which serves low-income populations in Whatcom County.

BENEFITS, BARRIERS, AND SCENARIOS

In the workshop, participants began by sharing their experience with TE. Residents shared that reduced environmental emissions and low fuel costs were some of the most important TE benefits to them. Some of the barriers identified in this initial discussion were lack of available charging stations and lack of information on EVs.

During the workshop, participants were asked to select the type of SF housing they lived in. All three participants selected ‘standalone home’ through a Zoom poll administered during the meeting.

Residents were then presented with a range of scenarios in various categories. They were asked to select or rank scenarios that were preferable, prompted to discuss what they liked most, what they liked least, and what was missing. Residents were asked to approach the scenarios as if they were:

- Considering purchasing an EV for personal use
- Exploring how to install an EV charger in their residence

The following outlines scenario feedback from the resident workshop.

PROGRAM ELIGIBILITY SCENARIOS

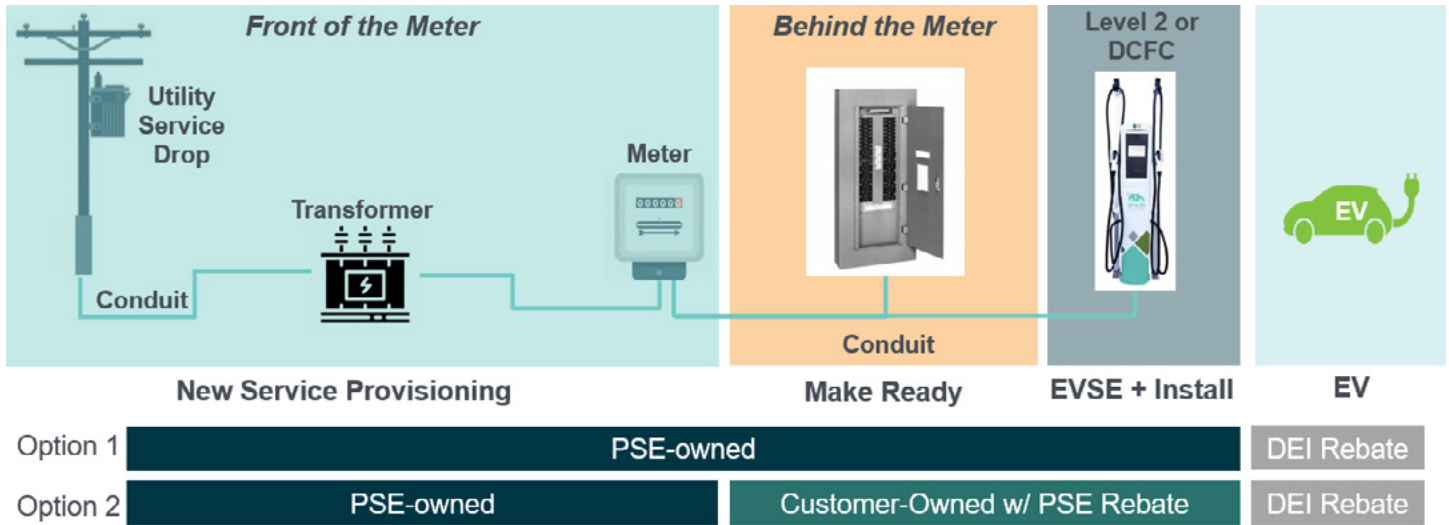
Residents were asked to consider three program eligibility scenarios to qualify for a charger incentive program. They discussed the benefits and barriers for each of the three scenarios.

Scenarios	Barriers	Benefits
Scenario 1 Must prove EV ownership via vehicle registration	Participants shared residents may not have the disposable income to purchase the vehicle in the first place.	Users felt that proving EV ownership via vehicle registration made practical sense and proves the need for the resident to install a charger.
Scenario 2 Self-certify intention of purchasing an EV and provide proof of registration within 60 days of EVSE installation	There were concerns that a resident could end up with an EVSE installed in their home and decide not to purchase an EV.	Most participants felt this scenario would encourage residents to install an EVSE charger.
Scenario 3 Must provide documentation of your income level to qualify	Participants felt that this scenario could deter participation from residents. They encouraged PSE to trust their customers. A suggestion was shared to provide the option to verify income levels only when asking for any additional assistance.	

“The affordability must be addressed...[provide] a solution that makes buying an electric vehicle affordable for all people.”

OWNERSHIP, INCENTIVES, AND MAINTENANCE SCENARIOS

Residents received an overview of the different components of a transportation electrification project, shown in the image below.



Residents were then asked to share which of the two scenarios below they would be most interested in and likely to use.

	Scenario 1	Scenario 2
Charger selection	Customer can select their own charger	Customers select from a list of pre-approved chargers
For an L2 (\$1.5K per port)	PSE provides a flat incentive of \$500 per port*	PSE provides an incentive of 75% of costs, up to \$1,200 per port*
Maintenance	Customer manages ongoing charger maintenance	PSE manages ongoing charger maintenance

*Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

Participants provided the following feedback regarding ownership and maintenance preferences:

- All users said they would **prefer PSE to select, own, and maintain the charger.**
- Residents would prefer to rely on PSE for their knowledge and expertise to research and choose the best charger for their residence and manage the ongoing technology upgrades to the charger.
- Regarding the incentive component, residents did not specify which scenario they preferred yet shared they would prefer to pay less.

LOAD MANAGEMENT SCENARIOS

Residents were then asked to consider the following three load management scenarios and share which scenario they would be most interested in, discuss any potential barriers, and identify additional options for PSE to consider.

Scenario 1	Scenario 2	Scenario 3
PSE partners with customers to create a customized charging plan that prioritizes off-peak charging.	Pricing at the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately 4x less than on-peak charging.	Customers are provided with a maximum incentive of \$10 per charger per month. Incentive amount is reduced based on the number of on-peak charging events incurred

Overall, participants agreed that charging during off-peak hours **would reduce stress on the grid system**, benefit the environment and community, and **reduce charging costs**. For each of the three scenarios listed above, participants stated that it is necessary to provide clear information to residents that defines on peak and off-peak hours so they can make informed decisions about charging.

To avoid peak costs, a suggestion was made to program chargers so residents can plug in their car, and it would begin charging at a certain time during off-peak hours.

One participant shared that in Scenario 1, customers may agree to a customized plan yet should have the ability to modify the plan to meet changes in their needs and habits.

EV INCENTIVE SCENARIOS

Residents were presented with the three EV incentive scenarios below and asked to share which scenario they prefer and to identify any barriers.

Scenario 1	Scenario 2	Scenario 3
PSE helps customers locate state, federal, or private grants and provides letters of support.	EVSE installation is accompanied by an EV incentive to income-eligible residents	PSE provides incentives to residents to purchase electric scooters or bikes.

Participants spent time discussing the scenarios listed above and shared the following:

- Scenario 1:** Participants identified **potential barriers** and offered suggestions to alleviate those barriers, noting that:
 - Many residents do not have experience working with the government or would find it uncomfortable to do so. This scenario could deter those residents from participating.
 - Grant writing can be burdensome, overwhelming, and time consuming for residents.
 - This scenario can present technology barriers for older populations.
 - PSE should provide support for any administrative processes and provide in-person workshops to help residents apply to the grants. The process should be as user-friendly as possible.
- Scenario 2:** All participants felt that this **was the most widely appealing scenario**. They felt it would provide the most benefits for residents who were actively trying to purchase an EV. One participant suggested expanding the income-eligible range to capture middle class residents in addition to low-income residents.
- Scenario 3:** Participants had little support for electric bike and scooter incentives. They recognized this scenario might benefit younger residents.

EDUCATION AND OUTREACH SCENARIOS

Finally, residents were asked to consider the following four education and outreach scenarios and discuss benefits, barriers, and any other components PSE should consider.

Scenario 1	Scenario 2	Scenario 3	Scenario 4
You can attend local ride and drives to test EVs	You receive educational materials about EVs from your housing provider or local community-based organization.	You receive educational materials about EVs from PSE as part of a package with other services (e.g. weatherization or retrofits.)	PSE provides calculators to help customers assess the total cost of EV ownership

Participants shared overall support for each of the four scenarios and agreed that all the scenarios provide important benefits, specifically noting:

- High support for testing EVs in person through ride and drives.
- There is value in partnering with community-based organizations and housing providers as they know homeowners, residents, and demographics.
- The need to provide detailed information around cost, ownership, and maintenance of an EV.
- Support for an investment calculator to help residents in their decision-making process to purchase and invest in an EV.
- The need to embed education on charging stations and EVs into current homeownership and home maintenance materials.
- The need to educate residents on the various options and EV models available.

“It is important to partner with community-based organizations and housing providers because they know the homeowners and the demographics of their residents better than PSE might”

METRICS FOR SUCCESS

To measure the success of these transportation electrification projects, participants reacted to the following list of potential metrics:

- Number of users
- Rates of participation over time
- Number of miles driven, scootered or biked

Participants agreed that number of users is a useful metric to measure EV program success. One participant mentioned that miles driven can be a difficult metric because some residents will drive more than others depending on commuting or personal trips.

SURVEY WITH RESIDENTS

In addition to the workshop with residents, PSE distributed an online survey to residents by email. The email listserv was developed by the PSE Customer Insights team with the following parameters:

- Located in PSE’s electric service territory
- Below 60% of the Area Median Income
- Likely residing in a single-family dwelling
- Either a homeowner or renter
- Balance of urban, suburban, and rural residents
- Mixture of climate concern
- All located within PSE’s named communities

Over 800 residents received an invitation to take the survey, which was available in both English and Spanish. Survey respondents received a \$25 Visa gift card for completing the survey. Seventy-six people completed the English survey and four people completed the Spanish survey for a total of 80 respondents. The survey included questions about type of single-family residence, primary modes of transportation, ownership preferences, and payment preferences.

When asked about residence type, most respondents selected single-family home as their residence, with a small number of respondents living in manufactured homes, RV homes, or duplexes/triplexes.

Type of housing	% of respondents
Single family home	90%
Manufactured home	7.7%
Duplex/Triplex	2.6%
RV or mobile home	2.6%
Other	1.3%
Townhouse	0.1%
Tiny home	0%
Accessory Dwelling Unit (ADU)	0%

Nearly all respondents drive personal vehicles as their primary mode of transportation. Forty-nine percent of respondents park in a driveway or carport and 36% of respondents park in an attached garage. Less than 15% of respondents parked on the street, in a shared parking lot, or in an unattached garage.

About 65% of respondents indicated interest in owning an EV, citing that they are cost-effective compared to paying for gas, environmentally friendly, create less noise pollution and would create a better future for the next generation. Of the 35% that were not interested in owning an EV, they shared that current EV models do not meet their transportation or towing needs or do not have adequate range, EVs are too expensive, charging time is inconvenient, and their home's infrastructure does not support charging.

When asked more generally about barriers to owning an EV, customers cited the cost of the EVs, the cost of installing a charger at home, or the lack of access to charging. Other barriers included the lack of range for EVs, and respondents shared concerns about the vehicle or the battery wearing out faster than a gas-powered vehicle along with a concern about high licensing and registration fees for EVs.

Barriers to owning an EV	% of respondents
Cost of the EV	81.3%
Cost of installing a charger at my home	64%
Lack of access to charging	45.3%
Cost of charging	36%
The range of EVs doesn't meet my transportation needs	34.6%
Limited availability of the type of vehicle I want	22.6%
Other	5.3%

Total exceeds 100% as participants were able to vote for more than one option.

When asked about **charger ownership and maintenance preferences**, the majority of respondents preferred that PSE own the charger. However, all Spanish respondents opted to own the charger themselves as they felt that owning the charger would be easier. Of the English respondents, many shared that they did not know how to own or maintain chargers and preferred that PSE handle the responsibility of maintaining the charger. Having PSE own the charger also provides a consistent point of contact and there was interest in the potential for a bundled electrical panel upgrade.

Respondents were also **asked to identify the minimum incentive that would influence them to purchase a new or used EV from a range of \$0 to \$10,000**. The average selected incentive was \$5,500.

The survey also asked respondents to **share their interest in participating in shared electric bike or scooter programs**. Sixty-five percent of respondents were not interested in participating in a shared e-bike program, stating that bicycles can be dangerous, are not accessible for those with certain disabilities, are not weather compatible, or that commutes are sometimes too far to use bicycles. Those that did indicate interest thought that bicycles could be a strong community asset in urban areas or when used for recreation instead of commuting purposes.

Seventy percent of participants were not interested in participating in a shared electric scooter program. Respondents did not think scooters would work well in remote areas, were not safe, would not protect riders from the weather and would not work well for seniors or those with other mobility issues. Those who were interested in the program, similar to electric bikes, seemed to feel they work better for recreational purposes. Seventy-five percent of respondents indicated that they would not pay to access either program.

Respondents finished the survey by **sharing how they would prefer to learn about programs**. Nearly half of respondents preferred to receive information through texts or e-mails from PSE, followed by about 30% who preferred to learn from neighbors or members of the community, and about a quarter of respondents preferred to learn from either community-based organizations or at a test drive. One survey respondent indicated that a utility bill insert would be a helpful communication method.

How would you prefer to learn about EV programs like the ones described in this survey?	% of respondents
I would like to receive emails or text messages from PSE about this program	46.5%
From neighbors or community members who a part of this program	29%
At a local test drive	26%
From a local community based organization	21.9%
Other	12%
From a housing authority or rental assistance provider	2.7%

Total exceeds 100% as participants were able to vote for more than one option.

Respondents had the **opportunity to share any additional thoughts** at the end of the survey. The additional comments highlighted the importance of public education, the need for incentives for EVs and charging stations, the need to consider accessibility of EVs for those with disabilities or specialized access needs, and need for more EV charging access in public.

To see the complete survey results, see [Appendix E: Single Family Residential Survey Results](#).

WORKPLACE CHARGING ENGAGEMENT

This section focuses on charging stations, installed at workplaces, for use by employees.

ENGAGEMENT PARTICIPANTS

Out of 18 community stakeholders contacted, 11 participated in introduction calls, nine participated in focus groups, and five participated in workshops or one-on-one conversations.

Participant	Population served	Counties served in PSE electric service area
Bellingham Housing Authority	Houseless, low-income	Whatcom
Boys & Girls Club of Skagit County	Youth	Skagit
Kitsap Community Resources*	Low-income	Kitsap
Muckleshoot Tribal Transit*	Muckleshoot Indian Tribe, low-income	King
Multi-Service Center	Houseless, low-income	King
Pierce County	Pierce County residents	Pierce
Point Roberts Marketplace	Commuters, Canadian visitors	Whatcom, Skagit
Samish Indian Nation*	Samish Indian Nation	Skagit
Shoemaker Manufacturing	Rural employees	Kittitas
Skagit Valley College	Youth, educators	Skagit

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

* Stakeholders participated in introduction calls for other engagement activities

INTRODUCTION CALLS

Prior to the focus groups and workshops, stakeholders were first engaged through introductory phone calls. In these brief calls, the project team shared PSE’s transportation electrification work to date and learned more about potential participants’ mission, vision and goals, any existing experience with TE and initial barriers to TE access for themselves or their customers. Information collected through these phone calls was used to help frame the design of subsequent engagements.

BARRIERS

Participants briefly identified TE barriers during the introduction calls. While these barriers were explored in further detail during the focus groups, they were consistent across sectors and geographies for the majority of those engaged, and included:

- **Education and outreach:** Interviewees expressed that targeted and interactive engagement is necessary to demystify EVs and in turn, promote charging station use. Several interviewees expressed that to consider offering charging stations, informing employees about the benefits of EVs and ways in which they can finance or afford them was an important first step.
- **Infrastructure improvements and space:** Many interviewees noted that additional utility infrastructure is needed to accommodate charging stations. A few interviewees also mentioned limited parking as an associated barrier.
- **Cost:** Most interviewees cited the cost of installing and maintaining charging stations as a significant barrier for their workplace. This barrier is particularly limiting for non-profits.
- **Organizational and staff capacity:** Many interviewees identified a lack of organizational capacity and bandwidth to take on additional development projects, with some noting a lack of prioritization for investments in EV charging stations when developing long-term plans.

FOCUS GROUPS

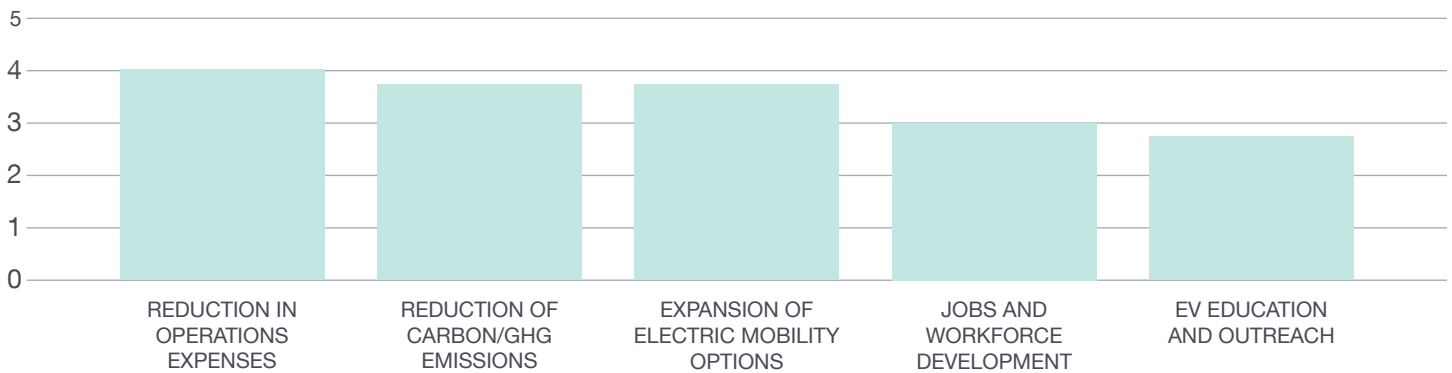
Following the introduction calls, community stakeholders were invited to participate in a virtual 90-minute focus group designed to understand TE barriers and benefits, and education and outreach best practices. A total of eight participants attended one of two focus groups while one additional stakeholder participated in a one-on-one interview on the same topics. This section summarizes the overarching themes heard during those conversations.

BENEFITS

During each focus group, participants were asked to rank the following TE benefits, with one being least important and five being most important to them and their communities, via a virtual Mentimeter survey:

- Expansion of electric mobility options
- Reduction of carbon/greenhouse gas emissions
- Reduction in operations expenses
- EV education and outreach
- Jobs and workforce development

RANK EACH OF THESE BENEFITS WITH 1 BEING LEAST IMPORTANT TO YOU AND YOUR COMMUNITY AND 5 BEING MOST IMPORTANT TO YOU AND YOUR COMMUNITY.



Focus group participants shared that short term and long-term **cost** was most important when weighing the decision to invest in charging infrastructure. A few participants expressed concern over the potential financial burden to the employer that may result from offering charging to employees free of cost.

Many participants cited **reducing their carbon footprint** as an integral factor in pursuing TE, since it aligns closely with their strategic vision and mission and has positive implications for their broader communities. Participants ranked expansion of electric mobility options as the third most important benefit, with many referencing that EV technology should be accessible to employees and community members who may not own a vehicle.

While **EV education and outreach** and **jobs and workforce development** were ranked as less important benefits, most participants stated that these benefits were beneficial but could only be achieved if a reduction in operations expenses was first achieved.

“The investment [in EV technology] is the organization’s way of supporting commitments to global needs.”

In addition to ranking these benefits, participants suggested that the following be added or considered:

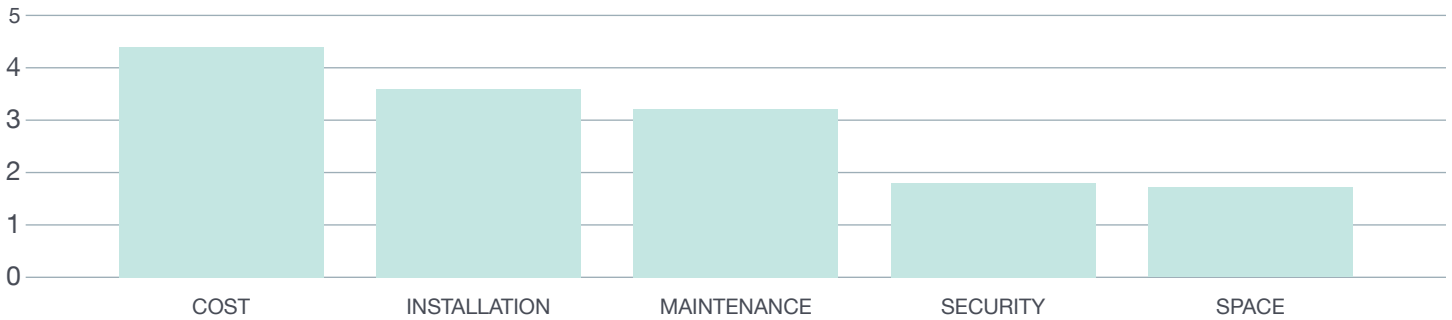
- EV charging as an employee benefit that could support retention and recruitment.
- Financial advisory services for employees exploring EV purchasing options.

BARRIERS

During each focus group, participants were asked to rank the following barriers, with 1 being the least challenging to their workplace and 5 being the most challenging, via a virtual Mentimeter survey:

- Installation
- Cost
- Maintenance
- Security
- Space

RANK EACH OF THESE BARRIERS WITH 1 BEING LEAST CHALLENGING TO YOU AND YOUR WORKPLACE AND 5 BEING MOST CHALLENGING.



In focus group conversations around barriers, similar themes from the introduction conversations emerged. These included **cost, and installation and maintenance**. Though installation and maintenance were separate barriers, participants often referenced them together when discussing what might reduce their likelihood of installing charging stations at their property.

When asked, participants expanded upon the barriers that they are experiencing or anticipate experiencing as well as suggestions to address or alleviate those barriers.

Cost	Installation and maintenance
<ul style="list-style-type: none"> • Cost of EV charger installation • Competing cost priorities that result in an inability to invest in TE • Cost of ongoing maintenance and training of staff • Costs and staff time associated with small retrofits are almost more difficult to overcome than large capital projects 	<ul style="list-style-type: none"> • Grid or load capacity concerns • Limited project management bandwidth and specific capacity for EVSE related projects • Constraints related to whether property is owned or leased • Difficulty installing charging stations in parking lots that are shared by employees, customers, and residents • Unfamiliarity with charging station procurement processes • Lack of standardized charging stations due to multiple vendors

A majority of participants indicated that cost was a significant barrier to increasing access to and installing charging stations. Participants suggested the following ideas to address the cost barrier:

- Provide financial incentives for EV charging stations.
- Facilitate information-sharing opportunities among agencies, municipalities, organizations and tribal entities that have implemented TE charging programs and those who are exploring options. Some participants shared that it would be helpful to know how other entities have successfully approached and implemented programs.
- Partner with a local employer, such as a bank, who is willing to work with employees to help them qualify for EV financing, since increasing employee access to EVs will rationalize the installation of charging stations.
- Offer cost-sharing opportunities for workplaces that are in close proximity or share parking lots and are both exploring EV charging for employees.
- Partner with park and ride locations to install charging stations at bus depots where employees could charge their vehicles during specified hours.

Many participants shared concerns that installation and maintenance presented significant barriers to increasing access to and/or installing charging stations. Suggestions to alleviate these barriers included:

- Provide step-by-step installation check lists for both new charging stations and the retrofitting of existing infrastructure. Participants shared that small retrofits are often more difficult to complete compared to capital projects or dovetailing an install with new construction.
- Offer long-term planning support that includes updates on the changing EV and EVSE landscape.
- Provide consistent and reliable technical support and guidance during the installation and purchasing process.

EDUCATION AND OUTREACH

During each focus group, participants were asked questions about education and outreach tactics for their workplace. Many participants shared that education and outreach presented barriers to TE for both employees and the organization itself.

Education and outreach related barriers for both employees and the organizations included:

- Unfamiliarity with EV technology and subsidies or incentives
- Misconceptions about EVs and charging capabilities
- Lack of buy-in from leadership due to other organizational investment priorities

Participants suggested the following ideas to address these barriers:

- Offer presentations, hosted by PSE, to leadership teams and board members as the credibility of PSE as a third party may help facilitate both leadership and community buy-in.
- Offer live demonstrations and test drives that would allow employees to experience EVs and ask questions about capabilities, features, and cost. If a workplace has electric fleet vehicles, these could be used as the demonstration EV during such events.
- Offer nonprofits stipends for each community member that participates in a test drive.
- Provide targeted outreach materials to employees that consider employee expenses and, commute routes that would contribute to transitioning from a gas-powered vehicle to an EV. Many participants also cited the need for materials to be developed in multiple languages to ensure accessibility.
- Provide organizations with newsletter and email updates that can be distributed to their employee base.

PAYMENT OPTIONS

Participants were also asked to share feedback on preferred ways for users to pay at the station, particularly with a lens towards accessibility for their employees.

As part of the focus group presentation, the following example payment options were shared with participants to react to and provide feedback on:

- Pay by credit card
- Pay in app
- Deduction from employee paycheck

Participants suggested the following, in addition to the options provided:

- Many participants expressed a desire for payment methods to be consistent across EVSE in the area to ensure ease of use.
- Most participants shared that credit card and pay in app options would be easiest for employees but stressed the importance of clearly displaying prices at the station.
- Participants shared that call-in payment options may be a barrier as cell reception in certain locations could impact accessibility.
- Some participants expressed a desire to make charging free for employees as it would be an attractive workplace benefit.

UNDERSTANDING WORKPLACE CHARGING NEEDS

To better understand the TE needs of workplaces, participants were asked about the modes of transportation their employees use as well as existing transportation and EVSE infrastructure in and around their community. Participants shared that:

- **Personal vehicles are the primary mode of transportation** for employees. Participants shared that very few, if any, employees own and use an EV to get to and from work. Range anxiety was cited as a barrier for employees who commute long distances to work. As a result of the pandemic, some participants also noted that remote work has decreased the number of employees coming into the office and has made it difficult to plan for parking.
- **Charging stations are in the community but are not always easy to find.** Participants shared that they have seen an increasing number of charging stations around their community, but noted that for employees commuting from longer distances, mapping out charging station routes may be challenging as information about the locations of public charging stations varies depending on which application you use. This underscored the sentiment that installing charging infrastructure at their workplaces would be easier to rationalize if accessing and owning EVs was more accessible.

“Cost savings over time is helpful for folks to know. The EV conversation really comes down to cost and accessibility.”

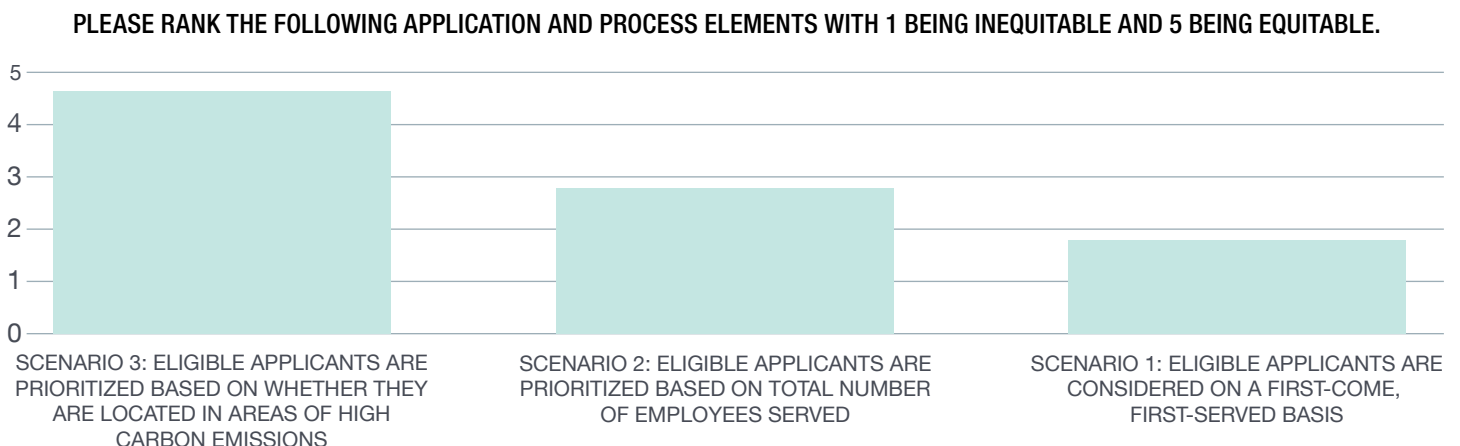
WORKSHOP

Following the focus groups, participants were invited to a virtual 90-minute workshop to provide feedback on potential scenarios for the **application and intake process, advisory services, load management, education and outreach, EVSE ownership and incentives, and payment at the station.** A total of three participants attended the workshop and two additional participants participated in a one-on-one interview on the same topics.

For each feedback category, participants were presented with a range of scenarios. They were asked to select or rank scenarios that were preferable, then prompted to discuss what they liked most, what they liked least, and what was missing from the options presented. Each scenario was designed to address workplace charging barriers highlighted by participants in the introduction calls and focus groups.

APPLICATION AND INTAKE PROCESS

PSE asked participants to rank each scenario on a scale of one to five, with one being the least equitable and five being the most equitable.



On average, participants ranked **scenario 3** as the most equitable option presented. Participants expressed areas with higher carbon emissions often include low-income and historically disadvantaged communities.

Participants ranked **scenario 1 as the least equitable.** Participants shared that a first-come, first-serve application process is biased against organizations that lack the resources or bandwidth to complete applications in a timely manner, especially when there are competing funding interests.

Participants ranked **scenario 2** in the middle. Participants noted that the total number of employees served does not necessarily undermine the importance of the project for that community and that the populations served might still be highly impacted communities or vulnerable populations, even if at a smaller number. A couple of participants noted that scenario 2 would be equitable if charging was open to both employees and members of the public, as it would provide the greatest environmental benefit.

- Participants suggested that the following elements be added to the list above:
- Prioritize projects based on demographics of the populations served, particularly highly impacted communities or vulnerable populations.
- Provide transparency around application scoring.
- Ensure that applications are accessible and straightforward to complete.
- Factor in the number of existing charging stations within a given community when processing applications.
- Prioritize applicants located in industrial areas.

ADVISORY SERVICES

PSE asked participants to select the scenarios that their organization would likely use, if offered.

Scenario	Advisory services scenarios	Participants that would use the service, if offered*
3	PSE partners with other institutions like auto dealerships and banks to help connect employees with EV incentives or low-interest EV financing	80%
1	PSE partners with customer to review the site(s) and any existing infrastructure and creates a detailed long-term plan for EV charger installs	60%
2	PSE prepares and provides presentations to customers' critical stakeholders (e.g. board members)	40%

*Total exceeds 100% as participants were able to vote for more than one option.

Most participants indicated that all three of the advisory services presented would be beneficial in some capacity, as each of the three scenarios addressed concerns about having the resources to conduct their own TE planning and EV-related outreach with employees.

On average, participants ranked **scenario 3** as the option they would most likely utilize. Participants expressed that they would be more likely to move forward with EVSE installation and improvements if their employees had interest in and access to EVs. One participant noted that this scenario is the most equitable as it provides resources to those who may not have the access or knowledge to EV financing tools.

A little over half of participants indicated that they would utilize **scenario 2**, as they felt that it would address concerns about board and leadership buy-in and provide decision makers with the context needed to make investments in EVSE infrastructure. For **scenario 1**, participants shared that long-term planning assistance was critical to understanding the cost and level of effort needed for TE related infrastructure improvements.

Participants suggested that the following elements be added to the list above:

When providing presentations to critical stakeholders, offer a variety of meeting formats (e.g. virtual or in-person) and provide materials in advance.

Bundle workplace charging programs and services with technical assistance for organizations interested in electrifying their respective fleets.

Provide trainings on how to use EVSE, once installed.

*“We spend so much time planning, it is expensive and utilizes many resources.
Assistance with detailed, long-term planning is key.”*

LOAD MANAGEMENT

PSE asked participants to select which scenario would best meet the needs of their workplace and employees, if offered.

Scenario	Load management scenarios	Participants who indicated that the service described met the needs of their workplace
1	PSE partners with organizations to create a customized charging plan that prioritizes off-peak charging.	60%
2	Pricing at the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately four times less than on-peak charging.	40%
3	Customers are provided with an upfront incentive of \$10 per charger per month. The incentive amount is reduced, based on the number of on-peak charge events incurred.	0%

Most participants shared that **scenario 1** best met the needs of their community given that staff generally are onsite during on-peak hours. Many participants expressed that their programs and services do not have the flexibility to shift hours based on staff work hours and as a result, charging plans would need to be flexible.

Just under half of participants indicated that they would utilize **scenario 2**, as they felt that the cost incentive was attractive, and that dynamic pricing was reflective of the market. One participant noted that they did not like the idea of employees competing with each other to charge their vehicle during off-peak hours, they instead preferred that the organization agree on a customized plan that distributes benefits to all employees equally.

For **scenario 3**, participants felt as though the \$10 incentive was too small to successfully influence charging behaviors. In addition, some participants noted that, depending on delivery method, it may be more complicated to manage a \$10 incentive in their respective accounting departments and instead requested on-bill credits.

Participants from transit agencies also added that their operations and services may be able to accommodate both **scenarios 1 and 2**.

Participants suggested that the following elements be added to the list above:

- Offer different pricing models for public and employee use.
- Clearly display on-peak/off-peak hours at the charger.

EDUCATION AND OUTREACH

PSE asked participants to select all education and outreach programs that would benefit their workplace and employees.

Scenario	Education and outreach scenarios	Participants who indicated that the service described met the needs of themselves and their community*
2	PSE facilitates on-site trainings and/or “ride and drives” for employers and employees once EVSE is installed.	80%
1	PSE co-creates educational materials for the customer to distribute to their employees.	60%
3	PSE keeps the customer up to date on any relevant legislative or industry happenings.	60%

*Total exceeds 100% as participants were able to vote for more than one option.

The majority of participants felt that **scenario 2** would be useful in demystifying employee concerns about TE and showcasing cost-saving benefits in an interactive environment. Like sentiments shared during the focus groups, participants noted that on-site events are crucial in creating the demand for EVSE infrastructure installation. Participants also noted that having PSE employees present would further strengthen organizational relationships.

Participants felt that **scenario 1** would be beneficial in helping to facilitate and promote TE with their staff. Participants shared that to be effective, materials would need to be adaptive to community needs (e.g., translated to other languages). One participant shared that providing videos would be particularly helpful.

Participants that voted for **scenario 3** felt it would benefit organizational leadership and employees alike. A few participants shared that the evolving nature of the EV landscape makes keeping up to date with industry happenings difficult. They also shared that understanding policy changes and EV innovations would positively influence charging station investments within their communities.

Participants suggested that the following elements be added to the list above:

- Offer legislative and industry update drop-in information sessions where participants can ask questions.
- Offer workplaces a set amount of money for each employee they get to take a test drive in an EV.
- Establish an advocacy network via phone or text where participants can be kept in the loop and participate in a call-to-action if requested.
- Include QR codes in educational materials that link to additional resources.
- Offer charging station maintenance training materials and seminars for staff who will be maintaining charging stations onsite.
- Give employers a way to view aggregate data about employee charging. Data would then be used to make a business case for the installation of future charging stations.

“[Providing materials] is useful for employees during the onboarding process, especially if [charging] is a “perk” of employment.”

CHARGING STATION OWNERSHIP AND INCENTIVE

PSE shared two scenarios with participants and asked for feedback on the associated charger selection, incentive, and maintenance options.

	Scenario 1	Scenario 2
Charger selection	Customer may select from a pre-approved list of chargers.	Customer can select their own charger.
For an L2 (assume \$10,000* per port)	PSE provides an incentive for 75% of costs, up to \$7,500 per port.	PSE provides a flat incentive of \$5,000 per port.
Maintenance	PSE manages ongoing charger maintenance.	Customer manages ongoing customer maintenance.
Participants who indicated that the service described met the needs of their organization	80%	20%

*Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

Most workshop participants preferred **scenario 1**, as it offered the greatest financial incentive and included ongoing maintenance. Many participants shared that their organizations do not have the technical expertise to maintain charging stations and they liked the idea of being able to outsource maintenance issues at little to no cost. Many participants that selected scenario 1 also shared that buy-in from leadership or board members to expedite the installation or retrofitting process is more likely if there is an option that does not require significant short-term or long-term capital investment.

Proponents of **scenario 2** shared that they liked the idea of being able to select their own chargers and already had maintenance staff in-house who could potentially be trained to address EVSE issues, creating a workforce development benefit.

Participants suggested that the following elements be added to the list above:

- PSE to offer EVSE maintenance trainings for staff.
- Include lighting installation as an EVSE infrastructure component, as it would alleviate security concerns.
- Ensure reliable access to maintenance services in the instance of a technical malfunction at the charging station.
- Consider making charging stations and infrastructure available for both staff and public use.
- Include-site visits to assess cost of required infrastructure improvements.

PAYMENT AT THE STATION

PSE asked participants to select all payment options that would best meet the needs of their organization and employees.

Scenario	Payment scenarios	Participants who indicated that the incentive described met the needs of themselves and their community*
1	Employer covers the cost of employee charging as a workplace benefit. Employees use an RFID card to unlock the charger.	80%
3	Employees pay at the station via app.	80%
2	Employees pay at the station via credit card reader.	60%

*Total exceeds 100% as participants were able to vote for more than one option.

Participants expressed that all three options presented were adequate, but the majority preferred **scenarios 1 and 3**. Proponents of **scenario 1** liked the idea of being able to provide charging to their staff as an employee benefit, and many expressed that offering free charging would incentivize individuals to explore EV purchasing options. One participant shared that while they liked **scenario 1**, it presents challenges as it would be a perk that only benefitted employees with the financial resources to purchase an EV at this time, such as upper management. This participant also underscored the importance of providing resources to make purchasing an EV accessible (e.g. financing leads). Another participant shared that they did not prefer scenario 1 as covering the cost of charging may have tax implications and needing to collect RFID cards when employees leave the organization would be logistically difficult.

Most participants also liked the idea of **scenario 3**, with many stating that apps would be accessible and could allow for prices to be clearly displayed, especially if pricing will be dynamic. While participants generally liked **scenario 2**, some expressed concerns about potential theft through card skimming.

Though it was not listed as a scenario, participants shared that pay-by-phone options were not preferable as cell service may be poor in certain areas and a backup up at the station could occur if an employee was attempting to call to start a charge and could not get through.

Participants suggested that the following elements be added to the list above:

- Offer a grant or rebate program that covers the costs for organizations to promote EV ownership to their employees.
- Ensure anti-skimming measures are instituted for charging stations that take credit card payments.
- Partner with PSE to create a loyalty program where customers or employees can apply points earned when making purchases to onsite charging station credits.

“EVs are going to be rolling in no matter what, and we’d like to have the infrastructure built and ready for our employees.”

PUBLIC CHARGING ENGAGEMENT

This section focuses on publicly available charging stations, sited in a standard parking lot. Engagement on publicly available charging stations, sited at a curb, can be found in the following section.

ENGAGEMENT PARTICIPANTS

Out of 18 community stakeholders contacted, eleven participated in introduction calls, ten participated in focus groups or one-on-one conversations, and seven participated in a workshop.

Participant	Population served	Counties served in PSE electric service area
City of Bainbridge	City of Bainbridge residents	Kitsap
City of Ferndale	City of Ferndale residents	Whatcom
City of Lakewood	City of Lakewood residents	Pierce
City of Lynden	City of Lynden residents	Whatcom
City of Olympia	City of Olympia residents	Thurston
Drivers Union**	Ridehail drivers	All
Kitsap Transit	Kitsap County residents	Kitsap
Mount Vernon Downtown Association	Mount Vernon residents	Skagit
Pierce County	Pierce County residents	Pierce
Teamsters 117**	Ridehail and truck drivers	All
Whatcom County	Whatcom County residents	Whatcom

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

* Stakeholders participated in introduction calls for other engagement activities

** Management from these stakeholder groups participated in intro calls. Individual ridehail drivers participated in separate public focus groups.

INTRODUCTION CALLS

Prior to the focus groups and workshops, stakeholders were first engaged through introductory phone calls. In these brief calls, the project team shared PSE’s transportation electrification (TE) work to date and learned more about potential participants’ mission, vision and goals, any existing experience with TE and initial barriers to TE access for themselves or their customers. Information collected through these phone calls was used to help frame the design of subsequent engagements.

BARRIERS

Participants briefly identified TE barriers during the introduction calls. While these barriers were explored in further detail during the focus groups, they were consistent across all sectors and geographies for the majority of those engaged, and included:

- **Education and outreach:** Interviewees expressed that targeted and interactive engagement is necessary to demystify electric vehicles (EVs). Several interviewees also underscored a need for in-language charging stations and outreach materials.
- **Infrastructure improvements:** Many interviewees noted additional utility infrastructure may be needed to accommodate charging stations.
- **Cost:** Most interviewees cited the cost of EVs and charging stations as a significant barrier to installing public charging stations. This barrier is particularly limiting for small municipalities.

- **Lack of demand:** Interviewees shared that existing charging stations are seldom used and suggested that the demand for TE may still be limited in their communities.
- **EV availability and range:** Several participants highlighted that residents from smaller municipalities are more likely to be commuters and may have concerns about EVs having the range to get them where they need to go.
- **Organizational capacity:** Many interviewees identified a lack of organizational capacity dedicated to long-term TE planning and noted that this makes it difficult to identify locations for new charging stations, amend existing city codes, and map necessary infrastructure upgrades.

FOCUS GROUPS

Following the introduction calls, community stakeholders were invited to participate in a virtual 1.5 hour focus groups or one-on-one conversations designed to understand public charging barriers and benefits, and education and outreach best practices. A total of ten participants attended one of two focus groups or one-on-one conversations. This section summarizes the overarching themes heard during those conversations.

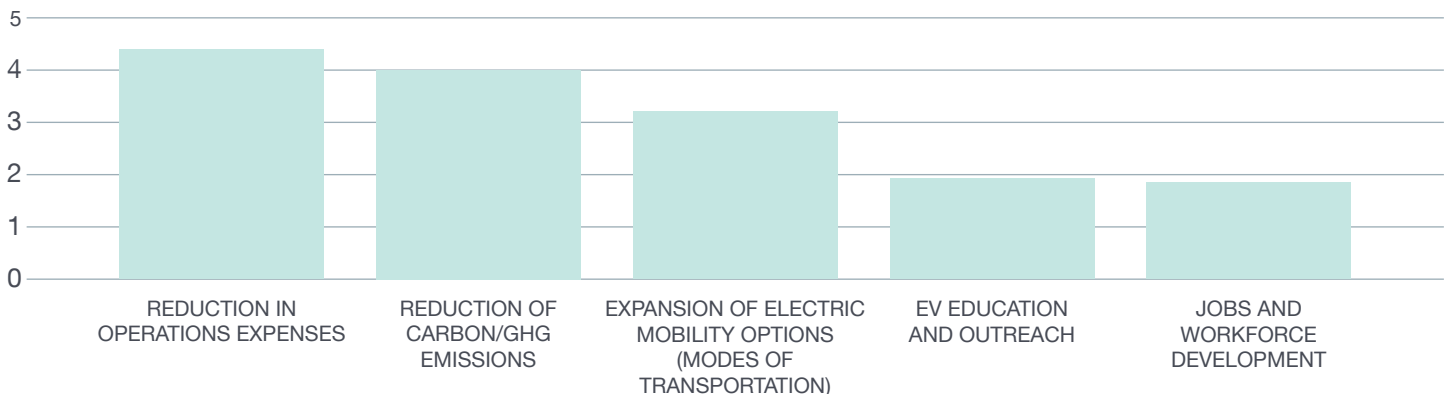
BENEFITS

During each focus group, participants were asked to rank the following TE benefits, with one being least important and five being most important to them and their communities, via a virtual Mentimeter survey:

- Expansion of electric mobility options
- Reduction of carbon/greenhouse gas emissions
- Reduction in operations expenses
- EV education and outreach
- Jobs and workforce development

Participants ranked **reduction in operations expenses** and **reduction of carbon/greenhouse gas (GHG) emissions** as the most important TE benefits.

RANK EACH OF THESE BENEFITS WITH 1 BEING LEAST IMPORTANT TO YOU AND YOUR COMMUNITY AND 5 BEING MOST IMPORTANT TO YOU AND YOUR COMMUNITY.



Focus group participants shared that cost savings – both for members of the public and for their municipality – and alignment with organizational sustainability commitments were most important when weighing the decision to invest in public charging infrastructure. A few participants noted that expanding electric multi-modal mobility options is an important benefit as demand has increased from their respective communities but felt as though cost and carbon/GHG emission reduction were more important.

While EV education and outreach, and jobs and workforce development were ranked as less important benefits, most participants expressed that informing their communities about the evolving EV landscape was necessary to achieve the other benefits listed.

“[Investing in transportation electrification] is our organization’s way of supporting commitments to global [climate] needs”

In addition to ranking these benefits, participants suggested that the following be added or considered:

- Consider making public charging free to incentivize EV use.
- Collaborate with other utilities and PUDs to ensure consistent communication and level of service with customers when a customer’s geographic reach spans multiple utility providers.
- Promote electric multi-modal transportation in community spaces and schools by sharing TE outreach materials and hosting public TE events at them.
- Site charging stations near other transportation hubs (e.g. park and rides).
- Combine charging station installs with internet hot spot installation to increase community benefits.

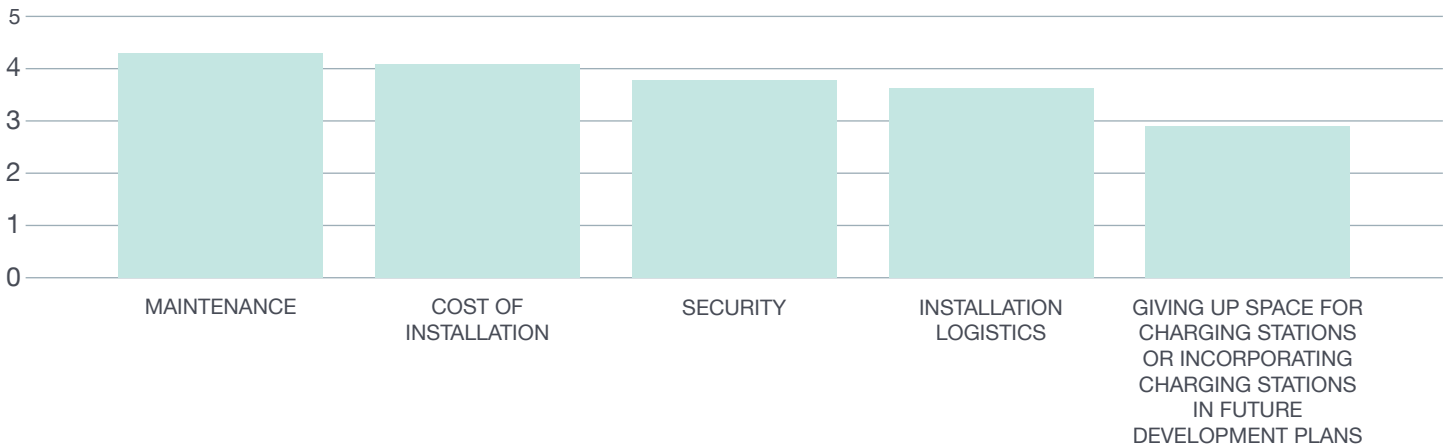
BARRIERS

During each focus group, participants were asked to rank the following TE barriers, with one being the least challenging and five being the most challenging to installing and operating more public charging stations in their communities, via a virtual Mentimeter survey:

- Installation logistics
- Cost of installation
- Giving up space for charging stations or incorporating charging stations in future development plans
- Maintenance
- Security

Participants ranked **maintenance, cost of installation, and security** as the most challenging barriers to installing and operating more public charging stations in their communities. Participants ranked **installation logistics** and **giving up space for charging stations or incorporating charging stations in future development plans** as slightly less challenging barriers.

RANK EACH OF THESE BARRIERS WITH 1 BEING THE LEAST CHALLENGING AND 5 BEING THE MOST CHALLENGING TO INSTALLING AND/OR OPERATING MORE PUBLIC CHARGING STATIONS.



Feedback around these less-challenging barriers was minimal but participants expanded on **maintenance, cost of installation, and security**, including suggestions to address or alleviate these barriers. In addition, when discussing installation costs, participants did recommend solutions that also addressed the installation logistics barrier.

Cost of installation	Maintenance	Security
<ul style="list-style-type: none"> • Infrastructure upgrade and construction costs associated with charger installation • Cost of ongoing maintenance and training of staff 	<ul style="list-style-type: none"> • Ability of the grid to support increased electricity use from EV charging • Limited project management bandwidth and capacity for charging station related projects • Lack of staff with knowledge of EV installation and maintenance 	<ul style="list-style-type: none"> • Lack of staff to monitor charging stations 24/7 • Concerns regarding potential credit card skimming

Many participants indicated that the cost was a significant barrier to expanding public charging infrastructure. Participants suggested the following ideas to address the cost barrier:

- Provide financial incentives for both charging stations and household EVs.
- Share additional non-PSE incentive programs that customers could stack with other funding opportunities.
- Ensure those installing public charging stations are educated on the financial details, such as how long it takes to see a return on investment after installing a charging station.
- Prioritize providing incentives to customers for utility side infrastructure as it can be more of a financial investment than the charging stations themselves.
- Encourage PSE or other private businesses to own and operate charging stations as the cost to install and maintain them may not be feasible for some municipalities or tribes at this time.

Most participants indicated that installation and maintenance logistics were significant barriers to installing and operating more public charging stations. Participants suggested the following ideas to address those barriers:

- Provide an easement to own and operate chargers on public property, enabling municipalities or tribes to support ongoing maintenance and installation of charging infrastructure more effectively.
- Share technical knowledge to ensure a site host’s workforce is prepared to identify and resolve issues with charging stations either independently or with the help of contractors.
- Allow for financial incentives to be used for maintenance and installation of charging infrastructure.
- Promote and incentivize the use of microgrids to offset charging station costs.
- Ensure the assigned PSE project manager is assigned based on the customer’s county as opposed to a random assignment to ensure more familiarity and efficiencies.

“Ongoing maintenance is always a challenge when we install something as we don’t have the staff to maintain it. Opportunities for PSE to own and maintain stations could help us deploy more rapidly.”

Security was cited as a concern associated with installing and maintaining public charging stations. While participants didn’t suggest specific ideas to address this barrier, they did ask questions, including:

- How will we protect and maintain EVSE infrastructure that is dispersed across multiple different locations?
- What about card skimming threats for charging stations that accept credit card payments?
- How frequently is charging infrastructure tampered with? This question was posed to participants with existing charging infrastructure.

EDUCATION AND OUTREACH

During each focus group, participants were asked questions about TE education and outreach could be best conducted in their community. Many participants shared that accessible information about TE was lacking and for public charging station demand to increase, this barrier needs to be alleviated.

Education and outreach related barriers included:

- Unfamiliarity with EV technology, EV availability, and subsidies or incentives.
- Misconceptions about EVs, EV range, and charging capabilities.
- Limited understanding and knowledge of EV related state and federal policies.

Participants suggested the following ideas to address these barriers:

- Offer live demonstrations and test drives that would allow community members to experience EVs and ask questions about capabilities, features, and cost.
- Leverage existing community events (farmers markets, car shows, etc.) to ensure that maximum outreach is achieved.
- Provide targeted outreach materials that include interactive tools or worksheets where community members can determine if an EV is right for them.
- Notify members of the public when additional charging stations are added via newsletters, social media, and other communication platforms to address the misperception that the infrastructure is lacking.
- Partner with community-based organizations to distribute EV outreach materials to their communities.
- Combine charging stations and internet hot spots to incentivize and encourage usage.

PAYMENT AT THE STATION

PSE asked participants to select all payment options that would best meets the needs of their communities.

As part of the focus group presentation, the following example payment options were shared with participants to react to and provide feedback:

- Pay by credit card
- Pay in app
- Call-in payment

Focus group attendees suggested that the following options be considered when implementing equitable forms of payment at public charging stations:

- Most participants shared that credit card and pay-by-application (app) options are most accessible.
- Call-in payment options may be a barrier as cell reception in certain locations could impact accessibility.
- Display payment instructions and pricing clearly at public charging stations.

UNDERSTANDING PUBLIC CHARGING NEEDS

To better understand public charging needs, participants were asked about the communities they serve and ways in which they address transportation barriers. Participants shared that:

- **Addressing climate change is a priority for both community members and agencies.** Participants shared that there is support within the community for programs and policies that actively address the reduction of carbon emissions via policy change and program implementation. Many participants shared that personal vehicles and public transit are primary modes of transportation for their community. As the EV landscape continues to shift, participants noted that they want to ensure that EVs are accessible and adequate charging exists in order to meet demand. Some participants also mentioned the need to electrify buses and ride-share programs as a part of this effort.

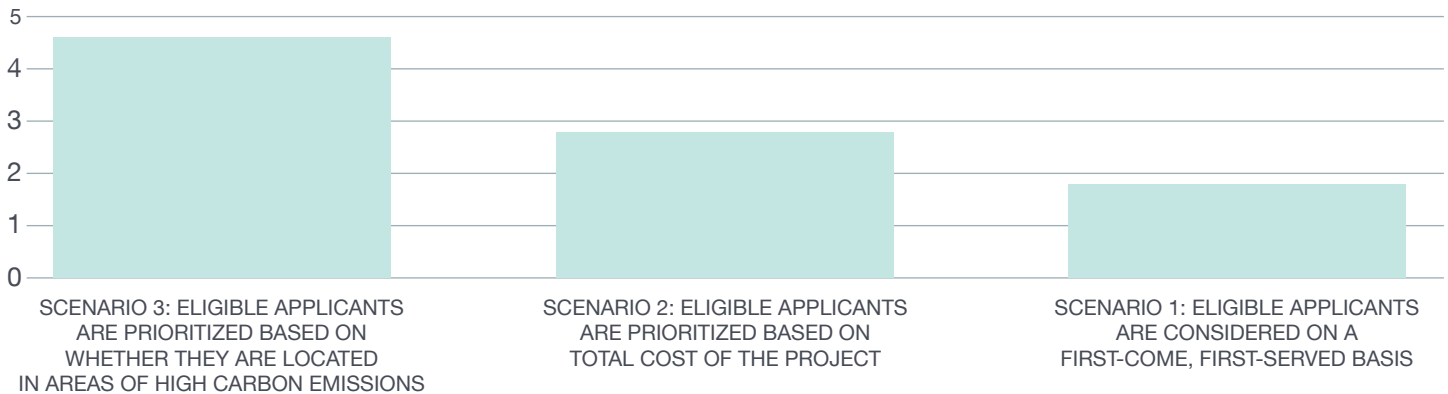
WORKSHOP

Following the focus groups, participants were invited to a virtual 90-minute workshop to provide feedback on potential scenarios for the **application and intake process, advisory services, load management, education and outreach, charging station ownership and incentives, and payment at the station**. For each feedback category, participants were presented with a range of scenarios. They were asked to select or rank scenarios that were preferable, then prompted to discuss what they liked most, what they liked least, and what was missing.

APPLICATION AND INTAKE PROCESS

PSE asked participants to rank each scenario on a scale of one to five, with one being the least equitable and five being the most equitable.

PLEASE RANK THE FOLLOWING APPLICATION AND INTAKE PROCESS ELEMENTS WITH 1 BEING INEQUITABLE AND 5 BEING EQUITABLE.



On average, participants ranked **scenario 3** as the most equitable option presented. Participants expressed that targeting areas with higher carbon emissions would benefit not just the communities installing additional charging stations but surrounding communities as well. One participant shared that reducing GHG emissions in high carbon emission areas is a net gain for all Washington residents.

Participants ranked **scenario 1 as the least equitable**. Participants shared that a first-come, first-serve evaluation model is limiting to those with bandwidth issues or competing priorities.

Participants ranked **scenario 2** in the middle. Participants shared that cost should be considered but should not be the deciding factor, as the impact of the project is more important. Some participants shared that a higher project cost may also be indicative of a greater need in the community.

Participants suggested that the following elements be added to the list above:

- Applications should prioritize projects serving low-income and underrepresented populations.
- Remove non-vehicle emissions when measuring overall carbon emissions in the area.
- Advisory services

PSE asked participants to select the scenarios that their organization would likely use, if offered.

Scenario	Advisory services scenarios	Participants that who use the service, if offered*
1	PSE partners with customer to review the site(s) and any existing infrastructure and creates a detailed long-term plan for EV charger installs.	100%
2	PSE prepares and provides presentations to customers' critical stakeholders (e.g. board members).	57%
3	PSE partners with customer to review the site and identify grant or funding opportunities.	57%

*Total exceeds 100% as participants were able to vote for more than one option.

Overall, most participants indicated that if offered, they would utilize all advisory services as each of the three scenarios addressed concerns about having the capacity to conduct their own TE planning and cost analysis. All participants expressed that **scenario 1** would be most helpful, as infrastructure planning requires a lot of resources. Participants shared that the long-term planning aspect in particular was something that they would like PSE's technical staff's input on.

More than half of participants generally liked **scenario 2**, sharing that presentations to critical stakeholders would ensure that decision makers would have the necessary information and an opportunity to ask questions when deciding whether or not to invest in new public charging stations.

For **scenario 3**, participants liked the idea of having support to secure additional funds. One participant shared that this advisory service was the least important, as they felt that their internal resources were adequate in identifying additional funding opportunities and would prefer that PSE support them with technical expertise and long-term planning.

Participants suggested that the following element be added to the list above:

- Provide detailed information about the amount of power needed to install and operate charging stations.

“Looking at our existing sites and understanding the upstream upgrades that would have to happen would be really helpful in helping us understand costs.”

LOAD MANAGEMENT

PSE asked participants to select which scenario would best meet the needs of themselves and their community, if offered.

Scenario	Load management scenarios	Participants who indicated that the service described met the needs of themselves and their community
1	PSE partners with organizations to create a customized charging plan that prioritizes off-peak charging.	43%
3	Customers pay a demand fee when charging during peak hours.	43%
2	Pricing at the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately four times less than on-peak charging.	14%

Participants that selected **scenario 1** liked the idea of being able to adapt charging plans to reflect community needs and preferences. One participant shared that this scenario would be easy to communicate to their respective communities and would further promote the cost-saving elements of owning an EV.

Participants that selected **scenario 3** felt as though there was clarity with a demand fee that would help alleviate load-management issues. Alternatively, one participant shared that they felt this scenario would discourage people from owning

an EV and that it's too early to put premiums on EV charging with demand still so low.

Only one participant preferred **scenario 2** and shared that charging community members dynamically based on on-peak or off-peak hours would address load concerns while simultaneously educating members of the public about dynamic pricing and energy efficiency.

Participants suggested that the following elements be added to the list above:

- Offer communication materials and strategies that further clarify load management models and share more details on different pricing models and on or off peak charging hours.

EDUCATION AND OUTREACH

PSE asked participants to select all education and outreach programs that would benefit themselves or their community.

Scenario	Education and outreach scenarios	Participants who indicated that the service described met the needs of themselves and their community*
1	PSE facilitates on-site events to promote the chargers once installed.	86%
2	PSE facilitates cross-promotional events with other transit agencies, municipalities, etc.	86%
3	PSE keeps the customer up to date on any relevant legislative or industry happenings.	43%

*Total exceeds 100% as participants were able to vote for more than one option.

Most participants felt that **scenario 1 and scenario 2** would help facilitate and promote TE use in their communities. Participants shared **scenario 2** could alleviate anxiety around EV technology and showcase cost-saving benefits in a hands-on environment. Participants also shared that **scenario 1** would be helpful in increasing EV infrastructure awareness and would address concerns related to range anxiety.

Just under half of participants selected **scenario 3**, noting it would be helpful to be kept up to date on new EV technologies and policies that may impact charging accessibility.

Participants suggested that the following elements be added to the list above:

- Partner with local schools to host educational events.
- Partner with other utilities that share space with PSE in a county to sponsor EV installation promotion events in their respective geographic areas.
- Include education on the Clean Fuel Standard and related credits to customers.

“Growing networks will help encourage more [EV] usage, we want to continue building general awareness.”

CHARGING STATION OWNERSHIP AND INCENTIVE

PSE shared three scenarios with participants and asked for feedback on the associated charger selection, incentive, and maintenance options.

	Scenario 1	Scenario 2	Scenario 3
Pricing	Customer sets pricing and collects revenue.	Customer sets pricing up to a set cap and collects revenue	PSE sets pricing and collects revenue
Charging station incentive: L3 (typically \$150k per port)	PSE provides a flat incentive of \$50,000 per port	PSE provides incentive for entirety of FTM and BTM costs, customer pays for the EVSE (average \$75,000)	PSE provides an incentive for 75% of costs, up to \$115,000 per port
Maintenance	Customer manages ongoing charger maintenance	Customer manages ongoing charger maintenance	PSE manages ongoing charger maintenance

*Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

After reviewing the scenarios, workshop participants shared that they needed additional information about the ownership and incentive models to indicate their preference.

Questions about the scenarios included:

- “Where would the charging station options come from?”
- “Would they be preapproved by PSE, or could we select any from the market?”
 - **PSE response:** In situations in which the customer owns the EVSE (Scenarios 1 and 2), customers may select from a limited list of chargers pre-approved by PSE to meet our internal data security requirements. If, however, the customer would like to use a non-supported charger they can participate in the program, but an additional smart meter will need to be installed for the dedicated EV load. In addition, if a customer owns the EVSE they are responsible for owning and maintaining the charger. Chargers typically come with a variety of maintenance and warranty programs from the manufacturer or network provider.

In situations in which PSE owns the EVSE (Scenario 3), customers may select from a limited list of chargers pre-approved by PSE to meet our internal data security requirements. In this instance, PSE will take care of the costs and effort required to maintain the charger

- “If there’s a suite we choose from, is there a maintenance and warranty program they come with? Who handles the emergency call-out situations?”
 - **PSE response:** For emergency call out situations: If the EVSE is customer owned, they will need to be managed directly with service provider. If it is PSE owned, we will have a 24/7 call number for support.
- “Looking at Scenario 2 — is the incentive the full cost of the meter? Makes me wonder if that is the case, would they still cover the costs based on location? Or would it disqualify the proposed project?”
 - **PSE response:** We heard from some focus group participants that they would have less trouble coming up with the EVSE costs and more issues coming up with the FTM and BTM installation costs, which can vary greatly site to site. The difference between Scenarios 1 and 2, despite both having the same ownership model, is that Scenario 1 offers a flat incentive, regardless of total installation costs (FTM, BTM and EVSE), while Scenario 2 incentives will flux depending on current site and infrastructure conditions but would remove ensure that the customer knows their final contribution upfront (the cost of the EVSE).

PSE will likely not have enough funding to cover all the project applications that will come in. The scenarios provided in the application and intake process would likely determine which projects we prioritize with our Equity-Focused funding, as opposed to shifting incentive levels offered to each participant.

If you have any feedback on this approach though, we’d love to hear it.

- “If PSE is owning the infrastructure, I assume they get credit for that clean energy generated and for Scenarios 1 and 2, the agency would be on record for generating that?”
 - **PSE response:** EVSE does not generate clean energy but is instead, a conduit for it. There are no Renewable Energy Credits generated with charging stations the way there might be with solar installations.

If this question is referencing potential Low Carbon Fuel Credits, yes, PSE would generate credits under scenario 3 while the agency could collect LCFS credits in scenarios 1 and 2.

- “It is useful to have a sense of how much work is typically needed for front or behind the meter improvements for Level 2 and DCFC chargers (e.g. what is the value of having that all covered by PSE vs. not)?”
 - PSE response: In most scenarios, there is little improvement needed in front or behind the meter when solely installing Level 2 chargers, except in events where the transformer or service panel serving the property is at capacity or a large number of L2 chargers are being installed. A more common factor impacting the cost of L2 installations is the distance from the electric panel to the charger location.

For DC Fast Chargers, the cost and improvements again depends on the infrastructure serving the property and the types of chargers selected. In many cases, especially for high-powered DCFC (>100kW), a new transformer or transformer upgrade may be required in addition to other equipment, such as a meter pedestal and separate service panel. Step up or down transformers are usually required when installing DCFC with L2s due to differing types of voltages used. In addition to the equipment used to power the DCFC, 480v conduit and wire must be run and usually requires trenching or boring through the location where the EVSE is being installed.

PSE followed up with answers to participants questions and sent a Mentimeter poll that included the three scenarios and asked participants to select their preferred option. Out of the seven workshop participants, a total of three participants completed the poll; two individuals indicated that they preferred **scenario 3** and one individual indicated that they preferred **scenario 2**. Individuals who completed the poll did not provide rationale or context for their preferences.

PAYMENT AT THE STATION

PSE asked participants to select all payment options that would best meet the needs of their community.

Scenario	Payment options	Participants who indicated that the incentive described met the needs of themselves and their community
2	Customer pays at the station via credit card reader.	86%
3	Customer pays at the station via app.	14%
1	Customer pays over the phone.	0%

Though most participants selected **scenario 2** as the preferred method of payment, they shared that it was important to offer all three options to ensure accessibility.

Proponents of **scenario 2** shared that credit card payments are most commonly used and do not require technological proficiency. One participant shared that while they liked **scenario 3**, it presents challenges as some members of the community may not have access to applications or know how to use them for charging payments.

The majority of participants felt that **scenario 1** should be offered, but could be problematic in areas with poor cellular reception.

FOCUS GROUP WITH RIDEHAIL DRIVERS

In addition to the feedback detailed above, PSE also sought feedback on public charging from ridehail drivers. Interested drivers were invited to participate through the Drivers Union and Teamsters 117 in a virtual one-hour focus group designed to understand their specific public charging barriers, benefits, and education and outreach best practices. A total of eight participants attended the focus group. This section summarizes the overarching themes heard during the one-hour focus group.

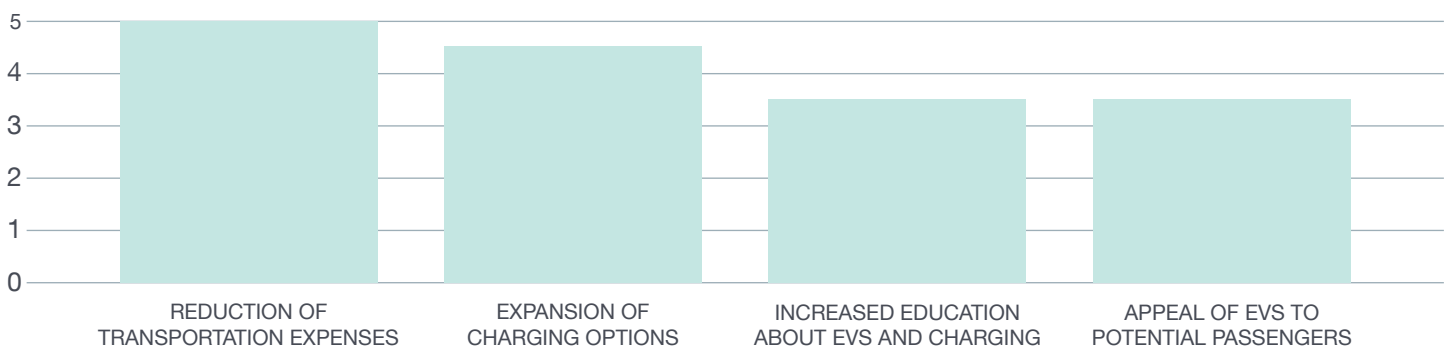
BENEFITS

During this focus group, participants were asked to rank the following TE benefits, with one being least important and five being most important to them, via a virtual Mentimeter survey:

- Expansion of charging options
- Reduction of carbon/GHG emissions
- Reduction in transportation expenses
- Increased education about EVs and charging
- Appeal of EVs to potential passengers

Participants ranked **reduction in transportation expenses** and **expansion of charging options** as the most important transportation electrification benefits. Participants ranked **increased education about EVs and charging** and **appeal of EVs to potential passengers** as less important benefits.

WHAT BENEFITS ARE MOST IMPORTANT TO YOU AND YOUR COMMUNITY?



Focus group participants shared that cost savings, especially savings on fuel costs, are an important benefit when weighing the decision to invest in EVs. Participants said that expanding charging options was important to address range issues, and that expansion of options would incentivize more ride hail drivers to purchase EVs if they knew they'd be able to access a charging station without fear of running out of charge.

Increased education about EVs was cited as an important EV benefit, but less so than other benefits. Participants shared that the appeal of EVs to potential passengers was not currently a benefit, though some mentioned that as EV availability and affordability increases, consumers may opt to select electric options over non-electric options, if offered in the app.

"If charging was more efficient and faster, the number of charging stations available would not be as much of an issue"

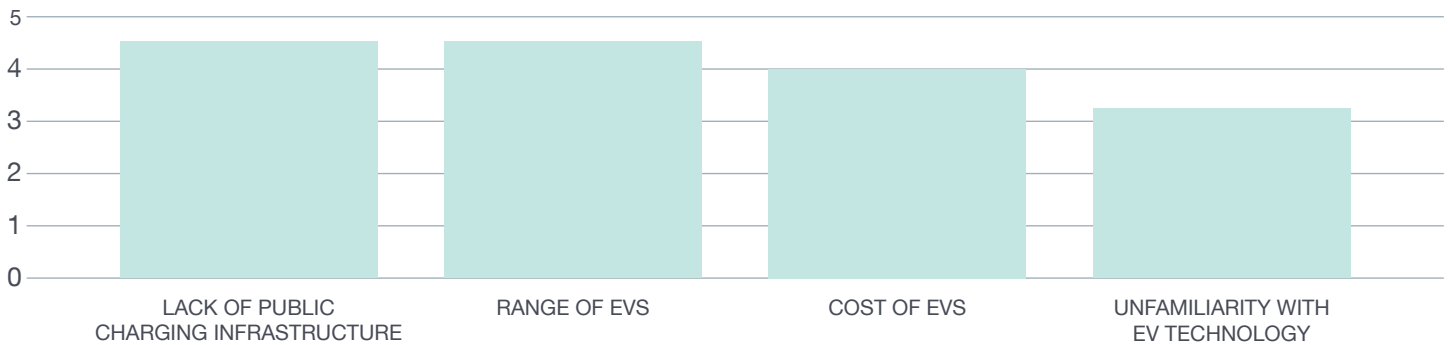
BARRIERS

During the focus group, participants were also asked to rank the following TE barriers, with one being least important and five being most important to them and their communities, via a virtual Mentimeter survey:

- Cost of EVs
- Range of EVs
- Unfamiliarity with EV technology
- Lack of public charging infrastructure

Participants ranked **range of EVs**, **lack of public charging infrastructure**, and **cost of EVs** as the most challenging barriers to EV ownership and charging. Participants ranked **unfamiliarity with EV technology** as a less challenging barrier.

WHAT BENEFITS ARE MOST IMPORTANT TO YOU AND YOUR COMMUNITY?



Participants expanded on these barriers and provided suggestions to address or alleviate those barriers. Since unfamiliarity with EV technology ranked as a less challenging barrier, feedback on the topic was minimal, but suggestions to alleviate this barrier often overlapped with feedback about cost, range of EVs, and lack of public charging infrastructure.

“Growing networks will help encourage more [EV] usage, we want to continue building general awareness.”

Cost	Range of EVs	Lack of public charging infrastructure
<ul style="list-style-type: none"> • Cost of EVs • Cost to charge EVs at charging stations • Uncertainty around costs associated with EV maintenance • Higher insurance premiums for EVs 	<ul style="list-style-type: none"> • Larger range needed to accommodate long ride hail trips • Concern that range will be depleted rapidly on certain terrains • Inconsistency of ride lengths makes it difficult to plan for charging 	<ul style="list-style-type: none"> • Lack of “supercharging” options • Lack of public charging stations in areas or locations frequented by ridehail drivers

Most participants indicated that cost was a significant barrier to EV ownership and charging. Participants suggested the following ideas to address the cost barrier:

- Provide information about EV incentives, rebates, and available EV models.
- Offer EV maintenance rebates or incentives.

Many participants indicated that the lack of public charging infrastructure was a significant barrier to EV ownership. Participants suggested the following ideas to address the charging infrastructure barrier:

- Install charging stations at the airport as many drivers make frequent trips to, and from, the airport to pick up passengers.
- Install charging stations at culturally diverse restaurants, places of worship or public parks, as many drivers visit those locations when taking breaks during the workday.

Many participants indicated that the EV range was a significant barrier to EV ownership in their line of work. Participants suggested the following ideas to address the range barrier:

- Promote the installation of public charging stations so that those hesitant to invest in an EV have assurance that range will not be an issue.
- Provide community members with information about EV technology in multiple languages to address range concerns and availability of public charging stations.

PAYMENT AT THE STATION

Participants were also asked to share feedback on how they would prefer to pay for charging at the station.

As part of the focus group presentation, the following example payment options were shared with participants to react to and provide feedback:

- Pay by credit card
- Pay in app
- Call-in payment

Focus group attendees suggested that the following options be considered when implementing equitable forms of payment at charging stations:

- Most participants shared that credit card payment options are most accessible and easiest to use.
- Ensure that pricing and information at public charging stations is available in multiple languages.
- Call-in payment options and pay by app options may be a barrier as cell reception in certain locations could impact accessibility.

PUBLIC CHARGING SURVEY WITH RESIDENTS

In addition to the focus groups and workshops on public charging conducted with ridehail drivers, municipalities and tribes, PSE also distributed an online survey to collect feedback on public charging from a broader sampling of PSE’s residential customers. The sample of over 800 customers was developed by the PSE Customer Insights team. The participant sample was created using the following demographics and criteria:

- Located in PSE’s electric service area
- An area median income of less than 80%
- A mixture of rural, suburban and urban populations
- A mixture of homeowners and renters
- A population size that included a mixture of climate concern levels
- Populations within PSE’s designated named communities’ demographic

Each individual in the sample received an invitation to take the survey, which was available in both English and Spanish. A total of 52 people completed the English survey and zero people completed the Spanish survey. Each survey respondent received a \$25 Visa gift card for completing the survey.

The survey included questions about demographics, primary modes of transportation, interest, and barriers to accessing EVs for individuals that do not own an EV and charging station preferences for individuals that already own EVs.

To better understand the sample size of participants taking the survey, PSE asked participants to **optionally select their annual household income and race.**

Annual household income	% of respondents
Under \$25,000	18.2%
\$25,000 - \$50,000	31.8%
\$50,000 - \$75,000	31.8%
\$75,000 - \$100,000	13.6%
Over \$100,000	4.6%

Race (select all that apply)	% of respondents
American Indian or Alaska Native	4.4%
Asian or Asian American	8.7%
Black or African American	4.4%
Hispanic or Latino	13.0%
Native Hawaiian or other Pacific Islander	4.4%
White or Caucasian	60.9%
Other (please specify) **	13.0%

*Total exceeds 100% as participants were able to select more than one option.

**Identified as Middle Eastern, Native born American, and not relevant

Nearly all respondents use their personal vehicles as their **primary mode of transportation**, with a smaller number of respondents indicating that they use public transportation or walk.

Primary mode of transportation	% of respondents
Personal vehicle	92.2%
Walking	15.7%
Public transportation	11.8%
Shared vehicle (e.g. vanpool)	3.9%
Other	2.3%
Bicycle or scooter	2%

Total exceeds 100% as participants were able to vote for more than one option.

Respondents were also asked if **they already owned an EV and, if not, if they were interested in purchasing one.**

Interest in owning an EV	% of respondents
No	48.1%
Yes	46.2%
I already own an EV	5.8%

Just under half of respondents – 46.2% – indicated that they were interested in purchasing an EV. When asked why, common responses included:

- Opportunity to reduce carbon footprint
- Potential savings on vehicle-related expenses in the long term
- Increasing availability and affordability of EVs
- EVs are economical for local driving and short trips

Just under half of respondents – 48.1% – indicated that they do not have interest in purchasing and owning an EV. When asked why, common responses included:

- Range anxiety, especially for individuals who drive long distances for work and travel
- Costs of EVs
- Lack of public charging stations.
- Lack of affordable EVs that can be used on different terrains (e.g heavy duty trucks)
- Individuals already own a gas-powered vehicle and do not want to invest in an additional vehicle

Survey respondents who did not express interest in purchasing an EV did not have further questions asked of them in the survey.

“I would be interested in purchasing an EV if subsidies made ownership practical”

RESPONDENTS WHO EXPRESSED INTEREST IN PURCHASING AN EV

A total of 24 respondents – 46.2% – expressed interest in purchasing an EV. These respondents were subsequently asked questions about **barriers to and benefits of EV ownership**. The majority of respondents cited reduced fuel expenses, carbon footprint, and vehicle maintenance as the primary benefits of EV ownership.

Respondents interested in purchasing an EV identified lack of access to charging away from home, purchase price of EVs, and at-home charging infrastructure costs as their primary barriers to EV ownership. Other barriers included the battery lifespan and unfamiliarity with EV technology.

Barriers to purchasing an EV	% of respondents
Cost of at home charging installation	65.2%
Charging options away from home	60.9%
Driving distance on a single charge (range)	52.2%
Price relative to ICE (internal combustion engine vehicle)	47.8%
Battery lifespan	39.1%
I'm uncertain about the technology	39.1%
My landlord or housing provider won't provide charging	26.1%
Limited vehicle formats	13%
Other	4.4%

Total exceeds 100% as participants were able to vote for more than one option.

These respondents were then asked to share **questions they have about EV ownership**. Common responses included:

- What is the cost of EV charging and maintenance?
- Where can I find public charging stations in my community?
- What is an EV's lifespan relative to a gas-powered vehicle?
- How can I get a charging station installed in my apartment complex?

Respondents next indicated **how they would prefer to learn about EV programs**. Half of the respondents preferred to receive information through texts or e-mails from PSE, about 40% preferred to learn from community-based organizations, and about 30% of respondents preferred to learn at a local test drive.

How would you prefer to learn about EV programs like the ones described in this survey?	% of respondents
I would like to receive emails or text messages from PSE about this program	52.2%
From a local community-based organization	43.5%
At a local test drive	34.8%
From neighbors or community members who are part of this program	26.1%
Other	17.4%

Total exceeds 100% as participants were able to vote for more than one option.

Respondents also had the opportunity to share any **additional comments or questions at the end of the survey**. These comments typically highlighted the need for incentives or subsidies for EVs and more EV charging stations, especially in rural areas.

“I really want an EV, but running out of power because of a lack of stations (or because stations are full) seems stressful”

RESPONDENTS WHO CURRENTLY OWN AN EV

A total of three respondents – 5.8% – already own an EV. These respondents were asked questions about **charging preferences, availability of charging infrastructure, and preferred methods of payment.**

When asked if they had access to charging at their residence, only one respondent shared that they utilized a charger at their home. All respondents indicated that they have access to public charging stations, and the majority shared that they utilize charging stations at shopping centers and county or city properties. Two individuals that answered “other” shared that they use Tesla super chargers and own hybrid vehicles that are self-charging.

Where in your community do you access public charging?	% of respondents
Other	66.7%
Shopping centers	33.3%
County or city property	33.3%
Gas stations	0%
I don't use public charging	0%

Total exceeds 100% as participants were able to vote for more than one option.

Respondents were then asked about **preferred methods of payment.** One respondent indicated that they prefer in-app payments, while another respondent who answered “other” shared that they do not pay for charging as they only charge their vehicle at home.

Of the three respondents, none have access to charging at their workplace.

Does your workplace provide EV charging?	% of respondents
No	100%
Yes	0%

Respondents also had the opportunity to share any additional comments or questions at the end of the survey. Respondents shared that they would like to see public charging stations offer charging for free or offer card readers to increase payment accessibility for users.

To see the complete survey results, see [Appendix G: Public Survey Results](#).

PUBLIC CURBSIDE CHARGING ENGAGEMENT

This section focuses on publicly available charging stations, sited at a curb and close to a utility or light pole.

ENGAGEMENT PARTICIPANTS

Out of 42 community stakeholders contacted, 27 participated in introduction calls and 24 participated in a focus group or one-on-one conversation.

Participant	Population served	Counties served in PSE electric service area
City of Anacortes	City of Anacortes residents	Skagit
City of Bellevue	City of Bellevue residents	King
City of Bellingham	City of Bellingham residents	Whatcom
City of Bothell	City of Bothell residents	King and Snohomish
City of Enumclaw	City of Enumclaw residents	King
City of Ferndale	City of Ferndale residents	Whatcom
City of Issaquah	City of Issaquah residents	King
City of Kenmore	City of Kenmore residents	King
City of Kent	City of Kent residents	King
City of Kirkland	City of Kirkland residents	King
City of Lacey	City of Lacey residents	Thurston
City of Mt. Vernon	City of Mt. Vernon residents	Skagit
City of Oak Harbor	City of Oak Harbor residents	Island
City of Olympia	City of Olympia residents	Thurston
City of Renton	City of Renton residents	King
City of Snoqualmie	City of Snoqualmie residents	King
City of Sumner	City of Sumner residents	Pierce
City of Tumwater	City of Tumwater residents	Thurston
City of Yelm	City of Yelm residents	Thurston
King County	King County residents	King
Muckleshoot Tribal Transit	Muckleshoot Tribal members	King
Nooksack Indian Tribe	Nooksack Tribal members	Whatcom
Pierce County	Pierce County residents	Pierce
Port Gamble S'Klallam Tribe	Port Gamble S'Klallam Tribal members	Kitsap
Samish Indian Nation	Samish Indian Nation members	Skagit
Suquamish Tribe	Suquamish Tribal members	Kitsap
Thurston County	Thurston County residents	Thurston
Whatcom County	Whatcom County residents	Whatcom

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

INTRODUCTION CALLS

Prior to the focus groups, PSE first engaged stakeholders through introductory phone calls. In these brief calls, the project team shared PSE's transportation electrification work to date and learned more about potential participants' mission, vision and goals, any existing experience with TE and initial barriers to TE access for themselves or their customers. Information collected through these phone calls was used to help frame the design of subsequent engagements

BARRIERS

Participants briefly identified public curbside charging barriers during the introduction calls and explored them further in the focus groups. Common themes included:

- **Limited street parking availability:** Interviewees expressed that reducing parking available to non-electric vehicles is a logistical and political issue that would need to be carefully navigated when siting public curbside chargers. Areas that lacked a curb were also mentioned as a potential barrier to installation.
- **Enforcement of EV parking spots:** In a similar vein, interviewees expressed concern over the enforcement of parking spots meant only for actively charging EVs, although it was suggested that if a full charge could be achieved in the time designated for time-limited street parking spots, this could be a potential solution.
- **Vandalism targeting the chargers:** Multiple interviewees expressed that charger vandalism would be a major concern, particularly for pedestal curbside chargers.
- **Accessibility limitations:** A shared concern amongst interviewees was whether the chargers would be accessible to people with disabilities or limited access to smartphones.
- **Safety concerns:** Interviewees mentioned safety as a potential barrier—for instance, tripping hazards caused by extended charging cords laying in the street or sidewalk.
- **Neighborhood objections:** It was noted that due to the impact on street parking, objections from neighbors, neighborhood or homeowner associations, or local businesses may pose a barrier to siting.
- **Lack of demand:** Interviewees shared that until the cost of purchasing EVs is less prohibitive to their lower-income residents, the demand for TE may still be limited in their communities. They asked if PSE could provide support to smaller cities in carrying out long-term community engagement to historically underserved communities to better understand current and future demand for EV charging services.
- **Infrastructure improvements:** Many interviewees noted additional utility infrastructure would likely be needed to accommodate charging stations. With some municipalities mandating underground wiring or moving their poles away from the curb for safety reasons, the lack of available curbside poles could pose a problem. Multiple municipalities flagged competition for space on the poles as a barrier, citing recent small-cell installations and competition between other service providers for space to hang their equipment.
- **Organizational capacity:** Although there was interest in obtaining educational resources and support from PSE on this issue, some interviewees identified a lack of organizational capacity dedicated to long-term TE planning and noted that this will make it difficult to identify locations for new charging stations, amend existing city codes, map necessary infrastructure upgrades, and maintain the chargers once installed. This barrier was flagged as particularly limiting for smaller municipalities.

FOCUS GROUPS AND ONE-ON-ONE CONVERSATIONS

Following introductory phone calls, municipalities and tribal entities were invited to participate in a virtual 90-minute focus group or one-on-one conversations designed to gather feedback on public curbside charging barriers, benefits, siting, ownership, and maintenance best practices. The following section summarizes the feedback heard during those conversations.

BENEFITS

As an icebreaker, participants were invited to share what excited them most about TE. Shared responses included:

- Making EVs an accessible and reliable option for everyone
- Reduction of carbon/greenhouse gas emissions and cleaner air
- Infrastructure improvements for a sustainable future

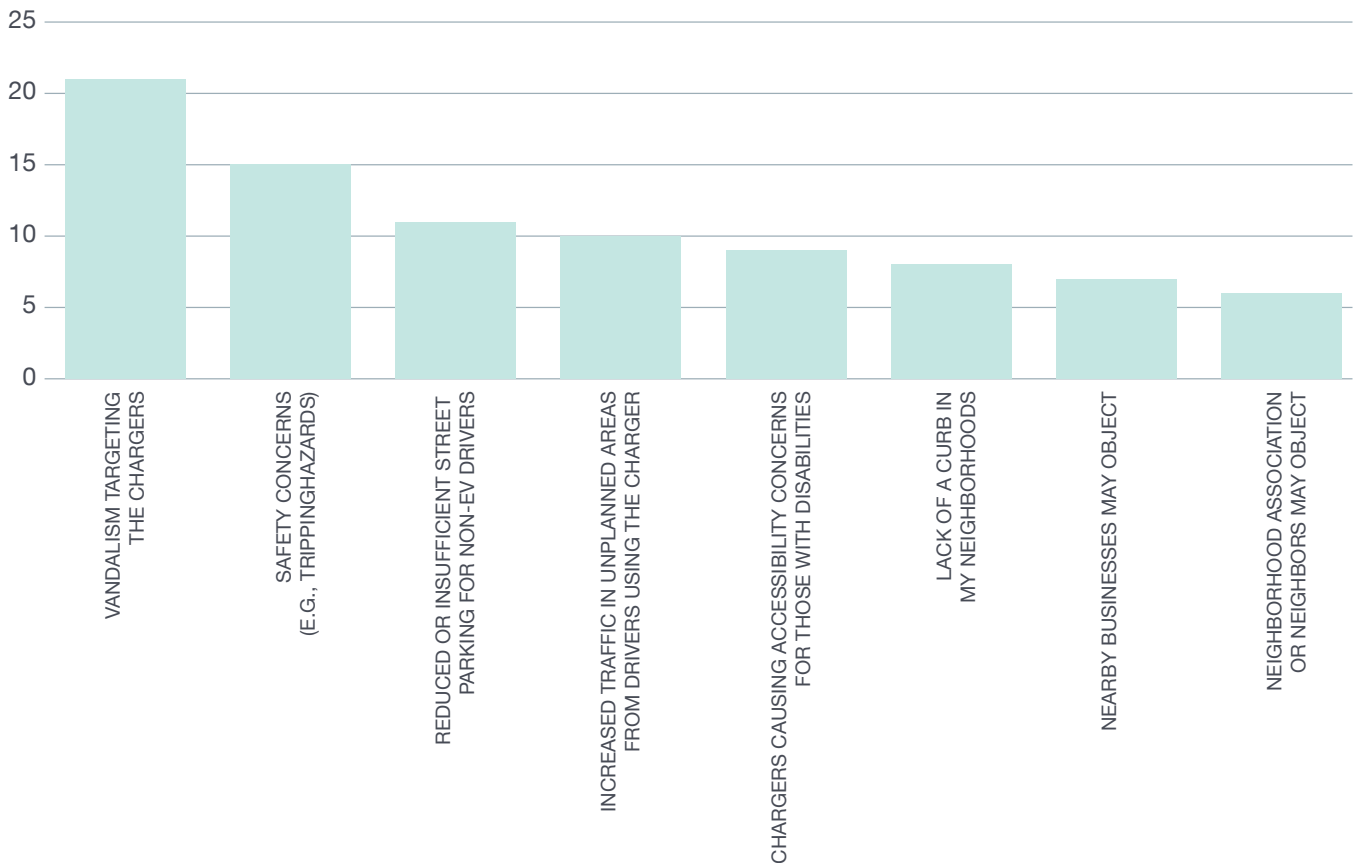
COMMUNITY CONCERNS

Participants were then asked to prioritize their top three community concerns when implementing public curbside charging from the list below, via a virtual Mentimeter survey:

- Increased traffic in unplanned areas from drivers using the charger
- Reduced or insufficient street parking for non-EV drivers
- Vandalism targeting the chargers
- Chargers causing accessibility concerns for those with disabilities
- Safety concerns (e.g., tripping hazards)
- Lack of a curb in my neighborhoods
- Neighborhood association or neighbors may object
- Nearby businesses may object

Participants ranked **vandalism, safety concerns**, and **reduced or insufficient street parking** as the most important community concerns around installing and operating curbside charging stations in their communities.

WHAT TOP THREE CONCERNS WOULD YOU PRIORITIZE WHEN IMPLEMENTING CURBSIDE CHARGING PROGRAMS IN YOUR JURISDICTION?



INFRASTRUCTURE BARRIERS

Participants were asked to share and discuss potential barriers to installing curbside chargers and separate their concerns for pedestal chargers versus those mounted on a utility or light pole. Participants cited the following concerns.

General barriers	Pedestal charger barriers	Pole-mounted charger barriers
<ul style="list-style-type: none"> • Timelines for permitting and construction • Power supply and data connectivity • City code requirements for standardization and aesthetics • Visibility of instructions and signage • Maintenance and upgrades • Vandalism • Parking limitations and enforcement 	<ul style="list-style-type: none"> • Tripping hazards caused by cords • Maintaining ADA compliance on sidewalks • Future sidewalk maintenance • Vehicle-charger collisions • Competition with bicycle infrastructure (e.g., bike lanes and racks) 	<ul style="list-style-type: none"> • Physical or technological accessibility • Changes to pole ownership or infrastructure over time • Lack of available poles that meet feasibility requirements • Durability during severe weather • A move towards underground wiring

Lack of available physical infrastructure to support public curbside charging was a top concern, including competition for space on utility poles and the **lack of feasible poles near a curbside or sidewalk space** for pedestal chargers. Other service providers compete for pole space (e.g., to hang 5G equipment) and competition for **pole ownership** is an increasing issue for cities. Multiple participants shared that areas mandating underground wiring could make installation of pole-mounted chargers more difficult.

When asked what additional **infrastructure upgrades** would be required to support curbside charging stations, participants cited increased transformer capacity or conduit upgrades to support the chargers' power supply and increase reliability, as well as sidewalk improvements to maintain accessibility and signage and/or painted parking stalls to further delineate EV charging spots from generic street parking. Installation of these stations should be coordinated with, and complement, any planned upgrades or maintenance to the street, sidewalk, or surrounding landscaping.

While **accessibility** was flagged as a concern for both types of chargers, the issue of charging cords being out of reach for shorter persons and those in wheelchairs was raised, specifically for pole-mounted chargers. Maintaining ADA compliance on sidewalks was cited as a significant barrier to installing pedestal chargers. Safety concerns around pedestal chargers included **tripping hazards** from extended charging cords or causing crowding on narrow sidewalks. For pedestal chargers, the suggestion was made to install bollards to protect chargers from **collisions**.

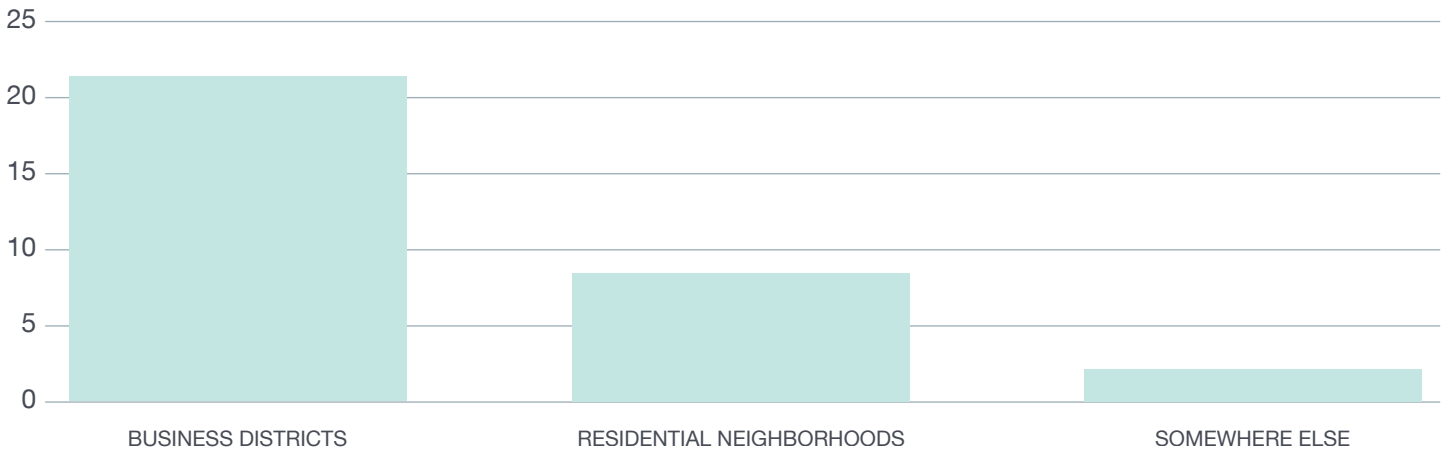
Lack of parking, whether real or perceived, was consistently flagged as a potential barrier. Not wanting to discourage ICE drivers from visiting downtown areas and avoiding the perception of elitism by "crowding out" less expensive non-EVs were voiced as top concerns. **Enforcing proper use** of curbside charging spots, discouraging non-EVs and "campers" from using the spots well past the time needed to fully charge was also a concern. Participants suggested aligning the time needed for a full charge with time limitations on street parking spots as a solution.

The issue of **aesthetics and standardization** was brought up for both types of chargers, citing the need for a streamlined appearance and ease of use between different charger types. Visibility and signage were also discussed, balancing the need for visibility and user education with the desire for minimal visual clutter.

LOCATION AND SITING

The ability of public curbside charging to address gaps in both business districts and residential neighborhoods was discussed with participants. Participants were then asked to vote on their top choice between business districts, residential neighborhoods, and 'somewhere else.' Participants expounded on their selections in the discussion that followed.

WHERE DO YOU SEE MORE OF A NEED FOR CURBSIDE CHARGING? PLEASE SELECT ONE.



Business districts were the preferred location for public curbside charging stations, with participants noting that these would likely get the most use, by virtue of their greater number of visitors in those areas. Participants felt that the availability of existing chargers (whether publicly or privately owned) should be considered when installing additional chargers, and that the population served by the business district would have implications on the need for EVSE infrastructure. If the business district typically serves visitors from further away, there may be more of a need for public chargers than for local downtown strips that serve residents of the same area.

Residential neighborhoods were the second choice, with multiple participants flagging the need for curbside chargers near multifamily developments, given that many lack dedicated parking. It was also noted that not all single-family homes have truly accessible driveways and could still benefit from public curbside chargers. Overall, siting in residential neighborhoods may help bridge the gap in charging infrastructure for community members who may not own an EV due to the lack of space to install at home charging. Participants suggested installation of L3 chargers in urban centers with rapid turnover, and L2 chargers in residential neighborhoods where community members could potentially park overnight. Mapping out existing chargers and comparing that to siting options for new chargers was suggested to avoid redundancy.

Somewhere else was primarily discussed in the context of parks and recreational areas because visitors to these areas often come from far away and can recharge their EVs while recreating.

Some participants also pointed out that in some municipalities, business districts and residential neighborhoods are one and the same.

Shifting to focus on the public **curbside charger siting process**, participants were asked to rank and discuss two siting options, described below. The results of the poll showed that Option 1 was preferred by most participants.

Siting option	What siting option would be most preferred? Please select one.	Participants who indicated that the service described met the needs of themselves and their community*
1	Municipality or Tribe works with community to identify preferred curbside charging locations based on siting requirements. Municipality or Tribe then submits preferred locations to PSE through an application process	88%
2	Curbside charging locations are identified via resident level community member submission to PSE. PSE will short list locations based on feasibility review and then work with property owner on potential installation	12%

Participants that selected **Option 1** indicated that municipalities and tribes have a pulse on current charging demand and how that overlaps with planned development projects. Some shared that coordination among neighboring jurisdictions would help ensure chargers are sited to bring the most benefit to community members. Participants that selected **Option 2** cited lack of organizational capacity to establish demand patterns and coordinate siting.

Multiple participants suggested a **third option**: allowing the municipality or tribe to prepare an initial list of locations, then open it up to public comment before moving forward to coordinate with PSE on installation. Many participants also noted that a lack of rigidity in the siting process would be key to program success.

OWNERSHIP AND MAINTENANCE

Next, participants were asked to vote on and discuss preferred scenarios for charger ownership. The sample scenarios provided tradeoffs on charger selection, EVSE incentives, maintenance, and revenue collected from the EVSE. All but one participant indicated a preference for Scenario 1 via the poll.

	Scenario 1: PSE owns the charger	Scenario 2: Customer owns the charger
Charger selection	Customers may select from a pre-approved list of chargers	Customers can select their own charger as long as it complies with basic program requirements
EVSE incentive	PSE provides a higher financial incentive to offset costs of the charger and its installation	PSE provides a lower financial incentive to offset costs of the charger and its installation
Maintenance	PSE manages ongoing charger maintenance	Customer manages ongoing charger maintenance
Revenue collected from the EVSE	PSE collects revenue generated from the EVSE	Owner of the EVSE could collect revenue in order to recoup electricity costs at the EVSE
Participants who indicated that the service described met the needs of their organization	95%	5%

*Incentive values listed are not necessarily reflective of what will be included into the tariff filing.

Most participants who selected **Scenario 1** cited a **lack of staffing** to maintain the chargers as their primary reasoning. Some also mentioned difficulties keeping pace with technology upgrades and wanting to maintain focus on their primary service offerings until demand for EV charging is higher in their communities. While the idea of recouping costs from the chargers was attractive to some, participants agreed it may not be enough of an incentive to justify the need for further investment in staffing and infrastructure. The need for PSE to pay ground lease payments in option 1 was mentioned.

Some participants felt that federal funding for these installations would be relatively easy for them to procure, making **scenario 2** more feasible. Participants also discussed the importance of understanding and considering Clean Fuel Standard (CFS) credits in relation to charger ownership, as CFS credits become available. It was also noted that Scenario 2 could reduce the need for right of way agreements or easements related to the chargers.

Regardless of which scenario is chosen, participants felt that PSE should develop a responsibility assignment matrix (RACI) chart to help program participants understand their roles and responsibilities. Participants also asked whether program participants could change their ownership model over time as they became more comfortable with the EVSE. For instance, a site host could begin by having PSE own the equipment, but then take over that ownership and maintenance once more resources are freed up.

Partnerships were discussed as potential ways to share the benefits and responsibilities of EVSE ownership. One participant indicated that their city is looking to create a consortium with neighboring cities to align their climate action goals, and that one of the strategies included is the creation of green jobs in their area. Public-private partnerships were mentioned as a way to bridge the gap between current staffing and infrastructure levels and future demand. As it would pertain to charger maintenance, this could mean having trained maintenance staff via a nonprofit that each city contributes to. Another potential avenue for partnership was raised in the form of tribal job creation. If maintenance training were offered to tribal members, they could assume that responsibility as a community benefit.

PUBLIC CURBSIDE CHARGING SURVEY WITH RESIDENTS AND RIDEHAIL DRIVERS

In addition to the engagements above, PSE also distributed an online survey to residents and ridehail drivers throughout PSE's service area.

For PSE residential respondents, a sample of over 800 customers was developed by the PSE Customer Insights team. The participant sample was created using the following demographics and criteria:

- Located in PSE's electric service area
- An area median income of less than 80%
- A mixture of rural, suburban and urban populations
- A mixture of homeowners and renters
- A population size that included a mixture of climate concern levels
- Populations within PSE's designated named communities' demographic

In addition, representatives from Teamsters Local 117 and the Drivers Union distributed the survey to ridehail drivers. Both ridehail and residential respondents completed the same survey.

Each individual in the 800-person sample received an invitation to take the survey in either English or Spanish. Surveys in Arabic and Somali were also offered to ridehail drivers.

A total of 115 community members completed the public curbside charging survey – 57 individuals completed the survey generated from the 800-person sample, and an additional 58 ridehail drivers completed the survey. Out of the 115 participants, 109 completed the survey in English, five in Arabic, one in Somali, and zero in Spanish.

To better understand the sample size of participants taking the survey, PSE asked participants to optionally select their annual household income and race.

Annual household income	% of respondents Residential	% of respondents Ridehail
Under \$25,000	15.0%	6.5%
\$25,000 - \$50,000	35.0%	35.4%
\$50,000 - \$75,000	22.5%	32.2%
\$75,000 - \$100,000	20.0%	19.4%
Over \$100,000	7.5%	6.5%

Race (select all that apply)	% of respondents Residential	% of respondents Ridehail
American Indian or Alaska Native	7.1%	0.0%
Asian or Asian American	4.8%	16.7%
Black or African American	4.8%	41.7%
Hispanic or Latino	2.4%	2.8%
Native Hawaiian or other Pacific Islander	0.0%	0.0%
White or Caucasian	85.7%	30.6%
Other (please specify) **	2.4% **	8.3% ***

*Total exceeds 100% as participants were able to select more than one option.

**Identified as multiracial.

***Identified as African, American, or not relevant.

Survey respondents were provided with the following explanation of curbside charging stations prior to being asked questions:

Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle.

The survey began with questions about **residence types**. About two thirds of residential customer respondents indicated that they live in detached single family house, duplex, triplex, fourplex, townhome, or accessory dwelling units. The majority of ridehail respondents live in an apartment, condominium, houseboat community, or mobile home park with at least five housing units

What type of residence do you live in?	% of respondents Residential	% of respondents Ridehail
Detached single family house, duplex, triplex, fourplex, townhome, or accessory dwelling unit	66.7%	43.1%
Apartment, condominium, houseboat community, or mobile home park with at least 5 housing units	33.3%	56.9%
Other	0%	0%

When asked whether or not they owned, rented or managed their home/property, over half of residential customer respondents indicated they own their home. The majority of ridehail respondents rent their home/property.

Do you own, rent, or manage your home/property?	% of respondents Residential	% of respondents Ridehail
I live here and own my home	61.4%	19.2%
I live here and rent my home directly from a landlord or property manager	36.8%	65.4%
I am the property manager or landlord of this property	1.8%	0%
I live here, and someone else owns or rents the home directly from a landlord or property manager	0%	15.4%

When asked about personal vehicle use, the majority of residential customer respondents primarily use their personal vehicle for running errands. Over 80% of ridehail respondents indicated that they used their vehicle as a means of income through car sharing services.

If you own a personal vehicle, when do you use it? Select all that apply.	% of respondents Residential	% of respondents Ridehail
Running errands	82.5%	41.8%
Commuting to and from work	38.6%	49.1%
I do not own a personal vehicle	12.3%	0%
Other (please specify)	12.3%	3.6%
Driving to different job sites	10.5%	23.6%
Driving for a delivery service (e.g., Doordash or Instacart)	3.5%	30.9%
Driving for a ride hail service (e.g., Uber or Lyft)	1.8%	81.8%

Total exceeds 100% as participants were able to vote for more than one option.

Residential respondents who answered “other” shared that they use their personal vehicle to

- Take road trips
- Buy food
- Explore the area and town I live in

Ridehail respondents who answered “other” shared that they use their personal vehicle for family visits.

Both residential customer respondents who identified as ridehail drivers (a total of 11 respondents) and ridehail respondents were then asked about **the percentage of income they make as ridehail service providers and average number of miles driven per day.**

Residential customer respondents who identified as ridehail drivers, on average, drove 23.4 miles per day, whereas ridehail respondents drove an average of 191.1 miles per day.

Do you make at least 50% of your income as a taxi driver, ride hail driver, or independent contractor delivery driver?	% of respondents Residential	% of respondents Ridehail
No	100%	6%
Yes	0%	84%

When asked about whether or not respondents had access to off-street parking at their residence, over 70% of both public residential customer and ridehail respondents indicated that they have access.

Is off-street parking available at your residence (e.g., private driveway, carport, or garage)?	% of respondents Residential	% of respondents Ridehail
Yes	77.4%	72.5%
No	22.6%	27.5%

Respondents were also asked if they **already owned an EV and**, if not, **if they were interested in purchasing one.** Depending on their responses, survey takers were sent on slightly different tracks for future questions.

EV ownership	% of respondents Residential	% of respondents Ridehail
No, but I am interested in owning an EV	49.1%	49%
No, and I do not plan to own an EV	43.4%	39.2%
Yes, I already own an EV	7.6%	11.8%

RESPONDENTS WHO CURRENTLY OWN AN EV

A total of four residential customer respondents (7.6%) and a total of six ridehail respondents (11.8%) already owned an EV. These respondents were asked questions about public charging preferences, availability of charging infrastructure near them, preferences and concerns pertaining to curbside charging and preferred methods of payment at the station. When asked if they had **access to charging at their residence**, the majority of respondents indicated that they utilize at-home charging, with 50% of residential respondents and 33% of ridehail respondents sharing that they use a level 2, 240v outlet. Ridehail respondents were the only group that indicated they may not have access to at home charging.

Do you have access to charging at your residence?	% of respondents Residential	% of respondents Ridehail
Yes – Level 2, 240v outlet	50%	33%
Yes – Level 2 dedicated charger	33.3%	17%
Yes – Level 1, 120v (standard wall outlet)	25%	0%
No, I don't have at home charging	0%	17%
I don't use public charging	0%	0%

*Two respondents for ridehail skipped this question

When asked where they **would prefer access to public charging**, half of the residential respondents shared that they have public charging access at local shopping centers. The majority of ridehail respondents indicated that they access charging at county or city property.

Where in your community do you have access to public charging?	% of respondents Residential	% of respondents Ridehail
Shopping centers (e.g. grocery stores, big box stores, etc.)	50%	50%
County or City property (e.g. parks, public parking lots, transit centers, community centers, etc.)	25%	66.7%
Gas stations	25%	50%
I don't use public charging	25%	0%
Other	25%	0%

*Total exceeds 100% as participants were able to vote for more than one option. Two respondents for ridehail skipped this question

Respondents were then asked about the **number of times they charge their EV per week using public chargers**. Seventy-five percent of residential respondents charge one to three times per week. About a third of ridehail respondents shared that they charge zero times per week; one ridehail respondent indicated that they charge more than seven times per week.

When asked **whether or not public curbside charging stations would be beneficial**, residential respondents were split whereas the majority of ridehail respondents indicated that this type of public charging would be beneficial. The residential respondents that indicated disinterest in public curbside charging shared that they can already charge at home or reside in a rural area.

Would you find it beneficial to have a publicly available curbside charger installed near your residence?	% of respondents Residential	% of respondents Ridehail
Yes	50%	66.7%
No	50%	0%

*Two respondents for ridehail skipped this question

Respondents were then asked **how they would like to let their municipality or utility know about their need for curbside chargers.**

Of the residential respondents that thought curbside charging would be beneficial, most shared that they would like to let their municipality or utility know about their need for curbside chargers through a submission form on a website.

Three of the six ridehail respondents shared that they would like to let their municipality or utility know about their need for curbside chargers through a submission form on a website. The other respondent shared that “EV car dealers should know where the chargers are [and] they should let the customer know”.

How would you like to let your municipality or utility know about your need for curbside charging?	% of respondents Residential	% of respondents Ridehail
Through a submission form on a website	50%	83%
Through a community meeting	0%	0%
Through a phone call	0%	0%
Other	0%	17%

*Two ridehail and two residential customer respondents skipped this question.

Respondents were then asked about the **potential benefits of public curbside chargers.** All respondents from both groups felt that it would encourage others to drive EVs by increasing the availability of public chargers.

What benefits do you foresee in having a public curbside charger installed near your residence? Select all that apply.	% of respondents Residential	% of respondents Ridehail
It will encourage others to drive EVs by increasing the availability of public chargers	100%	100%
I can charge overnight, closer to my home instead of relying on public chargers	60%	66.7%
I would not have to ask my landlord or property manager to install charging at my residence	40%	66.7%
Other	20%	0%
None of the above	0%	0%

*Total exceeds 100% as participants were able to vote for more than one option. Two ridehail and two residential customer respondents skipped this question.

The residential customer respondent that answered “other” shared that all apartment complexes should install EV chargers.

Respondents were then **asked to choose which of the perceived curbside charging barriers are a concern.** Half of the residential respondents noted vandalism targeting the chargers and lack of curb in their neighborhoods as barriers. Ridehail drivers were more concerned that neighborhood associations or HOAs may object.

What issues do you foresee in having a publicly available curbside charger installed near your residence? Select all that apply.	% of respondents Residential	% of respondents Ridehail
Vandalism targeting the chargers	50%	0%
Lack of curb in my neighborhood	50%	0%
Increased traffic from drivers using the charger	25%	0%
Chargers causing accessibility concerns for those with disabilities	25%	0%
Neighbors may object	25%	0%
Other	25%	0%
None of the above	0%	66.7%
Reduced street parking for non-EV drivers	0%	0%
Safety concerns (e.g. tripping hazards)	0%	0%
Neighborhood associations or HOAs may object	0%	33.3%
Nearby businesses may object	0%	0%

*Total exceeds 100% as participants were able to vote for more than one option. Two ridehail respondents skipped this question.

The respondent that answered “other” shared that they live in a sparsely populated neighborhood.

Respondents were then asked about **preferred methods of payment at public charging stations**. The majority of residential respondents preferred credit card chip and swipe readers. Sixty percent of ridehail respondents preferred in-app payments and tap to pay options.

If using public charging stations, what is your preferred method of payment? Select all that apply.	% of respondents Residential	% of respondents Ridehail
In-app payments	50%	50%
Credit card swipe reader	75%	33.3%
Credit card chip reader	75%	33.3%
Tap to pay	25%	50%
Call to pay	25%	33.3%
Other	0%	0%

* Two ridehail respondents skipped this question.

When learning about public curbside programs, all residential customer respondents and the majority of ridehail respondents showed preference for receiving information directly through PSE, followed by family, friends or neighbors and local community-based organizations.

How would you prefer to learn about curbside charging programs? Select all that apply.	% of respondents Residential	% of respondents Ridehail
From PSE	100%	66.7%
From family, friends or neighbors	25%	33.3%
From a local community-based organization	25%	33.3%
From a local EV test drive	0%	50%
Other	0%	0%

*Total exceeds 100% as participants were able to vote for more than one option. Two ridehail respondents skipped this question.

At the conclusion of the survey, respondents also had the opportunity to share additional comments or questions. One residential customer respondent noted that unless a curbside charger was a fast charger (250-350 KW), they do not believe that it would be beneficial. No ridehail respondent asked or shared additional questions or comments.

RESPONDENTS WHO EXPRESSED INTEREST IN PURCHASING AN EV

Twenty six residential respondents (49.1%) and 25 ridehail respondents (49%) did not own an EV but expressed interest in purchasing one. These respondents were then asked questions about barriers to EV ownership, perceived benefits, and barriers and benefits associated with public curbside charging.

Respondents predominantly selected cost of at home charging installation, lack of charging options away from home, range, and EV purchase price as their **primary barriers to ownership**.

What currently prevents you from purchasing an EV? Select all that apply.	% of respondents Residential	% of respondents Ridehail
Charging options away from home	60%	40%
Cost of at home charging installation	44%	40%
Driving distance on a single charge (range)	44%	48%
Price relative to ICE (internal combustion engine vehicle)	36%	52%
Battery lifespan	24%	24%
My landlord or housing provider won't provide charging	20%	24%
Limited vehicle formats	16%	12%
Other	16%	12%
I'm uncertain about the technology	12%	20%
I believe in taking transit as opposed to a personal vehicle	4%	0%

*Total exceeds 100% as participants were able to vote for more than one option.

Residential respondents who answered "other" shared that they are either not in the market for a new car or would like to wait until their current vehicle is at the end of its lifespan before purchasing an EV. Ridehail respondents who answered "other" shared that unfamiliarity with EV technology and cost were factors that prevented them from purchasing an EV.

When asked about **access to public charging**, the majority of residential respondents shared that they have charging access at local shopping centers. Nearly 85% of ridehail respondents indicated that they have charging access at county or city property.

If you did own an EV, where in your community would you prefer to access public charging? Select all that apply.	% of respondents Residential	% of respondents Ridehail
Shopping centers (e.g. grocery stores, big box stores, etc.)	96%	68%
Other	25%	12%
County or City property (e.g. parks, public parking lots, transit centers, community centers, etc.)	18%	84%
Gas stations	13%	48%

*Total exceeds 100% as participants were able to vote for more than one option. One residential respondent skipped this question.

Residential respondents who answered "other" shared that charging at restaurants would be desirable. Ridehail respondents who answered "other" shared that charging at home would be desirable, and that they would like to charge at a convenient location to ensure that their vehicle can operate effectively when traveling, especially during emergencies.

When asked **whether or not curbside charging stations would be beneficial if they owned an EV**, most residential

respondents saw benefit; whereas 75% of ridehail drivers did not view public curbside chargers as beneficial.

If you did own an EV, would you find it beneficial to have a publicly available curbside charger installed near your residence?	% of respondents Residential	% of respondents Ridehail
Yes	88%	92%
No	12%	8%

*One residential respondent skipped this question, and three ridehail respondents skipped this question.

Respondents were then asked **how they would like to let their municipality or utility know about their need for curbside chargers.**

The majority of residential customer and ridehail respondents who felt public curbside charging could benefit them if they owned an EV indicated they would like to let their municipality or utility know about their need for curbside chargers through a submission form on a website. The respondents that answered other indicated that they were not sure and did not fully understand the question.

How would you like to let your municipality or utility know about your need for curbside charging?	% of respondents Residential	% of respondents Ridehail
Through a submission form on a website	77.3%	54.5%
Through a community meeting	13.6%	14.3%
Through a phone call	4.6%	27.3%
Other	4.5%	4.6%

*Four residential respondents skipped this question, and three ridehail respondents skipped this question.

Those who did not see the benefit of public curbside charging provided the following rationale:

- Curbside charging would not be necessary, as charging would be most useful when traveling.
- If not located directly in front of one's residence, it would be inconvenient to walk to move your car before and after charging.

Respondents were then asked about the **potential benefits of public curbside chargers.** Over 50% of both respondent groups felt it would encourage others to drive EVs by increasing the availability of public chargers and that they could rely less on public chargers while not at home.

Benefits of curbside charging stations	% of respondents Residential	% of respondents Ridehail
It will encourage others to drive EVs by increasing the availability of public chargers	81.8%	52.4%
I can charge overnight, closer to my home instead of relying on public chargers	63.6%	66.7%
I would not have to ask my landlord or property manager to install charging at my residence	27.3%	47.6%
Other	4.6%	0%
None of the above	4.6%	0%

*Total exceeds 100% as participants were able to vote for more than one option.

Respondents who answered “other” shared that charging options for travelers driving through their area would increase.

Respondents were then **asked to choose which of the perceived curbside charging barriers were a concern.**

Residential respondents indicated increased traffic from drivers using the chargers, vandalism targeting the chargers, and lack of curb space in their neighborhoods as primary barriers. Ridehail respondents noted increased traffic from drivers using the chargers, safety concerns, vandalism targeting the chargers, and lack of curbs in their neighborhoods as top concerns.

Barriers of curbside charging stations	% of respondents Residential	% of respondents Ridehail
Vandalism targeting the chargers	62.5%	38.1%
Increased traffic from drivers using the charger	50%	57.1%
Lack of curb in my neighborhood	45.8%	38.1%
Chargers causing accessibility concerns for those with disabilities	41.6%	23.8%
Neighborhood associations or HOAs may object	37.5%	14.3%
Reduced street parking for non-EV drivers	33.3%	33.3%
Neighbors may object	33.3%	33.3%
Safety concerns (e.g. tripping hazards)	29.2%	42.8%
Nearby businesses may object	20.8%	23.8%
None of the above	8.3%	9.5%
Other	0%	0%

*Total exceeds 100% as participants were able to vote for more than one option.

Respondents were then **asked about preferred methods of payment at the public curbside charging stations.** Over 80% of residential respondents preferred credit card chip readers. Over 85% of ridehail respondents preferred in-app payments. The residential customer respondent that answered other shared that an app linked to their PSE account would be most convenient.

If using public charging stations, what is your preferred method of payment? Select all that apply.	% of respondents Residential	% of respondents Ridehail
Credit card chip reader	83.3%	38.1%
Credit card swipe reader	62.5%	33.3%
Tap to pay	58.3%	42.9%
In-app payments	50%	85.7%
Other	4.2%	0%
Call to pay	0%	4.7%

*Total exceeds 100% as participants were able to vote for more than one option.

When **learning about public curbside charging programs,** the majority of residential respondents preferred to receive information directly through PSE, while ridehail drivers were split between family, friends or neighbors, community based organizations or PSE.

Preferred opportunities to learn about curbside charging	% of respondents Residential	% of respondents Ridehail
From PSE	87.5%	47.6%
From a local community-based organization	29.2%	47.6%
From family, friends or neighbors	19.2%	57.1%
From a local EV test drive	12.5%	38%
Other	12.5%	4.7%

*Total exceeds 100% as participants were able to vote for more than one option.

Respondents who answered “other” shared that they would like to learn about curbside charging from:

- The government
- Utility newsletters from PSE or from utility bills
- Local news outlets, coupled with maps of designated charging location and rates

Respondents had the opportunity to share additional comments or questions at the end of the survey. These comments highlighted the need for:

- Affordable charging rates and convenient locations relative to their residences
- The coordination of parking times and rates
- The need for ample charging opportunities across rural and urban areas.

RESPONDENTS WHO EXPRESSED THAT THEY ARE NOT INTERESTED IN PURCHASING AN EV

A total of 23 residential respondents (40.4%) and 19 ridehail respondents (32.8%) are not interested in purchasing an EV at this time. These respondents were asked questions about barriers to EV ownership, and barriers and benefits to public curbside charging.

Residential and ridehail respondents in this group were asked if **anything could change their mind about EV ownership**. Comments included:

- Adjustments in the price of EVs, as they are currently too expensive
- Longer range
- Additional charging stations to alleviate range anxiety
- More knowledge of subsidies and funding opportunities to offset the cost of EV purchase

The majority of respondents identified the **main barriers to EV ownership** as lack of charging options away from home, range, purchase price of the EV, and battery lifespan as primary barriers.

Barriers to purchasing an EV	% of respondents Residential	% of respondents Ridehail
Price relative to ICE (internal combustion engine vehicle)	47.8%	47.1%
Battery lifespan	34.8%	47.1%
Other	34.8%	34.8%
Charging options away from home	26.1%	76.5%
Driving distance on a single charge (range)	26.1%	52.9%
Cost of at home charging installation	17.4%	35.3%
I believe in taking transit as opposed to a personal vehicle	17.4%	0%
I'm uncertain about the technology	17.4%	23.9%
My landlord or housing provider won't provide charging	8.7%	52.9%
Limited vehicle formats	4.4%	11.8%

*Total exceeds 100% as participants were able to vote for more than one option.

Respondents who answered “other” shared concerns about pollution from and disposal of lithium batteries, EV reliability, prices of new vehicles in general and satisfaction with their current vehicle.

Respondents were then asked to choose which of the perceived curbside charging barriers were a concern. About 80% of the residential respondents indicated reduced street parking for non-EV drivers as an issue and roughly 65% of ridehail respondents noted increased traffic from drivers using chargers as a concern.

Barriers of curbside charging stations	% of respondents Residential	% of respondents Ridehail
Reduced street parking for non-EV drivers	78.3%	47.1%
Increased traffic from drivers using the charger	56.5%	64.7%
Vandalism targeting the chargers	47.8%	58.8%
Lack of curb in my neighborhood	47.8%	29.4%
Chargers causing accessibility concerns for those with disabilities	26.1%	23.5%
Neighbors may object	26.1%	35.1%
Safety concerns (e.g., tripping hazards)	17.4%	17.6%
Nearby businesses may object	13%	17.6%
Other	13%	0%
Neighborhood associations or HOAs may object	8.7%	29.4%
None of the above	4.4%	11.8%

Total exceeds 100% as participants were able to vote for more than one option.

Respondents who answered “other” shared concerns about impacts to the power grid.

Respondents had the opportunity to share additional comments or questions at the end of the survey. These comments highlighted uncertainty about impacts of EV battery disposal, the lack of affordable EV options, and the need for affordable charging stations.

NEW + INNOVATIVE ENGAGEMENT

This section focuses on PSE’s efforts to understand gaps in its planned charging programs and services.

ENGAGEMENT PARTICIPANTS

Out of the 51 community stakeholders contacted, 15 participated in introduction calls and 13 participated in the ideation exercises.

ADVOCACY FOR EQUITY

Participant	Population served	Counties served in PSE Electric Service area
Boys & Girls Club of Skagit County*	Youth	Skagit
Chinook Enterprises*	People with disabilities and other barriers	Skagit
Ironworkers Local 86*	Local ironworkers	King
Hopelink	Low-income and people with disabilities or other barriers	King
Rooted in Rights	People with disabilities	Multiple
Teamsters 117	Ride share drivers	King
Transportation Choices Coalition	Washington State commuters	All
Western Washington University	Students	Whatcom
Women’s Transportation Seminar	Local transportation industry	All

AGRICULTURE

Participant	Population served	Counties served in PSE Electric Service area
Bonney Lake Food Bank	Low-income	Pierce
FISH Food Bank	Low-income	Kittitas
Food Lifeline	Low-income	King
Kitsap Conservation District	Kitsap County residents	Kitsap
Northwest Agricultural Business Center	Island, King, San Juan, Snohomish, Whatcom County residents	Island, King, Whatcom
Northwest Cooperative Development Center	Cooperative businesses	Thurston
Skagit Conservation District	Skagit County residents	Skagit
Skagit Gleaners	Skagit County residents	Skagit
Sustainable Connections (Cloud Mountain Farm)	Local businesses, governments, non-profits, community members, and civic leaders	Whatcom
Viva Farms	Limited-resource farmers	Skagit
Whatcom Conservation District	Whatcom County residents	Whatcom
WSU Food Extension – Kitsap	Food processors	Kitsap
WSU Food Extension – Puyallup	Food processors	King

CAR SHARING

Participant	Population served	Counties served in PSE Electric Service area
FORTH Mobility	Pacific Northwest Region	Multiple
Pacific Mobility Group*	Consumers, private businesses, and public entities	Island
Muckleshoot Tribal Transit*	Muckleshoot Tribe	King
Puget Sound Clean Air Agency	King, Kitsap, Pierce and Snohomish Residents	King, Kitsap, Pierce, Snohomish

CONNECTIONS TO PUBLIC TRANSIT

Participant	Population served	Counties served in PSE Electric Service area
Chinook Enterprises*	People with disabilities and other barriers	Skagit
City of Tukwila	City of Tukwila residents	King
Island Transit	Island County residents	Island
King County Metro	King County residents	King
Kitsap Transit	Kitsap County Residents	Kitsap
Muckleshoot Tribal Transit*	Muckleshoot Tribe	King
Multi Service Center	Houseless, low-income	King
Nooksack Indian Tribe	Nooksack Indian Tribe	Whatcom
Port of Seattle	Port of Seattle staff and visitors	King
Whatcom Transit Authority	Whatcom County residents	Whatcom

WORKFORCE DEVELOPMENT

Participant	Population served	Counties served in PSE Electric Service area
Boys & Girls Club of Skagit County*	Youth	Skagit
Ironworkers Local 86	Local ironworkers	King
Muckleshoot Tribal Transit*	Muckleshoot Tribe	King
Pacific Mobility Group*	Consumers, private businesses, and public entities	Island
Western Washington University*	Students	Whatcom
Whatcom Technical College	Students	Whatcom

KEY

Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop
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*Participated in multiple focus groups

INTRODUCTION CALLS

Prior to the ideation exercise, stakeholders were first engaged through introductory phone calls. In these brief calls, the project team shared PSE's transportation electrification work to date and learned more about potential participants' mission, vision and goals, any existing experience with TE and initial barriers to TE access for themselves or their customers. Information collected through these phone calls was used to help frame the design of subsequent engagements

IDEATION EXERCISES

PSE held two ideation exercises to understand what additional electrification topics and use cases, outside of its existing charging program buckets, the community would like PSE to explore. To gather the widest array of feedback, participants from a variety of sectors and interest areas were invited. The outcomes of the ideation exercises informed subsequent focus group topics.

IDENTIFYING THEMES

In each exercise, participants began by brainstorming mobility gaps in their communities and identifying which of those areas could benefit from electrification. As a group, participants reviewed the ideas generated in the brainstorming session and identified themes from that initial list. After reviewing the themes and adding any additional mobility gaps that were not discussed, each participant voted for the top two themes they wanted to see the group focus on in subsequent breakout rooms. After the voting session, participants self-selected into the breakout room of their choice.

Ideation exercise #1 themes	Ideation exercise #2 themes
<ul style="list-style-type: none">• Connections to public transit• Car sharing	<ul style="list-style-type: none">• Agriculture• TE support and infrastructure for non-profits

Additional themes that participants brainstormed but did not discuss in breakout rooms included:

- First and last mile connections for services and goods
- Identifying and filling gaps in current transit routes
- Accommodating alternative schedules
- Connecting rural areas
- Rideshare connections to public transportation services
- Shuttle services for communities in need
- Shuttle services for migratory farm workers
- Farm to hub transportation
- Rural transportation gaps
- Refrigeration and refrigerated vehicles

BREAKOUT ROOMS

Participants in each breakout room began by brainstorming a working goal related to the theme of their group. Participants were asked to include a specific timeline and or metrics into their goal, if possible. Next, the room used their working goal to identify the current state of their system and the critical system and experience shifts required to meet this goal.

CRITICAL SHIFTS

The table below outlines key shifts and themes shared by participants in both ideation exercises.

	Current state	Future state
Connections to Public Transit <i>Working goal: Community members have access to public transit, regardless of income or location.</i>		
System shift	<ul style="list-style-type: none"> • Transit is not often accessible outside of urban areas • There is a lack of first and last mile connections • Access to public transit affects employment opportunities • Suburban transit does not support needs outside of commuting 	<ul style="list-style-type: none"> • Transit is not a barrier to employment • Transit is convenient, accessible, and values every rider's time equally • Affordable housing options that are close to transit options and key services
Experience shift	<ul style="list-style-type: none"> • Rider needs are not being met and people are frustrated • People can feel unsafe during off-peak hours • Access to transportation is inconsistent and can be stressful • Transportation does not serve people with disabilities 	<ul style="list-style-type: none"> • Transit is used during on- and off-peak hours • Riders feel safe, supported, and their transportation needs are met • There are reliable and predictable transportation options
Car Sharing <i>Working goal: There is a regional network of carshare vehicles in Western Washington that serves both urban and rural communities by 2030.</i>		
System shift	<ul style="list-style-type: none"> • Free floating car shares exist, but only work in urban and dense areas • Car shares are not fully electric 	<ul style="list-style-type: none"> • Station-based car sharing and a network of vehicles with a charging infrastructure that connects regions
Experience shift	<ul style="list-style-type: none"> • Car-share programs are geographically restricted • RFID cards and Bluetooth are used to reserve vehicles 	<ul style="list-style-type: none"> • There are cooperative sharing programs • Different types of vehicles are available for users • Charging stations and unlocking cars are part of an integrated system • Rental cars that can be unlocked with a smartphone or issued card

Agriculture

Working goal: Development of higher capacity vehicles to meet needs outside of commuter vehicles.

System shift

- There are few off-road options
- Current options have limited range, ability to tow, and provide refrigeration
- There are limited vehicle options overall
- Vehicles with high passenger capacity, towing power, and ability to refrigerate
- There are options to have a battery pack change out for larger vehicles that need longer range

Experience shift

- There is uncertainty around charging
- There are social and cultural barriers to adopting EVs
- Current experience with EVs is frustrating
- There are only incentives for new vehicles, which are expensive and unaffordable
- Food systems are disjointed and disconnected
- Charging is reliable and accessible
- EVs are desirable, easy to use and access, and the necessary equipment is available
- EVs have a longer expiration timeline compared to fueled vehicles
- There is a connected system around food, from producers to consumers

TE support and infrastructure for non-profits

Working goal: The public has a better understanding and knowledge of services available in EV charging.

System shift

- There are no commercial vans available
- It's difficult to ask people who are already riding public transportation to commit to another shift
- Charging infrastructure is not well understood
- There are commercial van options in the market
- Audiences and customers understand and invest in transportation electrification products
- Public transportation audiences understand why TE is important
- TE is prioritized

Experience shift

- There is no standard or easily recognizable EV charging station
- Uncertainty about the steps needed to access local EV charging
- Perceived lack of electric charging stations
- Uncertainty around who to go to for questions
- EV charging stations are easily recognizable and easy to understand and use
- Users understand the resources that are available to them
- Larger organizations pave the way for smaller organizations

ACHIEVING CRITICAL SHIFTS

After identifying critical shifts, each group generated ideas that could help achieve those shifts, including resources, potential partnerships, and connections to leverage.

Theme	Future state	Ways to achieve the shift
Connections to Public Transit	Transit is convenient and accessible for all users, is used throughout the day, and does not create barriers for employment or use. Transit is located near affordable housing and key services.	<ul style="list-style-type: none"> • Utilize Economic Development Councils to convene the public to share information. • Connect with disability or underserved population advocacy groups. • Offer EV options for carpools and rideshares. • Partner with non-profits and public transit. • Offer free and reduced fares on transit. • Engage with chambers of commerce. • Distribute in-person, phone, and electronic surveys to the public and businesses to understand their barriers. • Advocate for public transit benefits through employers.
Car sharing	There is a regional car sharing network and an infrastructure that connects regions, a cooperative car sharing program that is easy to use and provides different types of vehicle options.	<ul style="list-style-type: none"> • Provide grant funding specifically for car shares. • Offer more than basic passenger vehicles. • Create a program with public access for all. • Develop low-income community rates for rural or lower-income communities. • Offer tiered membership opportunities for usage. • Identify economies of scale: insurance, charging stations and infrastructure, and overhead costs.
Agriculture	There is a diversity of vehicle options equipped with towing power, higher passenger capacity, and refrigeration. Charging is reliable and accessible, especially for longer range vehicles.	<ul style="list-style-type: none"> • Provide more visibility of EVs and other electric options. • Partner with land grant schools for research and demonstration projects. • Utilize the trusted messenger model. • Support early adopters. • Advocate for legislatively funded EV programs and subsidies. • Partner with think tanks to create high-capacity vehicles. • Offer a shared vehicle equipment library. • Promote better representation of EVs in social media.
TE support and infrastructure for non-profits	There are more EV options on the market, including higher capacity vehicles. Users understand, invest in, and prioritize TE and EVs. Charging is accessible and easy to understand and use.	<ul style="list-style-type: none"> • Embed EVs into transportation demand management community outreach. • Communicate with specialized transportation providers. • Provide combined resources for charging information, times to charge, etc. • Promote regional pilots. • Distribute information through a variety of channels. • Provide non-profits with a guide to EV use. • Provide EV customers with a guide to using personal EVs. • Offer more used EVs. • Share information on how to get started with EVs. • Explore conversion options to convert internal combustion vehicles into EVs.

Although each group focused on notably different topics, similar themes arose as participants discussed how to achieve the critical system and experience shifts. Participants focused on increasing **TE awareness and education**, providing **funding and incentives** for purchasing EVs, offering experiential opportunities to test equipment, **partnering with trusted community organizations**, and implementing behavioral changes in the transportation and mobility space.

FOCUS GROUPS AND ONE-ON-ONE CONVERSATIONS

PSE reviewed the key themes from the ideation exercises and introduction calls to assess which topics represented gaps in its current programs. Ultimately, five topics for subsequent focus groups were identified:

- Car sharing
- Agriculture
- Advocacy for equity
- Connections to public transit
- Workforce development

Car sharing, agriculture, and connections to public transit were discussed in breakout rooms during the ideation exercise. Advocacy for equity and workforce development were two topics continually surfaced in both introduction calls and breakout rooms, despite not being main breakout room themes.

In each of the five focus groups, PSE identified key areas to gather feedback and developed guiding questions to help prompt discussion from participants. PSE also presented scenarios for feedback, and posed questions to help identify barriers, benefits, education and outreach opportunities, and how PSE could be involved in solutions to the barriers presented. Each focus group was 90 minutes long. Participants who were unable to attend the focus group during the scheduled time were able to schedule a one-on-one conversation with PSE to provide feedback.

CAR SHARING

The car sharing conversations first reviewed the working goal and key shifts identified in the ideation exercise before focusing on the critical components of a car sharing program, the challenges to launching a car share, what a successful program would require, and the role that PSE can play in implementing new programs.

- **Working goal:** Community members have access to public transit, regardless of income or location.
- **Key shifts:** Low or no-cost membership, low-income community rates, interconnected programs, ride share and electric charging partnerships, fleet diversity, and uniform user experience.

One-on-one conversations were offered to participants who could not attend the scheduled focus group. Three organizations participated in the focus group, and one participated in a one on one interview.

Participant	Population served	Counties served in PSE Electric Service area
FORTH Mobility	Pacific Northwest Region	Multiple
Pacific Mobility Group	Consumers, private businesses, and public entities	Island
Muckleshoot Tribal Transit	Muckleshoot Tribe	King
Puget Sound Clean Air Agency	King, Kitsap, Pierce and Snohomish Residents	King, Kitsap, Pierce, Snohomish

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

CHALLENGES

Participants shared feedback and suggestions to resolve the hurdles of developing a car share program by responding to a set of guiding questions.

Geography: What key differences exist between rural and urban car shares?

Participants identified key differences between urban and rural car shares that could pose potential challenges to program development and launch. These included the different configuration and management needs required by both. Typical car share models are either station-based or free-floating. Rural car shares may not support a free-floating model because bunching and clustering of desired vehicle pick up and drop off locations is not as common as it is in urban areas. A free-floating model in a rural area may require exponentially more staff time to locate dispersed vehicles.

Urban and rural markets may have different existing transportation resources to complement car shares. Rural geographies with less existing transportation infrastructure may create a challenge for community members attempting to access the vehicles. Whereas, it may be easier to access urban car shares through existing transportation resources such as buses. If available, siting car shares in central locations with supporting road and bike lane infrastructure is important. As is locating rural car shares near a community-based organization or similar community hubs to promote use and availability of the program. Types and range of trips will also vary between the urban and rural areas – urban trips may be shorter in distance and duration or one-way trips, and rural areas may see longer trips or round trips.

Insurance and driver requirements: What insurance solutions have been utilized?

Car insurance for open access car sharing programs can be difficult to obtain. Requiring drivers to be over 21 years old makes obtaining insurance for the program easier. It should be noted that insurance companies often require background checks for major violations and driver-identity checks. To help reduce confusion and set expectations, program management should make eligibility requirements transparent for potential drivers. Companies like Enterprise offer turnkey car share solutions that include insurance. Participants suggested that PSE incentives should be applicable for services like these.

Access: What reservation management solutions exist? How do we remove barriers for the unbanked?

Participants discussed the different types of reservation systems and platforms they are familiar with. Most known systems are application or web-based services, which is most accessible for users who are technologically proficient. Some platforms used RFID cards to automatically unlock a vehicle or make reservations.

Participants suggested hiring local staff to manage vehicle reservations. This tactic could increase the legitimacy of the program with community members by building rapport, alleviate barriers faced by the unbanked, and provide cleaning services. Participants also suggested partnering with community-based organizations to manage outreach and communications and offering an income-eligible rate when possible. Other suggestions include pre-paid credit cards for low-income or unbanked users to pay for program participation.

Pricing: How much should the program cost? Is it reasonable to set a goal to be cheaper than ride hail services and cost-competitive with short transit trips? What fees need to be covered?

Participants discussed the need for different pricing models in urban versus rural areas as rural areas may not be as likely to support market rates. Rural areas also face mobility and transportation infrastructure gaps that may stymie initial utilization rates. Participants suggested beginning with lower rates to improve initial utilization and offering lower prices for community members who use the program to carpool, offering low to zero rates for income-eligible or unbanked users, and offering referral credits to users who spread the word about the program to other community members.

As another way to reduce barriers, participants suggested charging only after a trip is completed. This way, if a user cannot pay the rate, they are at least able to take that immediate trip, but may not be able to make another reservation until the balance is resolved. No punitive action should be taken for users who are not able to pay for that one trip.

Additional barriers: Are there any barriers missing from the discussion list?

Participants concluded the barriers section by sharing any additional barriers that the above discussion questions did not cover. Additional noted barriers included:

- Administrative lift required to manage late returns or account fees
- Securing funding to support the launch of a new car share program. Grant programs favor applicants with existing car share experience, which stunts new program growth
- Slow return on investment

ELEMENTS OF A SUCCESSFUL PROGRAM

Next, participants discussed what could make a car share program successful by responding to a set of guiding questions.

Assets: What kind of vehicle diversity is important in a car share fleet? What kind of EVSE diversity is important?

Participants acknowledged that the overall diversity of EVs is still limited, but noted that including trucks, ADA-accessible vehicles, and generally larger EVs in car share fleets will help support users as they move goods or travel with larger families or groups.

EVs with longer ranges will be important in reducing stranded assets and reducing range anxiety among participants. L2 and L3 EVSE should be available for users in case a quick charge is needed. Participants also noted that if installation of L3 chargers in tandem with the car share was not feasible, PSE should consider siting car shares near an accessible bank of publicly available L3 chargers.

Community involvement: How can we include the community in this solution?

Participants suggested siting car shares at community centers or near transportation or activity hubs. If the site host is a trusted community partner, compensate them to manage the reservation system and work with them to conduct a ribbon cutting and orientation event for potential new users. Participants discussed the importance of language accessibility at community events (e.g. employ a Spanish-speaking representative to answer questions from Spanish-speaking community members).

Participants also suggested allowing community members to act as volunteer drivers for other community members who may not qualify to be drivers themselves, or for those who face mobility barriers.

Metrics for success: How can we gather feedback on the program? What information will tell us if we have been successful?

To gather feedback and foster continuous improvement, participants suggested utilizing the reservation platform to analyze usage patterns, rental locations, and user demographics. Surveys are also a successful avenue for gathering user feedback.

Participants suggested combining qualitative and quantitative metrics to better understand community impacts and use. To this end, user anecdotes will be critical. In order to prioritize increasing the positive community impact of a car share program, participants encouraged PSE to deprioritize metrics related to revenue generation or ROI as programs can still be impactful, even if they are slow to recover costs and take longer to generate revenue.

Resources and partnerships: Who is already doing this type of work that PSE could partner with? Should PSE create its own grant opportunity or partner with communities on existing grants? Are there notable car sharing models from other cities that we should explore?

Participants re-emphasized the importance of partnering with trusted community-based organizations to help manage reservations and communications.

Financial assistance is a major barrier. PSE could offer grants or financial assistance to support new car share programs. Financial incentives should cover multiple parts of car share programs to ensure that communities do not need to cobble multiple grants together. Grants are time-consuming and labor intensive. Streamlining and simplifying grant reporting will help ensure that funding is accessible. PSE can also support existing, non-electric car shares to help them transition to electric programs.

To help encourage use, participants suggested offering opportunities for users to test EVs through ride and drives, community events, or through employee car share models. Participants suggested existing models for PSE to explore, including Mio Car, Evie Car Share, Envoy, and Forth Mobility.

“Range is really important. People do not feel comfortable checking out a car with less than 100 miles of range.”

AGRICULTURE

During the ideation exercise, the agriculture breakout room discussed both the electrification of agricultural equipment and the importance of integrated and connected food delivery systems and the role of TE within that system. To gather feedback on both, the focus group included one breakout room focused on agricultural equipment electrification and one focused on food delivery systems. Before entering breakout rooms, participants reviewed the working goal and key shifts from the ideation exercise to help guide their brainstorming activities.

- Working goal: Development of higher capacity vehicles to meet needs outside of commuter vehicles.
- Key shifts: Research and demonstration projects with early adopters and land grant schools, vehicle or equipment libraries, lobbying for higher capacity vehicles with manufacturers, and more local food systems.

One-on-one conversations were offered to participants who could not attend the scheduled focus group. Eight stakeholders participated in the focus group. Within that, three stakeholders participated in the agricultural equipment electrification room, and five participated in the food systems room. Three community stakeholders participated in one-on-one interviews focused on agricultural equipment electrification with PSE.

Participant	Population served	Counties served in PSE Electric Service area
Bonney Lake Food Bank	Low-income	Pierce
FISH Food Bank	Low-income	Kittitas
Food Lifeline	Low-income	King
Kitsap Conservation District	Kitsap County residents	Kitsap
Northwest Agricultural Business Center	Island, King, San Juan, Snohomish, Whatcom County residents	Island, King, Whatcom
Northwest Cooperative Development Center	Cooperative businesses	Thurston
Skagit Conservation District	Skagit County residents	Skagit
Skagit Gleaners	Skagit County residents	Skagit
Sustainable Connections (Cloud Mountain Farm)	Local businesses, governments, non-profits, community members, and civic leaders	Whatcom
Viva Farms	Limited-resource farmers	Skagit
Whatcom Conservation District	Whatcom County residents	Whatcom
WSU Food Extension – Kitsap	Food processors	Kitsap
WSU Food Extension – Puyallup	Food processors	King
Whatcom Technical College	Students	Whatcom

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

FOOD DELIVERY SYSTEMS

As part of the food delivery systems breakout room, participants reviewed the system from farm to customer to identify gaps, differences in urban and rural geographies, key players, necessary equipment, potential solutions to the identified gaps, and the role that PSE could play.

Participants began by identifying **gaps in the food distribution system from production to customer consumption**, and

how that may impact access to electrification:

- A wide network of food pantries and mobile delivery systems makes it difficult to implement systematic projects
- There is a lack of education on how electrification can benefit businesses
- There is a dearth of EVs that can support cold food storage
- Limited staff resources exist to support new projects
- Difficulty finding food delivery drivers
- Lack of storage space at food distribution centers

In discussing **the difference between urban and rural food delivery systems**, participants noted that distribution centers are more dispersed in rural areas compared to urban areas, but food distribution often crosses urban and rural areas when completing its journey.

EQUIPMENT TYPES

Participants discussed the equipment required for food production, distribution, delivery, and storage:

- Refrigeration equipment, such as refrigerated trucks and refrigerated food storage.
- New equipment such as pickup trucks, larger delivery vehicles or box trucks, and retrofitting spaces for refrigeration are costly for farmers and food distribution centers.

SOLUTIONS AND PSE'S ROLE

The breakout room concluded with discussions about solutions to the identified barriers and the role that PSE could play:

- Create opportunities for farmers who do not have economic flexibility or generational wealth to access transportation electrification by providing incentives or other cost reduction measures.
- Lobby for additional government-provided electrification subsidies and infrastructure development.
- Provide holistic and comprehensive application or grant writing support through the funding process.
- Provide technical assistance for electrification and EVSE installation.
- Collaborate with conservation districts, farmer's markets, Tribes, Washington State University Food Extension, and food co-ops to generate awareness about TE with farmers, food distribution centers, and customers.
- Participants suggested thinking beyond the charging stations and considering how PSE can support the additional costs of specialized equipment at all stages of food production and delivery.

AGRICULTURAL EQUIPMENT ELECTRIFICATION

As part of the agricultural equipment electrification breakout room, participants discussed what equipment is used at different types and scales of farms and identified the barriers, benefits, potential solutions, and the role of PSE in the electrification transition.

EQUIPMENT TYPES

Participants began by listing the types of equipment needed for different types of crops and farms, which included:

- Tractors as a key piece of equipment used by most farms and for most operations
- Smaller-scale transportation like side by sides, golf carts, and ATVs
- Machines used for processing and handling (e.g. berry pickers)
- Electric water pumps, irrigation and cultivating equipment
- Food storage and refrigeration

Participants suggested beginning the transition to electrification with lower horsepower equipment or working with farms that have experience with solar projects, equipment retrofitting and other technical upgrades as potential early adopters.

BARRIERS

Participants discussed social and behavioral barriers, cost barriers and operational barriers to electrification in agriculture, which included:

- **Social barriers:** Participants considered the demographics of farms and how information is received. Generational farms tend to have an older average age and may receive information differently than younger farms. Farming communities are often closely knit and share information amongst one another. If electrification receives a bad reputation, this social dynamic may cause it to spread quickly to other farmers. Other social barriers included brand loyalty to well-established brands like John Deere or Kubota, causing distrust for newer or less well-known manufacturers that are developing electric equipment.
- **Behavioral barriers:** A change in the farm's operational model would require managing the charging of equipment along with other day-to-day operations. Additional education and learned maintenance are two requirements for this transition. Participants also mentioned that farmers operate on thin margins and avoid taking risks on equipment or operations that aren't yet proven.
- **Cost barriers:** The initial investment of the equipment is much more expensive and diesel equipment already has a long life span, which makes it hard to see the benefits of switching to electric equipment in the near term. There are few perceived incentives to switch from diesel to electric equipment, and the market for used electric equipment is small.
- **Operational barriers:** Operations vary between farms depending on crop type and geography, which makes widespread electrification difficult and could prevent charging between farms if equipment is shared. The electric tractors that are currently on the market cannot support large-scale production and may not have the daily range that is required for dawn-to-dusk operation. Participants also mentioned concerns or questions around battery disposal.

BENEFITS

The most often mentioned benefits of electrification included:

- **Cost savings:** The cost of electricity is more stable than diesel and gas, electric equipment has more longevity compared to diesel equipment. There is less maintenance and therefore a reduced cost of ownership over time.
- **Added value to operations:** Electric equipment is often smaller and lighter, and the use of electric equipment contributes to fossil-free or carbon-neutral practices adopted by some farms. Electric equipment reduces the risk of spills, which may lead to costly remediation or clean up.

Participants thought that electrification may help streamline the adoption of renewable energy or clean energy products on farms by kick starting a behavioral shift. Participants also mentioned increased chore efficiency, and reduced reliance on gas as a foreign product.

SOLUTIONS AND PSE'S ROLE

The breakout room concluded with discussions about solutions to the identified barriers and the role that PSE could play:

- Create electrification incentive programs as technology improves and becomes more widely available. Make incentives available for equipment conversions and retrofits.
- Partner with other organizations that offer incentives to help customers understand when and how to stack incentives.
- Work with smaller, hobby farms as early adopters. This will make it easier to set expectations about electric equipment and lower the risk of negative perceptions about electrification.
- Offer workforce development and training opportunities in tandem with agricultural equipment electrification.
- Partner with co-ops or conservation districts to develop an electric equipment library that would allow farms to demo and share equipment. Allow weeklong demo or rental opportunities for farmers to experience and test equipment against their specific operations. Longer engagement with the equipment will help build trust and understanding of the equipment.
- Lobby for policies that provide electrification incentives, particularly around sales tax relief for purchasing electric equipment.

EDUCATION AND OUTREACH

Participants in both breakout rooms came together to discuss education and outreach. Overall, participants noted that in order for communication to be effective, it will need to be tailored for different types of farms and farming communities that vary in crop production and geography.

Participants suggested that topical education include:

- Both the pros and cons of electrification. Only sharing the benefits will not build trust with farmers.
- A roadmap for beginning with electrification of small-scale equipment, then moving on to larger equipment once confidence is built. Participants noted that farms may already have smaller electric equipment, which can serve as a stepping-stone to larger-scale electrification.
- Equipment demonstrations and panel discussions with PSE, early adopters of electrification, retrofitters, and electric equipment sales representatives for farmers to attend.

Other outreach suggestions were to:

- Invest in an early adopter model to leverage generational knowledge and utilizing the trusted messenger model.
- Partner with organizations or government agencies that already have established trust with farmers to communicate about electrification opportunities and benefits.
- Schedule engagement opportunities outside of harvests and other peak seasons.
- Translate materials as necessary.

ADVOCACY FOR EQUITY

In the ideation exercises, participants encouraged PSE to consider using its resources to advocate for an equitable transition to TE, even if that advocacy seems initially outside of PSE’s role as an electric utility. One-on-one conversations were offered to participants who could not attend the scheduled focus group on this topic. Five community stakeholders participated in the focus group and four additional stakeholders participated in one-on-one calls with PSE.

Participant	Population served	Counties served in PSE Electric Service area
Boys & Girls Club of Skagit County	Youth	Skagit
Chinook Enterprises	People with disabilities and other barriers	Skagit
Ironworkers Local 86	Local ironworkers	King
Hopelink	Low-income and people with disabilities or other barriers	King
Rooted in Rights	People with disabilities	Multiple
Teamsters 117	Ride share drivers	King
Transportation Choices Coalition	Washington State commuters	All
Western Washington University	Students	Whatcom
Women’s Transportation Seminar	Local transportation industry	All

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

FOCUS GROUP

The focus group began with guiding questions to gather feedback from community members on ways PSE could advocate for TE needs in its Highly Impacted Communities and among Vulnerable Populations. To begin, PSE shared examples it heard in past engagements, including lobbying for increased manufacturing of ADA-accessible vehicles and partnerships with banking institutions to create EV financing opportunity for income eligible households. Participants then brainstormed ways in which PSE could support such efforts. Key suggestions included:

- **Reduce vehicles miles traveled** by improving pedestrian and bike infrastructure, making community services more accessible, and encouraging transit use or carpooling.
- **Reduce transit accessibility barriers** to accommodate shift worker schedules, improving pedestrian access to transit and closing first and last mile gaps.
- Increase PSE’s presence in the community and **further participate in community outreach**, community planning and community design efforts to improve the built environment.
- **Advocate for change in the funding cycle** for non-profits and service organizations, provide financial match support for increased mobility programming, or find other ways to improve funding reliability. Lack of funding makes it difficult for organizations to feel confident in making large scale changes to programs, like electrification.
- **Advocate with electric car manufacturers** for increased production of EVs that are in demand but not widely available, such as ADA-accessible vans or larger commuter vehicles.
- **Lobby in the legislature or work with financial institutions** to promote low-interest EV financing.

Participants reviewed the topics above and after a group discussion, opted to further explore the reduction of vehicle miles traveled as a key component of an equitable transition to TE. The group selected this topic as their area of focus for further

discussion because it may be the most complicated as it requires holistic, long term partnerships but also may be the most impactful. Participants focused on how PSE might approach this goal, who PSE should engage with to achieve change, challenges in implementing the change, and potential resources and partnerships to utilize.

HOW TO ACHIEVE THE GOAL

Participants brainstormed tactics for reducing vehicle miles traveled, such as car-sharing programs and increased transit service (both an extension of service hours and a reduction in rider wait time). Participants advocated for **improving funding availability to increase capacity and resources at community organizations and non-profits supporting this type of large, systemic change.**

Participants also discussed **investing in the built environment and micromobility** to improve the pedestrian experience with smooth sidewalks, safe crossing areas, reduced speed areas and micromobility charging infrastructure at transit centers for motorized scooters or wheelchairs.

“Lean into funding availability – systemic change is difficult without it.”

INCLUDING COMMUNITY MEMBERS IN THE CONVERSATION

Participants discussed how to include community members in the TE conversation in a way **that makes them feel empowered and comfortable** with the subject. Participants noted that framing transportation electrification as beneficial to everyone, not just vehicle owners, may help bring people into the conversation who are interested in the environmental benefits or increased transportation options provided by transit.

These types of conversations should be part of a **long-term effort to build trust with community partners.** More funding could be directed towards community engagement and outreach to establish stronger relationships and in and with communities. PSE has the advantage of name recognition for many customers and can leverage that to move the dial forward on TE.

Participants suggested a top-down and bottom-up approach to engagement. Work with municipalities and governments to implement more mobility programs or transportation options while simultaneously working with communities to understand their needs and build trust. Each community will have unique needs and they should feel like they have a choice in the planning decisions that will affect them.

BARRIERS TO IMPLEMENTING CHANGE

Participants noted that rural communities may be less willing to embrace some design elements that support TE, and PSE should prepare for more communities being against the transition to TE than for it as communities can be initially resistant to large-scale change. This resistance can stem from affordable housing issues, zoning and regulation requirements, and a general distrust of utilities, government, and politics.

“Communities can make the ‘sound on the ground’ first.”

RESOURCES AND PARTNERSHIPS

Participants suggested PSE foster a number of resources and partnerships, including:

- Working with local mobility coalitions to improve transportation networks and services.
- Becoming involved in existing cross-collaboration efforts between government programs, local CBOs, or other utilities.
- Examining the connection between affordable housing and reducing vehicle-miles traveled.
- Exploring existing programs that recognize and reward creative cohesive and connected environments (e.g., Complete Streets).

ONE-ON-ONE CONVERSATIONS

In addition to the focus groups, four community stakeholders participated in one-on-one conversations. While one-on-one conversations in other sections aligned closely with focus group questions, the mission of each organization guided the one-on-one conversations. Key takeaways from those conversations include:

- PSE can work with the necessary stakeholders to bundle projects that upgrade pedestrian infrastructure at the same time as utility infrastructure.
- PSE can advocate for community needs using its existing relationships with the finance sector and the legislature.
- Availability of EVs and workforce development (knowledge of TE jobs and a limited TE workforce) are two limiting factors to the expansion of TE.
- One of the main barriers to TE continues to be the affordability of EVs, making them feel out of reach for most drivers. Low-interest financing for EVs could be a way to mitigate this.
- The cost of registration tabs is punitive. PSE could advocate for the replacement of punitive taxes in Washington State with more progressive forms of taxation.
- Partner with commuter groups to bring EVs to employers that offer workplace transportation programs.
- Help develop a 'Cash for Clunkers' program.
- Advocate for a break on property taxes if you install at home EV charging.
- PSE can support ridehail drivers by lobbying manufacturers for larger EV models as larger vehicles (e.g., SUVs) are in high demand at airports.
- Partner with and prioritize programs that help people leave their house or programs that provide goods and services to people's homes.
- Take a broader view of micro mobility and include equipment like golf carts.

CONNECTIONS TO PUBLIC TRANSIT

In the connections to public transit group, participants reviewed the working goal and key shifts identified in the ideation exercise before discussing the elements of a successful program, potential challenges and barriers, and opportunities for partnerships and potential resources.

- **Working goal:** Community members have access to public transportation, regardless of income or location.
- **Key shifts:** Free and reduced fare programs, engaging with disability advocacy groups, programs to support employees and improved job access, and public-private partnerships.

Eleven community stakeholders participated in the focus group.

Participant	Population served	Counties served in PSE Electric Service area
Chinook Enterprises	People with disabilities and other barriers	Skagit
City of Tukwila	City of Tukwila residents	King
Island Transit	Island County residents	Island
King County Metro	King County residents	King
Kitsap Transit	Kitsap County Residents	Kitsap
Muckleshoot Tribal Transit	Muckleshoot Tribe	King
Multi Service Center	Houseless, low-income	King
Nooksack Indian Tribe	Nooksack Indian Tribe	Whatcom
Port of Seattle	Port of Seattle staff and visitors	King
Whatcom Transit Authority	Whatcom County residents	Whatcom

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

PRIORITY POPULATIONS

The focus group began by discussing elements of a successful first and last mile program, including discussing which populations should be prioritized when designing programs. Participants agreed that all programs should be available and accessible to those that have been historically disadvantaged:

- Black, Indigenous, People of Color (BIPOC)
- Seniors
- Veterans
- People with disabilities
- Low-income households
- Zero-vehicle households
- Immigrant and refugee populations
- Shift and low-wage workers

Many of these priority populations rely on public transit. When it comes to siting these projects, participants suggested considering equity-priority populations, the population density of potential locations, and access to community resources and assets.

Participants also mentioned that youth audiences are adept at trying new things and can help implement new practices with older generations.

“There’s an opportunity to help [opportunity populations] access transit and set new habits that could continue in their communities.”

TRANSPORTATION MODES

The group discussed which modes of transportation could help solve current gaps. They noted that micromobility options such as scooters and bicycles may be more useful in urban areas compared to rural areas. These options can also be inaccessible to certain cultures or those with mobility issues.

Modes of transportation that should be prioritized include:

- Light-duty passenger vans with wheelchair lifts
- On-demand services to introduce people, especially those in rural areas, to the larger transportation system in a safe and efficient manner

METRICS

The group discussed how to measure success when developing first and last mile programs. They cautioned that it can be more difficult to create metrics for on-demand resources because they are more expensive and may read as unsuccessful when compared to traditional metrics like cost per ride. Sustainability or equity measures are often more appropriately nuanced for on-demand programs. Suggested metrics included:

- The number of people accessing community resources through the programs
- Increased employment in areas where programs are implemented
- The impact on purchasing goods and services in community centers or project areas. Participants expected that with increased access, the amount of goods purchased would increase.
- Number of populations benefited by a single solution (similar to curb cuts)

CHALLENGES

The group discussed the challenges in developing a first- and last-mile program and how to best address them:

- **Geography:** Location can impact the success of first and last mile projects. Rural areas may lack pedestrian infrastructure like sidewalks and bike lanes that help community members connect to transit safely. It can also be difficult to communicate with riders in rural areas due to a lack of cell phone or Wi-Fi service.
Urban areas tend to have more access to transit and more transit use overall, increasing demand for first and last mile programs. Participants pointed out that urban and rural areas are not the only geographies to consider. Suburban areas may have quality transit systems, but first and last mile barriers still prevent people from accessing those transit systems.
- **Logistics:** Geography also impacts the need for one-way trips, which can be more difficult for first and last mile programs to manage. There will likely be more one-way trip requests in suburban and rural areas. To reduce the risk of stranded riders, programs could consider services similar to taxi scripts, or providing gift cards or credits to Uber and Lyft, to help complete the journey for riders that may need assistance outside of program hours or when demand is higher than supply of rides.
Participants also wondered about the resiliency and reliability of the grid in rural areas where there are already outages and how that may impact availability of critical first and last mile programs if many become electric. Participants encouraged PSE to address these concerns in its planning and to clearly communicate these plans with communities to build confidence in transportation electrification.
- **Removing barriers to access:** Participants brainstormed ways to remove barriers to access for first and last mile programs. App-based reservation services should have call-in options or other reservation modes for those who are not as comfortable with technology or have nuanced questions about the service. Providing a phone line with in-language options also helps reduce barriers for non-English speaking groups.

- Participants also suggested working to understand community needs through surveys or other methods before investing in solutions that may not resonate with communities. For example, it is important to understand if access to internet is a barrier prior to implementing programs that offer call-in options or alternative reservation methods; or if access to credit is a barrier before offering that payment option exclusively.

Working alternative and shift schedules are also barriers for travelers. People use transit at all times of the day and it is important to provide solutions that accommodate those schedules.

Finally, participants noted that pilot programs should not be taken away from the populations that have come to rely on it after service begins. Sustainable funding sources and grants can help prevent this.

RESOURCES AND PARTNERSHIPS

The group concluded by discussing potential partnerships for PSE in this work. A participant expressed frustration and concern with the current wait time of having a PSE engineer assigned to major projects and wondered what that will mean for widespread, efficient adoption of transportation electrification. It was suggested that PSE prioritize remediating this backlog prior to launching scaled programs for communities.

WORKFORCE DEVELOPMENT

In the workforce development conversations, participants discussed how PSE can ensure that no current workforce is left behind in the transition to TE while simultaneously preparing the clean energy workforce of the future. Guiding questions centered on how a program could be successful, potential challenges and solutions to those challenges.

Participants who were not able to attend the focus group were offered one-on-one conversations with PSE. Seven total community stakeholders participated in the workforce development conversations, five in a focus group and two in a one-on-one conversation with PSE.

Participant	Population served	Counties served in PSE Electric Service area
Boys & Girls Club of Skagit County	Youth	Skagit
Ironworkers Local 86	Local ironworkers	King
Muckleshoot Tribal Transit*	Muckleshoot Tribe	King
Pacific Mobility Group*	Consumers, private businesses, and public entities	Island
Western Washington University	Students	Whatcom
Whatcom Technical College	Students	Whatcom

KEY		
Introduction call	Intro call + focus group and/or workshop	Focus group and/or workshop

ELEMENTS OF A SUCCESSFUL PROGRAM

How the conversation around TE is framed to communities will help foster an interest in the associated career pathways:

- Convey that transportation electrification is more than just individually owned cars and that this technology will still be relevant in 20 years.
- Communicate that the sector includes living wage jobs.
- Don't feel the need to glamourize the sector, frame it as an important societal contribution that you may be able to make without college debt.

Training and education pathways were two critical elements discussed:

- Offer training for charging station maintenance and installation through different organizations, such as unions or community colleges to reach different audiences.
- Create opportunities to cross train current gas-powered maintenance crews with electrical backgrounds to address existing workforces.
- Part of the confidence mechanics have in their current role is their long history of hands-on work with ICE vehicles. Provide more opportunities for hands on work on EVs.

Participants suggested PSE consider advocating for and **developing programs specifically for the following populations who are typically left behind:**

- Black, Indigenous and people of color (BIPOC)
- Women, specifically BIPOC women
- Formerly incarcerated people
- People in recovery or in recovery programs
- People in the foster care system

EXISTING MODELS TO MIRROR

Participants brainstormed workforce development models they consider successful, which included:

- Career and technical education programs at elementary, middle and high schools or community colleges that offer early opportunities to engage with new technologies.
 - Outreach programs to students should include information about career paths, potential salaries, and the specific job opportunities in their area.
- Job Corps, a program through the United States Department of Labor that offers free education and vocational training.
- AJAC (Aerospace Joint Apprenticeship Committee) has a program that can be modeled.
- Apprenticeship and training programs that are paid, specific to a future role, provide structure and support, and provide assistance to purchase necessary tools and equipment.

Participants also discussed unsuccessful models and noted that some shadowing programs can be logistically difficult to execute on and do not always provide a uniform experience.

CHALLENGES

Participants also discussed challenges of implementing successful workforce development programs and potential solutions, including:

Barriers to joining the workforce

- Language barriers
- Rural areas may also lack enough students to support TE programs within schools. It is important to still provide support and funding in areas like these
- TE is also viewed as a science-based industry, and social and cultural barriers may deter people from entering into the workforce
- Varying levels of education among applicants
- Childcare, clothing and transportation to and from work

Potential solutions, partnerships, and PSE's role

- Partner with local correctional facilities to provide opportunities to formerly incarcerated individuals and work against stigmas of re-entering the workforce.
- To increase equity, lower the requirements for educational level attained in job descriptions to what is truly necessary.
- Revamp the PSE careers website to include clear and accessible information about job opportunities and TE pathways. Job postings could be shared alongside examples of how that position could grow at PSE or provide examples of employees that have successfully applied for those positions, along with their relevant experience to make them more relatable and allow applicants to visualize themselves in the role day to day.
- Connect with, learn from and synergize with larger manufacturing programs that already exist in schools, education programs in the building trades, parks and recreation programs, tribal workforce development programs and the Washington Council for Engineering and Related Technical Education (WCERTE).
- Provide in-language workforce development programs, career sites and job descriptions and acknowledge that outreach for these programs must be culturally specific. For example, not everyone uses LinkedIn, some hear about opportunities from within their own communities. Consider partnering with churches to market job opportunities or training programs.
- Develop a regional technical training center and establish the Pacific Northwest as a hub for EV education and training. Structure this training to include manufacturing, installation, maintenance and decommissioning and recycling.

Provide childcare or other resources to those hoping to participate in workforce development opportunities.

CONCLUSION

KEY FINDINGS

Through interviews, focus groups, workshops, and surveys, **Single Family Residential (SF), Workplace, Public, and Public Curbside charging participants identified four common themes in their feedback:**

- **Cost:** Cost was consistently highlighted as a significant barrier throughout engagements, specifically the cost of charging infrastructure and maintenance, cost of electric vehicles (EVs), and the potential loss of parking for non EV drivers. When choosing scenarios, the majority of participants selected options with the lowest upfront costs.
 - **While Workplace, Public, and Public Curbside participants** noted the cost of ongoing maintenance and training of staff, participants in SF were much more concerned about the affordability of EVs, noting the impact of energy burden on their residents.
 - **Public** participants also noted that it is typically easier to fund and manage larger capital projects than smaller, ad-hoc projects, and **Workplace** participants noted that construction costs would be significant to install the infrastructure needed.
- **Installation and maintenance:** The logistics and project management surrounding EVSE installation and maintenance were also highlighted as significant barriers, with the majority of participants selecting scenarios where PSE would both help install and maintain the infrastructure long-term.
 - **Public Curbside** participants cited particular concerns about the lack of space in public areas for charging infrastructure and the limited staff capacity to manage the project long-term. Given the proposed location for chargers in the public right of way, **Public Curbside** participants also raised the need for code changes prior to installation.
 - Both **Workplace** and **SF** participants mentioned space constraints, with **Workplace** participants noting that many parking lots are multi-use with residents, staff, and members of the public all using the same lot. SF participants also added that most people live and work under a variety of different housing and parking situations and programs will need to be flexible to meet their needs.
- **Education and outreach:** The importance of education and outreach was a consistent thread that connected most conversations, but the comments were nuanced. Most participants noted that targeted and interactive engagement – such as test drives – is necessary to demystify EVs.
 - **SF** participants pushed for use of a trusted messenger model to share information with residents in multiple languages about the reduced cost of maintenance through the lifetime of the EV.
 - **Workplace** participants also advocated for targeted outreach materials to employees in multiple languages that address employee expenses and commute routes.
- **Flexibility of programs and services:** While similar themes emerged across many engagements, it also became clear how diverse each stakeholder’s needs and interests could be. Engagement participants made it clear that a one size fits all solution could not equitably serve community members in diverse geographies with different cultures, resources, access and abilities.
 - **Workplace** participants emphasized the need to collaborate with PSE when considering load management plans
 - **Public participants** shared that working with PSE to develop long term, strategic infrastructure plans should be iterative and ongoing

The categories of SF, Workplace, Public and Public Curbside are relatively standard charging programs. **PSE's intent with its New and Innovative (N+I) engagement was to better understand what gaps the community sees in its existing programs and services and determine if there is an avenue for PSE to address those gaps.** As such, the N+I engagement followed a separate process and the key findings are listed separately here:

- **Partnerships:** Engagement participants consistently noted how critical it is for PSE to create and nurture mutually beneficial partnerships with community-based organizations and other trusted messengers for the communities they are trying to reach. These partners can help amplify programs and support TE education and outreach.
 - **Connections to Public Transit** participants noted that trusted community partners would best connect users with first last mile solutions, particularly in rural communities.
 - **Workforce Development** participants noted the importance of partnering with local high schools and community colleges on training, including investing in apprentice and internship programs.
- **Geography:** The difference in accessibility and resources between rural and urban settings was noted frequently in engagements. Participants made specific mention that transportation electrification in rural areas may require more time, money and problem solving.
 - **Agricultural** participants noted the lack of EV availability for the type of equipment needed for agriculture, while **Car sharing** participants noted that typical car-share cluster models may not be practical in a rural area.
 - **Connections to Public Transit** participants also pointed out that rural areas may lack the pedestrian infrastructure to help people get to transit safely.
- **Resources:** Lack of resources continues to be a predominant barrier to transportation electrification for Highly Impacted Communities, Vulnerable Populations and their service providers. The financial investment an individual or group must put into getting a transportation electrification solution off the ground was often paired with the lack of time to commit to fostering new ventures and projects.
 - **Agricultural** participants emphasized that while the initial investment was a barrier and farmers would need financial support, once farms make the switch, the cost of electricity is much more stable.
 - Both **Car Sharing** and **Advocacy for Equity** participants highlighted the need for innovative financial and technical assistance to support new car share programs, and to support community organizations carrying out systemic change.
- **Flexibility:** Each community will approach and respond to TE differently. Continued flexibility, humility, curiosity and community engagement on PSE's part will help develop nuanced and beneficial programs and services for equally nuanced communities.
 - Participants discussed the nuances of their communities. Each community is different, and transportation electrification may not be suited for everyone. Geography, personal preferences, education, social, and cultural factors will impact response to and participation in programs.

LIMITATIONS OF THIS WORK AND LESSONS LEARNED

While PSE was able to connect with a variety of agencies, municipalities, organizations and tribal entities across its electric service area and within each of our prioritized participant criteria, it is important to note that the scale of engagement was too small and the data collection methods too diverse for key findings to be considered statistically significant. Participant feedback may also be based on hyper-local experiences.

In addition, the following limitations and lessons learned were either addressed during this round of engagement or will be addressed in future rounds of engagement on PSE programs.

Limitation	Lessons learned
<p>Capacity of stakeholders Engagement primarily took place in summer 2022 and engaged some stakeholders who had been engaged in Phase I in fall 2021.</p>	<ul style="list-style-type: none"> • Seasonality of engagement capacity: The majority of our engagement occurred in summer 2022. While summer can be a time where organizations have more capacity in their schedule prior to a busy fall of programming, it can also be a time of vacation, making it difficult to engage organizations for multi-step engagement processes. Agricultural stakeholders are less available during the summer months. It is also important to note that our most popular engagement – public curbside charging – did not take place until the fall. • Expanding our reach: Community-based organizations, in particular, are being engaged for their expertise by many organizations, public agencies, and private utilities. As engagement continues, PSE will work to include new stakeholders so as not to over-extend those who have already provided us their time and resources. • This topic may not feel relevant to customers yet: We received a very low response rate on the single family residential charging survey. While we cannot know the reason for that reduced engagement, it may be that if a community member has limited capacity, they will only engage on topics that feel relevant to them. For many low-income residents, owning an EV may feel inaccessible and they may be more willing to engage when a program that can support them is closer to implementation. • Offering multiple avenues for input: Offering multiple avenues for input was important to adapt to the capacity constraints of stakeholders. The team shifted to surveys and one-on-one interviews when needed, and offered more survey options in phase II than were offered in phase I. As PSE moves into future engagement, leaning into digital tools, social media engagement, and in-person engagement at community events may help the team connect with additional stakeholders.
<p>Making space for both technical information and feedback Different stakeholders are at different phases in their TE journey. This means they often have different needs during engagement sessions.</p>	<ul style="list-style-type: none"> • Make PSE staff available at each focus group and workshop: Having PSE staff at focus groups and workshops was key to addressing technical questions from participants and allowed participants to continue their engagement with more context. • Following up with participants: If questions could not be answered within an engagement session, the team would follow up with participants afterwards to ensure they received the requested information. This helped participants feel heard and built trust with these newer relationships.

NEXT STEPS

As PSE moves forward with filing tariffs for Phase II of its future TE programs and services, the project team anticipates the following next steps:

- **Q4 2022 – Q1 2023:** PSE incorporates feedback captured in this summary into the draft tariff filing for Phase II TE programs and services. PSE shares this report with community engagement participants and other internal and external stakeholders.
- **Q1 2023:** The WUTC Stakeholder Group reviews and comments on the draft tariff filings. PSE shares the draft tariffs with community engagement participants and encourages participants to share their feedback.
- **Q2 2023:** PSE files Phase II tariffs with the WUTC. PSE shares the filing link with community engagement participants with instructions for providing public comment.
- **Late 2023 and 2024:** If approved, the application process for programs and services begins.

APPENDIXES

APPENDIX A: ENGAGEMENT PARTICIPANTS

The table below details all who were contacted during this engagement process.

KEY	
Participated in introduction call, focus group and/or workshop	
Did not respond or chose not to participate	
Stakeholder	Topic
Anacortes Family Center	SF
City of Lakewood	
El Centro de La Raza*	
Habitat for Humanity of Skagit County	
Housing Resources Bainbridge	
Home Trust of Skagit Valley	
Housing Resources Bainbridge	
Island County Habitat for Humanity	
Kitsap Community Resources	
Kulshan Community Land Trust	
Lummi Nation	
Skagit Community Action Council	
United Way of Skagit County*	
Homeownership Center Tacoma	SF
Home Trust of Skagit Valley	
Housing Authority of Skagit County	
Housing Kitsap	
King County Housing Authority	
Muckleshoot Housing Authority	
Nisqually Indian Tribe	
Nisqually Tribal Housing	
Port Gamble S’Klallam Tribe	
Squaxin Island Tribe	
Swinomish Indian Tribal Community	
Upper Skagit Indian Tribe	
Bellingham Housing Authority	Workplace
Boys & Girls Club of Skagit County	
Kitsap Community Resources	
Kitsap Transit	
Muckleshoot Tribal Transit	
Multi-Service Center	
Pierce County	

Stakeholder	Topic
Point Roberts Marketplace	Workplace
Samish Indian Nation	
Shoemaker Manufacturing	
Skagit Valley College	
Anacortes Family Center	Workplace
Habitat for Humanity of Skagit County	
Hopesource	
Island Hospital	
Skagit Community Action Council	
Skagit Regional Health	
Skagit Valley YMCA	Public
City of Bainbridge	
City of Ferndale	
City of Lakewood	
City of Lynden	
City of Olympia	
Drivers Union	
Kitsap Transit	
Mount Vernon Downtown Association	
Pierce County	
Teamsters 117	
Whatcom County	
City of Langley	
City of Sumner	
Hopesource	
Kitsap Community Resources	
Northshore Senior Center	
Northwest Cooperative Development Center	
Samish Indian Nation	
City of Anacortes	Public curbside
City of Bellevue	
City of Bellingham	
City of Bothell	
City of Enumclaw	
City of Federal Way	
City of Ferndale	
City of Issaquah	
City of Kenmore	
City of Kent	
City of Kirkland	
City of Lacey	
City of Mt. Vernon	

Stakeholder	Topic
City of Oak Harbor	Public curbside
City of Olympia	
City of Renton	
City of Snoqualmie	
City of Sumner	
City of Tumwater	
City of Yelm	
King County	
Muckleshoot Tribal Transit	
Nooksack Indian Tribe	
Pierce County	
Port Gamble S'Klallam Tribe	
Samish Indian Nation	
Suquamish Tribe	
Thurston County	
Whatcom County	
City of Bonney Lake	Public curbside
City of Bremerton	
City of Coupeville	
City of Des Moines	
City of Langley	
City of Puyallup	
City of SeaTac	
City of Sedro Woolley	
Island County	
Lummi Nation	
Nisqually Indian Tribe	
Swinomish Indian Tribal Community	
Upper Skagit Indian Tribe	
Bonney Lake Food Bank	N+I
Boys & Girls Club of Skagit County	
Chinook Enterprises	
City of Tukwila	
FISH Food Bank	
Food Lifeline	
FORTH Mobility	
Hopelink	
Ironworkers Local 86	
Island Transit	
King Country Metro	
Kitsap Conservation District	

Stakeholder	Topic
Kitsap Transit	N+I
Muckleshoot Tribal Transit	
Multi Service Center	
Nooksack Indian Tribe	
Northwest Agricultural Business Center	
Northwest Cooperative Development Center	
Pacific Mobility Group	
Port of Seattle	
Puget Sound Clean Air Agency	
Rooted in Rights	
Skagit Conservation District	
Skagit Gleaners	
Sustainable Connections (Cloud Mountain Farm)	
Teamsters 117	
Transportation Choices Coalition	
Viva Farms	
Western Washington University	
Whatcom Conservation District	
Whatcom Transit Authority	
Whatcom Technical College	
Women's Transportation Seminar	
WSU Food Extension – Kitsap	
WSU Food Extension - Puyallup	
Bellingham Technical College	N+I
City of Kent	
City and Staff Transportation Committee	
Cle Elum Senior Center	
Community 2 Community	
King County Disability Consortium/Alliance of People with disabilities	
Kitsap Community and Agricultural Alliance	
Nooksack Indian Tribe	
Northshore Senior Center	
Northwest Harvest	
Opportunity Council	
Sound Generations	
Thurston Regional Planning Council	
Upper Skagit Indian Tribe	
WSU Food Extension – Skagit	
Youth Experiential Training Institute	

*Did not participate in individual engagements but were instrumental in engagement of residents and in engaging participants for a SF Spanish Focus Group, as noted in the SF section above.

APPENDIX B: FOCUS GROUP MURAL BOARDS

See next page.

Puget Sound Energy (PSE) Transportation Electrification Single Family Focus Group

March 29, 2022



FACILITATORS

Claire Wendle, Triangle Associates
Lucila Gambino, Triangle Associates
Mackenzie Martin, PSE

BENEFITS

What benefits are most important to you and your community?

1

Reduction of costs	For a non-profit, reducing operation costs is extremely beneficial.
Support for lower costs.	Health issues: poor air quality for people living on the streets
EV outreach is important so people understand how this will work.	Incumbent upon PSE and utilities to make sure info is disseminated to everyone
For our clients (homeless and low income) our primary goal is to have dollars stretch.	Easy and affordable for homeowners to have same opportunities.

We build for low income families.	It shows that we're doing our part to build infrastructure to support the charging.
Not sure if everything comes at once - infrastructure needs to be in place. We always want to be building better.	Reducing costs and energy and always looking for creative ways to lower operating costs.
Gas costs can be single largest expenses.	If we can reduce gas cost it allows families to have more housing options, better pay, more accessible tuition.

THINK, PAIR, SHARE

What would successful residential charging programs look like for you and your community?
Do you have any examples?

2

Expand solar systems in residential neighborhoods and commercial areas	Take advantage of large industrial buildings.	Give accessibilities to the cars themselves, and help offset cost of cars so people have incentive to use stations	Allow or provide free charging stations	Need to increase more electrical power
Charging on a grant process at no charge - and see the reaction.	For older homes, in addition to charging stations, need to have or repair electrical panels.	Develop cost system that provides customers a reduced rate for charging during non-peak periods.	Having a financial assessment to the orgs that create charging stations. For Habitat, construction can increase prices, does that make the house inaccessible?	Discussion on cost of putting these in, infrastructure or retrofitting after. We are both on tight budgets and making homes affordable. We don't have the ability to take on more costs - we need support
If you put in more charging at homes and apts, people are going to buy electric vehicles faster.	Potential damage of charging stations needs to be addressed so they will not be vandalized. Happens more in multifamily settings.	For MF, How do we afford it, create a sense of community of sharing the scarcity of a charger	If we have a charger in a residential place (MF) - have multiple chargers	It comes down to the cost (labor, materials, zero energy ready home) - so adding another element is a huge obstacle - always looking for creative ways to do it
New residential: communal charging stations - how do you address that. Do you do it individually from home to home? Which can be expensive	Success: no cost, and maintenance included. Instructions for maintenance will be important too	Different components: coverage in their store parking lot vs houses vs commercial space.	Diversity of spaces and a good plan on where and in what spaces	All groups agreed on the cost - does the community need to put money down? does the community need to pay? will money be available?

BARRIERS

How would you describe the community/stakeholders you serve? What transportation barriers do they experience?
How do you your community work to address the barriers you have described, and do service gaps still exist?

3

Before we see EVs, we will see scooters which are more affordable for people compared to cars and they are easier to accommodate compared to car for EV needs	EVs are expensive for anybody.	Primary mode of transportation is 50/50 bus (would like to see electric buses) or people walk or older cars that aren't in good condition to be driving.	The cost and intake application and price, who is serving the program? Challenge is getting people to change their minds if they need to put money down. As an org, we don't deal with money - we're always thinking about giving back and not taking funds from people. We want things to be easier for them.	Transportation is so different for everyone.
16% of pop lives below poverty line. If you look at where they work, they all need vehicles.	Bus transit is not the typical form of transportation through Pierce Transit. People are afraid of getting back onto transit because of health.	Actual purchase of electric vehicles.	People are buying used vehicles - a lot older and they don't come in electric models yet. How can we help people we're serving get EVs - that's a challenge	We give bus tokens to people to take public transportation. Don't do transportation service for KCR. We could offer the service through rental assistance
80% of city commutes out of the city daily.	Attracting workforce and keeping the workforce they have. Adding those options - would assume electric and hybrid will be more affordable but you have to be able to charge it. Creating that option - for creating an affordable living situation you don't have to choose and you have options on where to spend your money and	Not entirely convinced that families in our program would even think about electric cars because there are no charging options.	When you're in an apartment and shelter it's not even an option or on the radar, SF homes can retrofit	
There is a misconception that our families don't have cars.				

Puget Sound Energy (PSE) Transportation Electrification Single Family Focus Group

March 29, 2022



IMPLEMENTATION

Location	Use	Parking	Challenges
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We have all of the housing locations.
Migrating from SF to more multifamily (townhomes) there is a mix but I'm seeing more MF.
Parking is very similar - mix across the board.
Yes to all. We see lots of mobile home and different levels of parking.

Primary modes is personal vehicle.
Adjacent to JBLM that require soldiers go to work and change their clothes and back to the base. Bikes.

Most families are using cars.
Kitsap is very different compared to KC.
Bikes and scooters are a good idea and could open that up a bit - biking is a luxury (time).

1100 to 1300 mobile homes and 14 mobile home parks.
Electrical systems are bad and deferred practical maintenance systems for years.
Big problem for mobile homes - getting electrified cars and stations will be an issues.
No Street parking and some shared parking but not much. People do have dedicated driveways and garage spots.
More townhome developments

Bainbridge is largely SF but our community is largely multifamily townhomes.
We have about 25-30 SF homes but even those ones have dedicated driveways are separate from the house and not close to an area where they can plug in.
Our families need a car (probably only have 1 and bus or transit just isn't an option)

Example scooters in India. Scooter trucks with 100s of batteries to allow scooters to replace batteries. Rather than charging stations have replaceable battery options.

Payment - most of our residents are still working cash economy and starting to get debt cards and getting into banking.
Don't know payment options - low-income families won't do this.
Only seen personal vehicles, Bremeton and Silverdale NBK buses involve a lot of driving.

Bike and scooters are good ideas.
Scooter if you live close by might work, our clients wouldn't pay for something like this

60/40 SF vs MF.

5

EDUCATION AND OUTREACH

What would make your community excited about transportation electrification?
How do you share information to your communities?
Are there any language needs or technology barriers?

We launched a climate change survey with UW.
We had effort to involve low-income neighborhoods within Lakewood - used various techniques.
Survey created a lot of interest in TE because there are questions in that area.

There are tech barriers for elderly folks - no computers or internet because it's too expensive

Communications manager uses variety of different sources (active website, social media)
Certain groups use certain types of social media differently. PSE has to think it through.
We make materials/programs as low cost/free as we can.
We share information when they come into our building (newspaper, social media)

Communities are very in tune and concerned about the future - especially among youth.
If we're doing outreach and we are just introducing ourselves, we are not introducing electric cars
We would bring that up 2-5 years down the line once they are set up, proud of their living situation, and have their job situation met

Echo the language and technology barriers.
It has been difficult to get good results reaching out to low-income neighborhoods
It takes time to get involved and create good relationships

Providing infrastructure is a good place to start and is the best time to introduce this topic
When you do make contact, they have the same exact concerns others do. Many people very concerned about the environment and the future - changed my approach to this
Many people very concerned about the environment and the future - and this changed my approach outreach

Our community as a whole is excited about the new technology and getting away from fossil fuels.
We find it best to get in front of groups (rotary/commissioners) - any group that allows us to speak. rotary/commissioners - any group that will allow me to speak.
Prioritize language needs and barriers.

Allow groups to distribute information in their own way
Reading up on EVs is not something they have the time for or have the bandwidth.
Groups can have a big impact on other groups
We have diverse community so languages - but technology is the biggest barrier.
Make it easy to understand and offer help through partners etc.

RESOURCES

- <https://www.pse.com/pages/electric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=9kUMOOY2M4s>
- EV Charging 101: <https://www.youtube.com/watch?v=TKY1M6s5Y1w>
- EV Savings 101: https://www.youtube.com/watch?v=_XDOoDn1e7c
- HEAL ACT: <https://forbes.wa.gov/doh/waib/WYNBL/>



Q&A

How is PSE planning on bringing this to the community?
Level 2 charger lifespan: last at least 5 years

What is the maintenance cost of a charging station and the lifespan?
How do we know charging stations are in the right place?

7

Intros

Yes this is a topic because most recently, the city council adopted a climate change chapter to its plan it is a 3 year work plan.
Curious to see how this is going to work - excited about the economics behind this.
TE is a topic. It is a topic everywhere as gas prices go up.
I am excited because this has become a special topic in our organization
We have a close impact - gas prices are hurting people.
This might be able to help a lot of low-income families.
We all can come up with great ideas to help them and eliminate homelessness or to have a better life.

We have a total of 8 charging stations - they all have been put in via grants from Washington state and none of them are making money.
I am excited about the issue of TE access to low-income and homeless families
Part of it is an issue of access so excited to start considering this as they are entering the car market
People imagine EV's and those folks opposite of each other, when thinking about accessibility.
TE access to low-income and homeless families
Issue of TE access to low-income and homeless families
Part of it is an issue of access so excited to start considering this as they are entering the car market
People imagine EV's and those folks opposite of each other, when thinking about accessibility.

I am excited about the fact that I've always wanted an EV, but I've thought - can I find a place to charge, how far can I go, etc.
Having the ability to have an EV and charge it in a variety of places would be really exciting.
We are always trying to be thinking ahead and if we are constructing and doing infrastructure work - thinking of resources.
We are excited to be involved.
We have a lot of rental housing we would like to put in chargers.
This is a topic in our community.
It should be available to low-income households.
It will get more popular.

6

Puget Sound Energy (PSE) Transportation Electrification Spanish Single Family Focus Group

April 21, 2022



INTRODUCTIONS

FACILITATORS

Claire Wendle, Triangle Associates
Lucila Gambino, Triangle Associates
Mackenzie Martin, PSE

PARTICIPANTS

Total of 5 participants

BENEFITS

What benefits are most important to you and your community?

1

Reduction of emissions Education Operational costs

Expansion and increase of mobility options

Infrastructure and the ease of accessing these kinds of chargers is slow.

Even if you have an option to buy a new car you go with what is familiar and what you know because it's simple and easy.

We are reaching an era of climate change and we need big changes

Seasons are becoming extreme. Temperatures in summer are very hot and very cold in winter.

THINK, PAIR, SHARE

What would successful residential charging programs look like for you and your community? Do you have any examples?

2

I live in a small community It's very important to me to take care of the planet and have a plan.

There is minimal access to public transport so people need to have a car.

I am learning a lot.

Electrification is successful if I know that everybody has easy access.

I hope to spend less.

Increase in incentives/refunds/rebates

Workshops with this information in multiple languages.

Financial incentives are very important.

There has to be incentives to buy cars.

Incentives and rebates for mechanics too.

I visualize my house in two years with chargers for my cars, all my families cars are electric.

I see my house with solar panels to generate electricity.

Buses/taxis are also electric like in Seattle.

Access would be easy. There is better access for all to use these vehicles.

BARRIERS

How would you describe the community/stakeholders you serve? What transportation barriers do they experience? How do you your community work to address the barriers you have described, and do service gaps still exist?

3

Infrastructure

Access because of cost.

We need access to services

In the Latino community, many have their own cars.

Public transit, shared cars (Uber)

All the services that I need are within a mile or less

The majority of people don't have access to this kind of vehicle at the moment.

It is important to have access to mechanics that know how to fix problems with EVs

There is a lack of information in Spanish.

There is a fear of not knowing and fear of not receiving the right information in our community

I work from home so I don't drive much

I know the cost of gas but I have no idea how much it will cost to charge an EV

In Skagit County, there is public transport but many walk or use their own cars.

The cost needs to be reduced to be able to access EVs

There is a fear of not knowing the cost of electricity

**Puget Sound Energy (PSE)
Transportation Electrification
Spanish Single Family Focus Group**

April 21, 2022



EDUCATION AND OUTREACH

What would make your community excited about transportation electrification?
How do you share information to your communities?
Are there any language needs or technology barriers?



IMPLEMENTATION

Location

I live in a mobile home with one parking spot

I park my other car outside on the street

I like in a SF home with a garage

I live in a MF residential zone

I have neighbors that have EVs but there are no chargers

The opportunity for charges for each of the buildings would be a great thing.

There is a parking garage for the units

I live in a SF home with options for parking

My community is mobile home and SF residences.

There is a garage and driveway for all the houses.

Use

I like traditional bicycles compared to electric ones because of health

If there were electric bike incentives, I would probably use one more

I've seen youth use the scooters and people in Seattle use the one wheel scooters.

I personally don't use them.

I've seen seniors and older people use electric bikes on trails

It helps them be active

Many people travel south here and use Link instead of using their car

Ownership and maintenance

I'd like to be the owner - I don't like to depend on others

It is important for me to know all the information.

If PSE is offering an incentive, I prefer them owning it.

Payment

I'd like to include it in my electric bill

Ease of paying in one payment and I don't have to worry.

I agree to include it in my bill.

Include a description of how much electricity was used for charging

Challenges

Education - make it more visible and accessible

We don't have access to information

5

Intros

I like to take care of our planet
It's very important for me to do things for the planet.

I am excited about being a part of something good for the planet

I like all the developments that have been happening over the last years - I'm seeing more and more EVs on the streets

I get very happy with all the changes happening.
Last year I was looking to buy a car and I was thinking about an EV.

It was easier to opt out of it because I didn't know much about EVs and went with what was familiar.

I am excited that EVs are good for the environment.

This is an important topic because a lot of my neighbors are interested in EVs

I'm worried about the infrastructure as I have family in Oregon and worried about charging along the way

I am in small business development.

am planning to get an EV in a couple months because they are efficient

Q&A

What is the cost of charging an EV at your home?

It is very important for me to help the planet in any way

6

Puget Sound Energy (PSE) Transportation Electrification Workplace Focus Group

April 29, 2022



FACILITATORS

Will Henderson, Maul Foster & Alongi
Sulley Schuster, Maul Foster & Alongi
Mackenzie Martin, PSE

Intros

Design and construction supervisor for Pierce County parks. Participated in public hearing conversation. Saw 2020 community plan. Interested in EV and would like to have charging but not sure how to have it. Would like to see more options. Encourage staff to explore EV options.

Executive Director at Bellingham. Wharton County Hearing Authority. Bellingham. Also interested in EV and would like to have charging but not sure how to have it. Would like to see more options. Encourage staff to explore EV options.

Owns Point Roberts MarketPlace, currently no EV stations in Point Roberts at all. Excited to have another drive for customers, also for employees, to be able to charge while at work.

Have and City of Skagit County. TE has been a topic in that area. Interested in EV and would like to have charging but not sure how to have it. Would like to see more options. Encourage staff to explore EV options.

Senior HR Business in Aerospace, have some charging stations. 5 companies throughout Skagit County. Currently, no charging stations. Would like to see more options. Encourage staff to explore EV options.

EDUCATION AND OUTREACH

What would make your workforce excited about transportation electrification? How do you share information or communicate with your employees? Are there any language needs or technology barriers?

Education answering questions that are barriers to trying this type of vehicle. I love the demonstration vehicle idea.

There are language needs and technology barriers, especially for older folks

Affordable EVs - cost

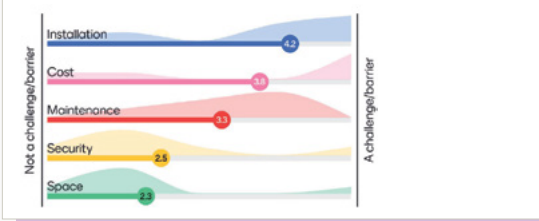
LANGUAGE! Yes... this is an issue in general... charging stations may not have language options. Employees use fleet vehicles and slowly try out the EVs. Once they drive them, they get to know that EVs are not too different.

Demonstration vehicles would be helpful.

They need to hear it's realistic and attainable for them personally, for them to get excited. It would be great to see some sort of universal icon development, like bluetooth/wifi, that transcend specific languages.

BARRIERS

Which of the following barriers present the greatest challenge to installing/operating more public charging stations?



YOUR WORKPLACE

What transportation barriers does your workplace experience? Is there an interest in electric transportation and charging stations within your workforce? How do you or other members of your community work to address the barriers you have described, and do service gaps still exist?

Most employees drive to work, homes around the County. Interest in EVs to some degree.

Transportation barrier is distance. Based on our locations and housing costs that are near, some employees have to commute a long ways. Partnerships with local transit districts for Vanpool options at public park-ride locations seems like a good combination

Cost. We don't have taxon powers, and the need for affordable housing is so much larger than the resources available. Hard to think about dedicating funds to chargers that go to housing. Security and space not a concern.

Education and training costs for the public and employees

Having installed five chargers at three sites, none of these are particularly challenging... just scary at first.

Installation a challenge. Cost is a bit of headache because I'm not sure how it works - do users use a credit card? How do I track use and make sure it's equitably distributed? Don't know what maintenance looks like. Security is a huge concern - have been getting ripped off a lot the last two years. Space least concern.

Installation a challenge - not popular to fund. Have buildings that are older, have to go in and retrofit. Difficult from a capacity perspective because small projects take more project management.

REFLECTION

What barriers need to be addressed in order for your workplace to host a charging station for employees? What does an ideal workplace charging station scenario look like?

It's hard to know without knowing I have 25,000 questions - how does extreme weather impact things. What does it do to battery life? What does communication infrastructure for payment look like? What's a cell tower goes out? All those questions are potential barriers, as well as not understanding EVs enough/how they function and how the benefits are realized.

I'll add that the only installation challenge is knowing what chargers to purchase (or procurement procedure) which may need to be followed). Echoing Benjamin's retrofit needs, it would be helpful to have a checklist for installation (i.e. dig a trench, hire an electrician, run conduit, etc.)

BENEFITS

What benefits are most important to you and your workplace?

Jobs and workforce development. Most people on the point are retired, so need to draw people from mainland Whatcom County. Reduction in costs also important, interested in education and outreach because there are a lot of unknowns about range, etc.

Reduction in operations expenses is important because we operate using hybrid fleets, also important for mobility options. A lot of people will not have cars. Priority is supporting community and being innovative in how we're able to do that.

Agree that it can be really difficult for people to buy an EV. Reducing emissions is important, but it can't be my first priority as a business owner.

Samish is committed to its Climate Change Resiliency Plan and our support of the Paris Accord so this is the organizational way of support of making commitments to global needs.

Reduction in GHG emissions, reduction in operations expenses both important. Thinking about maintenance and groundkeeping vehicle fleets and transitioning to EVs.

Reduction in operations expenses, jobs and workforce development. Focus is on the children and the egg - from an equity standpoint, it doesn't matter how many chargers you install if no employees can qualify for a loan to buy an EV. Would like to see plans that partner with a local employer that include a loan willing to work with employees to help them qualify for financing.

USE

What are the primary modes of transportation for your workforce? What charging infrastructure currently exists in your community?

Don't have any workforce charging, have only seen them on Bainbridge and at the Kitsap Mall. Often not being used.

Work from home, so not entirely familiar with where chargers are located in the area.

Charging stations are often not being used. Few by the County offices, have seen regular cars parked in the EV spots. Big bank of chargers near Cook Rd. Have seen them around town, but don't see them being utilized often.

All of the County's EV charging so far is in public facing lots, have done pretty well. Have some fleet charging. Don't have chargers in employee dedicated lots. Hard to install because it's a tough sell - easier to argue in favor of the public/fleet service, but harder to have it for own staff.

Canada a bit ahead, have a lot more EVs. When they come down, there are some more charging stations near the border (Blaine), usually in use. Point Roberts residents have shared that homes are too old to support EV infrastructure. Population quadruples in the summer, a lot of dual-citizenship Canadians. They're worried about coming down because there is no charging available. Have been looking into EVs - can't even order one in the US. Could get one in Vancouver tomorrow. Not sure why there is such a stark difference in availability.

LOCATION

What is the parking situation like at your workplace? Do employees have dedicated spots? Are there enough spots for each employee? Do employees have to park off-site?

Over 200 spots in parking lot. Have to kick people out of parking lot during Tulip festival. Excited to hear they're building another parking structure across from the library - hope they're putting in EV chargers as well.

Never enough parking. Full stop. Peak times are only an hour or two, but people have to figure out how to make it work. Huge missed opportunities in Skagit County - could build a huge parking garage and a transit hub and people would be a lot happier than fighting for parking. Have only been looking one or two steps down the road vs. ten.

Outside of major employers, this is a hard sell. Putting in long-term infrastructure when you're in a lease doesn't really make sense. Wish there was more focus on the public side. Would be happy to purchase a van at a central location where employees could park and get to work, but it's difficult to think about investing in infrastructure to provide that benefit.

Currently have adequate parking, do not dedicate spots. When we relocate our program and admin staff to new development, we'll have staff share parking with residents (71 apartments). Banking on employees leaving during the day so employees can come in and park.

PAYMENT

What payment options are most accessible for your employees?

Unsure. Wouldn't charge anything for our clients. Provide all our resources at no cost.

We have ChargePoint chargers, which are app-based. Or a "keycard" that we use for our fleet vehicles.

Had legal determination if we could let people charge for free. The answer was yes, and we provide that at our community centers. Rule also applies to our employees. Not a huge overhead expense, but determining that for your organization may require a legal assessment. Current WAC going through that requires chargers to provide three different options for payment.

Credit card or app. Not payroll deduction. Yes to keycard for fleet.

Pay in app. No payroll deductions please.

RESOURCES

- <https://www.pse.com/pages/wlectric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=18sJMOY2M6s>
- EV Charging 101: <https://www.youtube.com/watch?v=TKYMSaE3YwE>
- EV Savings 101: <https://www.youtube.com/watch?v=J0DQo5n-tfM>
- HEAL ACT: <https://forbes.us.gov/doh/vnbl/WTNBL/>

Puget Sound Energy (PSE) Transportation Electrification Workplace Focus Group

April 27, 2022



FACILITATORS

Will Henderson, Maul Foster & Alongi
Sulley Schuster, Maul Foster & Alongi
Mackenzie Martin, PSE

Intros

Have 6 charging stations, do not have any EVs in fleet. Not excited for TE, too much on plate with capital projects right now.

Have three EVs and want to have more soon. Process of moving to electrification is exciting, have 12 chargers approved to install. From there, we want to continue to grow. Have about 350 vehicles in our fleet. Want to be one of the first tribes to go electric.

EDUCATION AND OUTREACH

What would make your workforce excited about transportation electrification? How do you share information or communicate with your employees? Are there any language needs or technology barriers?

Seeing electrification in action. Adding new vehicles to fleet will increase visibility. Currently all GM, so to hear that they're coming out with more vehicles is exciting because there will be more options other than the Chevy Bolt. Have a lot of suburban users, so a great opportunity to install more chargers.

Not sure - don't have a sense for the workforce sentiment on the topic as a whole. Anecdotally, the limited access to convenient charging is probably a barrier. Would suspect there are a lot of folks not thinking about this topic - but that might change with rising fuel prices.

No language or tech barriers - don't house many people that speak a different language. Most people have a smart phone that is company issued, so that shouldn't be an issue.

Share information on a case-by-case basis. If we were to develop a project, we'd promote it in a proactive campus communication/forum. Not any clear language or technology barriers. Do have a large Hispanic community here, have a diverse workforce so we do communicate in multiple languages.

YOUR WORKPLACE

What transportation barriers does your workforce experience? Is there an interest in electric transportation and charging stations within your workforce? How do you or other members of your community work to address the barriers you have described, and do service gaps still exist?

Never had people complain about not having access to an EV charger, so assuming our existing quantity is adequate. We do have a second campus on Whiskey (Oak Harbor) that has no charging. Do have employees there that are interested. Also interested for the auto tech program.

Personal vehicles most common mode of transportation. Do have metro bus stop (Mt Vernon Metro), but our employees primarily drive their own vehicles.

Reduction of carbon emissions #1, reduction in operations 2nd, workforce 3rd, mobility options 4th, then education

We do workforce education, and one program is auto maintenance. Currently do not have an EV charging station or lab in our Roberts Hall Auto Bay. Interested in having a station set up to train mechanics how EVs work.

Also have a fleet of vehicles used for work travel (athletics), 6-8 passenger vans for teams and faculty to take on trips. All of those are currently gas powered, no plans to electrify as of yet. But it's a good idea.

Requirements for GHG emission reductions. All institutions of higher education have a portfolio system set up to monitor emissions, and we participate in that. Other elements in place and/or understood.

Education and outreach important, but I just don't see it being as relevant for folks who aren't in transportation.

There are between 3-5 employees at Oak Harbor that drive EVs and would like charging. Have reached out via email.

Used to have a barrier of buy-in from tribal council, but are on board now and interested in investing in charging infrastructure. Have 12 approved to go out this year, and will continue building and expanding.

Definitely hear the need is increasing - have had departments ask for EVs specifically, but haven't been able to accommodate due to lack of infrastructure. 12 chargers that we did get approved to install are also for employees too, not just fleet charging.

Vehicles remain at work. Do also have programs that run through the night (security, transit).

REFLECTION

What barriers need to be addressed in order for your workplace to host a charging station for employees? What does an ideal workplace charging station scenario look like?

Power as a barrier - have talked about creating a master plan for siting charging stations over the next year. 5 years, 10 years. Making sure buildings are to capacity - need to be able to build into cost. PSE is on board with these discussions.

Need more bandwidth. Project manager needed for all these things (planning, funding, coordination, etc.)

Cost next, then maintenance. We don't have issues with space and security.

Don't know whether there is an external way to address bandwidth issue - there are pre-approved contractors for state funding, but still requires someone to keep the project moving. On cost, it's not just the cost of the stations, but the infrastructure to support it. Worked with PSE in prior role, partially in installing EV charging stations

Most challenging barrier is cost. Will have a better grasp of cost after getting these next 12 installed. Installation next, maintenance 3rd. On the fence on whether PSE owns the charger or not, but there are variations in opinion there. Opportunity to create jobs, but want to make sure that is a reliable resource. Space is not an issue. Rural, so security not much of an issue. Not much of an issue on the IT side either.

Wait to commit to electrification - talking about also adding solar panels to offset costs. Have six new fleet vehicles on order, making good progress.

PAYMENT

What payment options are most accessible for your employees?

Bus charging is free. Chargers at the casino - not sure if there is a fee or if they're free. Hope is to offer it for free to employees and for fleet vehicles. Not currently looking into a pay structure.

Have different types of stations managed by different companies. Two are free and owned by the college, other four have costs and are run by a vendor. Need a card for the system, can add money to your account. Would like to standardize systems. Preference by end user for free charging, admin would like to charge a fee. Given we're a state agency, we're technically not allowed to give away state resources.

USE

What are the primary modes of transportation for your workforce? What charging infrastructure currently exists in your community?

Have six charging stations at the Mt Vernon campus, seem to be meeting needs.

Muckleshoot Casino has Level 2 charging stations, do have a Level 3 for electric bus, not for public use or employees. Definitely popping up at businesses in the area. More rural area on the reservation, main offices area about a ten minute drive to the Casino. People typically go to the Auburn Mall, which is about 10-15 minutes away. Only place in Auburn with Level 3 chargers.

Fast chargers at Safeway, about a mile from campus. May be more. Our campus is located in the center of Mt. Vernon, so it seems that there are options available but outside walking distance of campus community.

Completing pre-design report for submission to OFM for a library commons building - 30 mil building replacement. LEED component includes installation of new EV charging stations. Guess another 6 charging stations installed as a part of the parking requirements for that development. Constructed within 3-5 years (have funding for design, but need legislative approval for construction funding).

LOCATION

What is the parking situation like at your workplace? Do employees have dedicated spots? Are there enough spots for each employee? Do employees have to park off-site?

Online meetings making life easier for everyone - reducing travel and GHG emissions

Strategic planning showing less demand for parking in the future. Shift to hybrid education model where 30-40% of curriculum will be delivered online. Reduced number of students and faculty coming to campus. Having conversations with the City on this - demand for transportation declining.

Have plenty of parking across different facilities - health, hatcheries, forest management, casino, bingo, Emerald Downs, cannabis shop. Number of businesses we have and people we employ pretty large. Space and location not a concern so much as the load. Will we have enough power to charge all these stations? Will need more detail in planning.

Mt Vernon campus has about 900 parking spaces. Another 200 at the Whidbey campus. Have adequate parking. City requires master plan for any kind of development, make sure you have enough parking. Not designated spots for employees, but no one has to park off site. Haven't had enough students enrolled since 2008 in which it was a problem.

BARRIERS

Which of the following barriers present the greatest challenge to installing/operating more public charging stations?

RESOURCES

<https://www.pse.com/pages/electric-cars>
Virtual Test Drive: <https://www.youtube.com/watch?v=9nJMD0Y2M8r6>
EV Charging 101: <https://www.youtube.com/watch?v=TKYm6s33Mw>
EV Savings 101: https://www.youtube.com/watch?v=_JX0Qa0r1aY
HEAL ACT: <https://trnss.wa.gov/0a1vntdb/WTNBL/>



Puget Sound Energy (PSE) Transportation Electrification Public Focus Group

April 20, 2022



FACILITATORS

Will Henderson, Maul Foster & Alongi
Kathryn Murdock, Maul Foster & Alongi
Mackenzie Martin, PSE

PAYMENT

What payment options are most accessible for your community?

Credit or debit card
Credit card and app/ phone payments (payment options even if there is no cell reception)

Intros

TE is a topic - I'm making it a topic in our organization but has not yet caught on in the community itself. We are in the midst of adopting climate change action measures and TE is coming up in conjunction with that.

Excited about how to do it and how to do it efficiently, and make it accessible across all income categories. Starting a non-motorized transportation plan - would like to address electrification as part of that project.

TE is a big topic. City is really interested in electrifying its fleet. What is the necessary amount of charging infrastructure and vehicle range. Replacing a personal vehicle is easier than an organizational fleet. Community conversation around how much charging we need for home and community charging - how much should the City support that beyond state requirements.

TE is a topic we are thinking about as part of Sustainability 2030 Plan. Certain metrics we are trying to meet, in addition to WAC requirements that we need to meet. General ideas amongst department and staff to bring it in. Trying to stay ahead but having to catch up. Bringing electrification into some major building remodels. Staff are also asking for more EVs and on the design/construction side, we need to get more facility chargers.

We want to figure out how to do it efficiently and well. We want to spread out our public charging to be equitable. We want to be accessible whether they do it at home or at our properties. Trying to figure out how to do it thoughtfully - where do we put them in our parking lots so that all the priority spaces are not just for EVs.

Lots of conversation around TE around climate and sustainability goals and new transportation plan.

We are most excited around the opportunity. Feel behind the ball on this as we only have 1 public charger downtown. While most charging will likely take place at home, we do have 4 downtown areas and are a major thoroughfare for the WSF system. If we can be successful and meet these competing demands, we can offer a lot of services for our residents and visitors on the island.

YOUR COMMUNITY

How would you describe the community/stakeholders you serve? What transportation barriers do they experience? How do your community work to address the barriers you have described, and do service gaps still exist?

Potential to bring people in as an investment for the community

Seeing issues with sustainability and flooding, rise and increase in algae blooms or climate change.

Jobs/workforce - making sure you have the maintenance you need for what you have and people who can troubleshoot failures.

Interact with public on daily basis at parks and community centers

Have to look at new development but also don't have a lot of new development coming

Also looking at credit card options so it's not just app-based

Just finished doing public perception survey on climate change - well over 75% see GHG as a significant problem and that something needs to be done

Really with EV charging is that it is not the type of infrastructure that will create a new workforce; will bolster capital construction

Interested in different models about what style of chargers those are; do we limit time?

Need to expedite non-motorized transportation plan so we can get in place sooner rather than later

Low-income neighborhoods are not in PSE service area.

Significant % below poverty line

Built to serve commuters

Having a hard time improving transit - 1)not sufficient funds and 2)not sure if people will come back to transit due to health concerns

We also have a lot of challenges with cell phone reception in many areas of the island so being able to pay without connectivity will be key

Don't have as many publicly-owned spaces; more would have to go in private

Don't have many public parking spaces

Partnership with ST to build around TOD

Building miles of curbs and sidewalks across the city

Barriers - getting to places they can charge; what we can provide is what we can install on the parks property

Lots of people who work on the island but can't afford to live on the island

Expansion of electric mobility options (modes of transportation)

Reduction of carbon/GHG emissions

Reduction in operations expenses

EV education and outreach

Jobs and workforce development

As primarily residential and affluent community - reduction in operations expenses is less

Working to make sure that everyone has access to safe and reliable transit

Largely a transportation planning issue (beyond EV). Looking at regional level.

Missing benefits

Promoting EV charging; not charging a fee, one of the challenges is that there is then no incentive to move your vehicle

Not significant EV outreach, keeping up with it is a challenge; overwhelming people with info

Lots of small energy providers scattered throughout the County; patchwork of energy providers; need to work with multiple utility providers

Willing to make investment to accomplish it

Lots of interest in shared bikes but we don't yet have infrastructure to support it.

Interested in car share in the Winslow Core which could serve residents and visitors

Roads do not have shoulders; do not have a lot in terms of bicycling infrastructure (aside from some shoulders along the highway)

Serve unincorporated county primarily. Within unincorporated, there are some significant, dense areas

Reduction of GHG is biggest driving forces. Expansion of mobility options is really important. Need more education around that - particularly multimodal electrical options, type and how many (what does transportation for my family look like?)

Trying to meet our sustainability goals (reducing GHG emissions). A big part of getting to that is providing additional mobility options

GHG and mobility options are really important for Bainbridge given climate action plan

Barbel community (very wealthy and very poor). Certain neighborhoods really rely on public transit

Senior citizens who are unable to drive are a key audience for us in terms of providing transportation services and we're looking at the potential for electric shuttles that could move them around the community. Also, Kitsap Transit is planning to add electric buses, and potentially hydrogen fuel cell buses, but a lot of our bus stops have no shelter and are located right on the road (often without any designated stop - you just flag down a bus as it drives by).

BARRIERS

Which of the following barriers present the greatest challenge to installing/operating more public charging stations?

Alleviate barrier
Providing PSE an easement to own and operate chargers on our property. Ability for PSE to control upstream; can collect fee, better situated to collect clean fuel credits (more than jurisdictions can take on, on their own)

Cost of installation is not the largest cost item for us. What changes that is if we have upstream infrastr that needs to be upgraded.

Installation logistics - don't have technical expertise in-house. Could benefit from technical support to develop plan on what it looks like to build it out.

Where there are opportunities to partner on covering the infrastructure, that would help alleviate the barrier

Ongoing maintenance is always a challenge when we install something as we don't have the staff to maintain it. Opportunities for PSE to own and maintain it could help us deploy more rapidly

Alleviate barrier
Partner on upstream infrastructure

Is it the job of the city to own and operate the EV charging stations?

Will charging stations pay for themselves?

How to put charging in older apartment complexes; housing inspection and if you pass, the City can review funds to help install charging stations. It is likely these apt. complexes will need infra. upgrades

Maintenance and Security ranked highest. Fear most about this from Ops staff. How will we protect in remote sites? What happens if someone plugs in and it doesn't lookback from car?

Capacity is a real challenge. Like the idea of PSE owning and operating and not transferring it to cities.

EV community solar projects are transferred after 10 years and they typically need quite a bit of maintenance after that time. Lease to own can be problematic for cities.

Second is installation logistics. Do we need to upgrade upstream infrastr. ahead of we get them in? Increase in number of we put in - there is a charging stations - mostly private properties. I projects take up a properties. For bigger projects, it's easier as we are mobilized.

EDUCATION AND OUTREACH

What would make your community excited about transportation electrification and in turn, increase use of public charging stations? How do you share information with your communities?

Making outreach personal

Education and outreach needed is to address questions - What does it mean to live with an EV? How do you charge? How will I know where I can charge?

Micro-fulfillment center - suggesting that all vehicles be electric -> commercial outreach is key too

People don't need help getting excited - excitement is there

Important to communicate and help people understand that we already are there - map out their range and route and show that an EV can suite their daily needs

Test drives - get in a car so you see how it maps out your route for you

Show people the range in the test drives of vehicle availability (ex. EV pickups)

Getting people to take the plunge - to take it, they have to get answers to their questions that make them hesitant to buy

Tool to evaluate if an EV is right for you

We have excitement, just not a lot of public infrastructure yet to support it

RESOURCES

- <https://www.pse.com/pages/electric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=9mJMD0Y2M6t&list>
- EV Charging 101: <https://www.youtube.com/watch?v=TKYMe633Mw>
- EV Savings 101: https://www.youtube.com/watch?v=_JX00a0nt8I
- HEAL ACT: <https://fortress.wa.gov/doh/wtnbl/WTNBL/>



Puget Sound Energy (PSE) Transportation Electrification Public Focus Group

April 21, 2022



YOUR COMMUNITY

How would you describe the community/stakeholders you serve? What transportation barriers do they experience? How do you your community work to address the barriers you have described, and do service gaps still exist?

Request to install charging station at Point Roberts to assist Canadians: There's a lot of demand for charging, especially among climate advocates. Not necessarily community-wide.

Government has the ability to drive the technology

Also, where is this power going to come from? Are renewables as reliable as coal-fired and natural gas? There's passion for electric power and cars, but where is the power coming from?

Low-income folks can't afford close to where they work, commute. Other side: folks who can afford to live in Bellingham would be more interested in EVs. Types of cars reflect this spectrum. Low-income folks see it as something off into the future.

Lynden is a small, geographic community - would be ideal for electric cars because trips are short. Don't have the infrastructure for visitors (only one public charger currently)

To what degree does solar play a role in this? Can private parties use solar to charge their cars? Families could be electrically self-sufficient. Balance isn't there yet.

Reduction in costs - gas vs. electric probably coming in at about the same now. I don't know a lot of people who own an EV now because it's cheaper.

Pushback from community members for installing chargers on city dime. Would be beneficial to have financial support from the state.

Is the majority of the community interested in electrification?

Have been hearing more from community members who may not have been interested in electrification previously - hear about the PSE coming out now, tech - want to know where charging is available

Price point for an electric bus is unworkable

Jobs and workforce development important for Pierce County

Service gaps still exist across the board - public transportation still a big one. Reliable, but intermittent service. Doesn't work for most people.

Education and outreach - information gap and misinformation. Lack of clarity in what it looks like to even own an EV

Ferndale was built on petroleum production - so it's 50/50 for reduction of greenhouse gases. Some people see it as a problem, some don't

Jobs and workforce - electric bus manufacturer currently operating, definitely will be an opportunity in the future

Barriers: Can see pushback on public sector getting involved in a traditionally private setting. Could let private entities install/pay for charging stations.

INFRASTRUCTURE

What charging infrastructure currently exists in your community? Are there plans to add public charging stations?

More and more demand incoming, still argument that private sector can come in and make a profit off of that demand. Would like to incentivize the private sector to do so. We have one in Lynden that isn't being utilized much. Are we ahead of the game?

Whatcom has considered using chargers as an incentive for tourism ex. In Glacier, up near the Cascades. Have also considered at County parks. Have a charging station at civic center, isn't used much. Critical threshold hasn't been reached yet.

Pierce County required to provide County-wide EV infrastructure plan, help us understand what variables we need to consider in siting chargers. Looking to increase the number of chargers in collaboration with PSE and other utilities

Limited charging infrastructure in Ferndale, none public. Have had high-level discussions about siting chargers, had talked about going after a PSE grant before COVID. There has been discussion around incentivizing charger installation - ex. for new multifamily construction, residential code. Could even consider requiring it. Difficult to add in the midst of a housing crisis. Also an equity issue. No plans other than keeping an eye out for available funding and locations. View as a tourism incentive as well. Communities can benefit from getting people off of the freeway to charge.

RESOURCES

- <https://www.pse.com/pages/electric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=9InJMD0Y2M8t1s>
- EV Charging 101: <https://www.youtube.com/watch?v=TKYM6s631Mw>
- EV Savings 101: https://www.youtube.com/watch?v=_X00u0n1aY
- HEAL ACT: <https://fortress.wa.gov/doh/whnbl/WNTNBL/>



FACILITATORS

- Will Henderson, Maul Foster & Alongi
- Sulley Schuster, Maul Foster & Alongi
- Mackenzie Martin, PSE

Intros

Here to learn, here to find out what kind of resources are available for our community in continuing down this path. We are seeing car manufacturers heading this direction more and more, additional charging feels necessary to meet consumer demand. It's a matter of function.

I'm here to learn, not sure what excites me yet. Want to hear how it's going to be integrated.

Part of our sustainability 2030 plan involves a lot of electrification and working with utilities. The idea that a lot of young people that may not be driving yet or may be driving in the near future and thinking about how public charging may become the norm.

BARRIERS

Which of the following barriers present the greatest challenge to installing/operating more public charging stations?

Would love a clear understanding on credits associated with the low carbon fuel standard.

Cost of installation definitely a barrier

Security is a concern. Payment also an interesting consideration.

Parks Department in planning to install chargers, maintenance and security an issue they are considering. Has been an issue in the past - tech becomes obsolete, contracts shift, etc.

Is it a poor investment? How long does it take to pay off the cost of a charger? This is arguably when the government should step in. Who gets to make the decision of whether it's a public good is still up for debate.

EDUCATION AND OUTREACH

What would make your community excited about transportation electrification and in turn, increase use of public charging stations? How do you share information with your communities?

Clear economic reasoning to move towards TE.

Ride and drives - great way to let folks experience EVs. Can run at existing community events to capture folks who wouldn't come out just for a ride and drive event.

Understanding of where the power comes from when you purchase an EV, how it's being generated, and how it will be transmitted across the state. Current infrastructure probably isn't enough, and people don't like power lines.

All encompassing outreach and education

Economic education important.

Person to person, hands on experience helpful.

Outreach might include more peer to peer discussion about what it means to own an electric car - maintenance, issues, etc. People are hesitant to be an early adopter.

Information about next steps and available incentives.

Annual car show in Ferndale - was a lot of interest in the new Tesla years ago.

PAYMENT

What payment options are most accessible for your community?

Credit cards, call-in option for folks to be able to access additional info. Have heard people don't like having so many apps on their phones

Need more information. Would likely see a lot of Canadian customers, would need to think through their needs as they'd likely be a high user.

Price is posted clearly like a gas station. Do people know what they're paying for when they go to charge? Is the rate published?

Early innovators are savvy - will need to be simplified as the tech becomes more widespread. Need more information.

Puget Sound Energy (PSE) Transportation Electrification Public Focus Group - Ridehail Drivers

May 5, 2022



Will Henderson, Maul Foster & Alongi
Sulley Schuster, Maul Foster & Alongi
Mackenzie Martin, PSE

INFRASTRUCTURE

What charging infrastructure currently exists in your community? Where in your community would it be helpful to install new charging infrastructure?

Schools, colleges, etc. Cool to have charging stations all over. Driving rideshare, I'm all over - not just in my community. If you could charge quickly, it wouldn't be as much of an issue. Still need charging stations located in more places.

If I stop for a break to eat or drink, I'm usually going to an East African restaurant for around 20 minutes or so. I also will look for mosques to stop at a store to pick something up. Those areas are well known to me.

The perfect place to install more chargers would be the waiting area at the airport. You don't have to put a whole fleet of stations but you could set aside like six stalls with super chargers. I have a Tesla - a supercharger takes about 30 minutes for a full charge with a low battery. Takes about 15-25 minutes if you're not fully drained.

I've only seen like three places that have public charging stalls in my community, in high traffic areas like malls and grocery stores. Limited to 203 stalls. To have more stalls at those places would help. Public parks would also be a great place to have stations. I think Magnuson and Greenlake. Could be at peace and take a break to walk around while we charge.

BENEFITS

What benefits are most important to you and your community? Are there any benefits missing? Is there an interest in electric transportation and charging stations within your community?

Reduction in transportation expenses. Thinking about driving as work, all the expenses of the vehicle are on the driver.

We drive for 10-12 hours a day, so to have an EV doesn't give us that amount of time. Don't know when you're going to be outside of the city or how far you'll have to go. Hybrid might be a better option that completely electric.

I think it would be great to engage the business community, especially places with high visitation. One of the biggest barriers to EVs is just access to charging stations. A lot of policies restrict what you can do. I don't have the space to charge if I get an EV. When it comes to buying a car, most of us look for a car that has 0% interest.

Need to consider affordability of EV vehicles. It's really hard for drivers to afford big payments for EV vehicles. May be savings in gas, but high initial investment.

PAYMENT

What payment options are most accessible for you and your community?

Credit card

Credit card

Credit card is more accessible for all levels of tech savviness.

Credit card. App might require phone network, might not have access in a remote area.

I don't have an EV now, but I pay attention to charging stations. Having expanded charging options is important. Reduced costs for drivers is also very important.

It's good technology. What we want to know is how it's going to work within the rideshare industry. A lot of uncertainty in your destinations. EVs are expensive, and it's hard for drivers to front that cost.

the transition to EVs is happening soon, so we're going to need more charging stations. It's high time to identify areas to install those stations.

BARRIERS

Which of the following barriers present the greatest challenge to EV ownership and charging? Are there any barriers missing?

Explore other options for EVs - different makes and models that are more affordable.

Most drivers will have a hard time buying a car like a Tesla because of the cost. And it's getting more expensive. 250 mile range is fine for regular people but it's not enough for drivers. Closest supercharger to the airport is about ten miles.

Are there different types of chargers/plugs? Are they all standard?

We put so many miles on our vehicles - would these cars be able to handle the wear and tear of this type of driving?

One particular barrier is the language barrier. Sometimes drivers get in a Tesla and go to the charging station and it only says certain things and they're not able to understand.

Want drivers to be able to have access to go everywhere and keep the tires moving so drivers are continuing to make money. Some drivers, when they get a new car, they enjoy it. But trying to make money can be a challenge.

Accessibility to EV charging stations is really important.

Puget Sound Energy (PSE) Transportation Electrification Public Curbside Focus Groups

Dates:

Sept. 14, 2022

Sept. 20, 2022

Sept. 21, 2022

Facilitators:

Will Henderson, MFA

Claire Moerder, MFA

Mackenzie Martin, PSE



Community Concerns

What top three concerns would you prioritize when implementing curbside charging programs in your jurisdiction? Are there any missing?

Have you considered a cord coming up out of the pedestal that allows for vertical parking so the cord just plugs tightly into the car? Our council wants things to look the same and be standardized throughout neighborhoods/downtown/whatever. Don't want to mix and match different charger types.

enforcement is a key aspect to accessibility of the EV chargers (enforcing EV spaces)

People work hard to vandalize these things, so whatever you can do to lock these down are going to be important.

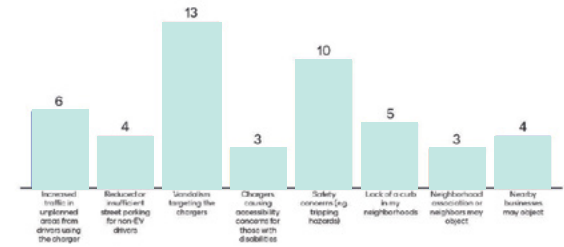
one of the pics for the curbside charger showed the cord dangling all over the sidewalk. What have you seen in the pilot programs to alleviate this? How do you see keeping cords out of the way? Sometimes people will even do this just be funny.

one of our major concerns is maintenance. Our city manager wants to create a consortium with neighboring cities in order to align with our climate action plan goals. one of the strategies is to increase green jobs in our area. That would mean having someone on staff, either through a nonprofit that each city contributes to, to maintain all these chargers? Is that part of PSE's plan? Will: we are collecting feedback on those types of things, that's a scenario.

who is managing customer service. We don't have the bandwidth to be the POC for customer assistance when it comes to charging apps, RFID card, etc.

a locking mechanism will be key. Many instances of people removing the charger from people's vehicles just to be funny. I designed and 3d printed something to keep the charger plugged into the EV.

We haven't done a pilot for curbside, so we haven't quite had this issue. Retractability in the pedestals and not just the pole mounted would be key. Your point about folks doing it on purpose is another good point.



Sept. 14, 2022

Installation

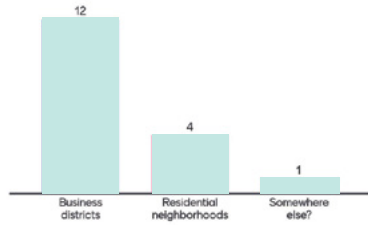
1.) Where do you see more of a need for the installation of curbside charging? Business, Residential, other?

With the new middle housing initiatives that are coming forward those mid density areas with housing would be important to consider as well.

for business districts -- important to consider what population that business district is serving. Big box stores with lots of parking? More important to have chargers there bc people come from further away. Our downtown serves more local folks and might not need chargers.

we've been talking a lot about multi family and lower income housing. Often not the places that have EV charging in the neighborhoods. How do we prepare these communities for when EVs become more mainstream?

Neighborhoods have driveways, various areas with easements/right of way issues, limited parking in some neighborhoods, with permit/one-way/narrow streets. Those areas are place to consider where you would put EV chargers. Can see EVs stuck in driveways and trying to create space. With increased density comes loss of parking and access to chargers.



3.) What infrastructure upgrades/code changes may be needed to install curbside charging stations?

would this be provided to the city, who would own and maintain it? This could remove the need for a franchise agreement.

reiterate the need to us working together to find what works for both of us to meet in the middle.

we want more people to adopt EVs. Know that's a PSE goal as well.

Need new franchise agreement/ or submit under a ROW permit

if the city owns and maintains the chargers how does that help PSE get to net zero emission? wouldn't that be the city getting credit for that?

lots of way to "take credit." It's not like a generation certificate like we'd get for a solar install, etc., but ensuring that PSE's own assets become BNZ but also supporting customers do that, it's all important for us even if we don't own the infrastructure.

need a new franchise agreement -we see it working under a master service agreements with individual agreements for each one, can be a simple plug and play process. Similar to our small cell agreements. Takes up front work to make it standardized but then very easy to roll out. For our cities these master agreements are ordinances which is the same as code.

also don't want to inflate our own data. There's no law or record/rhyme/reason on how to say we're truly net zero, but this could be a consideration as we talk ownership.

what does PSE need to install these? What transformer upgrades, new volts, roadway support, what's needed underground? How does this relate to deployment? Are rural areas easier as they're less cluttered? Business districts have higher demand but it's harder to find the space. What limitations do PSE have?

2.) What barriers may arise when attaching a charger to a utility or streetlight pole near a curb? What barriers may arise when installing a pedestal charger near a curb?

Utility or streetpole

Would some of the design issues be signage? Warning folks a spot is only for EV use? This might add to visual clutter and folks in a residential area might be unhappy with it

do we know the size of the charger? I am curious if we can fit it at the base of our lightpole.

know a person who was too short to reach these chargers and needed help every time.

if it's up on the pole would it use your smartphone to pay for it. If there's not a physical way to pay via card that could be an accessibility barrier.

How would PSE balance the need vs. expense in rural areas?

agreed that there is such a long list of things that take poles out of consideration, we're workign on it and appreciate your thoughts on this.

Conversion or addition to existing light poles would be a more welcome addition in areas downtown where UG has already been required (similar to small cell wireless). This would be significantly less of an eyesore where poles have already been eliminated.

lots of our poles are being reserved by cellular providers to hang 5g equipment on these. Lots of gear involved, risers, equipment hung on poles. Yet another attachment could be an issue.

We have an undergrounding ordinance. No new overhead, convert old overhead to underground, with exemptions. These pole attachments probably wouldn't fly.

The point of reserving poles is appreciated. There's concern about companies monopolizing poles as more companies are trying to get into this business.

Pedestal charger - Installation Barriers

people unplugging things from one station to use at another, etc. This could be a concern

ADA concerns would also apply to pole-mounted.

OWNERSHIP/MAINTENANCE

What option is preferred and why? Are there elements missing?

PSE is the only one who can generate revenue from power municipalities are not allowed to. WAC doesn't allow us to make money on power usage. We can be a pass-through at the very most.

great point, typically we have worked with private businesses who could collect revenue but this could be different for cities. I can send an email follow up with more info. For instance a condo owner can set pricing to recoup their costs. We don't want folks creating a huge revenue stream from it but I'll send an email F/U.

I like a merge of the two. If you're a tribe you try to have job creation as much as possible. Having a preapproved list of chargers then offering training to the tribes to be able to perform their own maintenance, that way we could create an EV charger maintenance group and increase employment of tribal members.

aren't chargers billed by time not KW

Maintenance and upkeep - option 1.

Will PSE maintain different options (#1 and #2) and allow each jurisdiction to decide what works best for them? Or are you looking to eliminate one of the options based on feedback received?

I believe while PSE charges per kWh, other public chargers might have different methods of charging

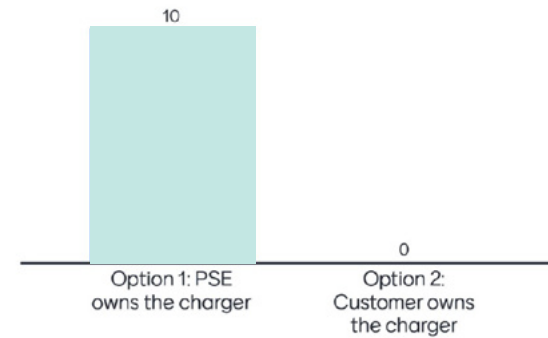
we'd need to take on an entirely new service and we're a small city so we can only participate if PSE owns. Starting a new program would be a much bigger discussion.

there is the option to allow both potentially, we wouldn't want to discount any options yet

we're still looking at populations that are underserved and meeting the price point to be able to afford an EV, like in remote areas, EVs still aren't affordable for many income brackets. These chargers are primarily in higher income areas. How many EVs are we seeing in tribes. Maybe in fleets but not so much in personal ownership.

: such an important point. We're heartened by federal incentives coming out and the availability of used EVs, but know pricing is still high for used vehicles. We're also doing a public survey to reach out to folks (incl. ride hail drivers, because some of these companies are offering incentives to drive EVs).

Maintenance of electrical equipment may be a stretch for current staffing.



	Scenario 1: PSE owns the charger	Scenario 2: Customer owns the charger
Charger selection	Customers may select from a pre-approved list of chargers	Customers can select their own charger as long as it complies with basic program requirements
EVSE Incentive	PSE provides a higher financial incentive to offset costs of the charger and its installation	PSE provides a lower financial incentive to offset costs of the charger and its installation
Maintenance	PSE manages ongoing charger maintenance	Customer manages ongoing charger maintenance
Revenue collected from the EVSE	PSE collects revenue generated from the EVSE	Customer collects revenue generated from the EVSE

Sept. 14, 2022

Siting

What option is preferred and why? Are there elements missing?

Our municipality is quite small - I just don't know that we have the resources to go with option 1.

Is there an option 3? with a hybrid

it is not our plan to just dump a lot of chargers without making sure they serve and benefit those communities. That's a good point to think through who is the best person in our internal structure is the best person to work with municipalities/tribes to ensure that engagement is happening. We do have liaisons and embedded folks so this feedback is helpful as we brainstorm that.

Establishing current and future demand patterns may be out of reach for smaller cities.

we are often looking at economic development. If the city is investing a lot into an area, this is similar type of thing, we're investing in the infrastructure and want to encourage more restaurants, businesses, etc.

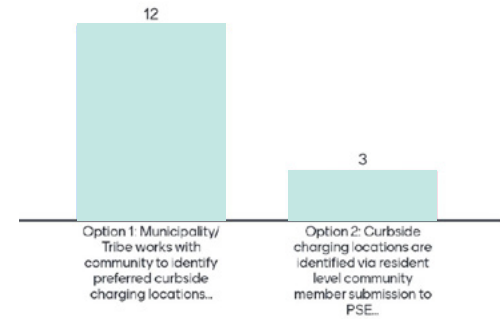
if we open it up for people to submit locations, we need a full time person just to manage those requests. A lot easier to create the master plan first and determine siting that way.

We have competing priorities for curbside space in terms of car-share drop offs, deliveries and other activities that cause traffic congestion, so it would be better if the city could influence where EV stations were sited so that we can balance priorities.

what is PSE's plan for smaller cities with less capacity to establish current/future demands? Is there a plan for prolonged community engagement, DEI/lower income/marginlized communities especially?

I think you need to develop a master plan and have the public comment on it, then you work to adapt that to public comment. We have neighborhood liaisons, the HOAs have a database, we would use those connections too.

I think we have a more holistic view of investments in the pipeline. Could take that into consideration in where we might want to locate these, so option 1.



Option 1	Municipality/Tribe works with community to identify preferred curbside charging locations based on siting requirements. Municipality/Tribe then submits preferred locations to PSE through an application process.
Option 2	Curbside charging locations are identified via resident level community member submission to PSE. PSE will short list location based on feasibility review and then work with property owner on potential installation.

Sept. 14, 2022

Community Concerns

What top three concerns would you prioritize when implementing curbside charging programs in your jurisdiction? Are there any missing?

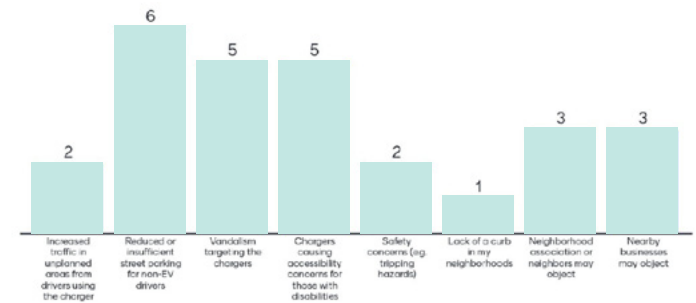
Other concern that has been raised is enforcement of "active charging" regulation when using the spot.

one of my concerns is the perceived lack of parking for ICE vehicles and the narrative that follows that. I also worry about lack of enforcement of EV only spaces.

reduced/insufficient parking - talking about doing this in older neighborhoods where it's harder for occupants of SOH, parking isn't so much of a concern. DT has little parking - strategy is to use it only for quick downtown turnover/visits. Want to encourage EVs but not take away parking from non-Evs.

I had concern about "camping" we have some free chargers in our park and there are a few frequent users who will camp overnight in there car with it plugged in. I worry about this becoming a bigger problem as EV becomes more

We have concerns Regarding displacement of non-EV parking.



worry about need. being only 15 miles from the 'big city' how much need is there this close? it may not have a great ROI

While our City is excited to work with PSE, we are all underground, so will need to work through any issues related with that.

tripping hazards - more of an issue downtown as well, people crossing the street quickly, getting out of the way, etc.

We are working on some city sponsored EV chargers so included concerns that I'm hearing from public works, police, and facilities in the vicinity of planned chargers.

Alley's provide power, cable, phone service within older neighborhoods. Just something to keep in mind

same concern. Although we are a lower traffic spot, % wise, we still run into the same issues.

Sept. 20, 2022

Installation

1.) Where do you see more of a need for the installation of curbside charging? Business, Residential, other?

Parks

I meant to select residential. Accidentally selected business districts.

I think it is all great, given this is a first phase of installation. I understand the desire for cities to install in business districts that may seem better suited for chargers. That said, older neighborhoods and multifamily areas are great considerations.

I see need for curbside charging where multifamily housing is the dominant housing type. Many of those buildings do not have garages or dedicated parking.

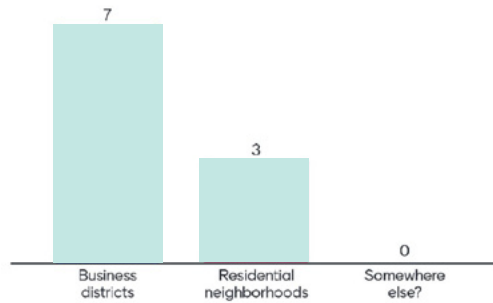
my dream is for chargers at trailheads

as we transition more to faster chargers, make more sense in urban centers where people aren't spending as much time. Slower ones make more sense in residential since they can charge overnight.

more important in new development to account for EV charging - can think about this as filling in the blanks in existing development where it's harder to go in and add EV chargers down the line.

Any charging siting should take in account the availability of other charging options - whether private or public.

can have issues with parks because they often close overnight and may "trap" people's EVs in there by accident if they leave them plugged in and go somewhere.



2.) What barriers may arise when attaching a charger to a utility or streetlight pole near a curb? What barriers may arise when installing a pedestal charger near a curb?

Utility or streetpole

note potential conflicts with 5G equipment. 5G providers are rapidly claiming PSE utility poles and city street light poles for their telecom equipment

Logistics of parking your EV and grabbing the charger - beware of trees and shrubs

Who maintains the pole - some streetlights are city owned and some are owned by PSE

Conflict with equipment both on the pole and below ground

Pedestal charger

The chargers are not loud, i'm assuming.... PSE: they are silent.

big bright flashing signs that are constant advertisement -- we see this a lot at grocery stores, etc. in public charging. Want to avoid this in curbside charging. Pedestals are also more likely to take more space.

If sidewalks are not wide enough to travel for wheelchairs/ADA

If sidewalks are not wide enough to travel for wheelchairs/ADA

Appearance

Bike lane infrastructure

3.) What infrastructure upgrades/code changes may be needed to install curbside charging stations?

bollards
On-street fast charger installation in FL involved putting bollards all around the chargers to protect the equipment, to the best of our ability while preserving accessibility

Pole seems less intrusive and less maintenance.

we might want to preemptively have some guidance around code changes for curbside charging, rather than starting with the chargers and seeing what happens. Would want to develop our own guidance as to where we would or would not want the chargers, think about benefits and impacts. Open to taking any existing guidance but would need to do some prep work.

that's what I meant as protection for the unit itself. makes sense

many stated sidewalks. Wouldn't necessarily be needed for pole charges

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OWNERSHIP/MAINTENANCE

What option is preferred and why? Are there elements missing?

would there be a rate determined by the UTC if this is something PSE owned?

a few questions: who is customer-a tribe/jurisdiction? What costs would the customer have if PSE owns it? Who gets CFS credits?

Is there any scenario where a resident or business would own the charger?

something we've heard from facilities/park staff is maintenance/fixing issues. We're not and won't be staffed to be able to respond 24/7 to maintenance issues. That could be an insurmountable barrier if that's key to owning our own charger. If there are alternatives for maintenance in scenario 2, that could allow us to think about other ownership structures.

EVs are very expensive and this charging program may not serve that many of our population right now-- this is a point for a PPP providing this service, once there is more demand in our population it may make more sense for the city to step in as the service provider, although noted the point about this bridging the gap in demand for chargers.

So (in our case) the Tribe could share costs on installation, pay the electric bill, and PSE gets the revenues?

In terms of procurement, how would this program work as (I ask that above considering that a private company could be making profit off of public ROW and I imagine we would need to show competition for that somehow, but I could also see how as our electric utility could be considered a sole source?)

City might consider being an owner in parks where it's off the ROW. Is there an option of phasing? EVs are expensive right now, if there were restrictions on investment into public charging in the ROW, this could lead to accusations of elitism and excluding folks. Are there projects that allow for updating as EVs become more the norm. What can we do now that allows for scaling up in the future?

something like this presumes there is funding available. I know tribes are eligible for federal funding. I think we'd prefer to be the owners as it would be relatively easy to find funding for this.

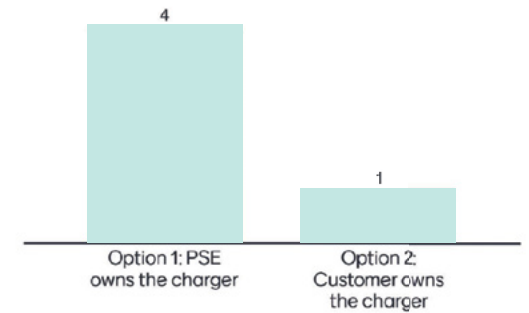
In scenario 2, the infrastructure and revenue become the customer's responsibility. Could there be an option where there is a cost-share on units that are on govt. property vs. in the DT/business districts or neighborhoods.

In option 1, does PSE pay the jurisdiction a ground lease payment?

First instinct that it might be helpful to have PSE own and operate, have our county establish the partnership in the form of a franchise agreement. This is more attractive than building out a new service as we have many services and many new ones in the past couple years that we are focused on.

The Clean Fuels Standard Credits may be very valuable down the road. It is incumbent on public agencies to crunch the numbers when evaluating options.

Am I wrong to assume, whether it be PSE or a jurisdiction is going to heavily rely upon subsidies (say 100%) to put these in? From what I hear, they are not a money maker, more of a convenience.



	Scenario 1: PSE owns the charger	Scenario 2: Customer owns the charger
Charger selection	Customers may select from a pre-approved list of chargers	Customers can select their own charger as long as it complies with basic program requirements
EVSE incentive	PSE provides a higher financial incentive to offset costs of the charger and its installation	PSE provides a lower financial incentive to offset costs of the charger and its installation
Maintenance	PSE manages ongoing charger maintenance	Customer manages ongoing charger maintenance
Revenue collected from the EVSE	PSE collects revenue generated from the EVSE	Customer collects revenue generated from the EVSE

Sept. 20, 2022

Siting

What option is preferred and why? Are there elements missing?

some version of option 1 is preferable. We'd probably hear from the same people we always hear from if we went option 2. Want to come up with a system that allows for us to take feedback from more of the community and have the city vet that to some degree before moving forward.

Again, I think there needs to be a holistic view of what charging is available in the area already - don't want to have stranded or redundant assets. Our County does have a lot of unincorporated spaces. As we look more regionally, we want to make sure we're deploying smart, stepping back and seeing what assets are already in the area. Any way to form partnerships? Understand what opportunities exist in equipment that's already built out.

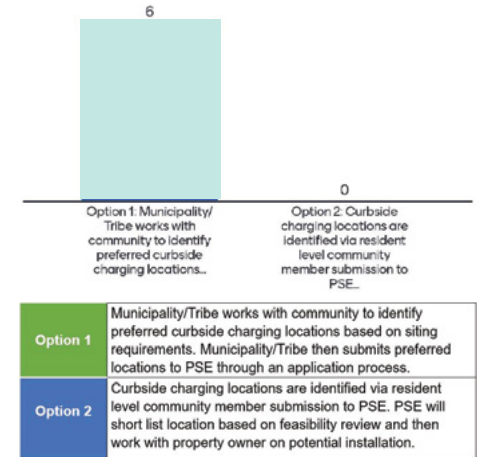
if there are two neighboring jurisdictions that aren't talking to each other in a County, potential for a bunch of chargers to exist along two sides of the same street. Missed opportunities if there is no coordination across jurisdictions.

Seattle is an older city and lots of shared/inaccessible driveways, whether it's alley access in older neighborhoods or HOA limitations in newer developments. Keep in mind less obviously underserved areas with these factors in mind.

option 2 seems to be resident specific. Needs of visitors would not be considered in this case.

option 1 is good because it's good for the city to know where things are going and have a say. option 2 doesn't seem to be written with the city having much say. But it's attractive for folks who may not trust their government - important to serving frontline communities who might not trust us. We're not at the finish line in incorporating equity so option 2 may be helpful here.

I like the option of allowing any citizen to call in and express interest in EV charging. I would prefer not to see one stall in front of every house so it's good to have the city have final sign-off on permitting. If the chargers are clunky and ugly that could derail things. I would like an option 3 that's a combo of both.



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Community Concerns

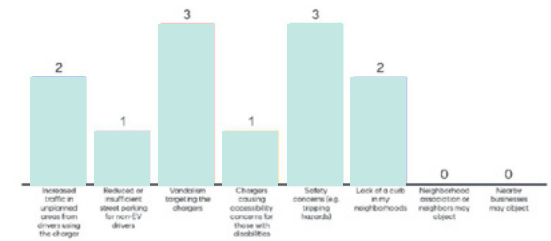
What top three concerns would you prioritize when implementing curbside charging programs in your jurisdiction? Are there any missing?

vandalism in our City isn't terrible but I could see pedestal chargers being a great target in our downtown area. I think downtown would be a more ideal placement for these, rather than in neighborhoods.

I agree with everything they said. Similarly, I don't see these being put into neighborhoods in our City but more in the downtown area and closer to multifamily homes. There's a perception of lack of parking here so we'd need to be careful placing these in the downtown area so there's no perception of us taking away high-value parking -- that's a big concern.

because of our rural area, things like these would be an easy target for teenagers looking to cause trouble. Some way to keep an eye on that would be a big concern. Street lighting and signage could potentially help alleviate that.

is this something we'd offer for free? Our current two chargers are free to use and what's happened is only the shop owners they sit in front of are using them all day and they are the only ones calling the city to complain about the chargers. Accessibility to afford/pay for charging may be a concern if we decide to charge to use these new chargers.



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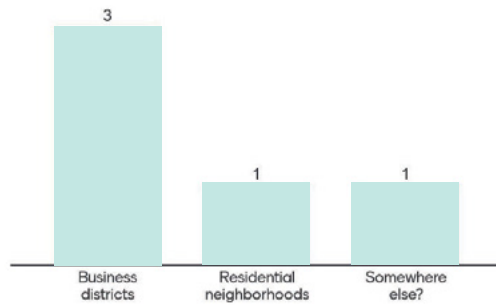
Installation

1.) Where do you see more of a need for the installation of curbside charging? Business, Residential, other?

I voted "somewhere else" and was thinking recreational areas would be important, especially in our City

I have seen a lot of charging units going in downtown districts and at parks, I have not heard many conversations about these going into neighborhoods, I think that's our third wave in where people are considering these chargers.

I would say business districts would be my top pick but there are lots of parks where these could also be used. I also agree with the argument for neighborhoods as it can increase the ability to own EVs which is critical. It becomes a tourism boon to have it downtown. If I could vote for two, I'd say business district and residential neighborhoods.



3.) What infrastructure upgrades/code changes may be needed to install curbside charging stations?

I don't know too much about this but if we're looking at a lot of these in one place, we probably will need some additional infrastructure.

we've moved those poles away from the street for safety reasons, so if we're going to move anything back into that place we have to be careful about how we do that.

thinking about a park location - we just redid our downtown park and it's all underground infrastructure so it would look nice, and there were all kinds of different infrastructure, such as water drainage, archeology, etc. These will all likely factor into this type of installation.

there are different levels available. Depending on what you offer and how long it will take to charge your vehicle, time becomes a factor. Thinking about downtown corridors and even in residential neighborhoods, thinking about parking limits to make it all work becomes this whole administrative piece.

there is sometimes a fee that is charged if you sit longer than is required to fully charge your vehicle. This doesn't work if you're not even plugged in. But there's an opportunity for a mechanism to keep an EV driver from staying there longer than is allotted.

I agree with them and I also think talking about enforcement is important here. We don't have the means to enforce the chargers we have. The biggest thing I can say is do not build it if you cannot enforce it.

2.) What barriers may arise when attaching a charger to a utility or streetlight pole near a curb? What barriers may arise when installing a pedestal charger near a curb?

Utility or streetpole- Installation Barriers

there's so much on our poles already, street decorations, flags, etc. How much is too much? Where would you actually put them? We have rules for aesthetics in the downtown area.

we are just now developing an active transportation plan, which takes into account walking and bikes, etc. I see this pedestal getting in the way of some of that, by making the sidewalks less easy to maneuver.

we work really well with PSE so it's not so much of a concern but we have poles owned by a variety of entities, i.e., Comcast,

we have deliberately moved power poles away from the streets for safety reasons. We have some light poles but poles are limited.

if you do charge for the service, where would the meter be and how would that look? That would be one more thing that has to be attached somewhere. PSE will follow up on this.

Pedestal charger- Installation Barriers

I had a note about infrastructure. On some of our sidewalks there are irrigation lines underneath. i was thinking of other infrastructure that might be a hindrance. Our city is big on archeology too, that could be a barrier depending on how far down you have to dig.

I put the lack of shoulder/sidewalk in. Same concerns as them, we want to keep our sidewalks accessible and free of tripping hazards.

I would second the note on sidewalks being less accessible with pedestal chargers. It could crowd out pedestrians and other amenities.

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OWNERSHIP/MAINTENANCE

What option is preferred and why? Are there elements missing?

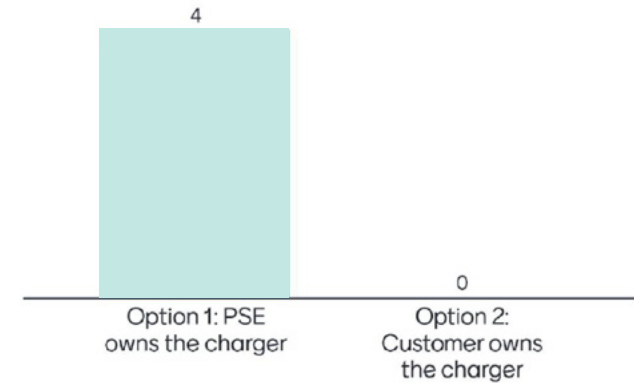
I like the idea that this is a great opportunity to partner and develop a relationship with PSE. Ongoing maintenance is really difficult for us to support from a staffing perspective. Sometimes we also get into this sticky world of making sure we don't make a profit from a public service, so the accounting peice is something we're not really sure how to navigate yet -- putting that on somebody else makes our jobs easier.

I would also say we should think about piggybacking on any infrastructure PSE would build to add additional capcaity. We have an electric fleet and would love some opportunity to build on any new infrastructure to serve the needs of our operation as well.

getting the support to put in more EV infrastructure to power our fleet is key and also very difficult so far.

I also think this isn't the city's core business . Keeping up with the technology is another problem we're having, so having PSE maintain any needed upgrades would be great. We would love to generate revenue from these but this would require a ton of chargers which doesn't seem to make much sense at this time.

we don't have the expertise in house to make sure these are taken care of and updated. Having to lease them including a leasing group to service them was something we looked into and it wasn't attractive due to the costs. So PSE owning these in partnership with us seems like an ideal solution.



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Maintenance	PSE manages ongoing charger maintenance	Customer manages ongoing charger maintenance
Revenue collected from the EVSE	PSE collects revenue generated from the EVSE	Owner of the EVSE could collect revenue in order to recoup electricity costs at the EVSE

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Siting

What option is preferred and why? Are there elements missing?

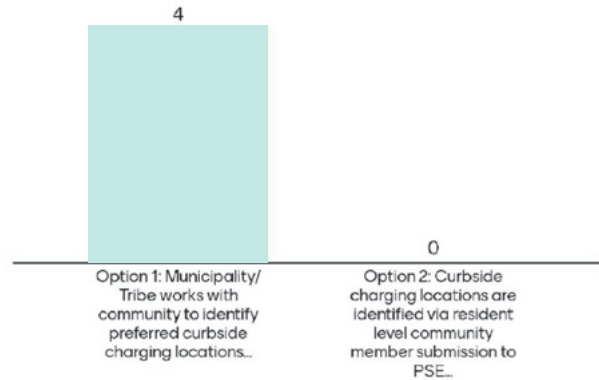
I will say opening this up to citizens opens the door to everyone wanting one. I would say offering the municipality a chance to filter out options first would be good.

whoever is the property agent needs to be in that conversation. There may be development plans in place for different properties so early coordination would save some potential re-work.

we could probably work together with neighboring tribes too so I would say have the tribes and municipalities work together to figure out what's best and then coordinate with PSE.

If we were to engage the community to get their feedback and then engage with PSE to determine locations, that would be the best option.

Class disparities across the city comes up a lot, and we want to be sensitive to the concept of this being considered a luxury item. Are there also going to be resources to assist with actually buying EVs? Need to be conscious of the front end as well as the back end of this issue.



Option 1	Municipality/Tribe works with community to identify preferred curbside charging locations based on siting requirements. Municipality/Tribe then submits preferred locations to PSE through an application process.
Option 2	Curbside charging locations are identified via resident level community member submission to PSE. PSE will short list location based on feasibility review and then work with property owner on potential installation.

Sept. 21, 2022

Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Advocacy for Equity Focus Group



July 21, 2022



FACILITATORS

Claire Wendle, Triangle Associates
Lucila Gambino, Triangle Associates
Mackenzie Martin, PSE

INTROS & ICEBREAKER

Give us a snapshot of the populations you serve and some of the main transportation or transportation electrification barriers you are seeing.

1

Seattle, WA. Main barriers is affordability, not being able to afford EVs, and also some of our members drive to and from work more miles than perhaps a charge would last. Accessibility to charging stations as well.

People know alot about EVs - most of our students have cars and they know a lot and want to be good to that planet, but affordability is a key barrier.

East side of King County. Also serve as all King and Snohomish on our transportation department. We focus on connecting folks to resources so they can get to where they need to go. Cost. Clients are older adults, limited English capacity, people with disabilities - these folks could use specialized transportation services (para-transit, volunteer based program)

Faculty member at Univeristy in Bellingham. I teach a lot around climate policy. I represent college students, energy specific majors

From customer side: availability or programming is a major barrier. Education around capacity of vehicles to accommodate various riders (ADA is heard most frequently)

Clients need transportation ride same day. Uber and Lyft are impactful and have created expectations around same day transport - hard to meet that as a nonprofit.

Barrier: connecting those populations to services. Eligibility process is usually lengthy too.

Anacortes to Nehalem, to the border. Primarily serve youth ages 3-18. There are some family support

As renters or living in dorms, accessibility to charging stations is limited.

Many clients are non-drivers or do not have personal vehicles. I think of the systemic implications of the switch to TE. Does a vehicle accommodate same # of riders, similar service area, ADA accessible...etc.

In general, public transit in a decentralized rural community. To get to one impacted neighborhood to get to our location - 7 min drive, 41 min bus ride with a transfer.

Students think about reducing vehicle miles traveled (systemic thing around design of cities). Are cities designed for bikers/ pedestrians?

Also low-income populations and those most vulnerable to climate change (unhoused) and understanding their transportation needs, and how TE falls into that.

People are really public transit oriented and worry for students about how buses get electrified, is there enough funding, what role can students play?

Free bus fare for youth transition

TE means something different. Up river, they can get down to the valley and back - concern about having enough charge and you don't want to lose charge going up river.

Lack of frequency of buses. There are districts that can't provide yellow bus service to kids after being at our programs.

We serve transient population that move between communities, usually renters - without existing infrastructure. Not very plausible

We have a lot of first generation residents (central south Am, Ukraine, Russia - growing). It is not culturally embedded - they are just trying to get their feet on the ground

Project Concept: Advocacy for Equity

Purpose: Discuss how PSE can best use its resources to advocate for transportation electrification needs in the community, even if they seem outside our scope.

PROGRAM BRAINSTORM

Take 5 minutes to brainstorm areas in which PSE can advocate for an equitable transportation electrification transition.

2

Same barriers in King County. Long transit rides vs. a short car ride.

There's a lot of anxiety around adjusting services and programs because of the potential impacts to long term availability and services - hesitancy to put programs at risk. Operating in a funding scarcity mindset and it's a slow process to change that culture or mindset

Participate in outreach and community input process for community planning

Labor community - we need people to build out the infrastructure

Shift worker scheduling and ride shares, carpooling, reward people to continue car sharing and carpooling habits

There aren't conveniently located local services. Make public transit more affordable and convenient with longer service hours

Work with cities to redesign infrastructure to be more pedestrian and bike friendly

Advocate with electric car manufacturers

Funding aid and matching

Ex. VA loan. Could financial institutions set aside CRA requirements to lower basis points and reduce barriers in accessing credit/money

Build environment is a huge player in this space - PSE could consider entering planning and infrastructure part of community design. Cities and counties will be doing their community planning in the next few years

Students can't find jobs, even in Bellingham so they drive to other cities like Ferndale. It's a lot of vehicle miles traveled. Building infrastructure around ridesharing or providing incentives to share rides

Manufacturing

Community design and planning

Commute trip reduction dollars and transportation demand management - previously with metro and now in local city purview. City staff manage TDM - incentives for environmentally friendly transportation choices. Lot of community engagement could be low hanging fruit

Work with contractors and are a brokerage system for non-emergency medical transportation providers that are small companies. Advocacy or support to provide to contracted services to move towards TE or hybrid models for their fleets

Nonprofits are in funding cycle - match support and funding partnerships and that's an area where PSE can be an advocate or partner for changes in the system. Encourage expansion and adjustment and provide information and education

Joint memos, match support for programming. An upcoming event in the state is the week without driving from Disability Rights Washington. PSE could partner there?

Opportunities in legislature for bipartisan action. There are financial and economical benefits to low interest financing program. Promotes community return on investment

Volume brings efficiency - headway to get Washington Dealer's Association to join in lobbying efforts to sell more vehicles.

Approach private banks to see if they have interest in getting regulatory changes in community reinvestment act - were able to get regulatory change for credit in kind

Good opportunity to demonstrate leadership and community value or be a non-governmental convener for various PUDs to move work together holistically

RESOURCES

<https://www.pse.com/pages/electric-cars>
 Virtual Test Drive: <https://www.youtube.com/watch?v=i9lnJMDOYZM&t=1s>
 EV Charging 101: <https://www.youtube.com/watch?v=TKYM6s63YMw>
 HEAL ACT: <https://fortress.wa.gov/doh/wtnibl/WTNIBL/>
 EV Savings 101: https://www.youtube.com/watch?v=_JX0Oa0n1aY

**Puget Sound Energy (PSE)
 Transportation Electrification
 New and Innovative (N+I)
 Advocacy for Equity
 Focus Group**

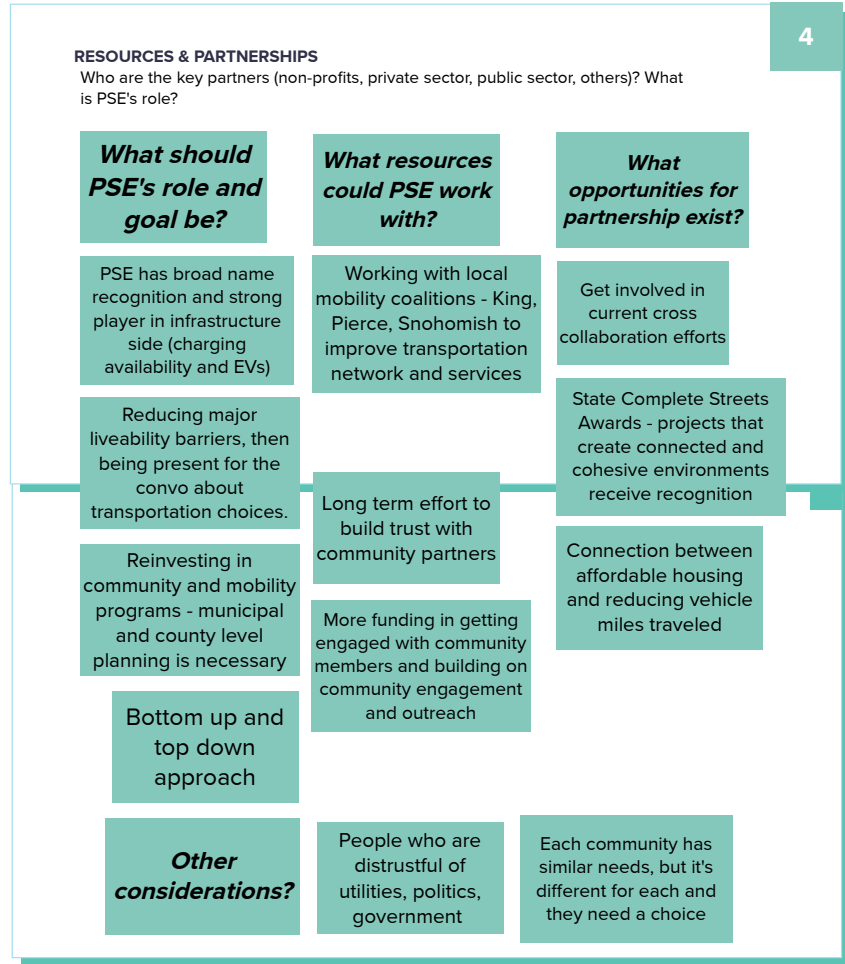
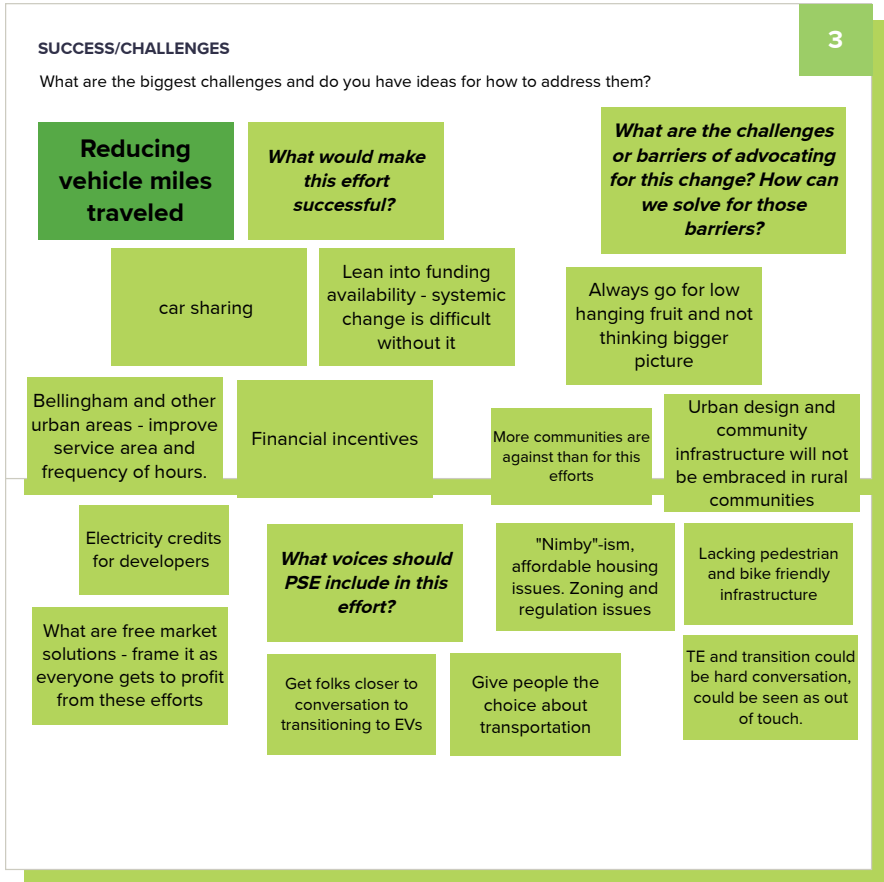
July 21, 2022



Q&A

Difference between phase 1 and phase 2?

Are PUDs required to do this?



Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Agriculture Focus Group



July 20, 2022



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1

INTROS & ICEBREAKER

If you attended the New and Innovative ideation workshop, share a key takeaway or highlight from the workshop. If you did not attend, share what you are hoping to learn or contribute during today's focus group.

Hoping to learn is what the purpose is and also understand where we are going and what I can contribute

Conservation district and a farmer. Transportation and food storage were key topics we ideated on.

I like the idea of brainstorming ideas together and I hope to contribute some brilliant ideas

Conservation District. We are looking at sustainable ways to serve farmers, move food, and working with local food pantries. Electrifying is a positive move towards the future. Looking at ways around the farm to add efficiencies (food storage, refrigeration etc.)

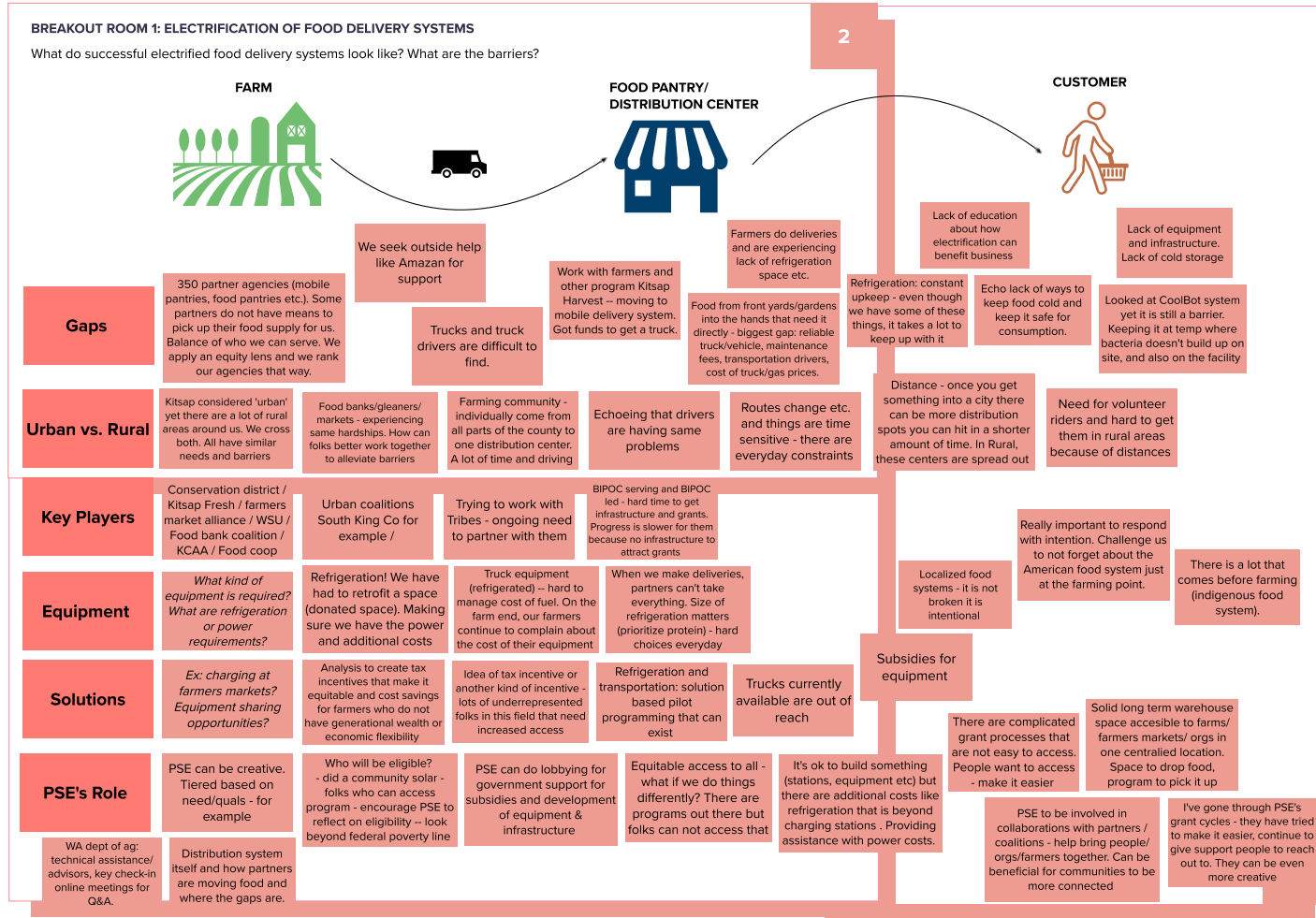
Work a lot with farmers. I am interested in learning more and ideas that can benefit farmers in the future. Farmers interested in hearing the outcome of this

How different programs and ideas are culminating around this. As a state agency, we've been mandated to go electric on our farm. We have 250 acres to manage and our farm machinery is outdated. It is a big lift to modernize.

Partner with local farmers and restaurants. Keep food out of landfill and redistribute surplus food. Food system alternative. Open mind for this conversation

Project Concept: Agriculture

Key Shift: Development of higher capacity vehicles to meet needs outside of commuter vehicles (e.g. for agriculture/food delivery).



BREAKOUT ROOM 2: ELECTRIFICATION OF AGRICULTURAL EQUIPMENT

3

Review list of equipment components that could potentially be electrified.
Can you think of specific equipment within the category? What would you prefer to electrify first?

SCALE

Smaller transportation around the farm - trucks, small equipment to move staff between fields. Moving large reels for irrigation (ATVs, golf carts)

All done by tractors

Newer tech can be electrified and can be battery operated

Scale of operation and location - use a BCS and smaller tractors

Automated berry picker - some mechanics are less energy intensive -> hybrid model

PROTECTED CULTURE

Irrigation is commonly electrified in WW - battery would be a challenge for electric pumps

Lighting in the winter - extra few hours would increase capacity to grow

Also relevant for poultry operations

Use of a lot of water - water based heat exchanger (need electricity to run the pumps)

Climate controlled production - heating, fan ventilation in the summer

Ventilation could be solar based

Cooperative work - requires a lot of trust

Large farms have already identified efficiencies

POST HARVEST HANDLING - everything that happens before food leaves the door

Processing - fruit, juice, hops and hop extract

Materials handling - forklifts, warehouses

There are a lot of things that are electrified but could be switched to solar/wind

Large scale cold storage - fruit, hop drying. Post harvest needs are diverse

Whatcom = largest producer of berries for frozen market. Freezer rooms are not solar - most run on natural gas/3 phase power.

PREPARING LAND & PLANTING



Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Agriculture Focus Group

July 20, 2022



RESOURCES

<https://www.pse.com/pages/electric-cars>



Virtual Test Drive: <https://www.youtube.com/watch?v=i9lnJMDOYZM&t=1s>

EV Charging 101: <https://www.youtube.com/watch?v=TKYM6s63YMW>



EV Savings 101: https://www.youtube.com/watch?v=_JX0Oa0n1aY



HEAL ACT: <https://fortress.wa.gov/doh/wtnibl/WTNIBL/>

EDUCATION AND OUTREACH

How should we involve farmers in this conversation, and who should we be getting feedback from?
How can PSE be involved? What education and outreach would be most effective?

4

Farmer involvement

Work with Northwest Agricultural Business Center - work with Mexican indigenous owned farm and BIPOC owned farms - small scale incubation. Starting small and with localized farms would be a good place to start.

Cognizant of time frame - consider farming schedules and responsibilities

Translated materials - partners will understand us if they speak our language

Utilize WSU extension, CD network, and technical colleges

Limited technology or data on devices - not everyone is comfortable

Several very different audiences that breaks down east to west, progressive and conservative. The message has to be seen as legitimate by more conservative farmers. There is resistance in eastern WA against electrified tractors - don't see how the tech could allow them to be at current production. Sensitivity towards thin margins

Leading with being climate neutral is not a motivator for some of the population - lead with motivators (efficiency, cost savings)

Work with farm bureau, cattlemen, BCHM, already established focus groups that are agriculture focused

REAP grants through USDA - partner with other funding mechanisms and understanding that there are other ways to improve

Timing is essential - winter is a suggested time to connect with farmers

Solutions based conversations are valuable - 10 years ago climate change conversations weren't welcomed. Solutions that help mitigate challenges they are facing and help them do their jobs better will be received much more positively.

Best Practices

WA Dept of Comm - think about on the ground agriculture and get interest in partnerships with those programs

<https://www.rd.usda.gov/programs-services/energy-programs/rural-energy-america-program-renewable-energy-systems-energy-efficiency-improvement-guaranteed-loans>

Talk to other orgs that offer incentive programs

Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Workforce Development Focus Group



July 26, 2022



FACILITATORS

Claire Wendle, Triangle Associates

Lucila Gambino, Triangle Associates

Mackenzie Martin, PSE

INTROS & ICEBREAKER

Think independently about your top three criteria for successful workforce development.

Ex.: number of jobs, quality of jobs, accessibility, urban vs. rural

1

Who pays for the training? All our students are trying to train for their energy field -- but amount of college tuition they pay and time they spend on education and training is a huge investment. Right now, students do, and students get into debt.

Lots of pressure to get a job immediately to pay debt, and compromising good fit because of the pressure of debt.

Example: state agency requires masters -- do you really need them for these jobs?

Lack of time or energy to think about it

Companies would come in and say I need workers, but no support for trainings or to help students get there or get people excited

Good living wage jobs with benefits is really important

Equitable wages and the spread between matching the location of the jobs, to the skills and abilities of the folks in that community

Having a clear pathway for transient employees. Take entry level people and take them to the point that they can grow. Providing training.

Project Concept: Workforce Development

Purpose: Discuss how PSE can influence and support workforce development in the transportation electrification transition.

2

SUCCESS

What would workforce development efforts need to succeed?

What components are critical to workforce development?

Sustainability and long range planning - think about all the things that could come up that we haven't thought of yet

Thinking ahead and long term about the jobs that will be needed

Employer has to be vested in the person, not the position. How to help human grow and develop with us, not just filling a job/spot

Finding out who PSE will go through for charging stations and then training that can be offered through different organizations

Location of programs and entities - forward and sustainable thinking

Changing culture around glamorized jobs and educational opportunities

Ability or option to cross train maintenance crew with electrical backgrounds

Education to job pathway - PSE goes into state board of cc's and identify programs that would meet the needs for the specific jobs. Jobs have to be listed for students and educators to be aware of programs.

What populations should we focus on during this transition?

People who can't get into college for a variety of reasons that would benefit from apprenticeship/non higher ed opportunities

CTEs are great - Snohomish has a successful one, Sedro Wooley starts partnership as early as 14. "Never too soon to start" preparing kids for jobs. There are some red tape things with minor workforce

College isn't for everybody - need people to build the infrastructure. Apprenticeship programs for the building trades to help build infrastructure for living wage jobs

BIPOC women, people of color, underrepresented communities should be given the opportunity to participate

Students come to CC because they need direction but don't know what to do do

Formerly incarcerated people, people from the foster care system

People in recovery

What workforce development models are typically successful?

Paid youth program in the summer for tribal jobs. Variety of different jobs they can go to - offers on the job training, paid positions. Catapults them into finding what they want to do and helps them mold and grow while they are still young. Starts 14-17

Have targeted internship programs in the summer that sets people up for success as they're graduating. Training students while they finish their education. Facilitates transition better for everybody

Apprenticeship programs - they get paid on the job to learn their craft and they have no debt when they are journey level workers. Really beneficial and folks go on to do great things, start businesses, become contractors and helps move people above poverty

Apprenticeship programs help provide structure and programs for people who don't want college necessarily

Once students know about the pathway, then everyone knows. Have enough information to get people excited to

Outreach program for doing the math for students - people are really pragmatic in the younger gen and can think through the numbers well. Present that to them earlier and give people a better understanding of what educational pathway makes sense for them and their life/living situation

Have specific training is difficult - less technical than engineering but has a lot of energy policy components. Having a specific workforce development program is challenging.

Helpful from program and educator level to have annual list of degrees and jobs in the state and local area. It seems a lot of people want to stay in the area

How should we measure success?

Conversion rates - actual conversion rates to EV car ownership. Equity balance of urban vs rural conversion and how it's playing out

Sponsor programs to actually display the system/tech with younger K12 students

Cultural thing - how early to people think about job prospects and education/jobs are glamorized. Worry about students under pressure and in debt. Not a direct connection to better pay

CHALLENGES

What challenges exist for workforce development?

What barriers exist to joining the transportation electrification workforce?

Agree on clear pathways. Some people don't know this exists, that it is an option. Financial as well - people may think they need a college education

It is going to include college educated folks or that are not - it will mesh together. Like construction sites (managers/engineers/labor)

language barriers

Clear pathways. There is confusion or not knowing how to get to this point. Have these things streamlined so they are known to everyone.

Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Workforce Development Focus Group

July 26, 2022



How can we solve for those barriers?

Go to communities, temples, etc. in various languages and modalities

Doing outreach and bringing it to folks so people have a choice. Helping people with boots, work clothes, bus passes, child care (huge barrier right now).

Outreach. For example: Org had DEI push, tons of opportunities to connect with local groups in S King Co - that might not read a traditional job posting

Correctional facilities: people that are getting ready to be released they feel like they won't be able to take care of their families. They need someone to give them a chance and an opportunity. For juveniles as well. 18-25 -- a lot of stigma behind having a criminal history. People end up re-offending because they can't take care of their families.

Connecting with local groups - don't just put things out in English and online - won't meet all your workforce needs.

You have to be educated to understand job postings, what is being asked - not 'new employee focused' not catered to people

On PSE website and job postings - make a clear pathway/avenue for people to understand the different jobs/responsibilities

Incorporate story into job postings -- teaching people on your website

How do we ensure no one is left behind who currently works in transportation or vehicle maintenance or other adjacent sectors?

Different programs offered for the various sectors.

Ongoing training programs. I have maintenance workers myself - they are worried about what they will do when things go electric. Find training programs for mechanics that are used to working on gas vehicles

What areas of transportation electrification need better education and outreach to encourage an interest among workers?

My training background is in electricity. Part of giving people confidence to work in TE sector is hands on experience (when working with fossil fuel vehicles everyone drives one personally). They are confident because they know.

A lot of us are talking about EVs and there are huge socio economic gaps to accessing EVs. Access to these beyond the job

PSE creating avenues for people to access EVs beyond their jobs - ownership

What other challenges are we missing?

Awkward to work on something that you can't even own

If PSE is pushing for electrification, is it from source to completion, and recycling? Is it actually environmentally friendly

I own a hybrid. Oh I'm doing something good - then where are we getting rare earth metals for batteries? Also be talking about 'who is driving these things' 'who are we getting materials from'

RESOURCES & PARTNERSHIPS

Who are the key partners (non-profits, private sector, public sector, others)? What is PSE's role?

What are potential connection points or partnerships?

WCERTE, SBCTC - has advisors, faculty members, deans, represent 60% of engineering programs in the state and responsible for anything engineering related. 4 year institutions, private vs public. Lots of technical education - immediate way to contact faculty

Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Workforce Development Focus Group

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Big manufacturing programs - AJAC are in schools and programs and CCs, can tap into those programs

Intro into construction trades. Offer 10 credit class that is offered and funded for tribal members. Will send information

Plug building trades - HS, technical colleges

Tiny home villages that are transitional housing. Don't have existing workforce development system but good group to invest in for their success. Homes now, not later.

What other workforce development programs exist that we could model?

Sisters committee at ironworkers does a lot of volunteer work and have come across non-profit Next Chapter that provides transitional housing. Those types of organizations would be good to look into

Other solutions or resources you'd like to share?

<https://sites.google.com/view/wcerte/home>

Programs could benefit by talking to the tribes, same programs are happening but on a smaller scale. They have transitional housing, etc. Talk to learn about more solutions and development of programs

RESOURCES



<https://www.pse.com/pages/electric-cars>

Virtual Test Drive: <https://www.youtube.com/watch?v=i9InJMDOYZM&t=1s>

EV Charging 101: <https://www.youtube.com/watch?v=TKYM6s63YMw>

EV Savings 101: https://www.youtube.com/watch?v=_JX0Oa0n1aY

HEAL ACT: <https://fortress.wa.gov/doh/wtnibl/WTNIBL/>

Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Connections to Public Transit Focus Group



July 19, 2022



Project Concept:
Connections to Public
Transit

Key Shift: Community
members have access to
public transportation,
regardless of income or
location.

FACILITATORS

Claire Wendle, Triangle Associates
Lucila Gambino, Triangle Associates
Mackenzie Martin, PSE

INTROS & ICEBREAKER

Brainstorm first/last mile barriers that your community/network may be experiencing.

1

Long walking distance between transit and final destination, particularly from light rail to the airport terminal

Geographic coverage for rural agency. We have to do on demand to help with first/last mile.

Safety walking to transit and at the bus stop

It is really easy to drive in Whatcom County. What is the incentive to get on a bus? Easy to park, easy to get around - so people prefer to drive

We have a first/last mile service on demand in the city. There are geography challenges.. big blocks, cul de sacs - makes it challenges to walk as pedestrians. Ongoing challenge

In Whatcom, snow in the winter. Creates barrier on our urban streets - difficult for buses to pull up and pick up passengers to get over barriers that the city puts up.

In the rural area, the distance between the stops and the final destination for passengers. The long walking distances.

Keeping stations clear during those winter months. BEcause of snow, people are dependant on us because they don't want to drive.

Rural community and space between stops. Folks not able to get on a bus line to get to school or work.

Ongoing challenge: what are the boundaries and where do we draw the line?

Operating on demand services. One barrier for on demand services, they are geographically bound. we will always get feedback from community to expand services.

Having a customer base that is suburban.. majority of folks get to us on car because of distance between services. Barrier is to get people to use public transit

Not convenient for them to take public transit. Resort to car sharing with other families

SUCCESS What do successful first and last mile programs look like? What do these programs need to succeed?

2

<p>Target Audience</p>	<p>Which populations should we prioritize with programs? Ex. seniors, those with specialized access needs, shift workers, etc.</p>	<p>Low income, BIPOC and minority ethnic groups, people living with disabilities and zero vehicle households.</p>	<p>Shift workers and lower wage workers vs. higher paid employees like pilots</p>	<p>What we do serves people equitably and also makes sure to make it accessible for people who have been historically disadvantaged. Large veteran and senior population</p>
<p>Opportunity populations immigrants and refugees and folks new to the area. There's an opportunity to help them access transit and set new habits that could continue in their communities. Youth are adept at trying new things and can educate their families</p>	<p>Venn diagram universal design 1 thing could be designed for 1 group but work for multiple. A mode that would benefit multiple populations is where I would focus first. Time of day will be different for populations</p>	<p>Population prioritization depends on what mode you choose. Ex. seniors won't use scooters. Kitsap is commuter based and that's a big part of what we need is last mile for the commuters but would like more emphasis on senior and disabled to get them out of paratransit and onto routed buses</p>	<p>Scooters/micromobility is privately operated so not sure on prioritizing methods. Transit have niche programs that are for specific populations - trying to make the service equally accessible for all populations. On demands have wide operational hours and have specific needs for access. Have a lot of senior ridership for these services - not create a service to prioritize a population but make sure the services are equally accessible to all different groups</p>	
<p>Modes of transportation</p>	<p>What modes of electric transportation would be most useful for first/last mile connections? Shuttles, cars, bikes, scooters, something else?</p>	<p>Scooters and bikes are helpful in urban areas, but accessibility would be an issue if those were the only offerings. Van shuttles w/ wheelchair lifts are most successful</p>	<p>Looking at on demand in low density rural areas and goal is to do that with BEVs. Whidbey and Camano Island - we see that as the best way for us to get rural people into the rest of the system</p>	<p>Many areas are rural, so the dynamic is that low income residents have to move into outer areas bc housing is expensive. Like micromobility, but the question is how to get them into public transportation? First mile to shuttle/on demand system in more rural areas</p>
<p>Starting on demand surface w/ 3 drivers and utilize that to help people get to transit and routes</p>	<p>King County is urban and suburban and rural and all seem to work depending on the area/circumstance/density/etc</p>	<p>We do have ADA vehicles and regular vehicles. ADA are not BEV but other vehicles. Cars are #1 most useful and shuttles as long as demand is there</p>	<p>Shuttles or on demand vans would be the most popular with most people - localized. Some areas I could see bikes and scooters being appropriate - those will only serve a particular population and could be an accessibility issue and culturally not an option too</p>	

<p>Project approach</p>	<p>What is the best approach to siting these types of projects?</p>	<p>Item that would really help us is having PSE increase turnaround on new service, engineering, and grid. Without that, this won't work. Struggle to get projects moving forward without this new service and infrastructure. PSE Engineering needs to be a partner in this projects</p>	<p>Research and innovation team created algorithm that considers equity priority populations and medium density and combo of access within 30 minutes to community assets to find areas that meet all three criteria to help site appropriate locations for first last mile on demand services</p>
<p>Project metrics</p>	<p>How will we know we have been successful?</p>	<p>Surveys and interviews to understand from a qualitative data standpoint HOW these services HELP people</p>	<p>Use sustainability metric or equity measure. Measure all pieces of the service rather than traditional metrics. What is success?</p>
	<p>Others considerations?</p>	<p>Level setting on on-demand services. Demand responsive transit is expensive and won't move a lot of people per service hour. When we place services we level set on efficiency and cost-per-ride. Put work into defining goals and targets and what that means. Figure out how to measure that and point to successes that aren't cost per ride and rides/per hour</p>	<p>Define success as more people getting out into the community to purchase goods and services and access employment. Participation is important and would do that with a survey but it probably varies for each community</p>

CHALLENGES

What are the biggest challenges and do you have ideas for how to address them?

3



RESOURCES

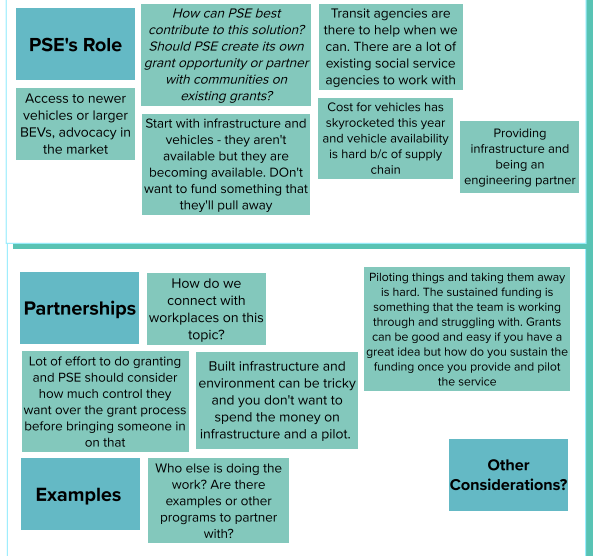
- <https://www.pse.com/pages/electric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=i9lnJMD0YZM&t=1s>
- EV Charging 101: <https://www.youtube.com/watch?v=TKYM6s63YMw>
- EV Savings 101: https://www.youtube.com/watch?v=_JX0Oa0n1aY
- HEAL ACT: <https://fortress.wa.gov/doh/wtnib/WTNIBL/>



RESOURCES & PARTNERSHIPS

Who are the key partners (non-profits, private sector, public sector, others)? What is PSE's role? Do you have examples of first and last mile models?

4



Puget Sound Energy (PSE) Transportation Electrification New and Innovative (N+I) Car Sharing Focus Group

July 18, 2022



FACILITATORS

Claire Wendle, Triangle Associates

Lucila Gambino, Triangle Associates

Mackenzie Martin, PSE

Project Concept: Car Sharing

Key Shift: There is a regional network of car sharing vehicles in the Puget Sound region by 2030.

INTROS & ICEBREAKER

What was a highlight or something you took away from the New and Innovative workshop in April? If you did not participate in the workshops, what are you hoping to learn or share in today's focus group?

PSE's sincerity about this effort, being methodical is really great.

I find it super exciting, it is rare to find a utility proactively reaching out to folks about car sharing.

Interested in seeing other people's experiences. I work a lot with utilities and try to find support/funding.

I've been in the car sharing industry for 20 years. I've always felt utilities are ideal partners for electric car sharing. This was the first time I've engaged with a utility when the engagement was initiated by utility.

I liked diving deeper into the details. We just launched our car share program, so to hear from others that have been involved with car share longer, was beneficial. Also helpful to plan with expansion of electric car share.

Idea of more than just sedans, can be vans, vehicles desired by specific communities

1

**Puget Sound Energy (PSE)
Transportation Electrification
New and Innovative (N+I)
Car Sharing Focus Group**
July 18, 2022



CHALLENGES What are the biggest challenges and do you have ideas for how to address them?

2

Geography

What key differences exist between a rural and urban car share?

Need for local staffing that is tied to each location or cluster - if centralized fleet management staff is far away it won't be cost effective to clean/maintain. Could be onsite or contracted to cover geographic area

Density of vehicles in support in urban vs. rural area. Car sharing commonly fails in rural areas b/c there isn't enough volume of users

8 -21 rental is limited to smaller sedans. 21 is for other larger vehicles. Handled through enterprise

Types of trips will be different between the two areas. Range of vehicle (time between sessions of renting) and preparing users to go through the experience of public charging

Station based in rural areas vs. floating in urban

Through Enterprise and rep comes by because they live close for maintenance. Fleet management team to look after cars is important

Location is critical - there are more options in urban markets as a complement to existing resources. Rural markets don't have the same resources - how will folks get to the car and is that a hassle? Putting cars at a housing site, or somewhere else that is easily accessible.

Mobility hub is critical in a rural area - cluster intersection of transit routes and cluster other potential services there

Super important to anchor rural locations with an institutional user (non-profit org) that will use the car on a regular basis + commitment from local utility to promote availability of the vehicle and people to get it going b/c it's a foreign model

Driver Requirements

Ex: Qualifications . 18, licensed, no major violations.. is this reasonable?

People know if they want a car to drive as a TNC driver or as a doordash driver, they can't use car share vehicles. Insurance doesn't cover that use case

Car share insurance is pretty difficult to get. Most rental car insurances is 25 age. younger ages is a different risk pool that's a different risk/eductible requirement. Solving that is important for access

Rural requires a different model for fleet management for more localized on site support. Would be hard to cover a wide geography with 1 person

Different price and support models in rural areas

Insurance

What insurance solutions have been utilized?

Enterprise gets copies for driver's license and we check for validity

All these require some kind of background check (Checker) that checks for major violations in records check.

Through 21 and up. Easier to obtain than 18 but partners are trying to lower age to 18.

If someone wants to give other people rides, it's covered by car sharing insurance and that opens up use cases for non-emergency medical transport and meal delivery. If people are paid, insurance doesn't cover it. Ex. Mio Car (miorides) and volunteers are allowed to use vehicles on a volunteer basis. Can volunteers get reimbursed federal mileage reimbursement rate by local health agency?

Access

What reservation system solutions exist? How do we remove barriers for the unbanked?

Enterprise gets copies for driver's license and we check for validity

Reservation system depends on the platform. Used as main operating system and scheduling is a feature that's built in. A lot of the systems are app based first + ability to access via web. Allow people to call and admins do that on the back end. Easiest to do it yourself through an app

Charge after the trip, not before hand. They'll figure it out later b/c someone may need to really take the trip. They won't be able to make another reservation until the account is balanced

Consider prepaid credit cards (16 digit card with pin, expiration date) and that comes with more risk b/c the car may not have enough cash for the trip

Pricing

How much to charge? Goal: cheaper than uber, cost competitive with a short transit trip? What do fees need to cover?

Check that the person is who they say they are - identity check

Give RFID cards to unlock the vehicle, doesn't allow reservation but some platforms use RFID cards to automatically make a reservation

Market rates in rural areas would not work - start with a lower hourly rate in areas where the program is newer

In rural areas, having costs lower b/c they could be next to transit routes and it could help with a mobility gap to get to transit. Keep cost low

Makes a difference for urban/rural environments - harder to have 1 person facilitate bookings or admin

Other Barriers?

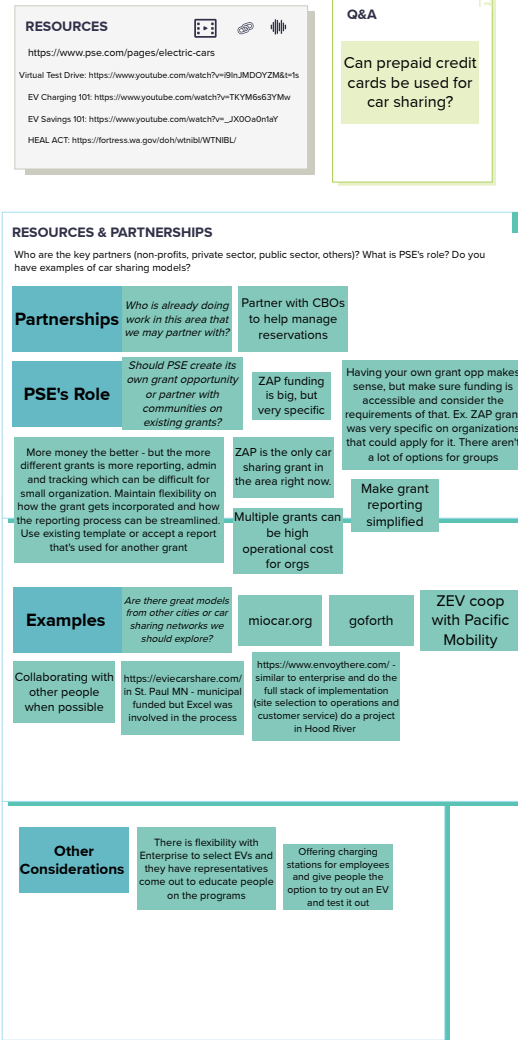
How much is the utility providing in subsidy support? It's going to need some assistance

Cap of 8 days a quarter on rentals - 20-30 rentals per month

Utilities need to be actively involved in promoting rural car sharing and helping people get engaged in car sharing and also trying EVs for the first time

Tribal council offers it to members, so it's free cost and free fuel. Flat monthly cost

ZAP grants cover all costs and any earned revenue gets reinvested in extending the life of the program and hopefully reduce subsidy over time. Building utilization is fulfilling mission of the program. Don't expect it to break even in the next few years



APPENDIX C: WORKSHOP MURAL BOARDS

See next page.

Puget Sound Energy (PSE) Transportation Electrification Single Family Workshop



May 16, 2022



<h3>1 Eligibility</h3> <p>Scenario 1: Makes sense to have the EV purchased - otherwise it's chancy.</p> <p>You have to provide the need.</p> <p>Scenario #2 is the best - you don't go down to the dealership to buy a car. They're in short supply.</p> <p>If you're forced to buy the car first and then install and it takes a while, you might have a car that you couldn't use.</p> <p>Issue: You could say you would end not buying one, and you'd have the charger without a car to charge.</p> <p>2nd scenario would encourage people to install chargers.</p> <p>Scenario 3 could turn people off</p> <p>Income levels for additional assistance but it's already a big investment</p> <p>PSE needs to trust the customer</p>	<h3>2 User Scenario 1</h3> <p>No comments</p> <h3>3 User Scenario 2</h3> <p>I like scenario 2. I like PSE owning it because the constant upgrades to technology.</p> <p>PSE owning the system is best</p> <p>Always putting more money into new charges, etc.</p> <p>If I need a plumber, electrician.. I would rather give the money and work to someone who knows what they are doing.</p> <p>I personally don't want to take the time to research options.</p> <p>I want to be told this is the option and PSE will make sure it works for me</p>	<h3>4 Load Management</h3> <p>Could be so dynamic and would change often - trying to figure out which option is least confusing. This scenario might be changing often.</p> <p>Can you program your charging? Plug your car in and set the charger to charge for a certain time.</p> <p>If PSE said that lowest prices are between X pm and X am, that's when I would charge my vehicle.</p> <p>99% I would pick the lowest cost energy time - make it clear to customer about when those times are so people know when off peak charging hours are.</p> <p>All companies need power at all times of the day - usually morning when people are getting up and when people get home.</p> <p>Makes sense that PSE would want people to charge their car at a time when it won't stress the system.</p> <p>It's a matter of consideration for community and for yourself (for cheaper charging)</p>	<h3>5 EV Incentive</h3> <p>Scenario 1 I am wary of a typical person that has no experience working with the government. This can be incredibly overwhelming</p> <p>As we get older, technology barriers - computers are quite overwhelming so Scenario 1 has that barrier</p> <p>Scenario 1 really has to help people with the application process.. has to be user friendly</p> <p>Support for walking through the administrative process- easy to understand</p> <p>Very overwhelming to go through 'links' etc.</p> <p>Maybe you go to 30 Bellingham street to assist you in walking through the process.. in-person workshops</p> <p>PSE has knowledge? and they would help us in finding those options?</p> <p>Most of the funding is for initial cost of funding an EV- not the maintenance</p> <p>Of the three, Scenario 2 is probably going to be the most widely appealing</p> <p>It is an interesting order. For someone who is planning to buy an EV or hasn't yet, it kind of works... or reimbursement if you purchased it.</p> <p>I would have the range be wider so it is middle class people as well as those of lower income that have access.</p> <p>Where I live it is 20 miles to get to Bellingham. I'd rather ride a motorcycle. If I was living in downtown Seattle, that would be make sense.</p> <p>I personally would not use bikes/scooters but that is because it wouldn't work for me.</p> <p>I think those are becoming extremely popular so this is something another demographic would feel more strongly about</p> <p>I would not want to use a scooter or a bike</p> <p>When you have to go long distances it doesn't make sense</p> <p>I'd have to be younger for scenario 3.</p>	<h3>6 Education and Outreach</h3> <p>Opportunity to try it- there is no comparison to see something in person or testing it. All scenarios have benefits</p> <p>Never been in an EV and can only imagine what it is like</p> <p>It doesn't matter where I get the information from.</p> <p>Important to partner with CBOs and housing providers because those people know the homeowners and the demographics better than PSE might.</p> <p>People start to consider this as another piece of home ownership or maintaining a home - grouping it with those types of materials</p> <p>Want to know about what my options are - only guessing that EVs are small but I don't actually know</p> <p>Would be helpful to know what the maintenance cost, cost of charging and comparing it to maintenance of a regular car.</p> <p>Calculator can help us decide if we should even invest in this</p> <p>Concerned about the cost. Having an EV is interesting but don't know how much the cost of ownership is.</p> <p>I can only guess about what a car would cost to own - not worried about retrofitting the house.</p>
<h3>7 Metrics for Success</h3> <p>Number of users make sense to me</p> <p>Number of users make sense to me</p> <p>Miles driven can be hard - because some people drive more than others so might not be the most efficient to measure success</p>		<h3>8 Questions</h3> <p>What kind of changes would have to be made to accommodate a charger?</p> <p>A lot of electric is generated with gas</p> <p>Does PSE feels confident that they have the infrastructure to support more generation?</p>		

Puget Sound Energy (PSE) Community Engagement Workshop: Workplace Charging

June 14, 2022



FACILITATORS

Will Henderson, Maul Foster & Alongi
 Mackenzie Martin, Puget Sound Energy
 Sulley Schuster, Maul Foster & Alongi

Icebreaker: What was one interesting thing you learned or heard during the focus group that you participated in?

- Encouraged by equity lens brought forward by folks
- Also encouraged by equity conversations, and willingness to priority communities as a result
- Hearing the idea that someone wanted to make sure all chargers were the same brand, hadn't thought about that but it's a good consideration.

APPLICATION AND INTAKE PROCESS

No discussion of low-income areas or areas with varying racial compositions. First come first serve is beneficial for me and my employees. Doesn't seem like a good way to go about it. If want to really address equity, need to have disadvantaged communities in there.

I picked first come first serve, because that's probably one of the only ways we'd be able to get in. Would want to see how the application/make process would actually work. How it would be scored, etc.

Create a pathway that benefits equitably and is environmentally responsible - half the incentive goes to the business, and the other half goes to a partner agency.

First come first serve automatically biased against low-income and POCs. Liked total number of employees, but we're still having this conversation without bringing equity into it at the right time. Like the third, but thinking about the whole picture I don't think it's well defined enough. Could prioritize businesses in industrial districts, which probably isn't ideal.

- Scenario 1: Eligible applicants are considered on a first come, first served basis
- Scenario 2: Eligible applicants are prioritized based on total number of employees served by the project
- Scenario 3: Eligible applicants are prioritized based on whether they are located in areas of high carbon emissions

Application and intake process: Please rank the following application and process elements with 1 being inequitable and 5 being equitable

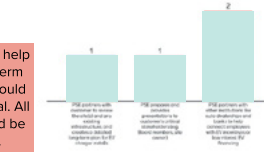


ADVISORY SERVICES

Like the middle one because I feel like our tribal council would want to hear about some of this stuff and will be making the final decisions.

Didn't think first one was applicable, think that long-term planning needs to be done by us and our planning department because we know our facilities.

Advisory services: Which advisory services would you be likely to use? Select all that apply.



EVs are going to be rolling in no matter what, and we'd like to have the infrastructure built and ready for our employees.

Last one puts the power in the people's hands, because they're driving the conversation. The other two are nice as well, but energy best focused on the third.

Having PSE help with long-term planning would be beneficial. All three would be helpful.

LOAD MANAGEMENT

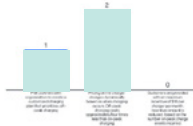
Our org is 8:30-5, so people just don't need to be charging on-peak. Don't want people to have to compete with other people for charging.

Pricing at charger changes. Love education and outreach, but don't think it always makes that big of a difference for employees. Having the cost incentive will be most powerful.

Dynamic pricing mirrors the free market, which I like.

- Scenario 1: PSE partners with organization to create a customized charging plan that prioritizes off-peak charging
- Scenario 2: Pricing of the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately 40% less than on-peak charging
- Scenario 3: Customers are provided with a maximum incentive of \$10 per charger per month. Incentive amount is reduced, based on the number of on-peak charge events incurred

Load management: What load management program and service best meets the needs of your organization?



EDUCATION AND OUTREACH

Liked all three of them. The PSE brand is recognizable, and having it available to give to people is valuable. Even if it's just a QR code, shows more legitimacy.

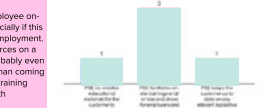
Like all three. Having materials to give out is great, could include in new-hire orientation. Like the QR code idea to link to PSE resources. Email correspondence helpful as well.

First and last are fine, like the middle option. Didn't like the "once EVSE is installed." Need appetite from employees first.

Quarterly digest would be helpful. Could consider establishing an advocacy network via phone/text to keep folks in the loop on legislative action.

Useful for employee onboarding, especially if this is a "perk" of employment. Video/resources on a website are probably even more efficient than coming on-site for training or both.

Education/outreach: What education/outreach programs would benefit you and your organization? Select all that apply.



OWNERSHIP

Chose scenario one - to be able to make a phone call and have someone else deal with the infrastructure is ideal. Just have limited capacity. If we had a more robust transportation program, sure. But that's just not the case. Rather you than me!

Variation in charging station impacts users more greatly, different interfaces. Always in the middle of these scenarios because I'm thinking about job creation - Scenario 2 good for that.

Chose scenario 2. Educating youth and folks coming into the workforce is important.

Scenario 1 - least risk, greatest reward. Would expedite the process of determining which stations to choose.

Certain customers have strong preferences regarding what kinds of assets are installed

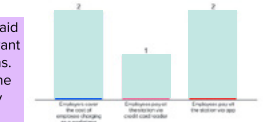


PAYMENT OPTIONS

Like all of these options.

Don't want a credit card reader, don't want to have to worry about card skimming. Don't want to pay for employee charging or deal with handing out RFID cards. Look at our contribution as the investment in the infrastructure. Love the app, especially if it's able to display information to both the employer and the employee.

Payment options: What payment option best meets the needs of your organization? Select all that apply.



RESOURCES

- <https://www.pse.com/pages/electric-cars>
- Virtual Test Drive: <https://www.youtube.com/watch?v=9h1MDOY2M61s>
- EV Charging 101: <https://www.youtube.com/watch?v=TKYMG6t3YwM>
- EV Savings 101: https://www.youtube.com/watch?v=_X00a0n16r7
- HEAL ACT: <https://fortress.wa.gov/doh/vhr/b/WFTNBLU>



Puget Sound Energy (PSE) Community Engagement Workshop: Public Charging

June 1, 2022



FACILITATORS

Will Henderson, Maul Foster & Alongi
Sulley Schuster, Maul Foster & Alongi

APPLICATION AND INTAKE PROCESS

First come, first serve not equitable. Total cost of project could be interesting.

Ranked the last one the highest, but might want that to point more towards need in the community vs. carbon emissions.

Question I would've asked is who is served by this project instead of carbon emissions. If areas aren't being impacted by car emissions necessarily, the program will be skewed.

Ranked emissions the highest, but these are just three things and they don't feel like the all the right things to be evaluating.

If there were other areas with higher emissions, that makes sense for them to get priority. First come first serve doesn't make sense.

First come first serve necessary for a deadline to make sure you're evaluating all together. Cost shouldn't be the deciding factor, but rather impact.

Scenario 1
Eligible applicants are considered on a first come, first served basis.

Scenario 2
Eligible applicants are prioritized based on total cost of the project.

Scenario 3
Eligible applicants are prioritized based on whether they are located in areas of high carbon emissions.

Application and intake process: Please rank the following application and process elements with 1 being inequitable and 5 being equitable

ADVISORY SERVICES

First helpful, also voted for funding support mainly based on feedback we've heard from cities and towns in PC.

I chose all three. I thought the first was the most important. Also felt that meeting with stakeholders is really important, so if PSE does it, our other utilities will have to follow suit.

I selected the first one, would be the most helpful. Looking at our existing sites and understanding the upstream upgrades that would have to happen would be really helpful, and helping us understand costs.

Agree that having that plan is key. Selected third option. Help getting additional funds helps us secure the use of our own county funds.

Selected just the first one key element there was developing a detailed, long-term plan. Super helpful, we spend so much time planning it's expensive and takes time and resources. Armed with that, I feel fairly capable with our resources to then go after additional grant funding opportunities.

Selected all of them, but first one would be number 1 as well. It would be really helpful for PSE staff to come out on site and help us with evaluations. We can put together grant applications but good to have support there when needed.

Just choose first one. Often have questions around how much power is available, what additional infrastructure is needed.

Advisory services: Which advisory services would you be likely to use? Select all that apply.

Scenario 1
PSE partners with customer to review the site(s) and any existing infrastructure, and creates a detailed long-term plan for EV charger installs.

Scenario 2
PSE prepares and provides presentations to customer's critical stakeholders (e.g. Board members, site owner).

Scenario 3
PSE partners with customer to review the site and identify grant or funding opportunities.

LOAD MANAGEMENT

I like option B, because it's middle ground. Good way to plant the seed. Second option would've been the customized charging plan.

I voted for the customized plan. Want to make sure people are able to understand this process, but I think there is clarity in a demand fee.

Also chose 3, thinking about what is easiest to communicate. We're also dealing with real load management issues on the island.

Too early to put premiums on peak charging for the public. Don't want to discourage people, think primary focus should be maximizing charging for now.

I chose customized plan to think through how to stagger rates, utilize signage and communications, etc.

Charging based on demand makes it simple and easy.

I chose dynamically based. I like the idea of having people pay based on when they're there. Seems fair, and will train customers on when best times to charge during off peak times are.

Scenario 1
PSE partners with organization to create a customized charging plan that prioritizes off-peak charging.

Scenario 2
Pricing of the charger changes dynamically based on when charging occurs. Off-peak charging costs approximately four times less than on-peak charging.

Scenario 3
Customers pay a demand fee when charging during peak hours.

Load management: What load management program and service best meets the needs of your organization and community?

EDUCATION AND OUTREACH

Something with schools as an educational event or program would be great.

Effects of the growing network will help encourage more usage, want to continue building general awareness.

For onsite events, it'd be great to have EVs on site, have plug and rides, coordinate early on to make sure we're aligned on messaging

Would love to see the City along with PSE and other utilities sponsor event together where they're promoting the installation of EVs in their specific geographic areas.

Events notifying customers of new charging availability and alleviating anxiety to encourage people to buy EVs would be most helpful for us.

Education/outreach: What education/outreach programs would benefit you and your community and organization? Select all that apply.

Scenario 1
PSE facilitates on-site events to promote the chargers once installed.

Scenario 2
PSE facilitates cross-promotional events with other transit agencies, municipalities, etc.

Scenario 3
PSE keeps the customer up to date on any relevant legislative or industry happenings.

Icebreaker: What was one interesting thing you learned or heard during the focus group that you participated in?

Tension between public/private partnership and how to make it work.

Option to tie inspection to accessing funds for EV charging programs.

Comments about putting charging stations in parks, and concerns about closing parks.

Different considerations that organizations and agencies have around implementing EV charging, different needs and considerations.

Comments on EV charging at parks and the unique challenges there.

Interesting to hear skepticism around public charging.

PAYMENT OPTIONS

More options better than just one. Have heard concerns around security.

I think you need all three as well. I chose CC because we have a lot of older people on the island.

None of us selected pay over the phone, but I think it's important to offer as an option. Good back up option that most folks should have access to.

I'm seeing more and more stations on private property using the app process.

Picked credit card because that seems to be just slightly more used. More access than a downloaded app.

Payment options: What payment option best meets the needs of your organization and community?

Scenario 1
Customer pays over the phone.

Scenario 2
Customers pay at the station via credit card reader.

Scenario 3
Customers pay at the station via app.

RESOURCES

<https://www.pse.com/pages/electric-cars>

Virtual Test Drive: <https://www.youtube.com/watch?v=9tUJMOY2M8s>

EV Charging 101: <https://www.youtube.com/watch?v=TKYM663YMW>

EV Savings 101: <https://www.youtube.com/watch?v=JX00s0n1aY>

HEAL ACT: <https://fortress.wa.gov/doh/wtrnl/WTNBL/>

APPENDIX D: IDEATION MURAL BOARDS

See next page.

Puget Sound Energy (PSE) Transportation Electrification New and Innovative Ideation Workshop 1

April 20, 2022



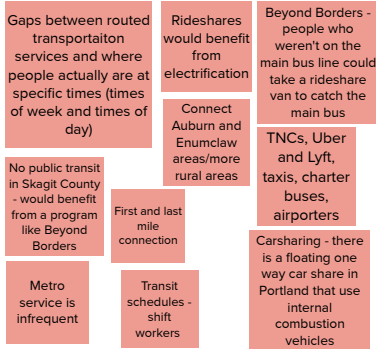
FACILITATORS

Claire Wendle, Triangle Associates
Lucila Gambino, Triangle Associates
Mackenzie Martin, PSE

THINK, PAIR, SHARE

What are some mobility gaps in your community? What spaces could benefit from transportation electrification?

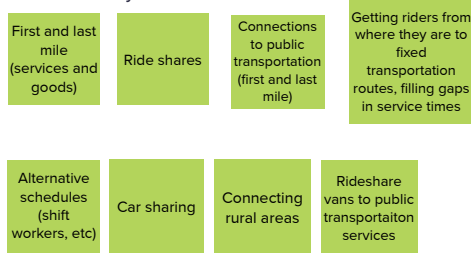
2



THEMES - Voting Session

Vote for your top two themes that you would like to focus on today.

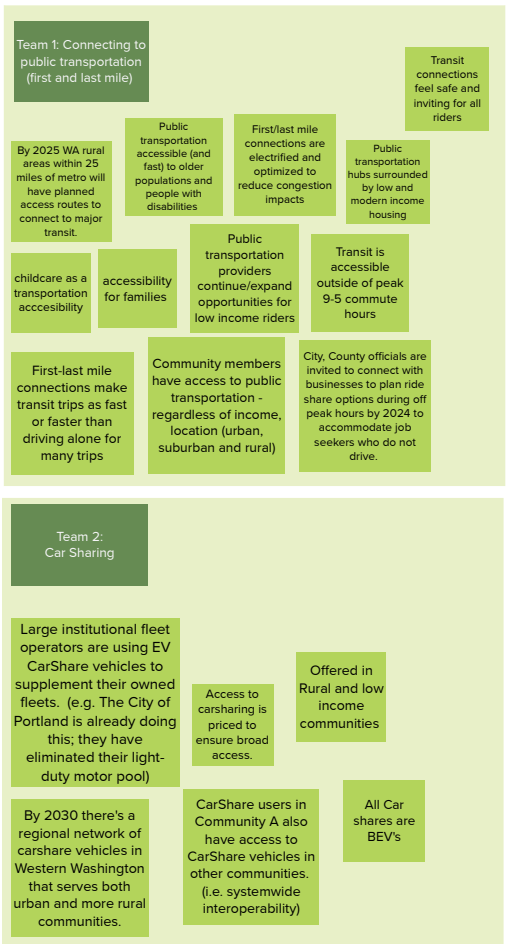
3



Goal Creation



4

Draft a working goal that relates to the theme you were assigned.
Example: Single Family Housing. Working Goal: By 2030, all new single family housing units will have the infrastructure to support EV charging.



Critical Shifts



- A two-part statement describing what is happening in part of the system now and how it needs to look in the future.
- Can relate to any area of potential work
- Collaborations focus on a set of 3-5 critical shifts that will advance their goal most powerfully
- Shifts give us a way to measure whether the initiatives are working
- Not a problem/solution statement

| 19

Example Critical Shifts

Goal Statement	Current State	Future State
By 2030, all new single family housing units will have the infrastructure to support EV charging.	EV charging infrastructure is expensive.	EV charging infrastructure is affordable.
	Homeowners are nervous or unsure about the cost or maintenance of installation	Homeowners are confident about installing chargers and what it will cost

| 19

FOCUS TOPIC AREA Team 1

Working Goal Community members have access to public transportation - regardless of income, location (urban, suburban and rural)

	Current State	Future State
System Shift	<p>People who do not drive and do not live near transit are under and unemployed, primarily because of lack of transportation.</p> <p>Suburbs - people live and work far away - posing challenges to low income populations</p> <p>Suburban areas with little to no transit service are the only affordable options for many people</p> <p>Transit only goes to major centers and is oriented around commuting; doesn't serve other needs like grocery shopping, medical appointments, etc.</p> <p>Individuals who make a non-livable wage still have to purchase public transit</p> <p>Suburban public transit not currently accessible to all low income residents and HHS - affordability issues, not fast, not safe, not convenient to meet their needs</p>	<p>Transit is convenient, accessible, a tool for dismantling equity issues and poverty</p> <p>Transit connects to all community needs</p> <p>Transit is no longer a barrier to employment</p> <p>Transportation planning values everyone's time equally (i.e. transit trips are fast and efficient, just like private vehicle trips)</p> <p>Transit is free for those who are income eligible</p> <p>More affordable housing options close to transit, jobs, and services</p>
Experience Shift	<p>People can feel unsafe during off-peak hours if transit stops are not well-used (i.e. people don't like being the only one waiting at 3 a.m.)</p> <p>People with disabilities in rural areas may feel doomed/hopeless about their future in transit</p> <p>Job access - Businesses don't feel supported by public transit and desperate for employees to access their jobsite</p> <p>My coworker who uses a wheelchair can no longer go to the movies Saturday's because the bus route was eliminated</p> <p>People rely on family members or friends for first/last mile rides</p> <p>consistently stressed out about transportation that is inconsistent - public or personal vehicles</p> <p>People needs not currently being met. They are frustrated. Public transit is exhausting and time consuming and stressful. Route connections are confusing.</p>	<p>underserved / underrepresented communities feel welcome on transit</p> <p>people know they can afford public transit</p> <p>People feel like they have reliable transportation options that are there for them every day and will get them where they need to go at a predictable time (not at risk of being late for work)</p> <p>People feel safe, supported, have the whole family as their transportation needs met, have access to employment, education, healthcare, etc.</p> <p>Transit is well-used at all hours, so off-peak hours aren't alone</p> <p>Transit agencies develop safety and security policies that help riders feel safe and also center equity</p> <p>people feel like they can easily access public transit without confusion or stress</p>

FOCUS: TOPIC AREA Team 2

Working Goal By 2030 there's a regional network of carshare vehicles in Western Washington that serves both urban and more rural communities.

	Current State	Future State
System Shift	<p>Reservation based and card issued (run through Enterprise)</p> <p>Free floating car share (only works in dense cities)</p>	<p>Station based car sharing - with a home base and reservation system</p> <p>Network of vehicles with a charging infrastructure that connects regions (?)</p> <p>Rental cars that you can reserve or unlock with smartphone or issued card</p> <p>Connecting independent car sharing programs through a collaborative membership program</p>
Experience Shift	<p>Cars are not electric</p> <p>RFID cards/bluetooth to reserve vehicles</p> <p>Car share programs are geographically restricted</p> <p>Free floating car shares in urban areas only</p>	<p>Connected to charging stations to unlock cars - integrate access to charge pedestal</p> <p>Don't need a phone to unlock the cars</p> <p>Integrating charging and apps</p> <p>Access to other systems through membership</p> <p>Cooperative sharing programs</p> <p>Loyalty points or dividends based on usage</p> <p>Different types of vehicles (trucks, moving vans, cargo vans)</p> <p>Insurance differences between vehicles</p>

Generating Ideas

Individually and silently generate several ideas for how to make the critical shift happen. Place your sticky notes below the red line!

- Green stickies should capture a specific opportunity
- Blue stickies should capture a specific Resource that you can mobilize
- Purple stickies are any and all ideas!

Team 1

Working Goal

Community members have access to public transportation - regardless of income, location (urban, suburban and rural)

Critical Shifts



Generating Ideas

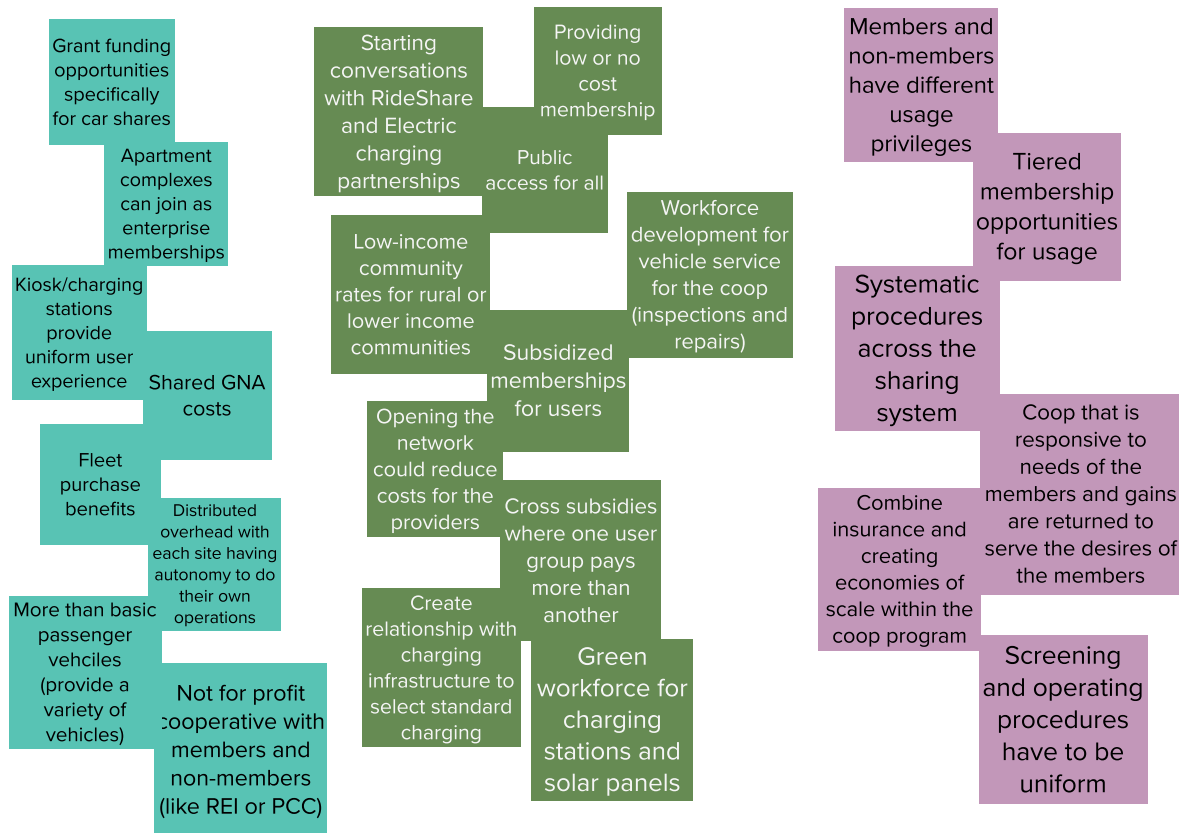
Individually and silently generate several ideas for how to make the critical shift happen. Place your sticky notes below the red line!

- Green stickies should capture a specific opportunity
- Blue stickies should capture a specific Resource that you can mobilize
- Purple stickies are any and all ideas!

Team 2

Working Goal

By 2030 there's a regional network of carshare vehicles in Western Washington that serves both urban and more rural communities.



Puget Sound Energy (PSE) Transportation Electrification New and Innovative Ideation Workshop 2

April 26, 2022



FACILITATORS

Claire Wendle, Triangle Associates

Lucila Gambino, Triangle Associates

Mackenzie Martin, PSE

THINK, PAIR, SHARE

2

What are some mobility gaps in your community? What spaces could benefit from transportation electrification?

Vehicle that can accommodate wheelchair lifts and has the space for multiple people	Neighborhood Shuttle	Schoolbuses and golfcarts to existing transportation structure	Electric vehicles for rural areas (school transportation)	Electric tractors and agriculture	Electric buses or shuttles for migratory workers	Established food bank trips and using electric vehicles for food deliveries. Need a fully electric van to transport larger groups of vehicle
No public transportation - operating a delivery for seniors	Technology to scale to meet the needs of population	Big trucks that can tow for farming communities - aren't electric trucks that have the ability for that type of pay load	Refrigerated lockers in rural areas and communities of focus - electrifying the fleet that delivers to the lockers	Refrigerated vehicles for farmers to share	ZEV co-op to purchase used EVs and replace batteries and working with non-profits to get them electrified. Need charging infrastructure for those organizations	
Transporting to and from food banks - need refrigeration (Farm to hub)	Carrying capacity for farm vehicles	Refrigeration and freezer capacity	Shuttle service for communities in need			

THEMES - Voting Session

3

Vote for your top two themes that you would like to focus on today.

Agricultural tools	Farm to hub transportation	Rural transportation gaps	Shuttles for farm migratory workers	Refrigeration and refrigerated vehicles
EV support and infrastructure for non-profits	Shuttle services for communities in need (people with disabilities, low income, houseless, ec)			

Goal Creation

4

Draft a working goal that relates to the theme you were assigned.
Example: Single Family Housing. Working Goal: By 2030, all new single family housing units will have the infrastructure to support EV charging.

Team 1: Shuttle services for communities in need (people with disabilities, low income, houseless, ec)	EV support and infrastructure for non-profits	
all electric metro operated On-Demand/Demand responsive transit	EV WAV taxi fleet/ on-demand fleet available	charging infrastructure and vehicles for car share in communities
all community shuttles are EV. Can support all riders.	EV shuttles are made more accessible to non-profit. (\$)	publicly available fast charging for all residences within 0.5 miles
commercially available EV minivans	better knowledge and understanding (from the public) of services available in EV charging .. what exists who can use it, etc.	

Team 2: Agriculture	Sharing the facts of battery life and cost to replace	Showing electric is affordable and durable	by 2030 have electric support vehicles for farms
Showing how people reserve or assure charging station is available	Development of cooling/insulation techniques not requiring electricity	Charging stations at all farmers markets	Transport of produce not needing refrigeration
Identify different sized and type of units that can go electric aka carts to school bus	Development of vehicles with towing and storage capacity comparable to 3/4 to 1 ton	Efficient routes lined with charging stations	Designing infrastructure for improvement in efficiency and environmental footprints...creating long lasting change in the localized food system.
Development of refrigerated vehicles	Improving the logistics surrounding movement of food in rural areas with multiple users and end users with a non profit as the managing entity.	Development of higher capacity vehicles - meeting needs outside of commuter vehicles	Support vehicles for farm to food hub and food hub to wifi lockers. Creating a network of electric vehicles that serve the greater food community in rural east pierce.

Critical Shifts

- A two-part statement describing what is happening in part of the system now and how it needs to look in the future.
- Can relate to any area of potential work
- Collaborations focus on a set of 3-5 critical shifts that will advance their goal most powerfully
- Shifts give us a way to measure whether the initiatives are working
- Not a problem/solution statement



| 19

Example Critical Shifts

Goal Statement	Current State	Future State
By 2030, all new single family housing units will have the infrastructure to support EV charging.	EV charging infrastructure is expensive.	EV charging infrastructure is affordable.
	Homeowners are nervous or unsure about the cost or maintenance of installation	Homeowners are confident about installing chargers and what it will cost



| 19

FOCUS: TOPIC AREA better knowledge and understanding (from the public) of services available in EV charging .. what exists who can use it, etc.
Team 1 Working Goal

	Current State	Future State
System Shift	<p>3. For people who ride public transportation, they are already reducing a vehicle on the road - hard to ask them for electrification</p> <p>3. Already doing a sustainable act - so hard to get a buy in on TE projects</p> <p>1. Audiences (customers, non-profits, etc.) understand/buy-in/ invest TE projects</p>	<p>1. There are options for commercial vans in the market</p> <p>3. Public transportation audiences understand why TE is important</p>
Experience Shift	<p>1. There is no standard or easily recognizable marketing for EV charging station</p> <p>1. I don't know what the steps are to access EV charger in my neighborhood</p> <p>2. Charging infrastructure.. what it takes, is it easy or hard to install a charger?</p> <p>2. I'm not sure who to go to with my questions and issues once I buy an EV.</p> <p>constraints due to chargings - eliminate that barrier</p> <p>there is perceived lack of electric charging stations - fear for community based organizations</p> <p>steps forward for major agencies are exciting - and can allow others to move forward with their own projects</p> <p>Question: is there work with dealerships with selling EVs? What are my resources when I buy an EV?</p>	<p>1. I can recognize an EV charging station easily and know how it works, how long I can charge my car, I know how and why I can use it</p> <p>2. I know where I can go and what resources I have to learn more about my EV and when I have issues</p> <p>Acknowledge how larger orgs impact and pave the way for smaller orgs sometimes</p> <p>Hard to be guinea pigs for new vehicles (commercial vans for example) because 1st generation of vehicles have issues</p>

FOCUS: TOPIC AREA Development of higher capacity vehicles - meeting needs outside of commuter vehicles
Team 1 Working Goal

	Current State	Future State
System Shift	<p>Limited range</p> <p>Limited ability to tow and provide refrigeration</p> <p>Few off-road options</p> <p>High capacity to install solar arrays but limited vehicle options</p> <p>Low clearance, low traction</p> <p>Low passenger capacity</p> <p>No electric tractors with PTOs or detachments</p> <p>Limited refrigeration capacity for farmers</p>	<p>PTO - Power Take Off on tractors</p> <p>Towing power</p> <p>Battery pack change out for larger vehicles that need longer range</p> <p>High passenger capacity</p> <p>Ability to refrigerate</p> <p>Ease of use/ switching batteries</p>
Experience Shift	<p>Can't build solar on a property to use more than what you use</p> <p>Frustrating - limited, not being able to do what you want or need to do with what's available</p> <p>(food banking system) Disjointed and disconnected</p> <p>Incentives for new vehicles only</p> <p>"Wimpy" - hard to adopt electric vehicles</p> <p>Cultural barriers - focused on fuel and infrastructure</p> <p>Unaffordable</p> <p>Uncertainty around charging</p> <p>Shortage of systems to move food effectively</p>	<p>Small electric carts and shuttles for rural transportatic</p> <p>Delightful, satisfying - being able to access what you need</p> <p>Self-sustaining energy, off-grid</p> <p>Stable fuel source</p> <p>Affordable</p> <p>Lowered environmental footprint at commercial food spaces with refrigeration needs</p> <p>Electric vehicles are very cool! and efficient, capable</p> <p>Ability to charge is easy, certain, accessible</p> <p>Drones or other electric tools to deliver food</p> <p>Connected state of systems around food (from producer to end users)</p> <p>More local food systems -> decreased food insecurity</p> <p>Smarter systems</p> <p>Longer expiration timeline</p>

Generating Ideas

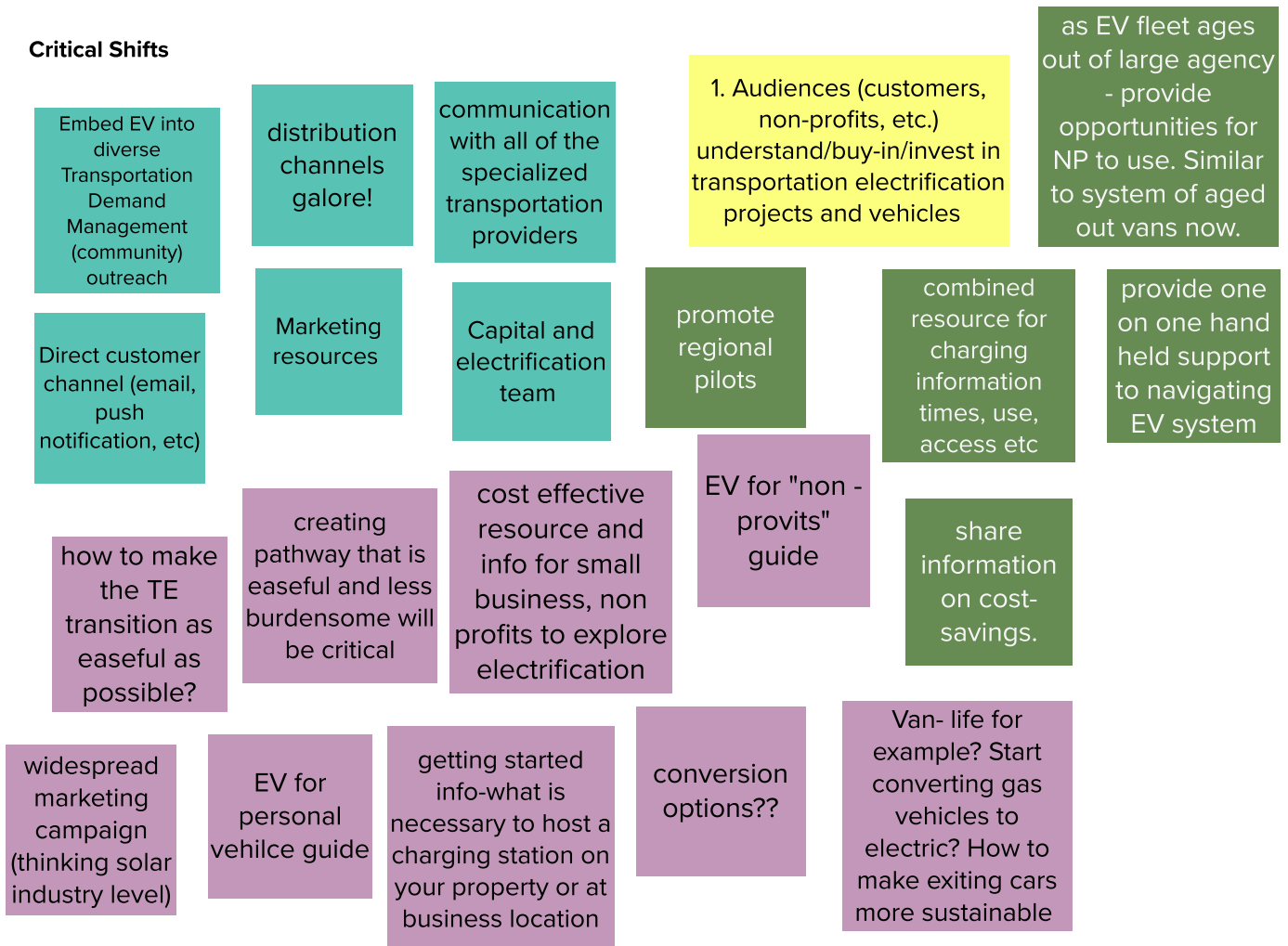
Individually and silently generate several ideas for how to make the critical shift happen. Place your sticky notes below the red line!

- **Green** stickies should capture a specific opportunity
- **Blue** stickies should capture a specific Resource that you can mobilize
- **Purple** stickies are any and all ideas!

Team 1

Working Goal better knowledge and understanding (from the public) of services available in EV charging .. what exists who can use it, etc.

Critical Shifts



Generating Ideas

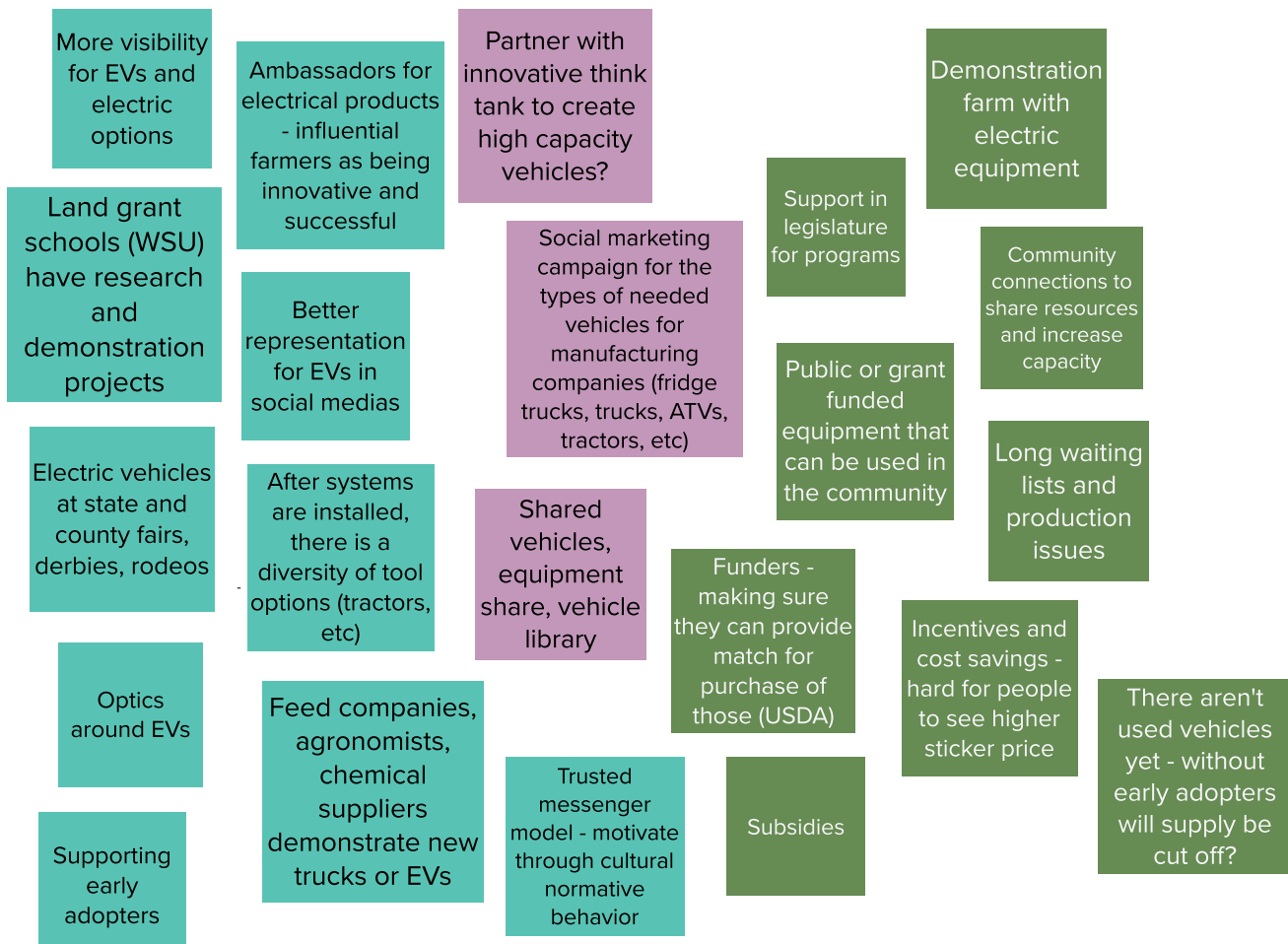
Individually and silently generate several ideas for how to make the critical shift happen. Place your sticky notes below the red line!

- **Green** stickies should capture a specific opportunity
- **Blue** stickies should capture a specific Resource that you can mobilize
- **Purple** stickies are any and all ideas!

Team 2

Working Goal

Development of higher capacity vehicles - meeting needs outside of commuter vehicles

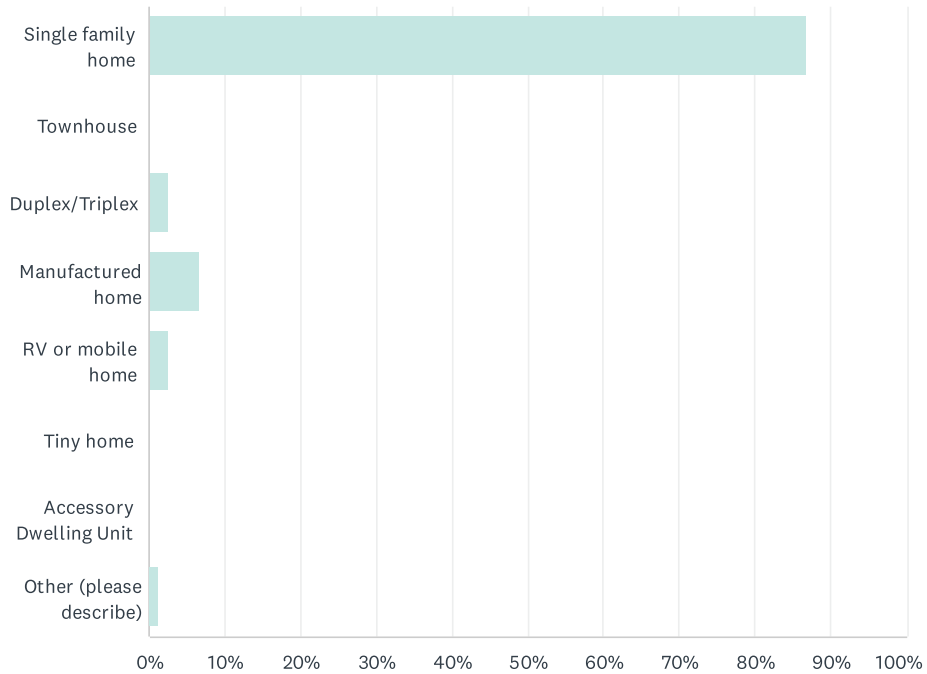


APPENDIX E: SINGLE FAMILY RESIDENTIAL SURVEY RESULTS

See next page.

Q1 Select the option that best represents your housing. I live in a...

Answered: 76 Skipped: 0

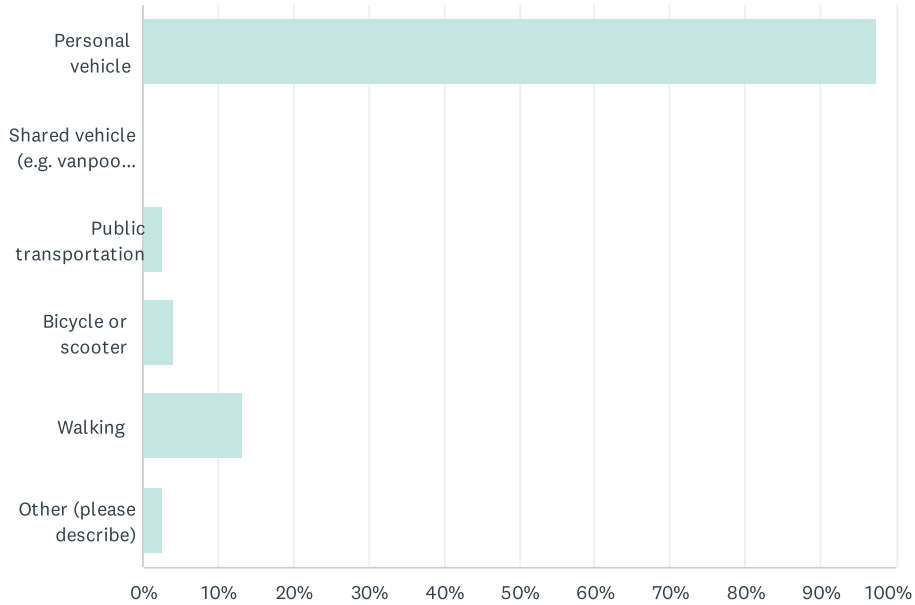


ANSWER CHOICES	RESPONSES	
Single family home	86.84%	66
Townhouse	0.00%	0
Duplex/Triplex	2.63%	2
Manufactured home	6.58%	5
RV or mobile home	2.63%	2
Tiny home	0.00%	0
Accessory Dwelling Unit	0.00%	0
Other (please describe)	1.32%	1
TOTAL		76

#	OTHER (PLEASE DESCRIBE)	DATE
1	multi-unit condominium	5/7/2022 7:35 AM

Q2 What is your primary mode of transportation? Select all that apply.

Answered: 76 Skipped: 0

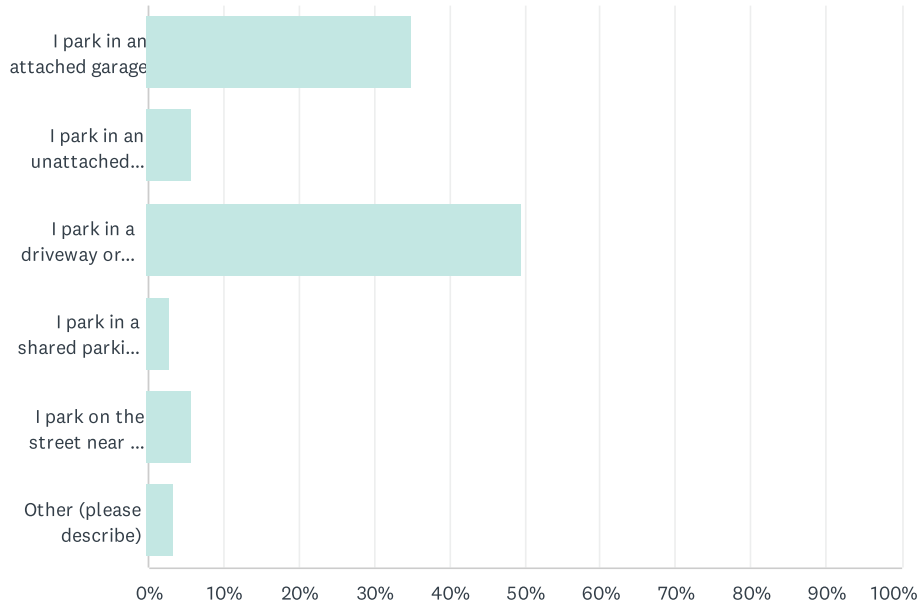


ANSWER CHOICES	RESPONSES
Personal vehicle	97.37% 74
Shared vehicle (e.g. vanpool, Uber, etc.)	0.00% 0
Public transportation	2.63% 2
Bicycle or scooter	3.95% 3
Walking	13.16% 10
Other (please describe)	2.63% 2
Total Respondents: 76	

#	OTHER (PLEASE DESCRIBE)	DATE
1	Work truck	4/28/2022 6:01 PM
2	Hybrid vehicle	4/28/2022 4:28 PM

Q3 What is parking like at your current residence?

Answered: 75 Skipped: 1

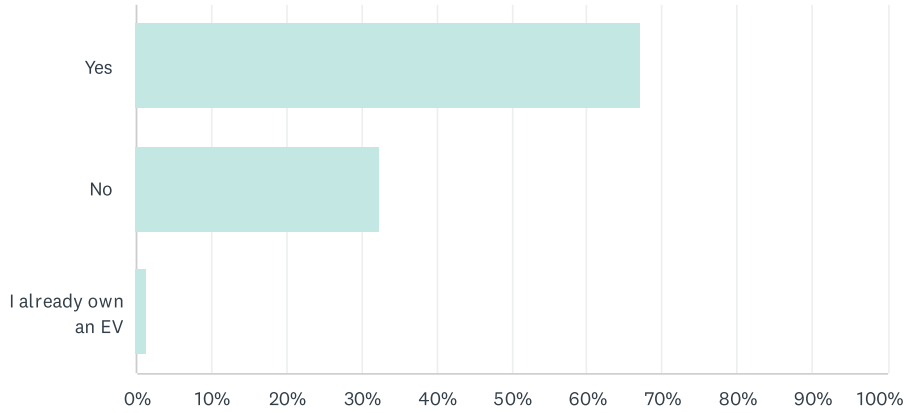


ANSWER CHOICES	RESPONSES
I park in an attached garage	34.67% 26
I park in an unattached garage	5.33% 4
I park in a driveway or carport	49.33% 37
I park in a shared parking lot	2.67% 2
I park on the street near my residence	5.33% 4
Other (please describe)	2.67% 2
TOTAL	75

#	OTHER (PLEASE DESCRIBE)	DATE
1	None of your business	5/6/2022 3:23 PM
2	I park in both the garage and in the driveway	4/29/2022 6:06 AM

Q4 Are you interested in owning an electric vehicle (EV)? Why or why not?

Answered: 75 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	66.67%	50
No	32.00%	24
I already own an EV	1.33%	1
TOTAL		75

#	WHY OR WHY NOT?	DATE
1	Currently the engines only last for 10 years and are more hazardous to the environment	5/9/2022 6:28 AM
2	To help protect the environment	5/8/2022 4:14 PM
3	No place to plug in where I live. Cars are expensive.	5/7/2022 7:35 AM
4	Better for environment	5/7/2022 5:34 AM
5	Cost effectiveness.	5/6/2022 10:20 PM
6	Because of the gas prices increase	5/6/2022 7:57 PM
7	Save money on gas	5/6/2022 6:57 PM
8	They are way more efficient than gasoline counterparts. Also quieter and environmentally friendly. I like the idea of not having to worry about fluid changes and gas prices.	5/6/2022 6:11 PM
9	I like my Suburu Forester.	5/6/2022 5:21 PM
10	because it is the future and i want my great grandkids to have a good enviroment to live in	5/6/2022 4:34 PM
11	My house was built in 1977 & the current electrical grid will not support charging an ev. Before I purchase my next car I want more info on the ev I choose & I like getting to the place I am going to without having to stop & find a place to recharge ev. Not alot of ev charging station around right now. Ev do not do good in northwest weather especially when snow - pudget sound region. Won't be able to charge ev When power is out. Need more info on Eva.	5/6/2022 3:28 PM
12	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM

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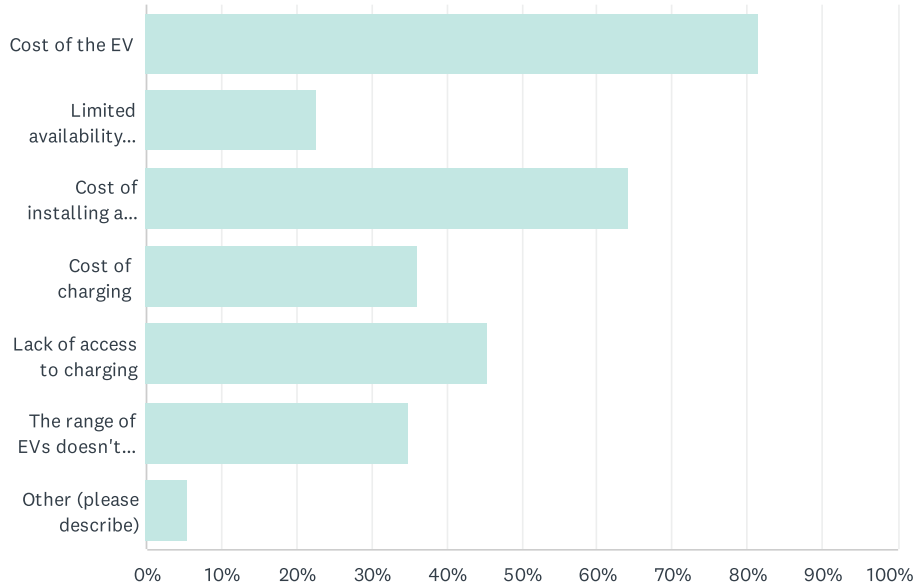
13	Won't meet my needs such as pulling out RV, and our farm equipment. Batteries all made in China and you can't get rid of them once they quit	5/6/2022 3:07 PM
14	Eco friendly	5/6/2022 2:56 PM
15	When grid gets developed	5/6/2022 2:46 PM
16	Like my current vehicle	5/6/2022 2:37 PM
17	Less maintenance, and (hopefully) better for the environment.	5/6/2022 2:17 PM
18	Cost reduction in commute.	5/6/2022 12:54 PM
19	I would love to own an an EV when I'm financially able to	5/6/2022 12:05 PM
20	Efficiency and environmental concern	5/6/2022 11:49 AM
21	Environmental benefits, possible cost benefits.	5/6/2022 11:47 AM
22	Cost to operate	5/6/2022 11:44 AM
23	Cost	5/6/2022 11:40 AM
24	Conservation, also wave of the future.	5/6/2022 11:38 AM
25	Gas pricing & environmental reasons	5/6/2022 11:38 AM
26	The environment	5/6/2022 11:37 AM
27	Less gas costs	5/6/2022 11:31 AM
28	Gas too high	5/4/2022 3:06 PM
29	I can't afford one that can tow, and also can't afford a 4 wheel drive electric vehicle	5/2/2022 6:31 PM
30	global warming	5/1/2022 3:51 AM
31	They don't travel far enough and take too long to charge.,	4/30/2022 2:50 PM
32	Cant afford any new vehicle. If I could, I'd prefer a hybrid & (if possible) use biodiesel	4/29/2022 1:58 PM
33	I either pay for gasoline or pay for electricity and with gasoline a person can drive further before stopping.	4/29/2022 8:08 AM
34	Environment	4/29/2022 6:27 AM
35	I believe electric vehicles will be quite mainstream in the future. I also feel they are slowly becoming more relevant for use today. I have one serious problem... the state of WA made the annual licensing fees unrealistic for both the EV and hybrid vehicles I owned. with that said, I traded both off and went back to pure gas burning vehicles. over three times the cost to license both is NOT acceptable. (hey, do the right thing, save the planet... we're gonna stick it in your ass for costs though)	4/29/2022 6:06 AM
36	Necessary to address environmental disasters of climate destruction.	4/29/2022 5:27 AM
37	I don't trust the tech	4/28/2022 8:57 PM
38	Gas prices fluctuate too much.	4/28/2022 7:51 PM
39	A great idea, but I don't think we're quite there yet in terms of cost and efficiency.	4/28/2022 7:50 PM
40	Charging time is inconvenient and vehicle cannot sustain operations in remote locations. My home also does not have a sufficient breaker box to power a 240 charger.	4/28/2022 7:09 PM
41	Operation Costs...	4/28/2022 7:04 PM
42	Better for the environment. Cost effective. Quiet.	4/28/2022 7:00 PM
43	Less car maintenance, don't have to buy gas, cleaner air where I drive, less noise pollution	4/28/2022 6:49 PM
44	I don't put a lot of miles on my second personal vehicle. My primary vehicle is needed to tow my RV trailer.	4/28/2022 6:01 PM
45	It would help the environment and it's the way of the future	4/28/2022 5:39 PM

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46	Electricity costs	4/28/2022 5:18 PM
47	To save gasoline	4/28/2022 5:07 PM
48	No particular reason	4/28/2022 4:30 PM
49	Possibly but right now I drive a hybrid vehicle & love it.	4/28/2022 4:28 PM
50	Cost of charging	4/28/2022 4:25 PM
51	I already have a car payment I can barely afford.	4/28/2022 4:23 PM
52	To not use fossil fuel.	4/28/2022 4:18 PM
53	I like not paying for gas	4/28/2022 4:15 PM

Q5 What barriers do you face when it comes to owning an EV? Select all that apply.

Answered: 75 Skipped: 1



ANSWER CHOICES	RESPONSES
Cost of the EV	81.33% 61
Limited availability of the type of vehicle I want	22.67% 17
Cost of installing a charger at my home	64.00% 48
Cost of charging	36.00% 27
Lack of access to charging	45.33% 34
The range of EVs doesn't meet my transportation needs	34.67% 26
Other (please describe)	5.33% 4
Total Respondents: 75	

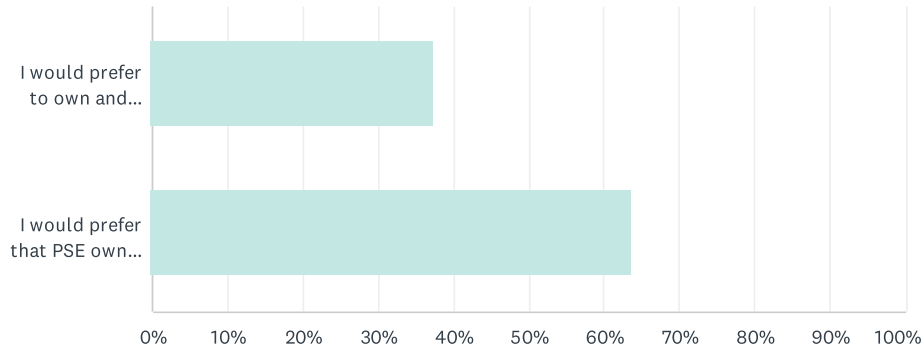
#	OTHER (PLEASE DESCRIBE)	DATE
1	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
2	Washington state has severely unrealistic licensing fees for all EV and hybrids.	4/29/2022 6:06 AM
3	Although this is strategically necessary for climate control/disaster prevention it is necessary to address how families can afford a new electric car purchase at a time when finances are a challenge for families. The affordability must be addressed and a solution provided that makes buying an electric vehicle AFFORDABLE for ALL people.	4/29/2022 5:27 AM

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4 I like to own vehicles for 20+ years. To avoid car payments and high insurance rates. Batteries degrade and loose range in less than 10 years and the cost to replace exceeds the vehicles value at that age. 4/28/2022 7:09 PM

Q6 If you were to have a Level 2 EV Charger in your home, would you prefer to own and maintain the charger or would you prefer that PSE owns and maintains the charger?

Answered: 73 Skipped: 3



ANSWER CHOICES	RESPONSES
I would prefer to own and maintain the charger	36.99% 27
I would prefer that PSE owns and maintains the charger	63.01% 46
TOTAL	73

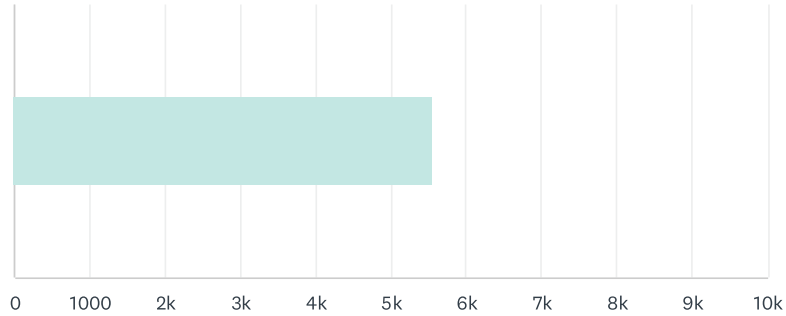
#	PLEASE EXPLAIN YOUR ANSWER:	DATE
1	Because then they can maintain and update as necessary	5/9/2022 6:28 AM
2	I don't know how to maintain a charger	5/8/2022 4:14 PM
3	I do not have enough knowledge of how to maintain the charger.	5/8/2022 12:01 PM
4	Don't want the hassle of maintaining	5/7/2022 5:34 AM
5	Do have the time to maintain and don't have any experience how to?	5/6/2022 7:57 PM
6	Let them do it.	5/6/2022 5:21 PM
7	since it is all new products i would prefer someone who knows more then I do	5/6/2022 4:34 PM
8	I would per PSE own as if their is a problem with it then I know who to call to get service. I would have to research & find service if I owned one which is a problem around here. I am a senior citizen.	5/6/2022 3:28 PM
9	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
10	I don't have the knowledge to maintain.	5/6/2022 2:56 PM
11	Depends on cost	5/6/2022 2:46 PM
12	Too busy working	5/6/2022 2:37 PM
13	Good question. Not sure but probably would maintain it myself. It would be a good service for PSE to offer.	5/6/2022 2:17 PM
14	Cost of upgrades as technology advances.	5/6/2022 12:54 PM

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15	It depends on the cost difference of maintenance and installation	5/6/2022 11:49 AM
16	Unsure what it would mean for PSE to own and maintain it. Would be open to that idea though.	5/6/2022 11:38 AM
17	I would prefer the least expensive way to maintain the charger	5/6/2022 11:38 AM
18	Privacy	5/6/2022 11:37 AM
19	So they can't change the costs	5/6/2022 11:31 AM
20	If I knew more about them, I'd probably do it myself, depending on ease of maintenance.	4/29/2022 1:58 PM
21	Depends on the reliability the charger.	4/29/2022 8:08 AM
22	Prefer to own	4/29/2022 6:27 AM
23	this is nearly a toss up for me. owning my own equipment would cost me less unless there was a failure. also, this would increase the value of my home to some small degree. there are those people in the world that would like the trouble/worry free nature of paying a small fee for someone else to maintain and service if there were an issue.	4/29/2022 6:06 AM
24	This is dependent on the cost of each option. Affordability is a primary concern of MANY households.	4/29/2022 5:27 AM
25	I don't know which would be more cost effective	4/28/2022 8:36 PM
26	I dont have the ability to maintain it.	4/28/2022 7:51 PM
27	The one time cost of a 240v charge cord would be less than a leased unit over a long period of time. I would consider the lease if the utility company was able to upgrade my panel at the same time.	4/28/2022 7:09 PM
28	Cost effective usually. Depends on cost efficiency,	4/28/2022 7:00 PM
29	It'd be nice not to have to worry about finding someone to install and service the charger. It would also eliminate the upfront cost of the charger and would hopefully include upgrades as the technology improves.	4/28/2022 6:49 PM
30	The issue with chargers is the up-front cost of install and maintenance. I would gladly pay more for that to be a non issue.	4/28/2022 6:40 PM
31	It sounds like it would save money to take care of myself	4/28/2022 5:39 PM
32	Don't know what the cost of renting it would be	4/28/2022 5:18 PM
33	Does PSE want to own & maintain chargers?	4/28/2022 5:12 PM
34	Liability and cost associated with charger	4/28/2022 4:30 PM
35	I have very limited income and can't afford it.	4/28/2022 4:23 PM
36	I wouldn't know how to maintain.	4/28/2022 4:18 PM

Q7 What is the minimum incentive that would make you more likely to purchase a new or used EV? Please move the slider until you reach the minimum incentive that would influence you to purchase an EV.

Answered: 74 Skipped: 2



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	5,520	408,500	74
Total Respondents: 74			

#		DATE
1	2000	5/11/2022 9:09 PM
2	7500	5/9/2022 6:28 AM
3	7500	5/8/2022 4:14 PM
4	7500	5/8/2022 12:01 PM
5	7500	5/7/2022 7:35 AM
6	5000	5/7/2022 6:36 AM
7	5000	5/7/2022 5:34 AM
8	2000	5/6/2022 10:20 PM
9	5000	5/6/2022 7:57 PM
10	2000	5/6/2022 6:57 PM
11	7500	5/6/2022 6:11 PM
12	2000	5/6/2022 4:34 PM
13	7500	5/6/2022 3:28 PM
14	7500	5/6/2022 3:07 PM
15	7500	5/6/2022 2:56 PM
16	4000	5/6/2022 2:46 PM
17	7000	5/6/2022 2:37 PM
18	5000	5/6/2022 2:17 PM

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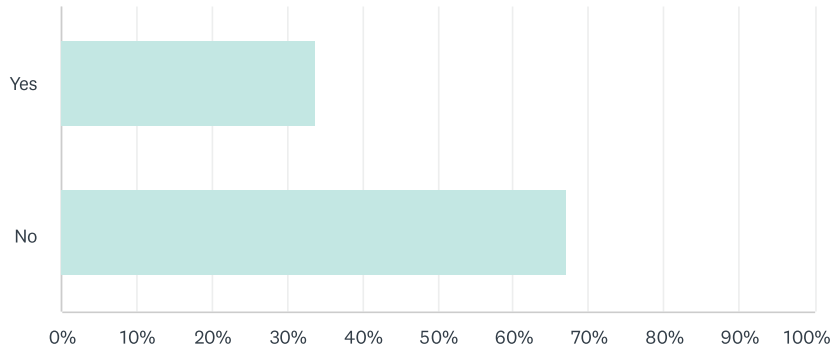
19	5000	5/6/2022 12:54 PM
20	5000	5/6/2022 12:05 PM
21	4500	5/6/2022 11:55 AM
22	2550	5/6/2022 11:49 AM
23	7500	5/6/2022 11:47 AM
24	7200	5/6/2022 11:44 AM
25	3000	5/6/2022 11:41 AM
26	7500	5/6/2022 11:40 AM
27	1550	5/6/2022 11:38 AM
28	7000	5/6/2022 11:38 AM
29	7500	5/6/2022 11:37 AM
30	7500	5/6/2022 11:31 AM
31	5500	5/6/2022 11:20 AM
32	7500	5/4/2022 3:06 PM
33	3000	5/4/2022 3:03 PM
34	7500	5/2/2022 6:31 PM
35	6900	5/2/2022 2:16 PM
36	4000	5/1/2022 3:51 AM
37	5000	4/30/2022 2:50 PM
38	7500	4/29/2022 1:58 PM
39	500	4/29/2022 10:38 AM
40	6400	4/29/2022 10:23 AM
41	4100	4/29/2022 8:08 AM
42	7500	4/29/2022 6:27 AM
43	6000	4/29/2022 6:06 AM
44	7450	4/29/2022 5:27 AM
45	7500	4/28/2022 8:57 PM
46	3050	4/28/2022 8:36 PM
47	1050	4/28/2022 8:27 PM
48	4100	4/28/2022 7:51 PM
49	6500	4/28/2022 7:50 PM
50	7500	4/28/2022 7:09 PM
51	5200	4/28/2022 7:04 PM
52	5050	4/28/2022 7:00 PM
53	500	4/28/2022 6:55 PM
54	7500	4/28/2022 6:49 PM
55	2500	4/28/2022 6:40 PM
56	4050	4/28/2022 6:01 PM

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57	2500	4/28/2022 5:45 PM
58	5000	4/28/2022 5:39 PM
59	7500	4/28/2022 5:22 PM
60	7500	4/28/2022 5:18 PM
61	2350	4/28/2022 5:12 PM
62	7500	4/28/2022 5:12 PM
63	6450	4/28/2022 5:07 PM
64	4200	4/28/2022 4:40 PM
65	7500	4/28/2022 4:35 PM
66	7500	4/28/2022 4:30 PM
67	7500	4/28/2022 4:28 PM
68	7400	4/28/2022 4:27 PM
69	7500	4/28/2022 4:25 PM
70	6000	4/28/2022 4:24 PM
71	7500	4/28/2022 4:23 PM
72	5150	4/28/2022 4:22 PM
73	7500	4/28/2022 4:18 PM
74	3800	4/28/2022 4:15 PM

Q8 If shared electric bikes that you could take on a first-come, first-served basis were available to your community, would you be interested in the program? Why or why not?

Answered: 75 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	33.33%	25
No	66.67%	50
TOTAL		75

#	WHY OR WHY NOT?	DATE
1	I think they are wonderful and would love to have one	5/9/2022 6:28 AM
2	I want to test the program	5/8/2022 12:01 PM
3	Weather, age, hills	5/7/2022 7:35 AM
4	Distance is too far.	5/7/2022 6:36 AM
5	I would need more information to be able to say yes.	5/7/2022 5:34 AM
6	I was thinking about buying one myself.	5/6/2022 10:20 PM
7	No need	5/6/2022 7:57 PM
8	Would be good exercise and clean transportation around town.	5/6/2022 6:57 PM
9	I would rather walk	5/6/2022 5:21 PM
10	it's an age thing	5/6/2022 4:34 PM
11	Yes & no. I have heard & seen a lot of accidents with these types. This would be one of the reasons if I decided to buy & own one.	5/6/2022 3:28 PM
12	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
13	Transportation of kids	5/6/2022 2:56 PM
14	Have considered purchasing ebike	5/6/2022 2:46 PM
15	Too old with health issues	5/6/2022 2:37 PM

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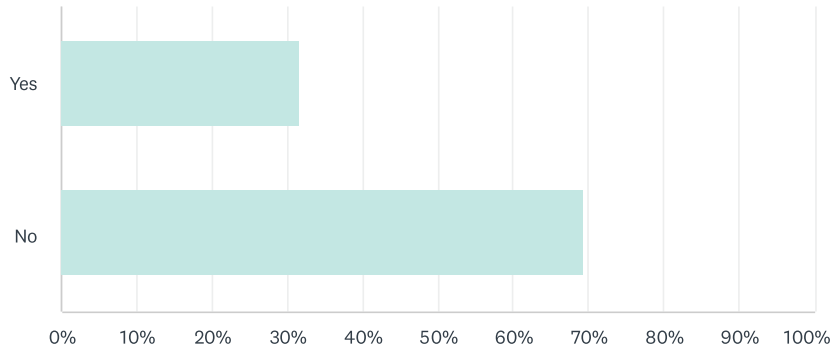
16	The area I live is not desirable for biking. Busy high speed roads to get to town shopping. If I lived in town, then yes.	5/6/2022 2:17 PM
17	Less issues with parking	5/6/2022 12:54 PM
18	It would be a great alternative to driving short distances in our hilly area.	5/6/2022 12:05 PM
19	I think they are an effective way for in town transportation with a low cost and commitment	5/6/2022 11:49 AM
20	Own one	5/6/2022 11:40 AM
21	A somewhat rural community	5/6/2022 11:38 AM
22	My husband and I already own electric bikes	5/6/2022 11:38 AM
23	Too old	5/6/2022 11:37 AM
24	Crime	5/6/2022 11:31 AM
25	A bike can't get me to work.	5/2/2022 6:31 PM
26	I live in a rural area	5/2/2022 2:16 PM
27	Depending on cost, I would embrace such a program.	5/1/2022 3:51 AM
28	Too many homeless and unemployed who would trash them. Until bike riders pay taxes, they shouldn't take up more of the road than now.	4/30/2022 2:50 PM
29	As long as the seat was comfortable I'd probably use it frequently	4/29/2022 1:58 PM
30	Balance Issues	4/29/2022 10:23 AM
31	That would be an accident waiting to happen in my case.	4/29/2022 8:08 AM
32	Knee issues	4/29/2022 6:27 AM
33	I spent \$1,000 on my bicycle and I get a lot of exercise and enjoyment from riding. plus, I make fun of people going by me bundled in winter coats on e-bikes.	4/29/2022 6:06 AM
34	Danger of fall & injuries for senior citizens.	4/29/2022 5:27 AM
35	Maintenance wouldn't be kept up. Everywhere I go is farther than I would ever ride a bike	4/28/2022 8:57 PM
36	Cannot ride bicycle due to mobility issues.	4/28/2022 7:51 PM
37	Maintenance issues and theft !	4/28/2022 7:50 PM
38	No real need for a bicycle. Might be fun at best.	4/28/2022 7:09 PM
39	Inconvenient. Unreliable. Bikes are miserably in heavy rain— of which Seattle is famous.	4/28/2022 7:00 PM
40	I don't feel comfortable riding bikes on the side of the road due to safety concerns, especially since I care for a baby all day.	4/28/2022 6:49 PM
41	Because they litter up public walking spaces. If there were going to be fixed pick up/drop off locations like charging racks I would be in favor of this, but I assume this is a Lime type thing where you plan to distribute trash all around my town.	4/28/2022 6:40 PM
42	I would use them on short outings. Sounds like a fun family activity	4/28/2022 5:39 PM
43	I would just ride a regular bike, if I was going to ride a bike.	4/28/2022 5:22 PM
44	There wouldn't be enough bikes to go around	4/28/2022 5:18 PM
45	This seems like an affordable way to get around and it saves the planet	4/28/2022 5:07 PM
46	No where to go with a bike here in Maple Falls. Yet, I would use it I were in Bellingham	4/28/2022 4:35 PM
47	Prefer to walk	4/28/2022 4:30 PM
48	not a very good biker	4/28/2022 4:27 PM
49	I live in the country	4/28/2022 4:25 PM
50	It would be very useful resource for the community.	4/28/2022 4:23 PM

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51	I travel too far	4/28/2022 4:22 PM
52	I'm disabled.	4/28/2022 4:18 PM
53	No use for one	4/28/2022 4:15 PM

Q9 If shared electric scooters that you could take on a first-come, first-served basis were available to your community, would you be interested in the program? Why or why not?

Answered: 74 Skipped: 2



ANSWER CHOICES	RESPONSES
Yes	31.08% 23
No	68.92% 51
TOTAL	74

#	WHY OR WHY NOT?	DATE
1	Always have wanted a scooter	5/9/2022 6:28 AM
2	Test ride the scooter	5/8/2022 12:01 PM
3	Weather, age, hills	5/7/2022 7:35 AM
4	Too remote. We would need to drive to access one.	5/7/2022 6:36 AM
5	I would feel safer on one	5/7/2022 5:34 AM
6	Im a bicycle guy.	5/6/2022 10:20 PM
7	Can't use it because Of my work	5/6/2022 7:57 PM
8	Same as above	5/6/2022 6:57 PM
9	WOuld rather walk.	5/6/2022 5:21 PM
10	maybe	5/6/2022 4:34 PM
11	I would like to give it a try. Weather permitting & where it is located.	5/6/2022 3:28 PM
12	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
13	Maybe	5/6/2022 3:07 PM
14	Transportation of kids	5/6/2022 2:56 PM
15	Danger of scooters	5/6/2022 2:46 PM

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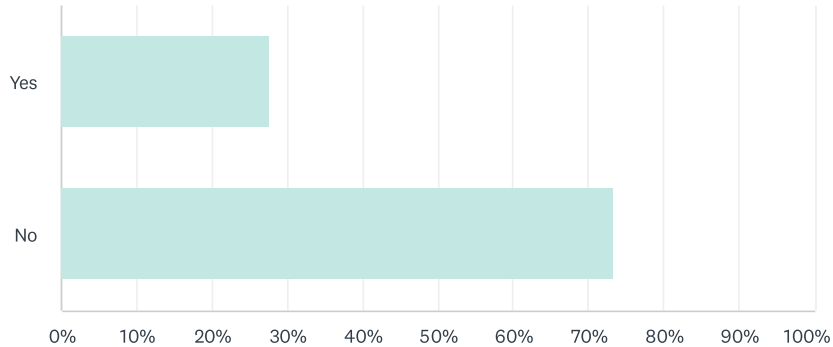
16	No able to use	5/6/2022 2:37 PM
17	Same as above.	5/6/2022 2:17 PM
18	Less issues with parking.	5/6/2022 12:54 PM
19	Yes! Because it would be so fun!	5/6/2022 12:05 PM
20	I don't like scooters/motorcycles because I was in an accident.	5/6/2022 11:49 AM
21	I think shared public scooters would be abused.	5/6/2022 11:47 AM
22	Rural community	5/6/2022 11:38 AM
23	My husband and I already electric bikes	5/6/2022 11:38 AM
24	Too old for scooters	5/6/2022 11:37 AM
25	Cant drive	5/6/2022 11:31 AM
26	Safety	5/4/2022 3:06 PM
27	I have no interest in riding a scooter	5/2/2022 6:31 PM
28	Same as bikes above	4/30/2022 2:50 PM
29	Not appealing to me	4/29/2022 1:58 PM
30	Balance	4/29/2022 10:23 AM
31	Sounds fun!	4/29/2022 6:27 AM
32	just no interest at all.	4/29/2022 6:06 AM
33	Needs of senior citizens and individual safety must be addressed.	4/29/2022 5:27 AM
34	No interest	4/28/2022 8:57 PM
35	Don't ride scooters	4/28/2022 8:36 PM
36	Cannot use scooters due to mobility issues.	4/28/2022 7:51 PM
37	We don't live in an urban area.	4/28/2022 7:50 PM
38	Novelty at best.	4/28/2022 7:09 PM
39	Not dependable. Subject to weather conditions in being able to go places.	4/28/2022 7:00 PM
40	I don't make short trips where a scooter would be practical transportation.	4/28/2022 6:49 PM
41	Same as above.	4/28/2022 6:40 PM
42	Don't trust a scooter as much as a bike	4/28/2022 6:01 PM
43	Sounds like a fun family activity	4/28/2022 5:39 PM
44	Same as previous answer but with scooters	4/28/2022 5:22 PM
45	There wouldn't be enough to go around	4/28/2022 5:18 PM
46	Yes if they were rechargeable because they save on gas and a good for the environment	4/28/2022 5:07 PM
47	For my use minimum commute distance would be Bellingham. I would prefer to use a public bus.	4/28/2022 4:35 PM
48	Prefer to walk	4/28/2022 4:30 PM
49	no good with my balance	4/28/2022 4:27 PM
50	I live in the country	4/28/2022 4:25 PM
51	My husband might be interested but I am on crutches..so no for me	4/28/2022 4:24 PM
52	I think it is a great idea and resource for the community and I would be likely to use.	4/28/2022 4:23 PM
53	Fun	4/28/2022 4:22 PM

Puget Sound Energy Single Family Transportation Electrification Survey

54	I wouldn't know how to operate.	4/28/2022 4:18 PM
55	No use for one	4/28/2022 4:15 PM

Q10 Would you pay to access and use a shared electric bike and/or scooter program?

Answered: 74 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	27.03%	20
No	72.97%	54
TOTAL		74

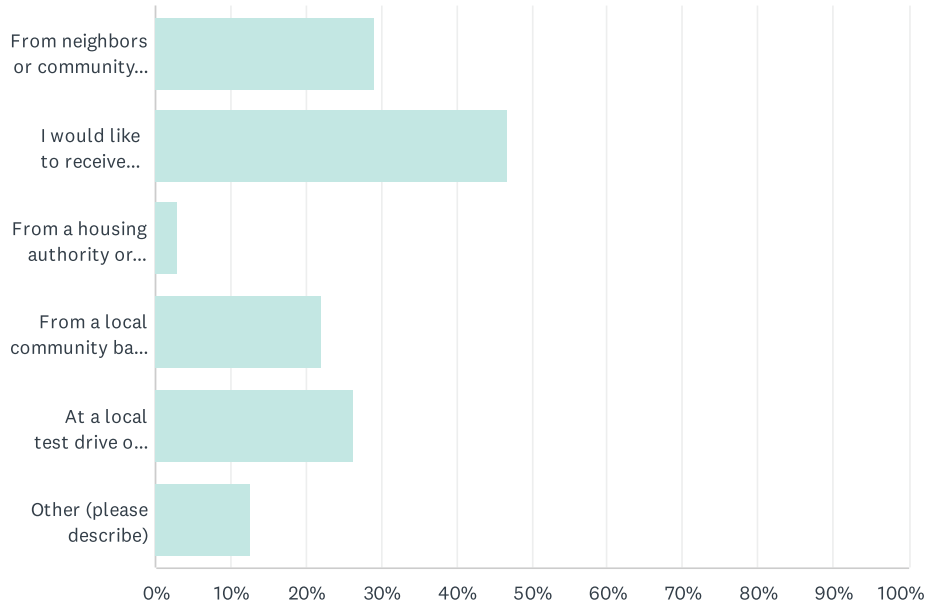
#	PLEASE EXPLAIN YOUR ANSWER.	DATE
1	It would be worth it to have in the neighborhood. However the price would have to be reasonable	5/9/2022 6:28 AM
2	I want to test it first before I spend money on it.	5/8/2022 12:01 PM
3	Not useful for us.	5/7/2022 6:36 AM
4	Yes because I would only pay if I used it	5/7/2022 5:34 AM
5	Though price would come to factor, i think it would be preferable to own rather than perpetually rent.	5/6/2022 10:20 PM
6	No need for me	5/6/2022 7:57 PM
7	I probably wouldn't use it enough to justify paying.	5/6/2022 6:57 PM
8	no	5/6/2022 5:21 PM
9	Would probably like to try.	5/6/2022 3:28 PM
10	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
11	Cost depending	5/6/2022 2:46 PM
12	Too dangerous	5/6/2022 2:37 PM
13	Yes, if I lived in town where is was convenient to use.	5/6/2022 2:17 PM
14	Yes, if the cost outweighed the benefits.	5/6/2022 12:54 PM
15	The cost would have to be minimal but I would love the opportunity to participate in this type of shared program since I don't have the means to but One myself	5/6/2022 12:05 PM

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16	It's better than purchasing my own.	5/6/2022 11:49 AM
17	Rural community	5/6/2022 11:38 AM
18	My husband and I already own electric bikes	5/6/2022 11:38 AM
19	Too old—wouldn't use	5/6/2022 11:37 AM
20	Low income	5/6/2022 11:31 AM
21	I wouldn't be interested in using them	5/2/2022 6:31 PM
22	Prefer a car. Much safer.	4/30/2022 2:50 PM
23	Poor	4/29/2022 1:58 PM
24	Balance	4/29/2022 10:23 AM
25	Minimal or free	4/29/2022 6:27 AM
26	has no real benefit in my life	4/29/2022 6:06 AM
27	This option would not be an option for people with disabilities or many health conditions. Not a good choice for senior citizens,	4/29/2022 5:27 AM
28	If I want to ride an electric bike I will buy my own	4/28/2022 8:57 PM
29	Method of transportation is not secure.	4/28/2022 7:09 PM
30	No dependable.	4/28/2022 7:00 PM
31	Maybe if I didn't have a baby I would. And if there were more bike paths.	4/28/2022 6:49 PM
32	See above.	4/28/2022 6:40 PM
33	I don't like commitment	4/28/2022 5:39 PM
34	There wouldn't be enough to go around	4/28/2022 5:18 PM
35	Minimum	4/28/2022 5:12 PM
36	Because too many germs from other people touching it	4/28/2022 5:07 PM
37	yes, I would pay but again, there is no feasible use here in Maple Falls.	4/28/2022 4:35 PM
38	Prefer to walk	4/28/2022 4:30 PM
39	i feel i am not safe using bike or scooter	4/28/2022 4:27 PM
40	Husband might	4/28/2022 4:24 PM
41	I don't have the extra income to help with this.	4/28/2022 4:23 PM
42	Should be free	4/28/2022 4:22 PM
43	I live on fixed income.	4/28/2022 4:18 PM
44	I don't use one	4/28/2022 4:15 PM

Q11 How would you prefer to learn more about electric vehicle programs like the ones described in this survey? Select all that apply.

Answered: 73 Skipped: 3



ANSWER CHOICES	RESPONSES
From neighbors or community members who are part of this program	28.77% 21
I would like to receive emails and/or texts from PSE about the program	46.58% 34
From a housing authority or rental assistance provider	2.74% 2
From a local community based organization	21.92% 16
At a local test drive or training	26.03% 19
Other (please describe)	12.33% 9
Total Respondents: 73	

#	OTHER (PLEASE DESCRIBE)	DATE
1	Not interested in EVs.	5/6/2022 5:21 PM
2	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
3	I dont know	5/6/2022 11:31 AM
4	Newspaper or the news.	4/30/2022 2:50 PM
5	For me personally, I have no interest in getting an electric car.	4/29/2022 8:08 AM
6	flyers in with my bills when it arrives?	4/29/2022 6:06 AM

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7	I really wouldn't my newest vehicle is a 2006 and oldest is a 1968. They still run great and I don't see the need to update them anytime soon.	4/28/2022 7:09 PM
8	Physical mail newsletters	4/28/2022 5:39 PM
9	Hhh	4/28/2022 4:28 PM

Q12 Is there anything else you'd like to share with us about your interest in electric vehicles or at-home charging?

Answered: 56 Skipped: 20

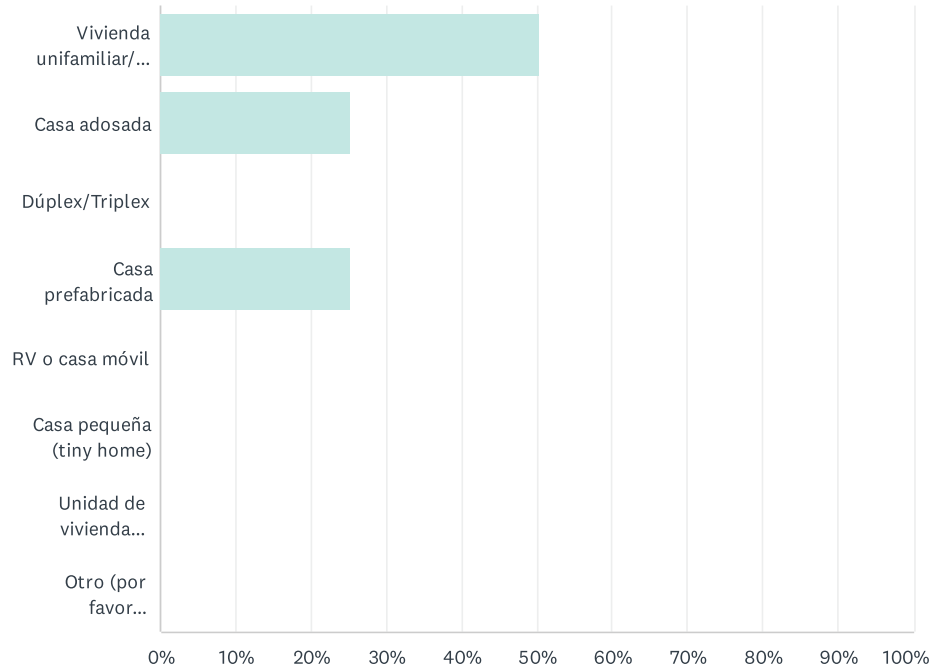
#	RESPONSES	DATE
1	Not at this time	5/9/2022 6:28 AM
2	I want to test the service how is if helpful and saving money and environment.	5/8/2022 12:01 PM
3	I'm glad you guys are actively looking into this. Pse owned home chargers is a great idea.	5/7/2022 6:36 AM
4	If the public can be more educated about home charging that will an excellent idea.	5/6/2022 7:57 PM
5	Not at this time	5/6/2022 6:57 PM
6	Not interested.	5/6/2022 5:21 PM
7	not at this time	5/6/2022 4:34 PM
8	Need more info on ev & ev products.	5/6/2022 3:28 PM
9	It is a waste of my money and only serves to give more money like the Democrat criminals like AL GORE. YOU GUYS ARE STUPID AND GREEDY. SHAME ON YOU.	5/6/2022 3:23 PM
10	No	5/6/2022 2:56 PM
11	Timing of implementation	5/6/2022 2:46 PM
12	No	5/6/2022 2:37 PM
13	The cost of charger install would have to be offset by fuel savings annually.	5/6/2022 12:54 PM
14	We would really love to have an EV when cost isn't such a barrier. Thank you!	5/6/2022 12:05 PM
15	None	5/6/2022 11:55 AM
16	Are there tax deductions or other incentives?	5/6/2022 11:49 AM
17	Incentives would be a big difference whether or not I got one.	5/6/2022 11:47 AM
18	Continue tax incentives	5/6/2022 11:44 AM
19	At home charging powered by solar energy.	5/6/2022 11:38 AM
20	We are researching the possibility of purchasing right now.	5/6/2022 11:38 AM
21	No. Thanks for adking	5/6/2022 11:37 AM
22	If there was a zero cost program I'd be interested	5/6/2022 11:31 AM
23	Landlords might not allowed	5/4/2022 3:06 PM
24	cost	5/4/2022 3:03 PM
25	No	5/2/2022 6:31 PM
26	N/A	5/2/2022 2:16 PM
27	Their ability to go a long distance, time to charge and available places to charge are prohibitive. Those reasons would have to greatly improve.	4/30/2022 2:50 PM
28	No	4/29/2022 10:38 AM
29	For me, It would be too much of a problem to have an electric car since my usual trip is 3 1/2 hours one way.	4/29/2022 8:08 AM
30	No	4/29/2022 6:27 AM

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31	I've said it a couple times. the biggest issue to owning is the excessive taxation to annually license an EV or hybrid. also, I feel battery technology hasn't really come along far enough to make a purely EV life happen.	4/29/2022 6:06 AM
32	How will electric vehicle need be addressed for senior citizens, citizens with health or disability issues and citizens who can not afford this.	4/29/2022 5:27 AM
33	Electric modes of transport will still need infrastructure revamping to make sense. Kart before the horse	4/28/2022 8:57 PM
34	No	4/28/2022 8:36 PM
35	I have zero interest with EV's at this point in time !	4/28/2022 7:50 PM
36	I work on E/Vs and respect peoples choice to drive them. They just aren't for my lifestyle yet.	4/28/2022 7:09 PM
37	Thank you...	4/28/2022 7:04 PM
38	The environment needs cleaner fuel. Hope that a solution is on the horizon.	4/28/2022 7:00 PM
39	No	4/28/2022 6:55 PM
40	No	4/28/2022 6:49 PM
41	I'm very interested and I think the infrastructure will be fully there soon, there just needs to be more charging stations.	4/28/2022 6:40 PM
42	It would be nice if the EV's got better mileage per charge. I mostly drive around town. But have friends and family over 600 miles away I like to visit.	4/28/2022 6:01 PM
43	Nope	4/28/2022 5:45 PM
44	No	4/28/2022 5:39 PM
45	No	4/28/2022 5:22 PM
46	No	4/28/2022 5:18 PM
47	No	4/28/2022 5:12 PM
48	No	4/28/2022 5:07 PM
49	There are not nearly enough EV charging areas available in Kitsap County. It woul be amazing if there were free EV charging centers in Bremerton like there are in Port Orchard. Ever since I had to move to Bremerton and only have access to street parking I haven't been able to charge my car and it's awful. When I lived in port orchard over 90% of all my driving was don on electric.	4/28/2022 4:40 PM
50	This type of electrical installation and related vehicle would make sense only if I had to commute daily to Bellingham; which I do.	4/28/2022 4:35 PM
51	Not at this time	4/28/2022 4:30 PM
52	No	4/28/2022 4:28 PM
53	Are looking 5 years down the road when we need to replace a vehicle.	4/28/2022 4:24 PM
54	It's a great idea for some people but not very practical for everyone.	4/28/2022 4:23 PM
55	No	4/28/2022 4:22 PM
56	Not really	4/28/2022 4:15 PM

Q1 Seleccione la opción que mejor represente su vivienda. Yo vivo en una...

Answered: 4 Skipped: 0

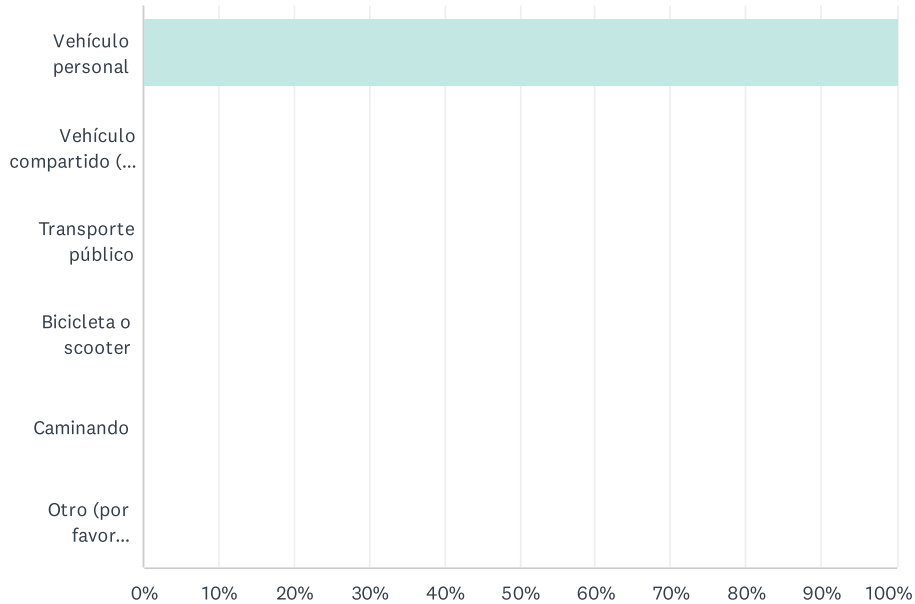


ANSWER CHOICES	RESPONSES
Vivienda unifamiliar/casa independiente	50.00% 2
Casa adosada	25.00% 1
Dúplex/Triplex	0.00% 0
Casa prefabricada	25.00% 1
RV o casa móvil	0.00% 0
Casa pequeña (tiny home)	0.00% 0
Unidad de vivienda accesoria (ADU)	0.00% 0
Otro (por favor describir)	0.00% 0
TOTAL	4

#	OTRO (POR FAVOR DESCRIBIR)	DATE
	There are no responses.	

Q2 ¿Cuál es su medio de transporte principal? Seleccione todas las que correspondan.

Answered: 4 Skipped: 0

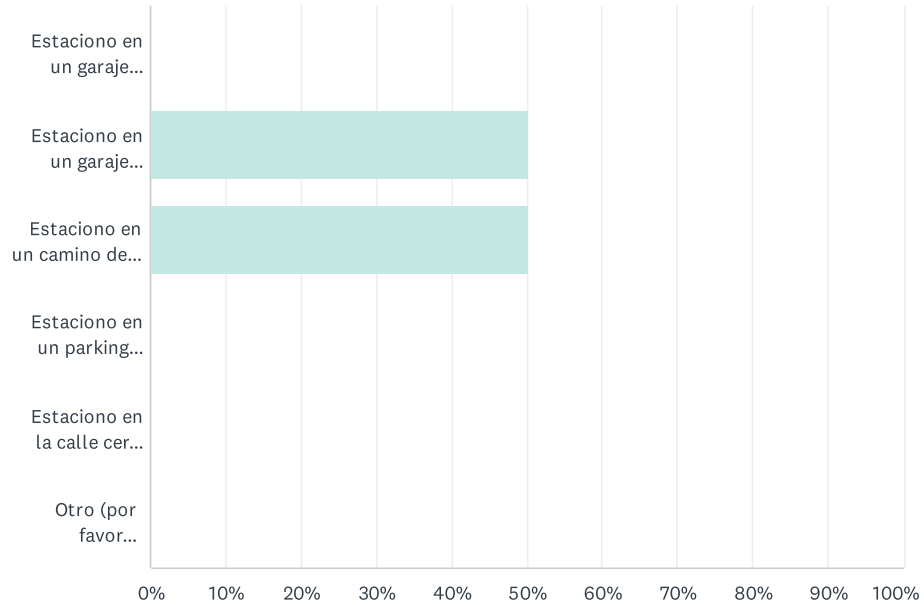


ANSWER CHOICES	RESPONSES
Vehículo personal	100.00% 4
Vehículo compartido (por ejemplo, vanpool, Uber, etc.)	0.00% 0
Transporte público	0.00% 0
Bicicleta o scooter	0.00% 0
Caminando	0.00% 0
Otro (por favor describir)	0.00% 0
Total Respondents: 4	

#	OTRO (POR FAVOR DESCRIBIR)	DATE
	There are no responses.	

Q3 ¿Cómo es el estacionamiento en su residencia?

Answered: 4 Skipped: 0

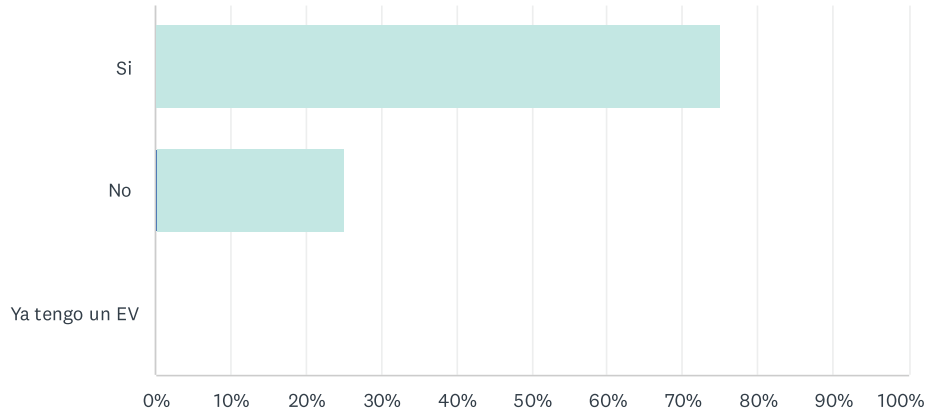


ANSWER CHOICES	RESPONSES
Estaciono en un garaje adjunto	0.00% 0
Estaciono en un garaje independiente	50.00% 2
Estaciono en un camino de entrada o cochera	50.00% 2
Estaciono en un parking compartido	0.00% 0
Estaciono en la calle cerca de mi residencia	0.00% 0
Otro (por favor describir)	0.00% 0
TOTAL	4

#	OTRO (POR FAVOR DESCRIBIR)	DATE
	There are no responses.	

Q4 ¿Estás interesado/a en tener un vehículo eléctrico (EV)? ¿Por qué o por qué no?

Answered: 4 Skipped: 0

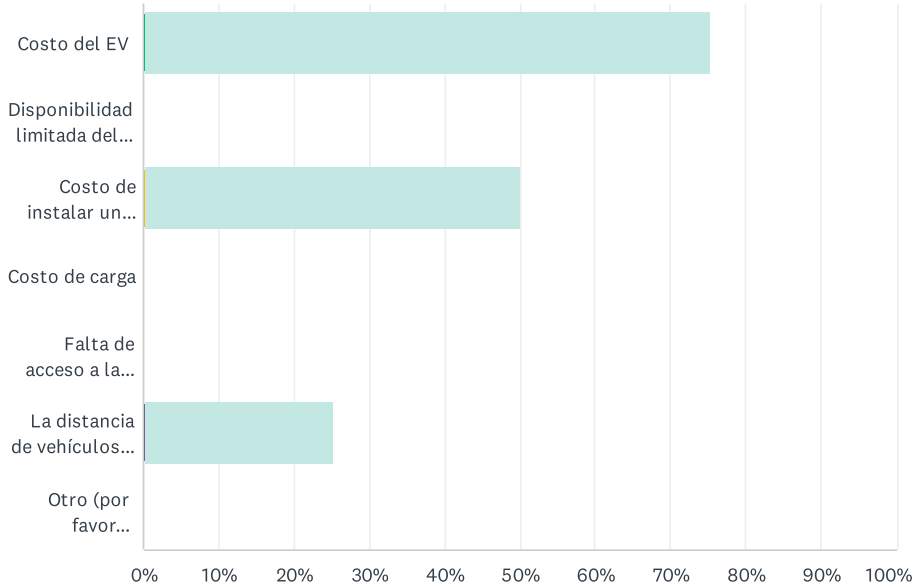


ANSWER CHOICES	RESPONSES
Si	75.00% 3
No	25.00% 1
Ya tengo un EV	0.00% 0
TOTAL	4

#	¿POR QUÉ O POR QUÉ NO?	DATE
1	para cuidar el medio ambiente	5/6/2022 7:40 PM
2	No me llama la atencion	5/4/2022 6:43 PM

Q5 ¿Qué barreras te enfrentas para tener un vehículo eléctrico? Seleccione todas las que correspondan.

Answered: 4 Skipped: 0

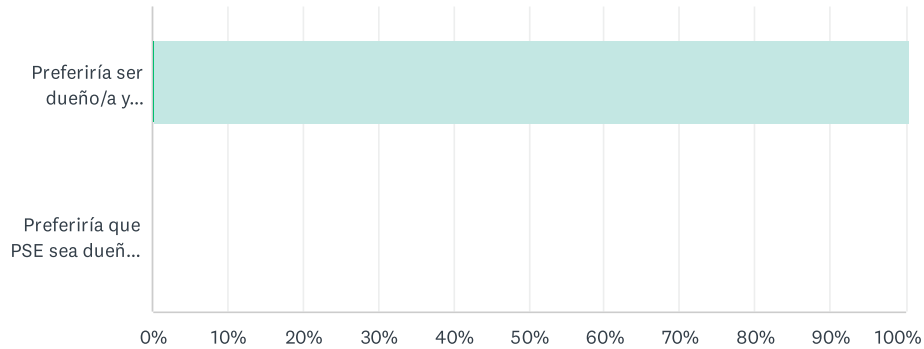


ANSWER CHOICES	RESPONSES	
Costo del EV	75.00%	3
Disponibilidad limitada del tipo de vehículo que quiero	0.00%	0
Costo de instalar un cargador en mi residencia	50.00%	2
Costo de carga	0.00%	0
Falta de acceso a la carga	0.00%	0
La distancia de vehículos eléctricos no satisface mis necesidades de transporte	25.00%	1
Otro (por favor describir)	0.00%	0
Total Respondents: 4		

#	OTRO (POR FAVOR DESCRIBIR)	DATE
	There are no responses.	

Q6 Si tuvieras un cargador EV de nivel 2 en su casa, ¿preferiría ser dueño/a y mantener el cargador o preferiría que PSE sea dueño y mantenga el cargador?

Answered: 4 Skipped: 0

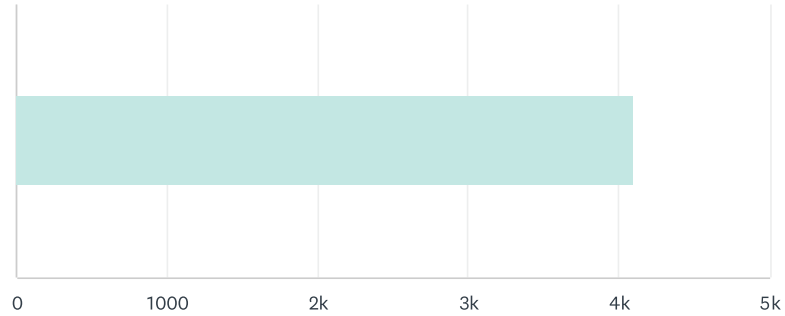


ANSWER CHOICES	RESPONSES	
Preferiría ser dueño/a y mantener el cargador	100.00%	4
Preferiría que PSE sea dueño y mantenga el cargador	0.00%	0
TOTAL		4

#	POR FAVOR EXPLIQUE SU RESPUESTA:	DATE
1	seria mas fasil para mi	5/6/2022 7:40 PM
2	Es mas facil	5/4/2022 6:43 PM

Q7 ¿Cuál es el incentivo mínimo que lo haría más propenso a comprar un vehículo eléctrico nuevo o usado? Mueva el control deslizante hasta que alcance el incentivo mínimo que lo influiría para comprar un EV.

Answered: 4 Skipped: 0

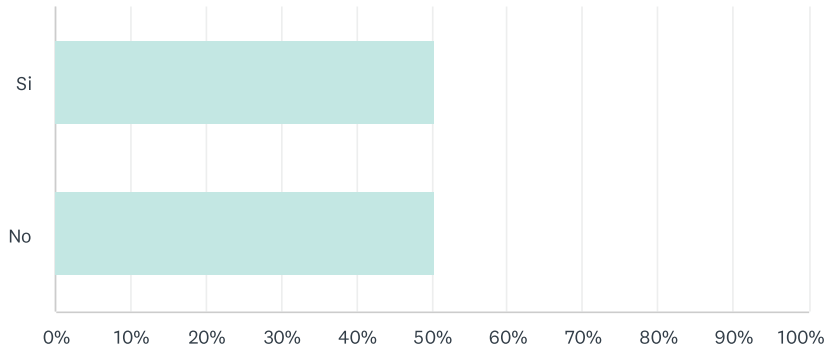


ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	4,075	16,300	4
Total Respondents: 4			

#		DATE
1	5750	5/6/2022 7:40 PM
2	1100	5/4/2022 6:43 PM
3	7500	4/28/2022 8:31 PM
4	1950	4/28/2022 6:15 PM

Q8 Si las bicicletas eléctricas compartidas que pudiera usar por orden de llegada estuvieran disponibles para su comunidad, ¿le interesaría el programa? ¿Por qué o por qué no?

Answered: 4 Skipped: 0

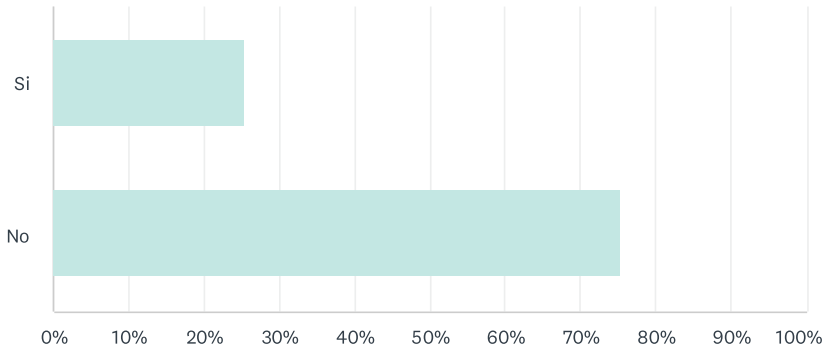


ANSWER CHOICES	RESPONSES	
Si	50.00%	2
No	50.00%	2
TOTAL		4

#	¿POR QUÉ O POR QUÉ NO?	DATE
1	por que no se usa combustible	5/6/2022 7:40 PM
2	Siempre uso mi carro	5/4/2022 6:43 PM
3	Porque estaría expuesto a los elementos y no hay mucha protección	4/28/2022 8:31 PM

Q9 Si los scooters eléctricos compartidos que pudiera usar por orden de llegada estuvieran disponibles para su comunidad, ¿le interesaría el programa? ¿Por qué o por qué no?

Answered: 4 Skipped: 0

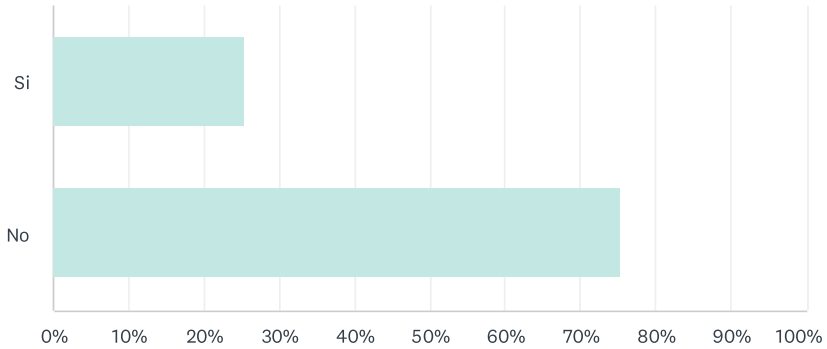


ANSWER CHOICES	RESPONSES
Si	25.00% 1
No	75.00% 3
TOTAL	4

#	¿POR QUÉ O POR QUÉ NO?	DATE
1	no me yama la atensio	5/6/2022 7:40 PM
2	Ya tengo carro	5/4/2022 6:43 PM
3	Porque no hay protección de gente y elementos	4/28/2022 8:31 PM

Q10 ¿Pagaría para acceder y utilizar un programa compartido de bicicletas y/o scooters eléctricos?

Answered: 4 Skipped: 0

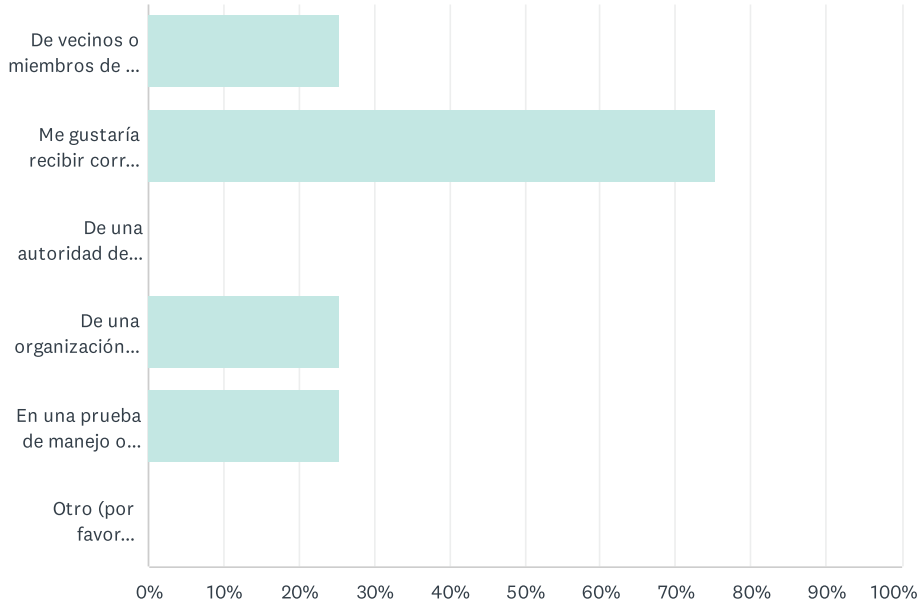


ANSWER CHOICES	RESPONSES
Si	25.00% 1
No	75.00% 3
TOTAL	4

#	POR FAVOR EXPLIQUE SU RESPUESTA.	DATE
1	nolose	5/6/2022 7:40 PM
2	Porque no quiero estar expuestos a la gente o elementos	4/28/2022 8:31 PM

**Q11 ¿Cómo preferiría obtener más información sobre programas de vehículos eléctricos como los que se describen en esta encuesta?
Selecione todas las que correspondan.**

Answered: 4 Skipped: 0



ANSWER CHOICES	RESPONSES
De vecinos o miembros de la comunidad que son parte de los programas	25.00% 1
Me gustaría recibir correos electrónicos y/o textos de PSE sobre los programas	75.00% 3
De una autoridad de vivienda o proveedor de asistencia de alquiler	0.00% 0
De una organización comunitaria local	25.00% 1
En una prueba de manejo o capacitación de un EV local	25.00% 1
Otro (por favor describir)	0.00% 0
Total Respondents: 4	

#	OTRO (POR FAVOR DESCRIBIR)	DATE
	There are no responses.	

Q12 ¿Hay algo más que le gustaría compartir con nosotros sobre su interés en los vehículos eléctricos o la carga en el hogar?

Answered: 4 Skipped: 0

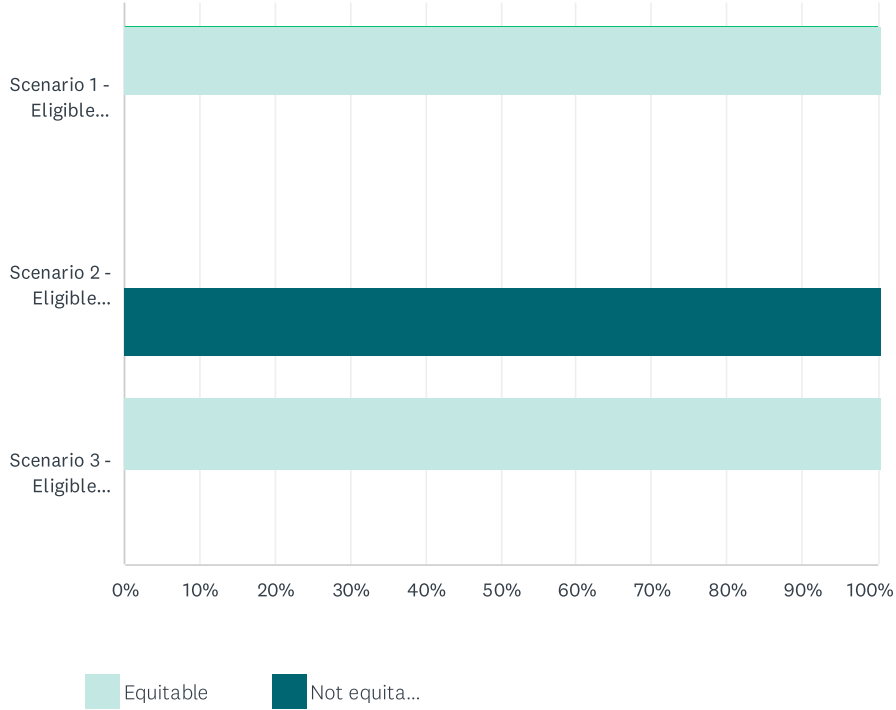
#	RESPONSES	DATE
1	que de mas in formasio	5/6/2022 7:40 PM
2	No es todo muchas gracias	5/4/2022 6:43 PM
3	El costó mensual o anual	4/28/2022 8:31 PM
4	Me gustaria saber el costo del mantenimiento en vehiculos electricos	4/28/2022 6:15 PM

APPENDIX F: SINGLE FAMILY RESIDENTIAL PROVIDER SURVEY RESULTS

See next page.

Q3 Which scenario is most equitable, and why?

Answered: 2 Skipped: 1



	EQUITABLE	NOT EQUITABLE	TOTAL	WEIGHTED AVERAGE
Scenario 1 - Eligible applicants are prioritized based on total cost of the project.	100.00% 2	0.00% 0	2	1.00
Scenario 2 - Eligible applicants are considered on a first-come, first-served basis.	0.00% 0	100.00% 1	1	2.00
Scenario 3 - Eligible applicants are prioritized based on whether they operate in areas of high carbon emissions.	100.00% 1	0.00% 0	1	1.00

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I am not sure that any of these are equitable per se. The option I chose is based more on the idea of doing the most good for the most people. To me equity is more about creating access to the process. I initially chose 1st come 1st served, but that actually may be the least equitable option as barriers to access is part of the challenge with equity. Those who can get their responses in first are often those with the least barriers to the process.	5/31/2022 7:55 AM
2	Cost involves and it is a big dela for the community, the faster you understand this the easier to make a plan, also Enviroment and health, Education as well.	5/16/2022 11:53 AM

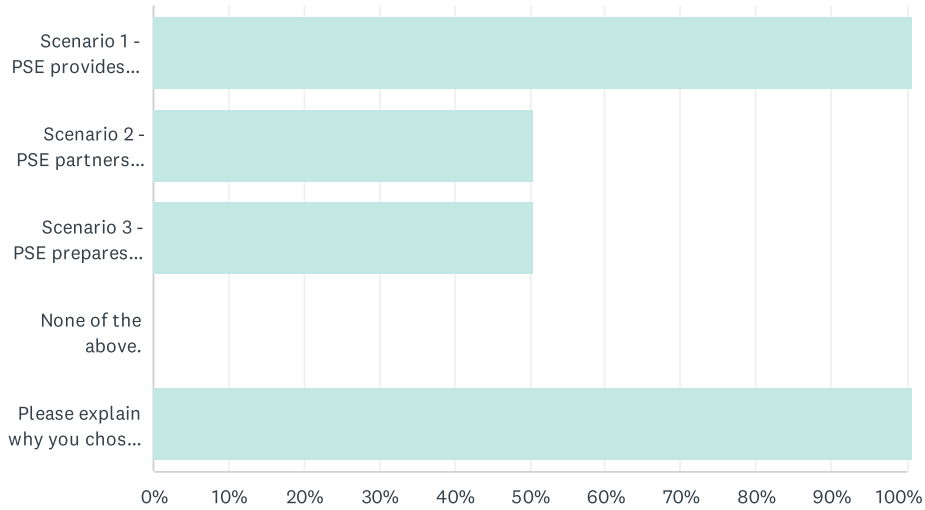
Q4 What methods of project prioritization might we be missing?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	I think the question is about balancing priorities. If you are trying to create opportunity for those without access to electric vehicles then perhaps the goal of areas where there are the most carbon emissions is not the top priority.	5/31/2022 7:55 AM
2	Education	5/16/2022 11:53 AM

Q5 What advisory services would your organization use? Select all that apply:

Answered: 2 Skipped: 1

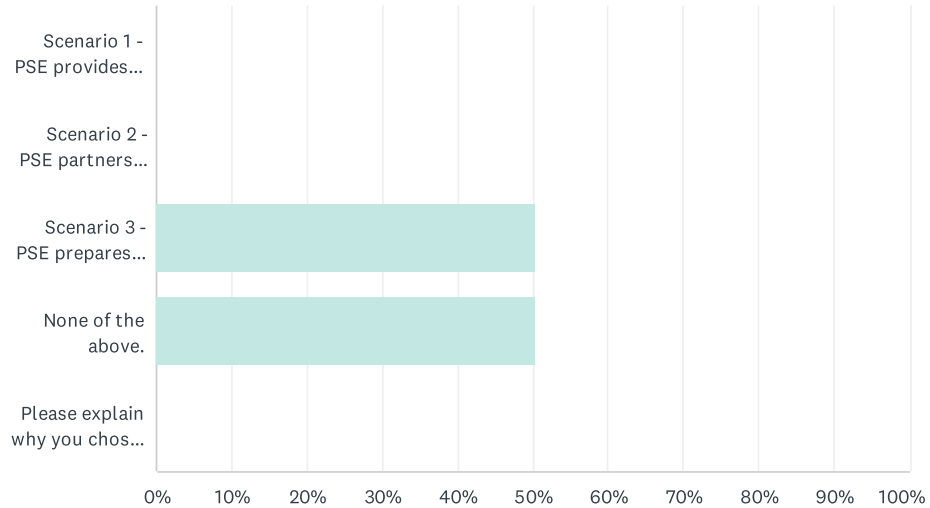


ANSWER CHOICES	RESPONSES
Scenario 1 - PSE provides calculators to help customers assess the total cost of EV and EVSE ownership.	100.00% 2
Scenario 2 - PSE partners with customer to review the site(s) and create a long-term plan for EV charger installs.	50.00% 1
Scenario 3 - PSE prepares and provides presentations to customer's critical stakeholders (e.g. Board members).	50.00% 1
None of the above.	0.00% 0
Please explain why you chose your answer:	100.00% 2
Total Respondents: 2	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I think all three might be needed in many cases for this goal to happen. It would be hard to choose just one.	5/31/2022 7:57 AM
2	And Cost -maintenance	5/16/2022 11:55 AM

Q6 What advisory services wouldn't work?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES	
Scenario 1 - PSE provides calculators to help customers assess the total cost of EV and EVSE ownership.	0.00%	0
Scenario 2 - PSE partners with customer to review the site(s) and create a long-term plan for EV charger installs.	0.00%	0
Scenario 3 - PSE prepares and provides presentations to customer's critical stakeholders (e.g. Board members).	50.00%	1
None of the above.	50.00%	1
Please explain why you chose your answer:	0.00%	0
Total Respondents: 2		

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
	There are no responses.	

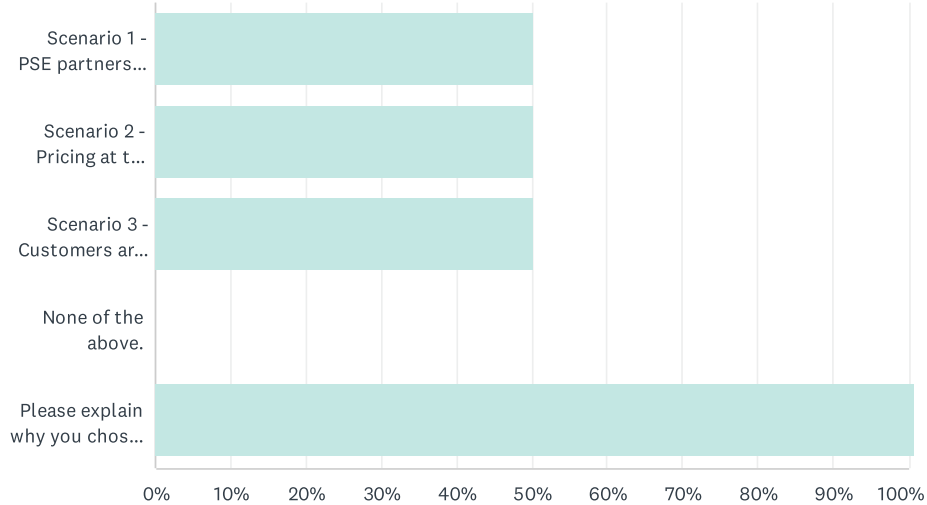
Q7 Are there any advisory services missing that would benefit your organization?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	Access to information from others who've benefitted (testimonials).	5/31/2022 7:57 AM
2	Education	5/16/2022 11:55 AM

Q8 Which scenario(s) would your organization prefer? Select all that apply.

Answered: 2 Skipped: 1

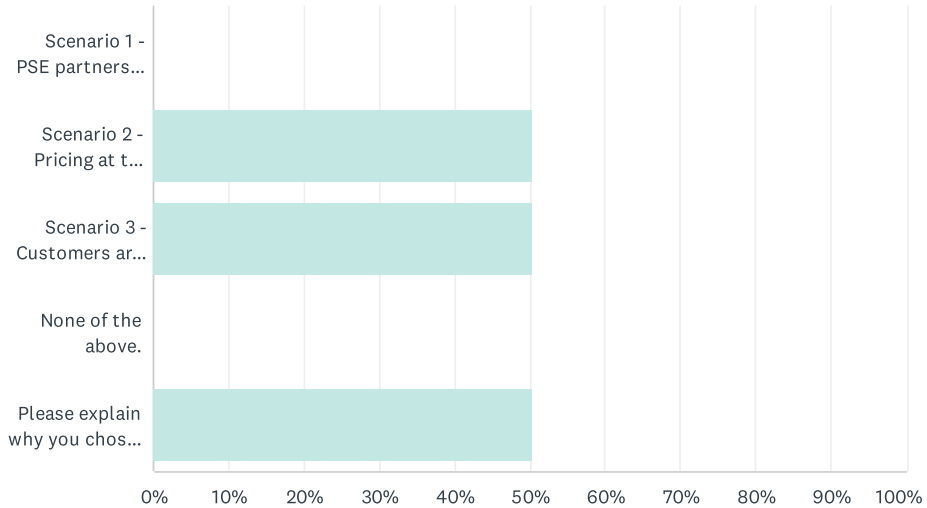


ANSWER CHOICES	RESPONSES
Scenario 1 - PSE partners with the organization to create a customized charging plan that prioritizes off-peak charging.	50.00% 1
Scenario 2 - Pricing at the charger changes dynamically based on when charging occurs. Off peak charging costs approximately four times less than on-peak charging.	50.00% 1
Scenario 3 - Customers are provided with a maximum incentive of \$10 per charger per month. The incentive amount is reduced based on the number of on-peak charges that occur.	50.00% 1
None of the above.	0.00% 0
Please explain why you chose your answer:	100.00% 2
Total Respondents: 2	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I think that this allows choice that rewards the desired outcomes. It feels more positive.	5/31/2022 8:00 AM
2	No high cost specially to employees	5/16/2022 11:56 AM

Q9 Which scenario(s) do you not like?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES
Scenario 1 - PSE partners with the organization to create a customized charging plan that prioritizes off-peak charging.	0.00% 0
Scenario 2 - Pricing at the charger changes dynamically based on when charging occurs. Off peak charging costs approximately four times less than on-peak charging.	50.00% 1
Scenario 3 - Customers are provided with an maximum incentive of \$10 per charger per month. The incentive amount is reduced based on the number of on-peak charges that occur.	50.00% 1
None of the above.	0.00% 0
Please explain why you chose your answer:	50.00% 1
Total Respondents: 2	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I think that ultimately people need to charge when they need to charge. If we are trying to get people to adopt the idea of having an electric vehicle then we do not want to discourage that initial move by making it more complicated.	5/31/2022 8:00 AM

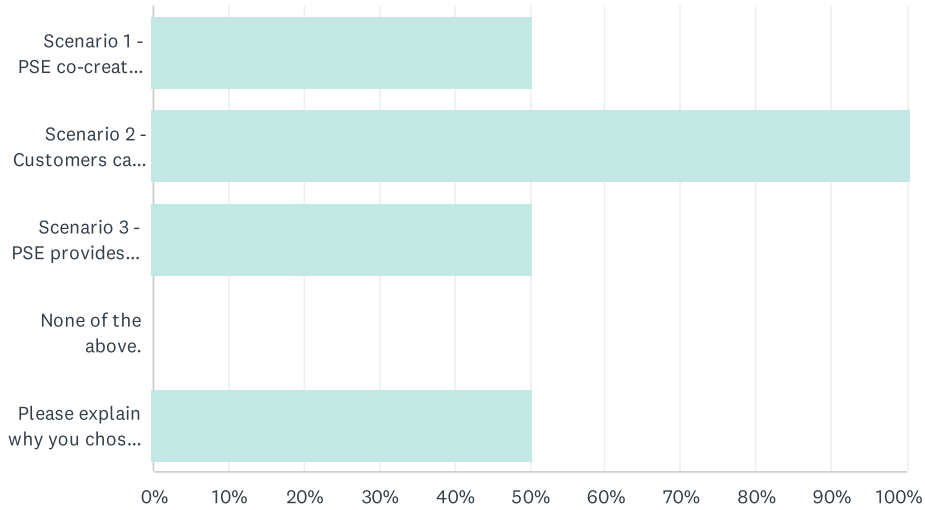
Q10 Is there anything missing from these scenarios that we should consider?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	no	5/31/2022 8:00 AM
2	Free Stations	5/16/2022 11:56 AM

Q11 Which education method(s) would work best for you and your residents? Select all that apply.

Answered: 2 Skipped: 1

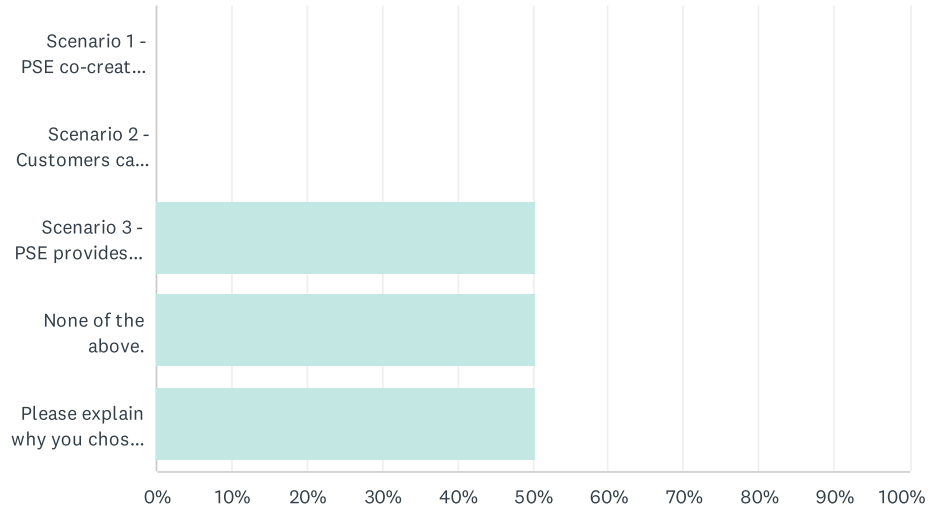


ANSWER CHOICES	RESPONSES
Scenario 1 - PSE co-creates materials for the customer to distribute to their clients or constituents.	50.00% 1
Scenario 2 - Customers can attend local rides and drives to test EVs.	100.00% 2
Scenario 3 - PSE provides EV services as a package with other services (e.g. weatherization or retrofits)	50.00% 1
None of the above.	0.00% 0
Please explain why you chose your answer:	50.00% 1
Total Respondents: 2	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I think all are great ideas and allow flexibility to meet a variety of needs.	5/31/2022 8:01 AM

Q12 Which education method(s) would not work? Select all that apply.

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES
Scenario 1 - PSE co-creates materials for the customer to distribute to their clients or constituents.	0.00% 0
Scenario 2 - Customers can attend local rides and drives to test EVs.	0.00% 0
Scenario 3 - PSE provides EV services as a package with other services (e.g. weatherization or retrofits)	50.00% 1
None of the above.	50.00% 1
Please explain why you chose your answer:	50.00% 1
Total Respondents: 2	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I dont really see this all coming together especially for low income households	5/16/2022 11:57 AM

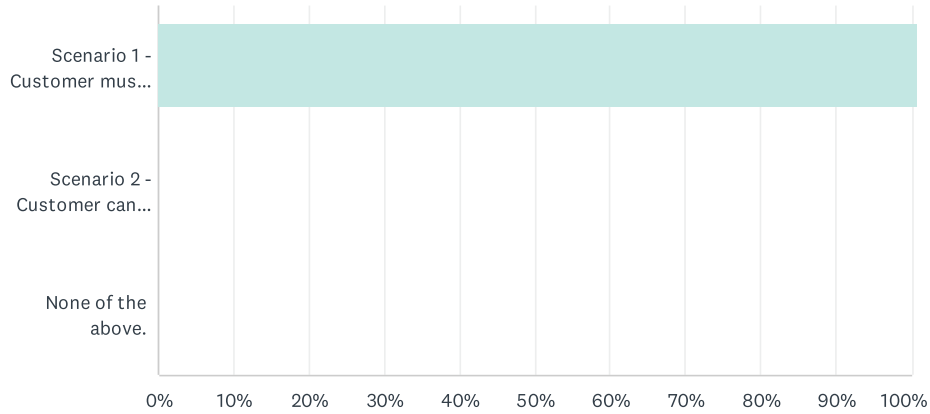
Q13 Are there any additional education or outreach methods that you'd like to see PSE include?

Answered: 1 Skipped: 2

#	RESPONSES	DATE
1	No	5/31/2022 8:01 AM

Q14 Which ownership preference and rebate model works best for you, and why?

Answered: 2 Skipped: 1



ANSWER CHOICES	RESPONSES
Scenario 1 - Customer must select a charger from a pre-determined list, receives \$1,200 per port, and PSE maintains all infrastructure.	100.00% 2
Scenario 2 - Customer can select any charger, receives up to \$500 per port, and maintains EVSE and behind the meter.	0.00% 0
None of the above.	0.00% 0
TOTAL	2

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
1	I think the idea of the customer being responsible for the long term maintenance will be a deter people. From a practical point of view, having a single source to contact for maintenance on the chargers themselves will be helpful.	5/31/2022 8:04 AM
2	Givig customer to availability to decide works better - its marketing	5/16/2022 11:59 AM

Q15 What barriers exist in these scenarios?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	In scenario 2 I think the initial cost of purchase or having to do the research of all the available options would slow or halt the process.	5/31/2022 8:04 AM
2	Cost again	5/16/2022 11:59 AM

Q16 How can PSE make these scenarios more accessible for customers?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	Not sure.	5/31/2022 8:04 AM
2	Work in hand with state and government	5/16/2022 11:59 AM

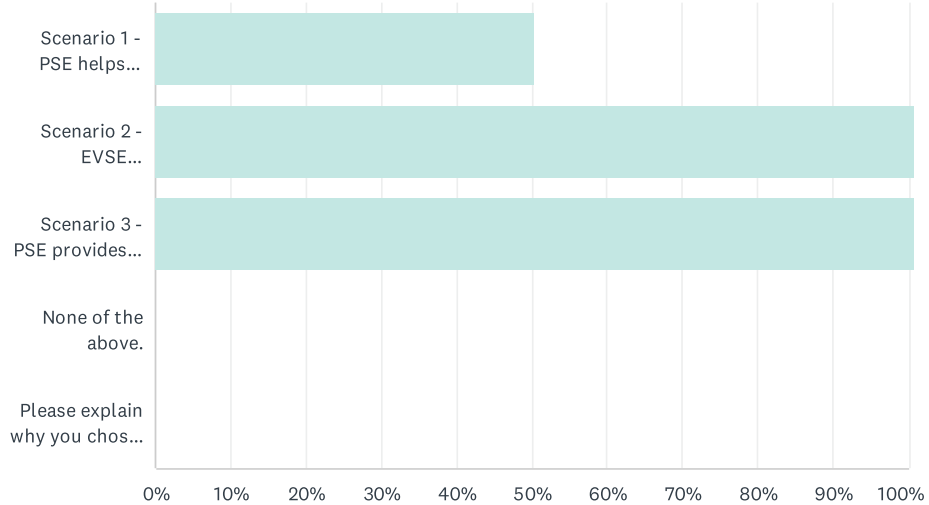
Q17 What's missing from these scenarios?

Answered: 1 Skipped: 2

#	RESPONSES	DATE
1	They seem well thought out.	5/31/2022 8:04 AM

Q18 What EV incentive model works best for you, and why?

Answered: 2 Skipped: 1

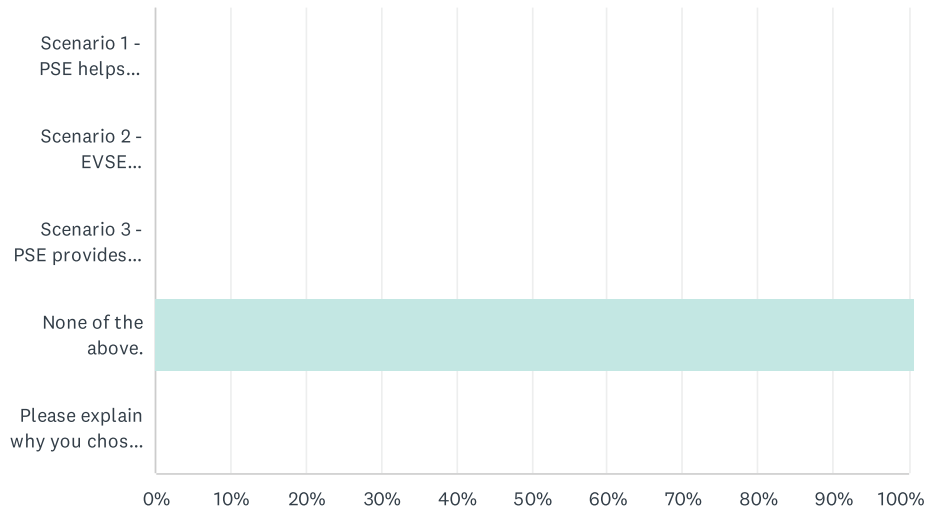


ANSWER CHOICES	RESPONSES	
Scenario 1 - PSE helps customers locate state, federal, or private grants and provides letters of support.	50.00%	1
Scenario 2 - EVSE installation is accompanied by an EV incentive to income-eligible residents.	100.00%	2
Scenario 3 - PSE provides incentives for electric scooters or bikes for residents to utilize.	100.00%	2
None of the above.	0.00%	0
Please explain why you chose your answer:	0.00%	0
Total Respondents: 2		

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
	There are no responses.	

Q19 Are there any models you dislike? Select all that apply.

Answered: 1 Skipped: 2



ANSWER CHOICES	RESPONSES
Scenario 1 - PSE helps customers locate state, federal, or private grants and provides letters of support.	0.00% 0
Scenario 2 - EVSE installation is accompanied by an EV incentive to income-eligible residents.	0.00% 0
Scenario 3 - PSE provides incentives for electric scooters or bikes for residents to utilize.	0.00% 0
None of the above.	100.00% 1
Please explain why you chose your answer:	0.00% 0
Total Respondents: 1	

#	PLEASE EXPLAIN WHY YOU CHOSE YOUR ANSWER:	DATE
	There are no responses.	

Q20 Are there any additional EV incentive models that would better benefit your organization?

Answered: 0 Skipped: 3

#	RESPONSES	DATE
	There are no responses.	

Q21 Is there anything else you would like to share with us about transportation electrification?

Answered: 2 Skipped: 1

#	RESPONSES	DATE
1	Thank you for the efforts. I love electric vehicles, but the cost is prohibitive for low-income people who perhaps could benefit the most from the lower monthly and long term cost of ownership.	5/31/2022 8:11 AM
2	Its a great idea but it has some things that involves more than just selling them and it has to be in agreement with powerful industries for the best of the community	5/16/2022 12:01 PM

APPENDIX G: PUBLIC SURVEY RESULTS

See next page.

Q1 What zip code do you live in?

Answered: 50 Skipped: 2

#	RESPONSES	DATE
1	98926	6/2/2022 1:34 AM
2	98926	6/1/2022 3:31 PM
3	98239	6/1/2022 9:31 AM
4	98226	6/1/2022 9:30 AM
5	98221	6/1/2022 7:33 AM
6	98239	6/1/2022 7:01 AM
7	98337	6/1/2022 6:07 AM
8	98022	6/1/2022 1:19 AM
9	98943	5/31/2022 10:01 PM
10	98926	5/31/2022 8:01 PM
11	98032	5/31/2022 7:04 PM
12	98503	5/31/2022 5:41 PM
13	98058	5/31/2022 5:06 PM
14	98226	5/31/2022 5:03 PM
15	98239	5/31/2022 5:01 PM
16	98312	5/31/2022 4:41 PM
17	98105	5/31/2022 4:27 PM
18	98239	5/31/2022 4:26 PM
19	98387	5/27/2022 10:30 AM
20	98366	5/26/2022 11:13 AM
21	98239	5/26/2022 9:37 AM
22	98922	5/25/2022 10:17 AM
23	98226	5/24/2022 7:16 PM
24	98226	5/24/2022 1:39 PM
25	98247	5/24/2022 10:41 AM
26	98226	5/23/2022 7:53 PM
27	98373	5/23/2022 7:47 PM
28	98273	5/23/2022 7:27 PM
29	98002	5/23/2022 6:42 PM
30	98266	5/23/2022 5:27 PM
31	98266	5/23/2022 5:14 PM
32	98513	5/23/2022 4:34 PM
33	98502	5/23/2022 4:09 PM

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34	98277	5/23/2022 4:08 PM
35	98070	5/23/2022 4:06 PM
36	98277	5/23/2022 3:41 PM
37	98055	5/23/2022 3:07 PM
38	98001	5/23/2022 1:40 PM
39	98310	5/23/2022 1:31 PM
40	98503	5/23/2022 1:28 PM
41	98277	5/23/2022 1:27 PM
42	98226	5/23/2022 1:17 PM
43	98284	5/23/2022 1:14 PM
44	98499	5/23/2022 1:02 PM
45	98312	5/23/2022 1:00 PM
46	98310	5/23/2022 12:52 PM
47	98502	5/23/2022 12:47 PM
48	98371	5/23/2022 12:47 PM
49	98366	5/23/2022 12:47 PM
50	TEST	5/20/2022 1:34 PM

Q2 What zip code do you work in?

Answered: 50 Skipped: 2

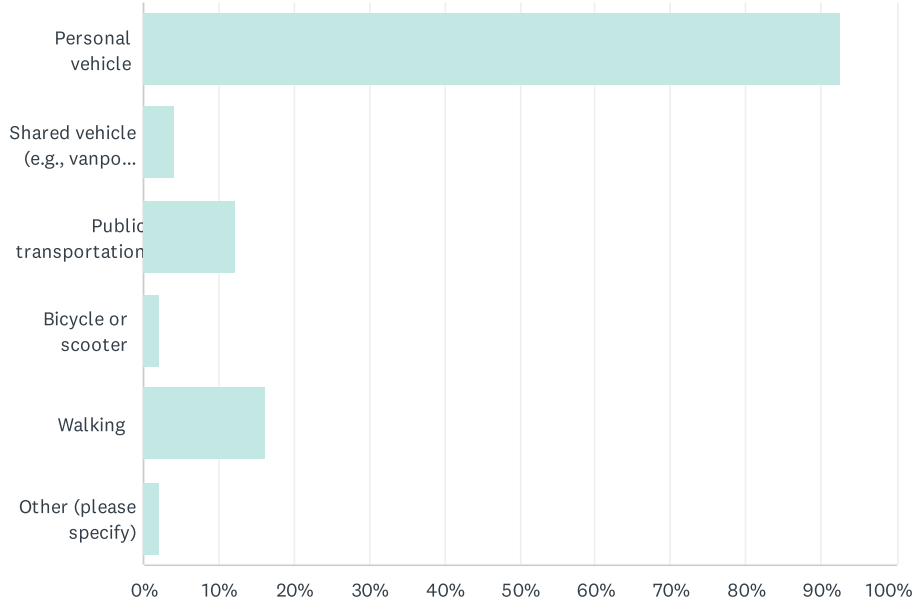
#	RESPONSES	DATE
1	98926	6/2/2022 1:34 AM
2	98926	6/1/2022 3:31 PM
3	98226	6/1/2022 9:30 AM
4	98057	6/1/2022 7:34 AM
5	98221	6/1/2022 7:33 AM
6	Retired	6/1/2022 7:01 AM
7	98337	6/1/2022 6:07 AM
8	0	6/1/2022 1:19 AM
9	98922	5/31/2022 10:01 PM
10	98208	5/31/2022 8:01 PM
11	98032	5/31/2022 7:04 PM
12	98503	5/31/2022 5:41 PM
13	Retired	5/31/2022 5:06 PM
14	98255	5/31/2022 5:03 PM
15	98239	5/31/2022 5:01 PM
16	98311	5/31/2022 4:41 PM
17	98105	5/31/2022 4:27 PM
18	98239	5/31/2022 4:26 PM
19	98405	5/27/2022 10:30 AM
20	98370	5/26/2022 11:13 AM
21	98239	5/26/2022 9:37 AM
22	98922	5/25/2022 10:17 AM
23	98101	5/24/2022 7:16 PM
24	98226	5/24/2022 1:39 PM
25	98247	5/24/2022 10:41 AM
26	98226	5/23/2022 7:53 PM
27	98374	5/23/2022 7:47 PM
28	98273	5/23/2022 7:27 PM
29	98101	5/23/2022 6:42 PM
30	98266	5/23/2022 5:27 PM
31	98266	5/23/2022 5:14 PM
32	98513	5/23/2022 4:34 PM
33	98502	5/23/2022 4:09 PM

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34	98277	5/23/2022 4:08 PM
35	98070	5/23/2022 4:06 PM
36	98277	5/23/2022 3:41 PM
37	98007	5/23/2022 3:07 PM
38	98032	5/23/2022 1:40 PM
39	Retired	5/23/2022 1:31 PM
40	98502	5/23/2022 1:28 PM
41	98277	5/23/2022 1:27 PM
42	98226	5/23/2022 1:17 PM
43	98273	5/23/2022 1:14 PM
44	98499	5/23/2022 1:02 PM
45	98310	5/23/2022 1:00 PM
46	98310	5/23/2022 12:52 PM
47	98502	5/23/2022 12:47 PM
48	98375	5/23/2022 12:47 PM
49	98366	5/23/2022 12:47 PM
50	TEST	5/20/2022 1:34 PM

Q3 What is your primary mode of transportation? Select all that apply.

Answered: 51 Skipped: 1

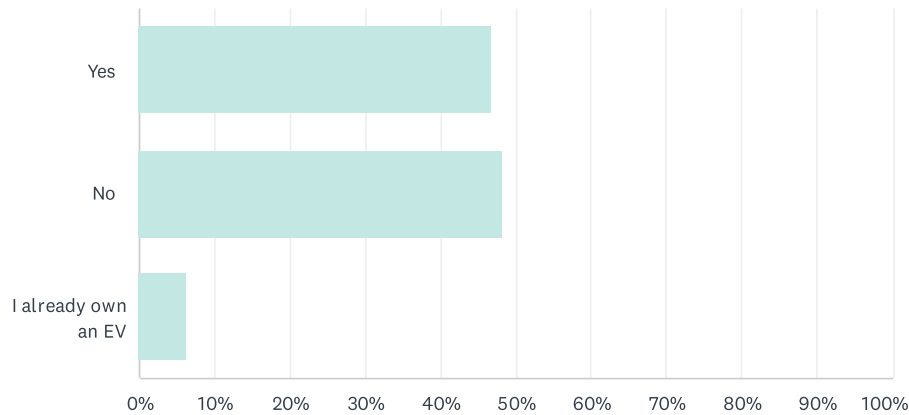


ANSWER CHOICES	RESPONSES
Personal vehicle	92.16% 47
Shared vehicle (e.g., vanpool, Uber, etc.)	3.92% 2
Public transportation	11.76% 6
Bicycle or scooter	1.96% 1
Walking	15.69% 8
Other (please specify)	1.96% 1
Total Respondents: 51	

#	OTHER (PLEASE SPECIFY)	DATE
1	Family drives me.	6/1/2022 9:31 AM

Q4 Are you interested in owning or purchasing an electric vehicle (EV)? Why or why not?

Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	46.15%	24
No	48.08%	25
I already own an EV	5.77%	3
TOTAL		52

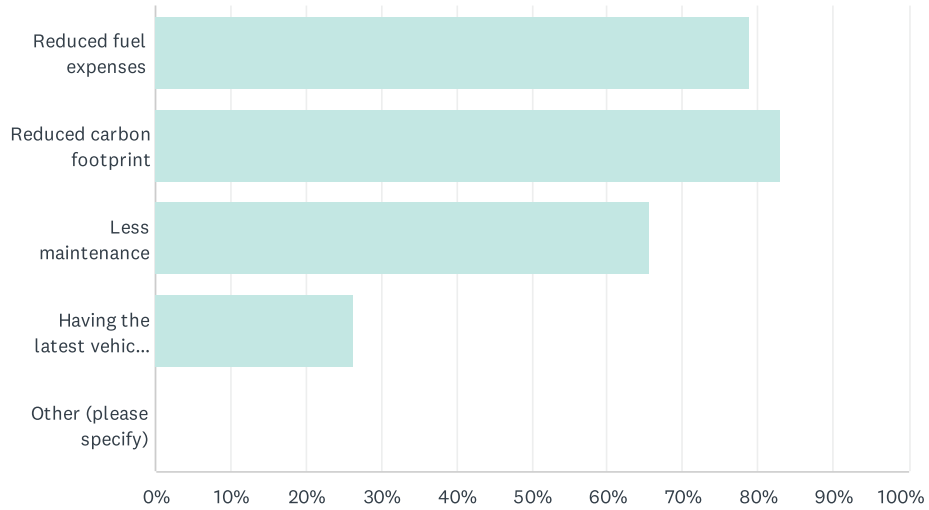
#	WHY OR WHY NOT?	DATE
1	Economical for local driving	6/2/2022 1:34 AM
2	My husband and I both were forced to leave our jobs after 25 and 35+ years, respectively, due to chronic medical disability and can't afford to finance a new or used EV. We drive two 1996 GMC trucks with 4WD and large truck tires as we can have snow on mountain roads located at high altitudes our area from June to the following year.	6/1/2022 3:31 PM
3	going blind and can't see to drive any vehicle.	6/1/2022 9:31 AM
4	I frequently travel longer distances for business and pleasure, and don't believe that an electronic vehicle has enough range for what I need.	6/1/2022 7:33 AM
5	I am concerned about climate change and want to move away from fossil fuels. EVs are also quieter, which is better for the communities we drive through and for wildlife in the parks and natural spaces we visit.	6/1/2022 6:07 AM
6	It would help with climate change, everybody do there part	6/1/2022 1:19 AM
7	Electric sucks and so impractical for my job and personal life	5/31/2022 10:01 PM
8	I like gasoline vehicles	5/31/2022 7:04 PM
9	When we drive we travel long distance - over 500 miles	5/31/2022 5:41 PM
10	Save on car expenses	5/31/2022 5:06 PM
11	Would love to be free of gas purchases, oil changes, and not feel bad about the environment.	5/31/2022 5:01 PM

Puget Sound Energy Transportation Electrification - Public Charging Access Survey

12	The batteries used in electric vehicles are more harmful to the environment than the gas from a regular car. I do not want to spend money on buying a new vehicle when I have a car that has more than 10 years left on it.	5/31/2022 4:41 PM
13	Reduce carbon footprint	5/31/2022 4:26 PM
14	Already have a vehicle and don't have a need for additional one	5/27/2022 10:30 AM
15	price	5/26/2022 11:13 AM
16	Saves gas	5/26/2022 9:37 AM
17	We need to diminish our dependence on fossil fuels	5/25/2022 10:17 AM
18	I work in Seattle 3x per week, with driving to different locations while in Seattle. I drive 300+ miles and would run out of battery in any EV I can afford.	5/24/2022 7:16 PM
19	I'm committed to using public transportation only.	5/24/2022 1:39 PM
20	The particular EV models I am looking at offer features and overall total cost of ownership that exceed that of comparable ICE models.	5/24/2022 10:41 AM
21	Take too long to charge and don't go very far if I want to travel.	5/23/2022 7:53 PM
22	Gas savings	5/23/2022 7:47 PM
23	I drive a hybrid vehicle	5/23/2022 7:27 PM
24	Cuts use of fossil fuel, smaller carbon footprint, cleaner energy.	5/23/2022 6:42 PM
25	The price of gas is just getting higher. EV's are much more climate-friendly as well.	5/23/2022 5:27 PM
26	Environment	5/23/2022 5:14 PM
27	Seems like the future of vehicles	5/23/2022 4:34 PM
28	I don't believe they are a SAFE mode of transportation. Living in Washington there is alot of wildlife. Electric vehicles are silent and this poses a danger to wildlife and kids.	5/23/2022 4:09 PM
29	We own an automotive repair shop, and we would be unable to work on EV's until proper schooling is available to repair the vehicles.	5/23/2022 4:08 PM
30	Pse needs to increase percentage of renewable energy before it makes sense to electrify.	5/23/2022 4:06 PM
31	Too expensive	5/23/2022 3:41 PM
32	Help the environment and save on gas	5/23/2022 3:07 PM
33	Cost	5/23/2022 1:31 PM
34	I think it is a good idea, but the cost of a new car right is prohibited for me.	5/23/2022 1:27 PM
35	I am worried about climate change and would like to do what I can to improve it and also gas is very very expensive.	5/23/2022 1:17 PM
36	I am interested if I could afford it. But I already own a gas car, and electric cars might be more expensive to purchase and or maintain, maybe.	5/23/2022 1:14 PM
37	I cannot afford it and there is no place to charge as I am a renter	5/23/2022 1:00 PM
38	I don't have a place to plug it in. I live in a rental and am not going to put the money into add a port to charge my car	5/23/2022 12:52 PM
39	Cannot afford it.	5/23/2022 12:47 PM
40	Save money on gas. Better for environment	5/23/2022 12:47 PM
41	High gas prices, many short trips with low mpg even on efficient gas cars	5/23/2022 12:47 PM
42	TEST	5/20/2022 1:34 PM

Q5 What EV ownership benefits are you most interested in? Select all that apply.

Answered: 23 Skipped: 29

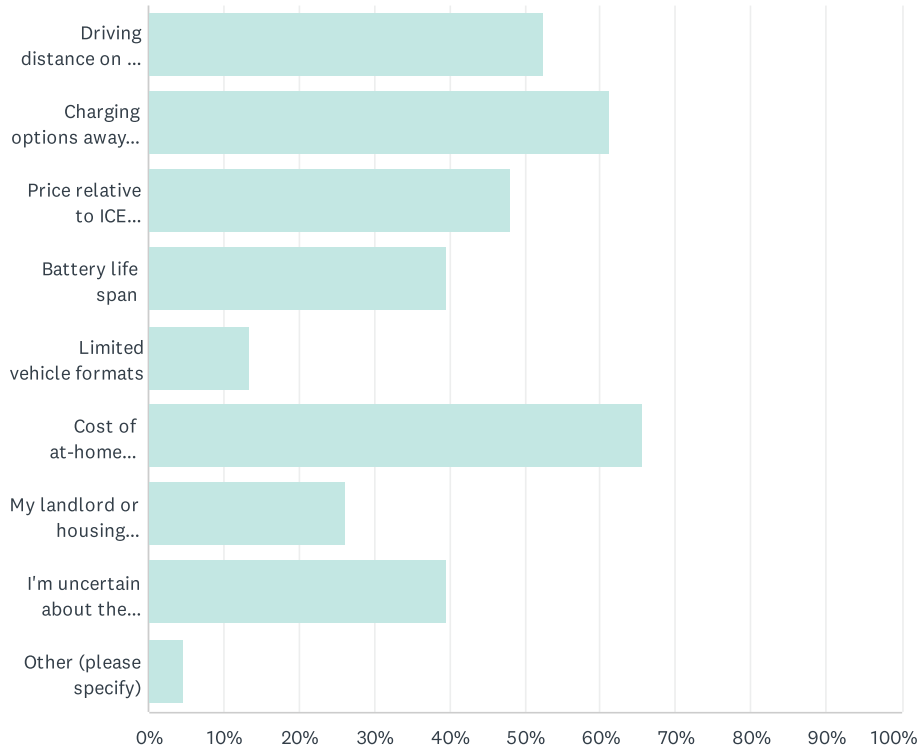


ANSWER CHOICES	RESPONSES
Reduced fuel expenses	78.26% 18
Reduced carbon footprint	82.61% 19
Less maintenance	65.22% 15
Having the latest vehicle technology	26.09% 6
Other (please specify)	0.00% 0
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q6 What barriers do you face when it comes to owning an EV? Select all that apply.

Answered: 23 Skipped: 29



ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	52.17%	12
Charging options away from home	60.87%	14
Price relative to ICE (internal combustion engine) vehicle	47.83%	11
Battery life span	39.13%	9
Limited vehicle formats	13.04%	3
Cost of at-home charging installation	65.22%	15
My landlord or housing provider won't provide charging	26.09%	6
I'm uncertain about the technology	39.13%	9
Other (please specify)	4.35%	1
Total Respondents: 23		

#	OTHER (PLEASE SPECIFY)	DATE
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Puget Sound Energy Transportation Electrification - Public Charging Access Survey

1

Sustainability

5/23/2022 6:48 PM

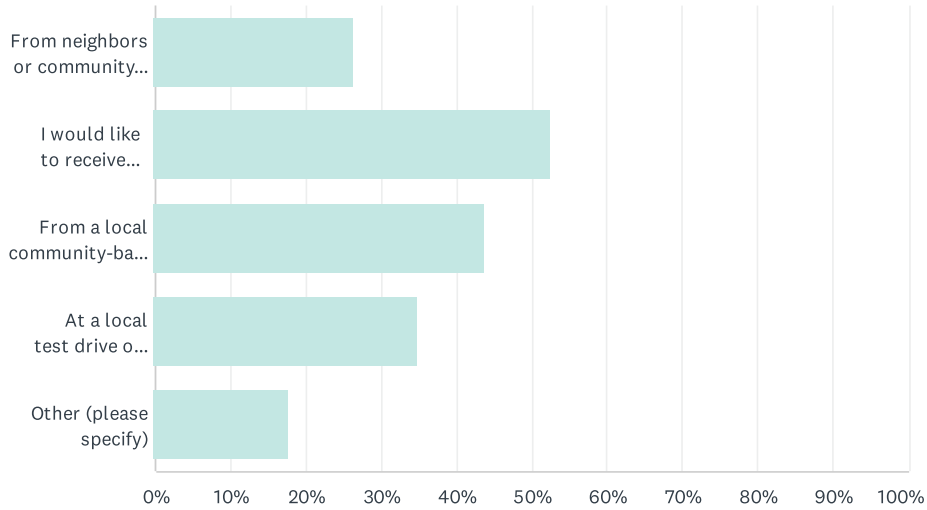
Q7 What questions do you have about owning an EV?

Answered: 22 Skipped: 30

#	RESPONSES	DATE
1	Warranty on batteries and anticipated battery life	6/2/2022 1:43 AM
2	Every question possible lol	6/1/2022 1:21 AM
3	Costs and maintenance	5/31/2022 5:11 PM
4	Cost of charging, how to charge at an apartment	5/31/2022 5:05 PM
5	What does it take to charge at home? How do you manage a trip around the country?	5/31/2022 5:04 PM
6	None	5/31/2022 4:29 PM
7	How do you find charging stations?	5/31/2022 4:28 PM
8	none	5/26/2022 9:39 AM
9	None	5/25/2022 10:18 AM
10	If charging from a home solar system, what size of system would be needed, and what would the cost of the system be.	5/24/2022 10:44 AM
11	None	5/23/2022 7:49 PM
12	Because of the push to owning EVs, are state of WA and PSE willing to subsidize the purchase price?	5/23/2022 6:48 PM
13	Distance between chargings, costs associated with chargings, those kinds of things.	5/23/2022 5:29 PM
14	What is the cost of charging?	5/23/2022 5:20 PM
15	When is affordable going to become mainstream	5/23/2022 4:36 PM
16	How would I sustain maintenance on this vehicle	5/23/2022 3:12 PM
17	How do they work? How much do you Heber to charge them	5/23/2022 1:31 PM
18	I'm worried about getting stranded with no place to charge	5/23/2022 1:19 PM
19	Will the car last as long as a gas car in terms of useable years? Is it more expensive to maintain?	5/23/2022 1:18 PM
20	None	5/23/2022 1:05 PM
21	How to charge the car while living at an apartment complex	5/23/2022 12:48 PM
22	How do I plan long distance trips?	5/23/2022 12:48 PM

Q8 How would you prefer to learn about EV charging programs? Select all that apply.

Answered: 23 Skipped: 29



ANSWER CHOICES	RESPONSES
From neighbors or community members	26.09% 6
I would like to receive emails and/or texts from PSE about programs	52.17% 12
From a local community-based organization	43.48% 10
At a local test drive or training	34.78% 8
Other (please specify)	17.39% 4
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
1	Independent energy efficient source	5/31/2022 5:11 PM
2	internet	5/26/2022 9:39 AM
3	News or social media	5/23/2022 4:36 PM
4	Web	5/23/2022 1:05 PM

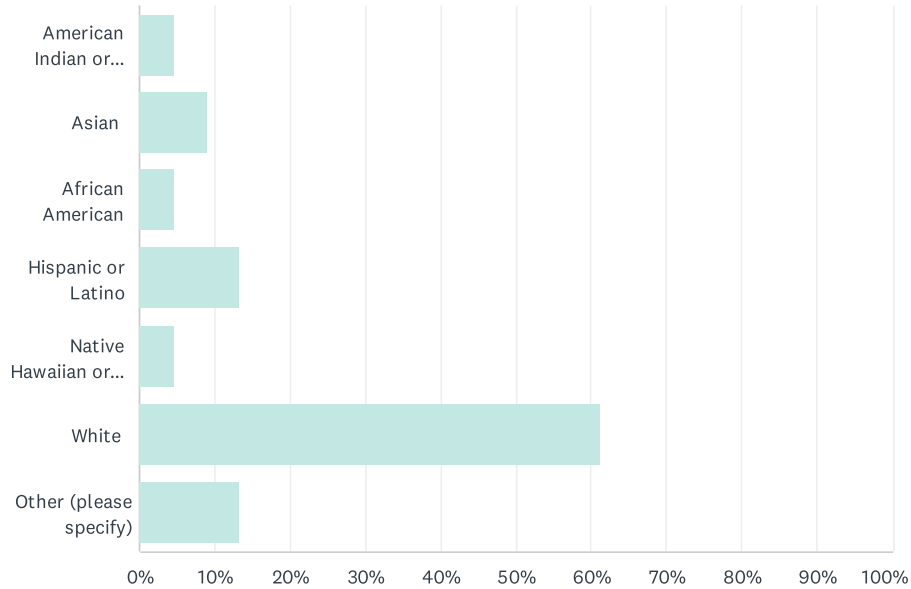
Q9 Is there anything else you'd like to share with us about your interest in EVs or public charging?

Answered: 19 Skipped: 33

#	RESPONSES	DATE
1	Cost of unit plus cost of maintaining unit is important	6/2/2022 1:43 AM
2	No	6/1/2022 1:21 AM
3	Want good reliable consumer protection source	5/31/2022 5:11 PM
4	N/A	5/31/2022 5:05 PM
5	How long do you have to spend at a public charging station?	5/31/2022 5:04 PM
6	Just that we need more public charging stations in rural areas.	5/31/2022 4:29 PM
7	no	5/26/2022 9:39 AM
8	No	5/25/2022 10:18 AM
9	No	5/23/2022 7:49 PM
10	Not at this time.	5/23/2022 6:48 PM
11	We need more here in Maple Falls area, and in Bellingham, and along the I-5 corridor.	5/23/2022 5:29 PM
12	I'm concerned with the fires caused by the lithium battery.	5/23/2022 5:20 PM
13	Possibly partner with more Local tribes as they add electric vehicle charging. Think gas stations or strip malls. Or even more at the casinos.	5/23/2022 4:36 PM
14	No not at this time	5/23/2022 3:12 PM
15	No	5/23/2022 1:31 PM
16	I will be purchasing a vehicle in the next 6 months	5/23/2022 1:19 PM
17	No	5/23/2022 1:05 PM
18	N/a	5/23/2022 12:48 PM
19	Really want an EV, but running out of power because of a lack of stations (or because stations are full) seems stressful	5/23/2022 12:48 PM

Q10 What is your race? Select all that apply. (Optional – this information helps us ensure our future programs and services are equity-focused).

Answered: 23 Skipped: 29

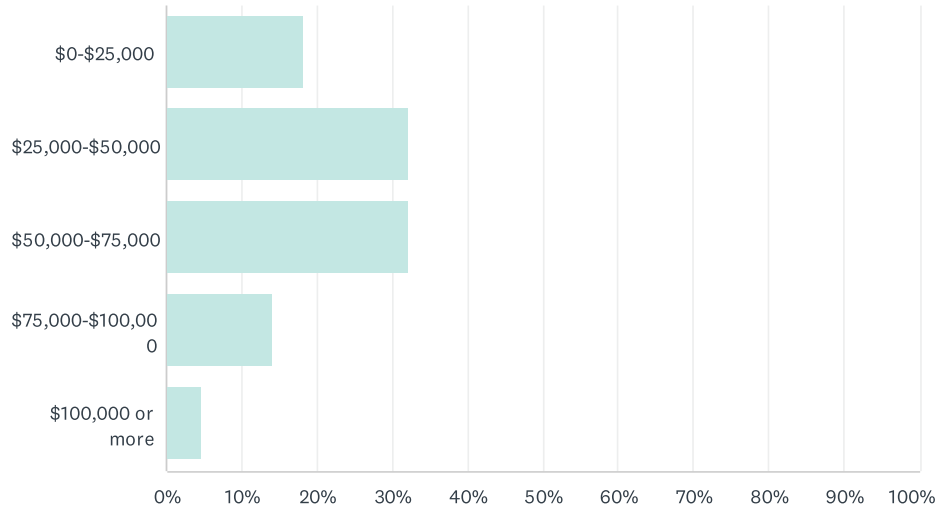


ANSWER CHOICES	RESPONSES
American Indian or Alaska Native	4.35% 1
Asian	8.70% 2
African American	4.35% 1
Hispanic or Latino	13.04% 3
Native Hawaiian or other Pacific Islander	4.35% 1
White	60.87% 14
Other (please specify)	13.04% 3
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
1	Middle Eastern	6/1/2022 9:32 AM
2	Native born American	5/24/2022 10:44 AM
3	Not relevant	5/23/2022 1:05 PM

Q11 What is your annual income? (Optional – this information helps us ensure our future programs and services are equity-focused).

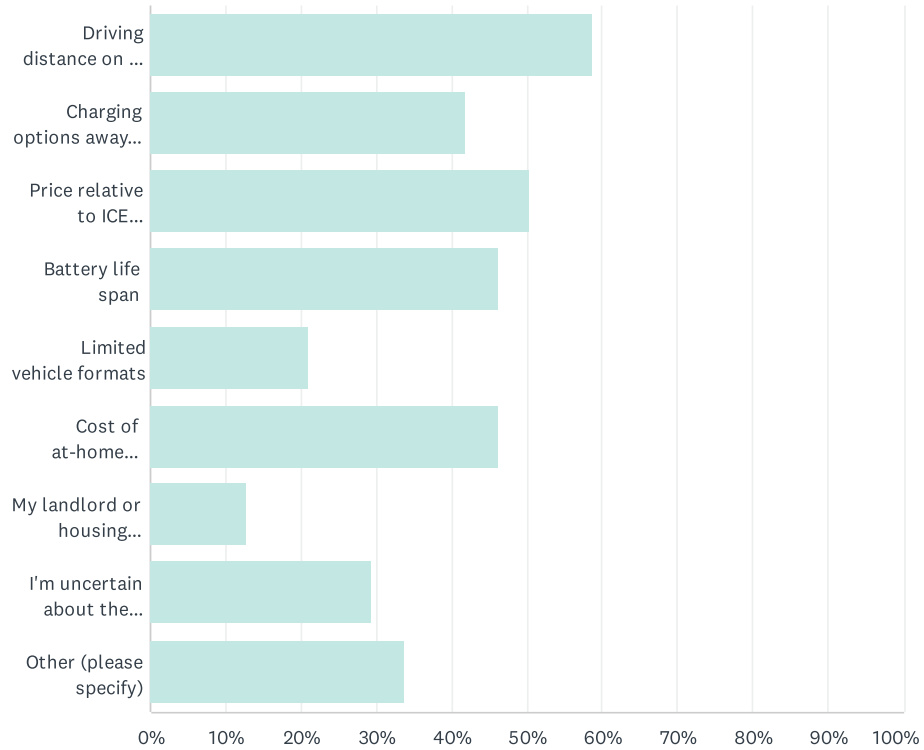
Answered: 22 Skipped: 30



ANSWER CHOICES	RESPONSES	
\$0-\$25,000	18.18%	4
\$25,000-\$50,000	31.82%	7
\$50,000-\$75,000	31.82%	7
\$75,000-\$100,000	13.64%	3
\$100,000 or more	4.55%	1
TOTAL		22

Q13 What barriers do you face when it comes to owning an EV? Select all that apply.

Answered: 24 Skipped: 28



ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	58.33%	14
Charging options away from home	41.67%	10
Price relative to ICE (internal combustion engine) vehicle	50.00%	12
Battery life span	45.83%	11
Limited vehicle formats	20.83%	5
Cost of at-home charging installation	45.83%	11
My landlord or housing provider won't provide charging	12.50%	3
I'm uncertain about the technology	29.17%	7
Other (please specify)	33.33%	8
Total Respondents: 24		

#	OTHER (PLEASE SPECIFY)	DATE
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Puget Sound Energy Transportation Electrification - Public Charging Access Survey

1	Live on fixed Social Security income so can't afford to replace two "like new" EVP	6/1/2022 3:37 PM
2	They are incapable of doing what's needs to be done they don't have a tow capacity for shit I haul upwards of 20,000 lbs and there's now way an electric vehicle can do that with the amount of seats I need for my family	5/31/2022 10:04 PM
3	My vehicle is gasoline	5/31/2022 7:06 PM
4	What one battery does to the environment to build it	5/31/2022 5:44 PM
5	The batteries are way worse for the environment than anything from regular vehicles, including gas	5/31/2022 4:43 PM
6	Since I own a hybrid vehicle, I don't feel the need foe an EV	5/23/2022 7:30 PM
7	Pse too low renewable energy sources.	5/23/2022 4:07 PM
8	too expensive	5/23/2022 1:42 PM

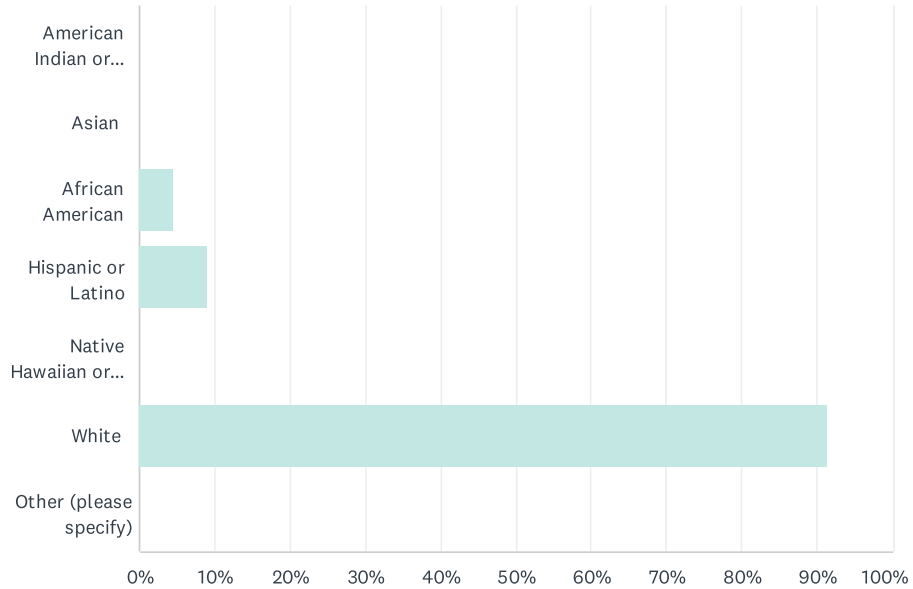
Q14 What would make you interested in EV ownership?

Answered: 22 Skipped: 30

#	RESPONSES	DATE
1	If government subsidies made EV Ownership practical forr.	6/1/2022 3:37 PM
2	Something with long range and heavy towing capacity.	6/1/2022 7:35 AM
3	Nothing	6/1/2022 7:02 AM
4	NOTHING	5/31/2022 10:04 PM
5	I don't know if there is anything	5/31/2022 7:06 PM
6	nothing at this time	5/31/2022 5:44 PM
7	Nothing	5/31/2022 4:43 PM
8	Inexpensive price	5/27/2022 10:31 AM
9	lowering the price and the taxes	5/26/2022 11:14 AM
10	An affordable EV with a 400+ mile range, that can charge in less than 10 minutes, just like my hybrid Rav4 can.	5/24/2022 7:18 PM
11	Lower cost of initial purchase, repair & maintenance.	5/24/2022 1:44 PM
12	Not sure	5/23/2022 7:54 PM
13	Nothing	5/23/2022 7:30 PM
14	If Elon Musk were to give me one. No. Just kidding. I'm just not interested in them.	5/23/2022 4:11 PM
15	Nothing.	5/23/2022 4:09 PM
16	Moving to seattle. 95% renewable hydropower	5/23/2022 4:07 PM
17	Environment conservation	5/23/2022 3:43 PM
18	not currently	5/23/2022 1:42 PM
19	Cost	5/23/2022 1:32 PM
20	Price	5/23/2022 1:29 PM
21	unsure	5/23/2022 1:01 PM
22	If it costed less.	5/23/2022 12:49 PM

Q15 What is your race? Select all that apply. (Optional – this information helps us ensure our future programs and services are equity-focused).

Answered: 23 Skipped: 29

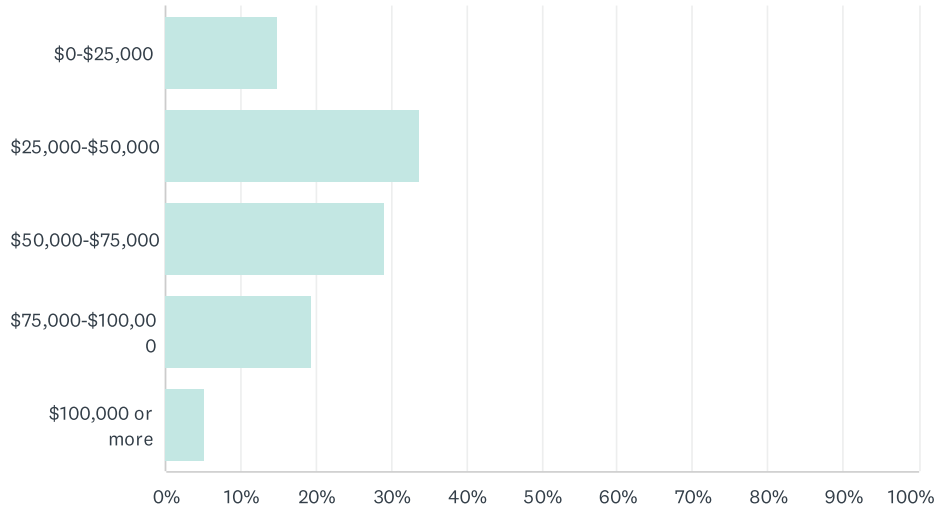


ANSWER CHOICES	RESPONSES
American Indian or Alaska Native	0.00% 0
Asian	0.00% 0
African American	4.35% 1
Hispanic or Latino	8.70% 2
Native Hawaiian or other Pacific Islander	0.00% 0
White	91.30% 21
Other (please specify)	0.00% 0
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q16 What is your annual income? (Optional – this information helps us ensure our future programs and services are equity-focused).

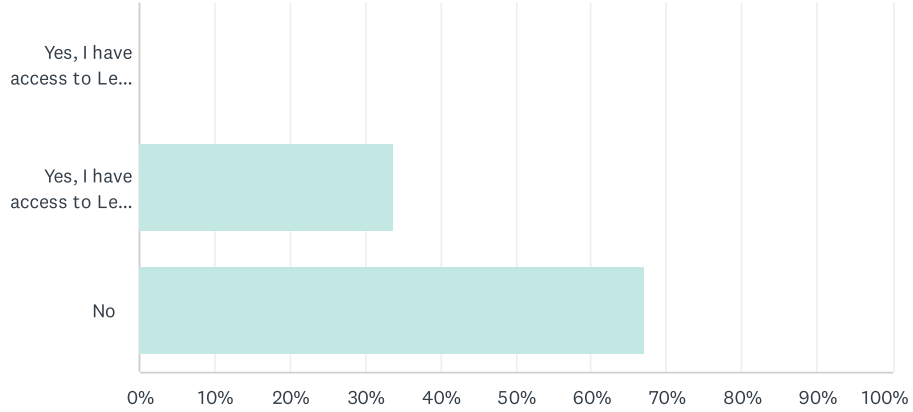
Answered: 21 Skipped: 31



ANSWER CHOICES	RESPONSES	
\$0-\$25,000	14.29%	3
\$25,000-\$50,000	33.33%	7
\$50,000-\$75,000	28.57%	6
\$75,000-\$100,000	19.05%	4
\$100,000 or more	4.76%	1
TOTAL		21

Q18 Do you have access to charging at your residence? If so, what type?

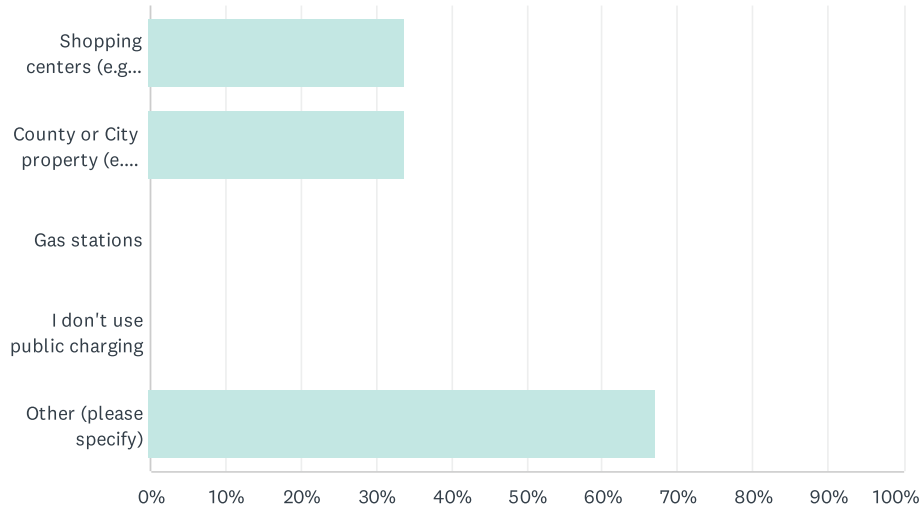
Answered: 3 Skipped: 49



ANSWER CHOICES	RESPONSES	
Yes, I have access to Level 1 charging	0.00%	0
Yes, I have access to Level 2 charging	33.33%	1
No	66.67%	2
TOTAL		3

Q19 Where in your community do you access public charging? Select all that apply.

Answered: 3 Skipped: 49

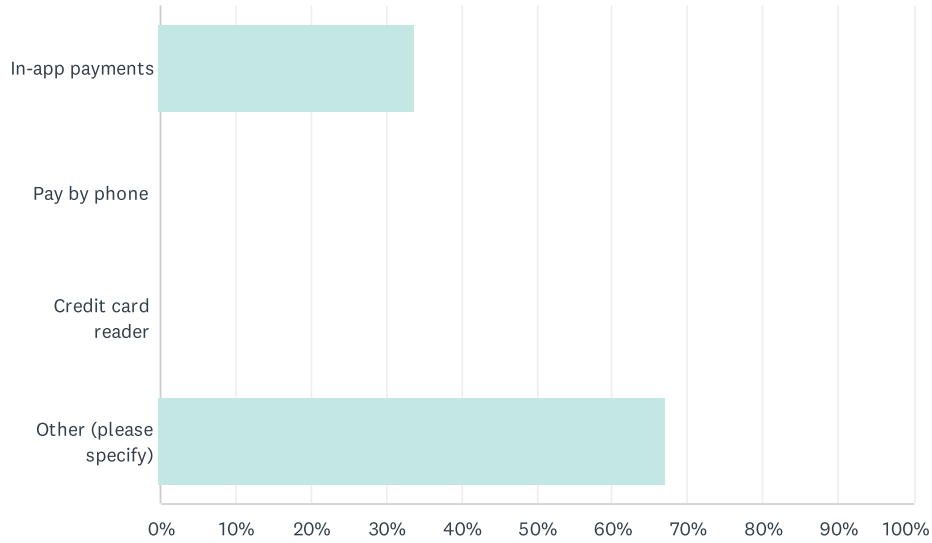


ANSWER CHOICES	RESPONSES
Shopping centers (e.g., grocery stores, malls etc.)	33.33% 1
County or City property (e.g., parks, public parking lots, community centers etc.)	33.33% 1
Gas stations	0.00% 0
I don't use public charging	0.00% 0
Other (please specify)	66.67% 2
Total Respondents: 3	

#	OTHER (PLEASE SPECIFY)	DATE
1	My hybrid self charges - none plug in.	6/1/2022 7:38 AM
2	Tesla super chargers	5/31/2022 8:12 PM

Q20 When using public charging stations, what is your preferred method of payment?

Answered: 3 Skipped: 49

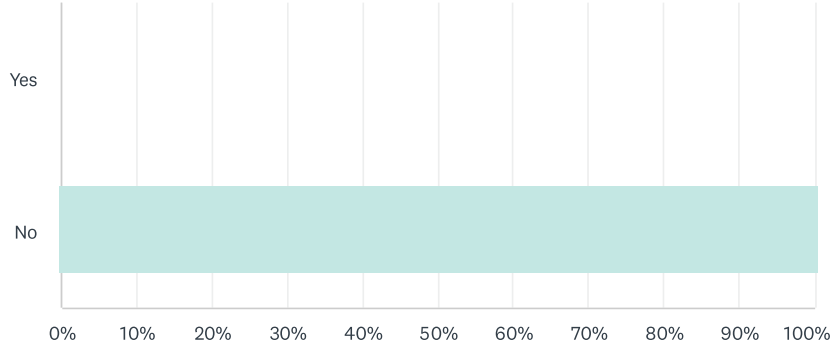


ANSWER CHOICES	RESPONSES
In-app payments	33.33% 1
Pay by phone	0.00% 0
Credit card reader	0.00% 0
Other (please specify)	66.67% 2
TOTAL	3

#	OTHER (PLEASE SPECIFY)	DATE
1	Don't need to.	6/1/2022 7:38 AM
2	Credit card attached to Tesla account	5/31/2022 8:12 PM

Q21 Does your workplace provide EV charging?

Answered: 3 Skipped: 49



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	3
TOTAL		3

Q22 If your workplace does provide EV charging, what industry do you work in?

Answered: 2 Skipped: 50

#	RESPONSES	DATE
1	N/A	6/1/2022 7:38 AM
2	Fire Department	5/31/2022 8:12 PM

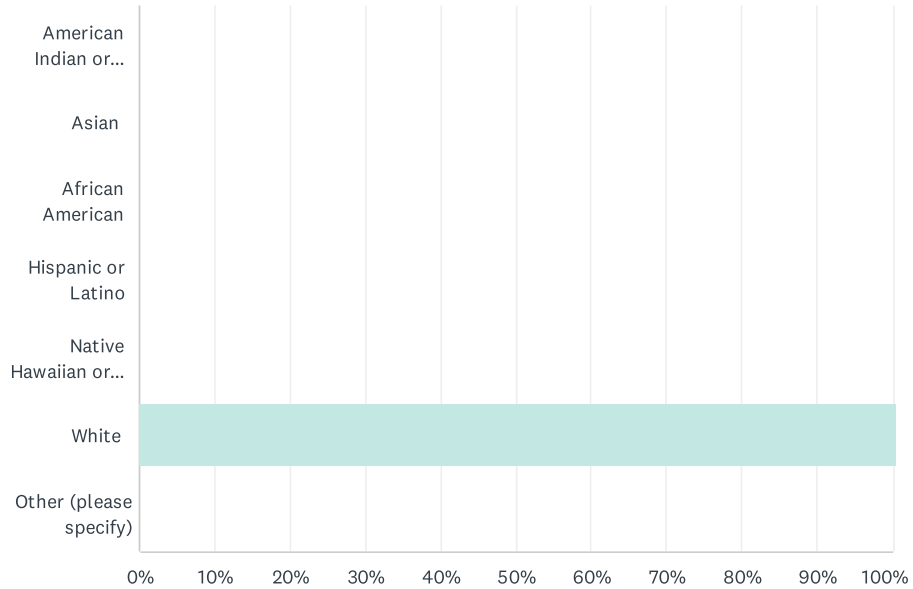
Q23 Is there anything else you'd like to share with us about your experience with EVs or public charging?

Answered: 3 Skipped: 49

#	RESPONSES	DATE
1	No	6/1/2022 7:38 AM
2	One of the major incentives for our increased use of our EV is that many public charging stations are free to use. It impacts where we shop because we can charge our EV for free while we get our groceries.	6/1/2022 6:11 AM
3	The few public chargers I've checked out all required the user to set up accounts....if there were actual card readers on the unit that I could scan right there I would definately be more inclined to use.	5/31/2022 8:12 PM

Q24 What is your race? Select all that apply. (Optional – this information helps us ensure our future programs and services are equity-focused).

Answered: 3 Skipped: 49

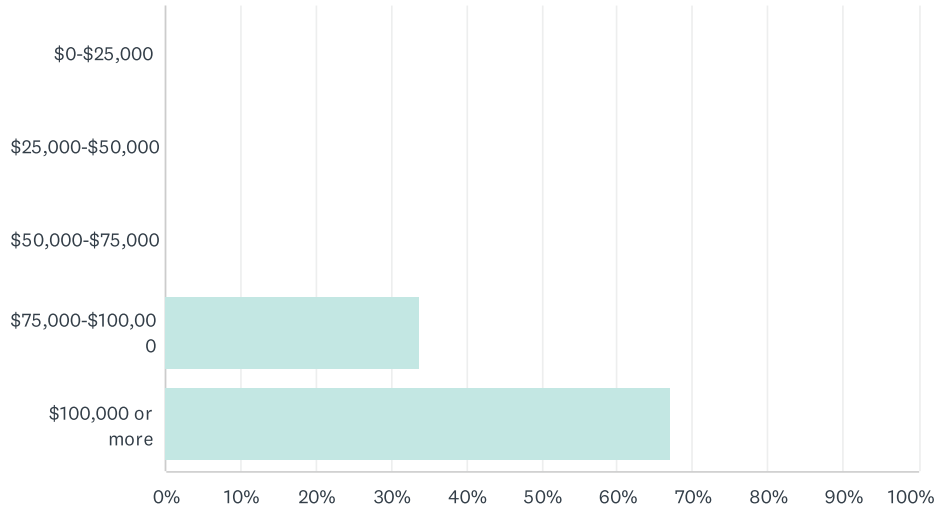


ANSWER CHOICES	RESPONSES
American Indian or Alaska Native	0.00% 0
Asian	0.00% 0
African American	0.00% 0
Hispanic or Latino	0.00% 0
Native Hawaiian or other Pacific Islander	0.00% 0
White	100.00% 3
Other (please specify)	0.00% 0
Total Respondents: 3	

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q25 What is your annual income? (Optional – this information helps us ensure our future programs and services are equity-focused).

Answered: 3 Skipped: 49



ANSWER CHOICES	RESPONSES	
\$0-\$25,000	0.00%	0
\$25,000-\$50,000	0.00%	0
\$50,000-\$75,000	0.00%	0
\$75,000-\$100,000	33.33%	1
\$100,000 or more	66.67%	2
TOTAL		3

APPENDIX H: PUBLIC CURBSIDE SURVEY RESULTS

See next page.

Curbside Charging Survey

Q1 What zip code do you live in?

Answered: 57 Skipped: 0

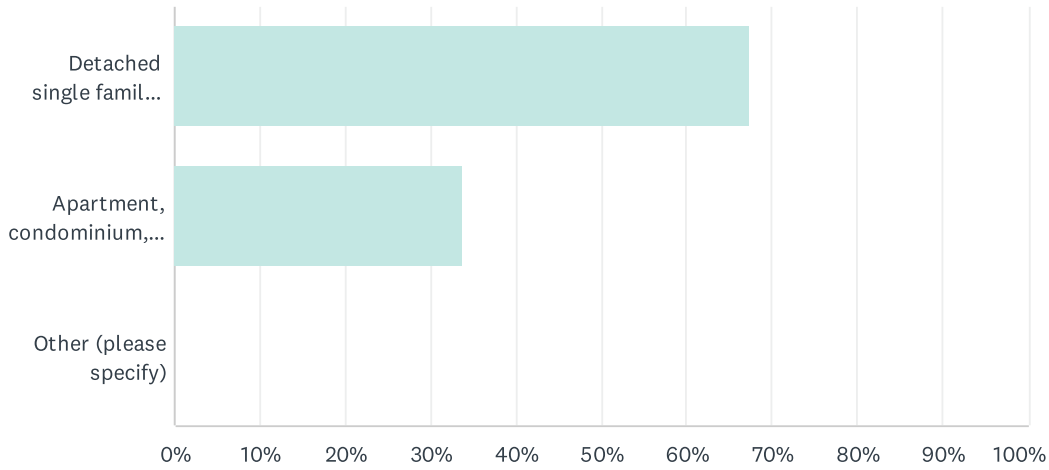
#	RESPONSES	DATE
1	98372	9/24/2022 11:53 AM
2	98506	9/17/2022 10:21 AM
3	98374	9/16/2022 2:12 PM
4	98247	9/16/2022 12:59 PM
5	98371	9/16/2022 12:47 PM
6	98273	9/16/2022 12:13 PM
7	98370	9/16/2022 12:09 PM
8	98277	9/16/2022 11:16 AM
9	98392	9/16/2022 8:59 AM
10	98225	9/16/2022 8:16 AM
11	98501	9/16/2022 7:37 AM
12	98221	9/16/2022 7:37 AM
13	98316	9/16/2022 6:27 AM
14	98502	9/16/2022 12:09 AM
15	98226	9/15/2022 10:06 PM
16	98499	9/15/2022 8:37 PM
17	98325	9/15/2022 8:31 PM
18	98371	9/15/2022 8:07 PM
19	98277	9/15/2022 8:05 PM
20	98277	9/15/2022 8:02 PM
21	98225	9/15/2022 7:58 PM
22	98502	9/15/2022 7:10 PM
23	98337	9/15/2022 6:48 PM
24	98516	9/15/2022 6:16 PM
25	98237	9/15/2022 5:50 PM
26	98110	9/15/2022 5:34 PM
27	98001	9/15/2022 5:22 PM
28	98277	9/15/2022 5:08 PM
29	98274	9/15/2022 5:06 PM
30	98506	9/15/2022 4:55 PM
31	98070	9/15/2022 4:35 PM
32	98277	9/15/2022 4:16 PM
33	98277	9/15/2022 3:57 PM

Curbside Charging Survey

34	98502	9/15/2022 3:47 PM
35	98029	9/15/2022 3:46 PM
36	98239	9/15/2022 3:39 PM
37	98198	9/15/2022 3:29 PM
38	98225	9/15/2022 3:28 PM
39	98373	9/15/2022 3:18 PM
40	98284	9/15/2022 3:03 PM
41	98117	9/15/2022 3:03 PM
42	98370	9/15/2022 2:56 PM
43	98512	9/15/2022 2:54 PM
44	98277	9/15/2022 2:52 PM
45	98070	9/15/2022 2:51 PM
46	98239	9/15/2022 2:48 PM
47	98277	9/15/2022 2:43 PM
48	98274	9/15/2022 2:42 PM
49	98267	9/15/2022 2:39 PM
50	98248	9/15/2022 2:39 PM
51	98030	9/15/2022 2:38 PM
52	98374	9/15/2022 2:37 PM
53	98248	9/15/2022 2:37 PM
54	98266	9/15/2022 2:34 PM
55	98373	9/15/2022 2:34 PM
56	98310	9/15/2022 2:34 PM
57	98226	9/15/2022 2:33 PM

Q2 What type of residence do you live in?

Answered: 57 Skipped: 0

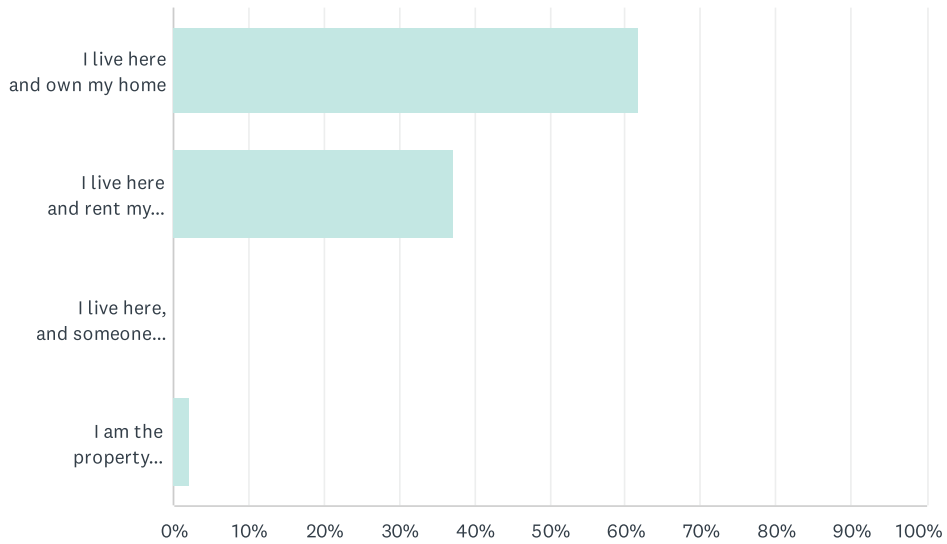


ANSWER CHOICES	RESPONSES	
Detached single family house, duplex, triplex, fourplex, townhome, or accessory dwelling unit	66.67%	38
Apartment, condominium, houseboat community, or mobile home park with at least 5 housing units	33.33%	19
Other (please specify)	0.00%	0
TOTAL		57

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q3 Do you own, rent, or manage your home/property?

Answered: 57 Skipped: 0

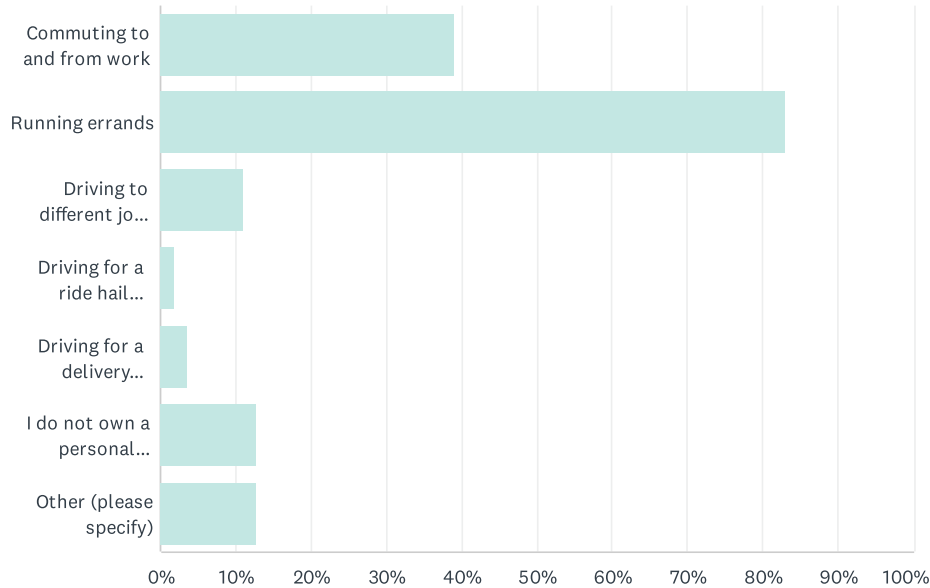


ANSWER CHOICES	RESPONSES	
I live here and own my home	61.40%	35
I live here and rent my home directly from a landlord or property manager	36.84%	21
I live here, and someone else owns or rents the home directly from a landlord or property manager	0.00%	0
I am the property manager or landlord of this property	1.75%	1
TOTAL		57

Curbside Charging Survey

Q4 If you own a personal vehicle, when do you use it? Select all that apply.

Answered: 57 Skipped: 0



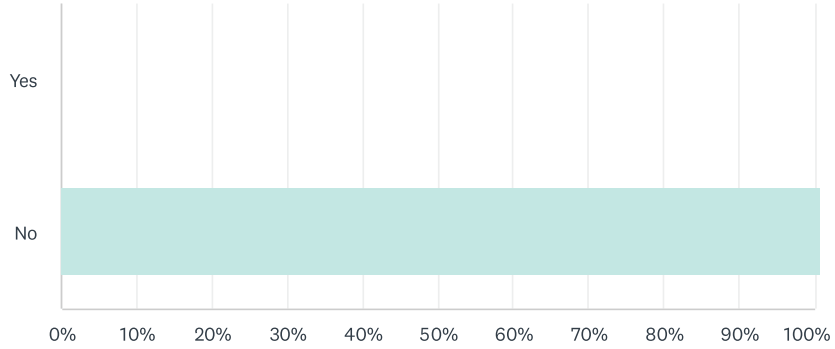
ANSWER CHOICES	RESPONSES
Commuting to and from work	38.60% 22
Running errands	82.46% 47
Driving to different job sites	10.53% 6
Driving for a ride hail service (e.g., Uber or Lyft)	1.75% 1
Driving for a delivery service (e.g., Doordash or Instacart)	3.51% 2
I do not own a personal vehicle	12.28% 7
Other (please specify)	12.28% 7
Total Respondents: 57	

#	OTHER (PLEASE SPECIFY)	DATE
1	I'm an independent contractor utilizing the car to travel to work order sites.	9/16/2022 1:02 PM
2	Road trips, visiting property	9/16/2022 11:18 AM
3	to explore the area around me and the town I live in	9/15/2022 7:58 PM
4	Buy food	9/15/2022 5:13 PM
5	Trips	9/15/2022 5:07 PM
6	recreation, visiting friends and family	9/15/2022 3:19 PM
7	Sports for kids.	9/15/2022 2:40 PM

Curbside Charging Survey

Q5 Do you make at least 50% of your income as a taxi driver, ride hail driver, or independent contractor delivery driver?

Answered: 11 Skipped: 46



ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	11
TOTAL		11

Curbside Charging Survey

Q6 On average, how many miles per day do you drive your personal vehicle for ride hail or delivery trips?

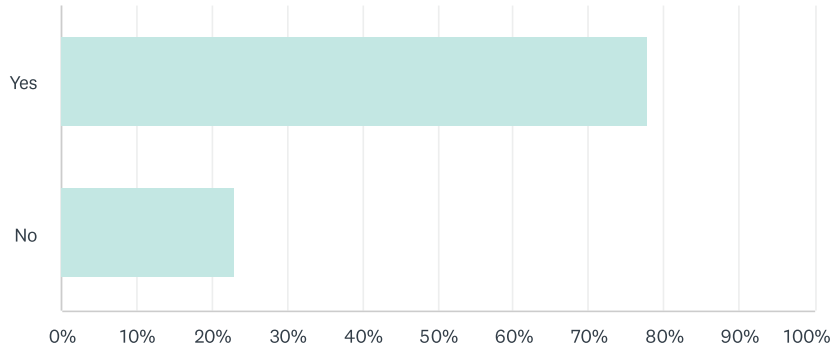
Answered: 7 Skipped: 50

#	RESPONSES	DATE
1	0 mi.	9/16/2022 8:18 AM
2	80	9/15/2022 6:08 PM
3	n/a	9/15/2022 5:36 PM
4	14	9/15/2022 4:36 PM
5	0	9/15/2022 3:04 PM
6	40	9/15/2022 2:39 PM
7	30	9/15/2022 2:38 PM

Curbside Charging Survey

Q7 Is off-street parking available at your residence (e.g., private driveway, carport, or garage)?

Answered: 53 Skipped: 4

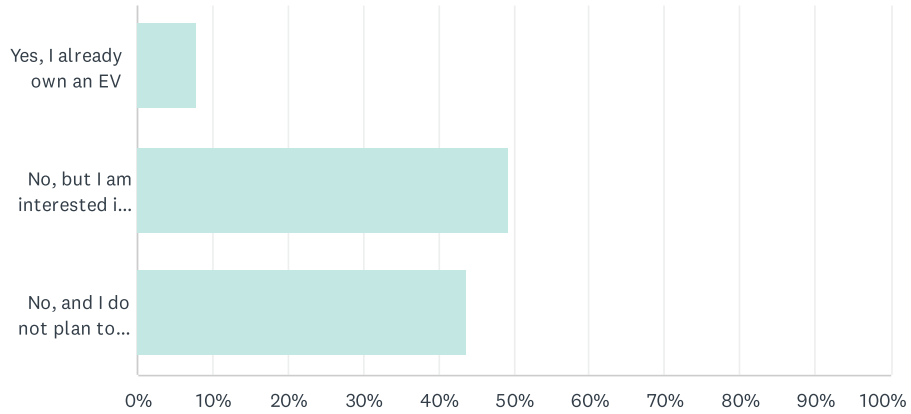


ANSWER CHOICES	RESPONSES	
Yes	77.36%	41
No	22.64%	12
TOTAL		53

Curbside Charging Survey

Q8 An electric vehicle (EV) refers to either a full, battery electric vehicle or a plug in hybrid vehicle. Is your personal vehicle an electric vehicle (EV)?

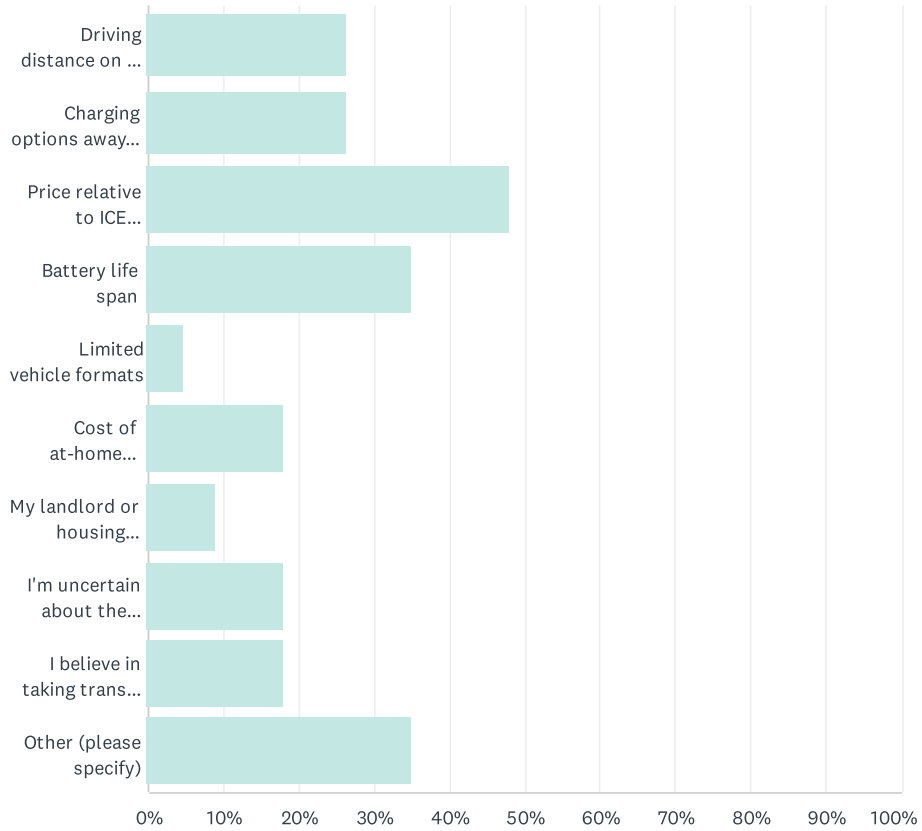
Answered: 53 Skipped: 4



ANSWER CHOICES	RESPONSES
Yes, I already own an EV	7.55% 4
No, but I am interested in purchasing an EV	49.06% 26
No, and I do not plan to purchase an EV	43.40% 23
TOTAL	53

Q9 What currently prevents you from purchasing an EV? Select all that apply.

Answered: 23 Skipped: 34



Curbside Charging Survey

ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	26.09%	6
Charging options away from home	26.09%	6
Price relative to ICE (internal combustion engine) vehicle	47.83%	11
Battery life span	34.78%	8
Limited vehicle formats	4.35%	1
Cost of at-home charging installation	17.39%	4
My landlord or housing provider won't provide charging	8.70%	2
I'm uncertain about the technology	17.39%	4
I believe in taking transit as opposed to owning a personal vehicle	17.39%	4
Other (please specify)	34.78%	8
Total Respondents: 23		

#	OTHER (PLEASE SPECIFY)	DATE
1	To mine for the lithium contaminates thousands of gallons of water and the soil of these foreign countries.	9/16/2022 7:40 AM
2	pollution from the manufacture of the battery	9/15/2022 8:01 PM
3	I'm 74, on Section 8 housing, food stamps, grants for electric and internet	9/15/2022 5:27 PM
4	Price of purchasing new vehicle in general	9/15/2022 3:29 PM
5	Cost of electric vehicles	9/15/2022 2:59 PM
6	My husband and I are past 80 years old and don't anticipate purchasing a new car before we no longer can drive.	9/15/2022 2:48 PM
7	I really like my current car.	9/15/2022 2:43 PM
8	Cost	9/15/2022 2:41 PM

Curbside Charging Survey

Q10 Could anything change your mind about EV ownership?

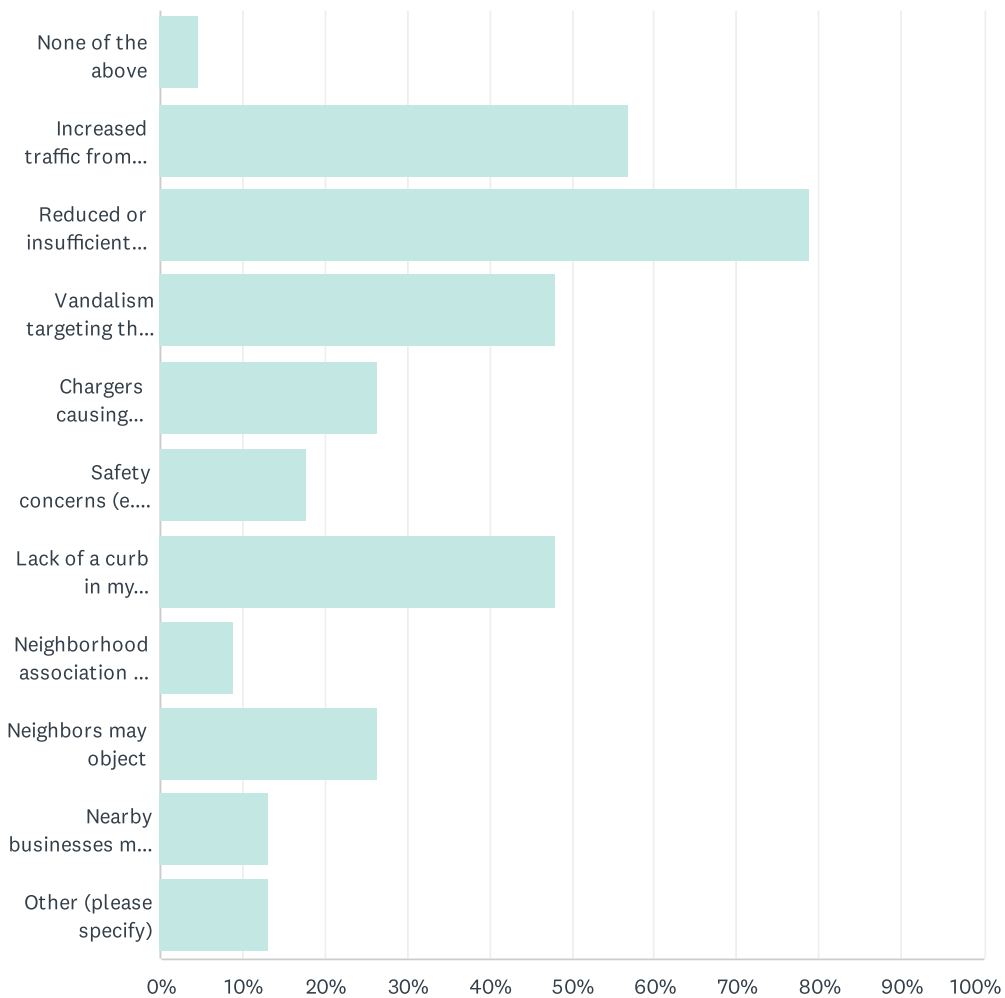
Answered: 20 Skipped: 37

#	RESPONSES	DATE
1	Yes	9/16/2022 8:24 AM
2	improving the range, lowering price, better charging network	9/16/2022 7:41 AM
3	Only if it ran on water	9/16/2022 7:40 AM
4	no	9/15/2022 8:41 PM
5	If I was forced to own one.	9/15/2022 8:06 PM
6	no	9/15/2022 8:01 PM
7	If the globalists stop forcing it maybe I'd consider it but the gas is a plenty as it's an unlimited resources just blocked by the gas companies taking our bucks	9/15/2022 7:13 PM
8	No	9/15/2022 6:50 PM
9	not at the moment, may be interested at a later date	9/15/2022 5:38 PM
10	If someone bought a car for me! I can't afford a new car, or a used car. My 2000 Chrysler Concorde cost \$1700, and my sister bought it for me. I'm retired, and Social Security is very low. I'm living from day to day.	9/15/2022 5:27 PM
11	Not at this point in time as I also don't have the money to buy any kind of vehicle.	9/15/2022 3:30 PM
12	is someone giving me a free \$30k?	9/15/2022 3:29 PM
13	Probably not	9/15/2022 3:06 PM
14	More than 400 miles on a charge	9/15/2022 2:54 PM
15	If, for some reason, our current vehicles quit working before we quit driving---then we would purchase an EV	9/15/2022 2:48 PM
16	no	9/15/2022 2:47 PM
17	Not currently.	9/15/2022 2:43 PM
18	Price and charging options	9/15/2022 2:41 PM
19	No, I don't want a vehicle of any kind.	9/15/2022 2:37 PM
20	No	9/15/2022 2:35 PM

Curbside Charging Survey

Q11 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. What issues do you foresee in having a publicly available curbside charger installed near your residence? Select all that apply.

Answered: 23 Skipped: 34



Curbside Charging Survey

ANSWER CHOICES		RESPONSES
None of the above		4.35% 1
Increased traffic from drivers using the charger		56.52% 13
Reduced or insufficient street parking for non-EV drivers		78.26% 18
Vandalism targeting the chargers		47.83% 11
Chargers causing accessibility concerns for those with disabilities		26.09% 6
Safety concerns (e.g., tripping hazards)		17.39% 4
Lack of a curb in my neighborhood		47.83% 11
Neighborhood association or HOA may object		8.70% 2
Neighbors may object		26.09% 6
Nearby businesses may object		13.04% 3
Other (please specify)		13.04% 3
Total Respondents: 23		

#	OTHER (PLEASE SPECIFY)	DATE
1	non ev cars using parking then making the charging sations unavailable for folks	9/15/2022 3:29 PM
2	We already have two even public stations at my condo through a PSE grant.	9/15/2022 2:59 PM
3	Power grid options	9/15/2022 2:41 PM

Curbside Charging Survey

Q12 Is there anything else you'd like to share with us?

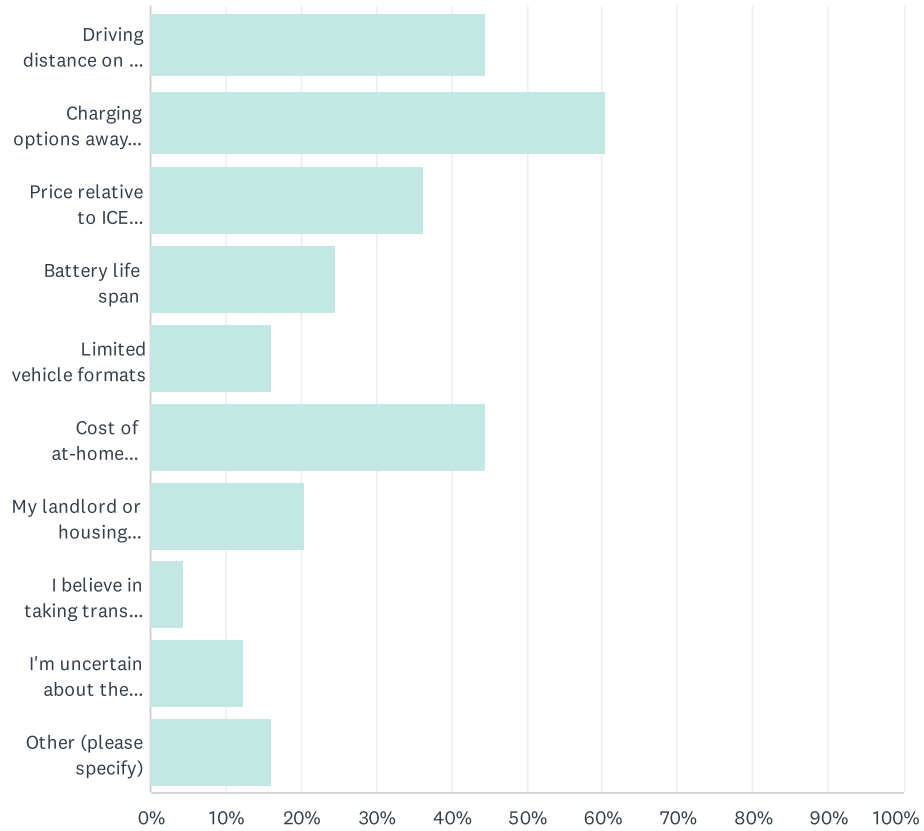
Answered: 15 Skipped: 42

#	RESPONSES	DATE
1	How many electric vehicles are already parked in junkyards world wide because the cost of a new battery versus a new car?	9/16/2022 7:41 AM
2	no	9/15/2022 8:41 PM
3	No	9/15/2022 8:06 PM
4	Not sure how EV are really doing anything for the environment. The pollution to make the electricity has to be produced somewhere. What happens in the winter when the batteries are subjected to freezing temperatures?	9/15/2022 8:02 PM
5	No	9/15/2022 6:50 PM
6	I wish I could afford a very small electric car. I only drive about 5 miles a week, since everything is in town, but I can barely afford to maintain the car I have now, my 2000 Chrysler Concorde, which is too big for me.	9/15/2022 5:29 PM
7	no	9/15/2022 3:07 PM
8	Our EV stations are working out with our residents. They are public, but I don't know how many times they are used by public. I'm not sure outsiders know they are here. PSE should promote locations to users.	9/15/2022 3:02 PM
9	I have seen electric cars parked at charging station but not plugged in. Any tickets to be given or law broken by parking at a charging station but not charging	9/15/2022 2:55 PM
10	No	9/15/2022 2:48 PM
11	No	9/15/2022 2:47 PM
12	Having an EV charging station in Marblemount by the Community Hall or local gas station, would be great for the tourist and travelers that come through.	9/15/2022 2:44 PM
13	What happens to the batteries when they're no longer used	9/15/2022 2:42 PM
14	No	9/15/2022 2:37 PM
15	I support use of electric vehicles and associated charging facilities.	9/15/2022 2:36 PM

Curbside Charging Survey

Q13 What currently prevents you from purchasing an EV? Select all that apply.

Answered: 25 Skipped: 32



Curbside Charging Survey

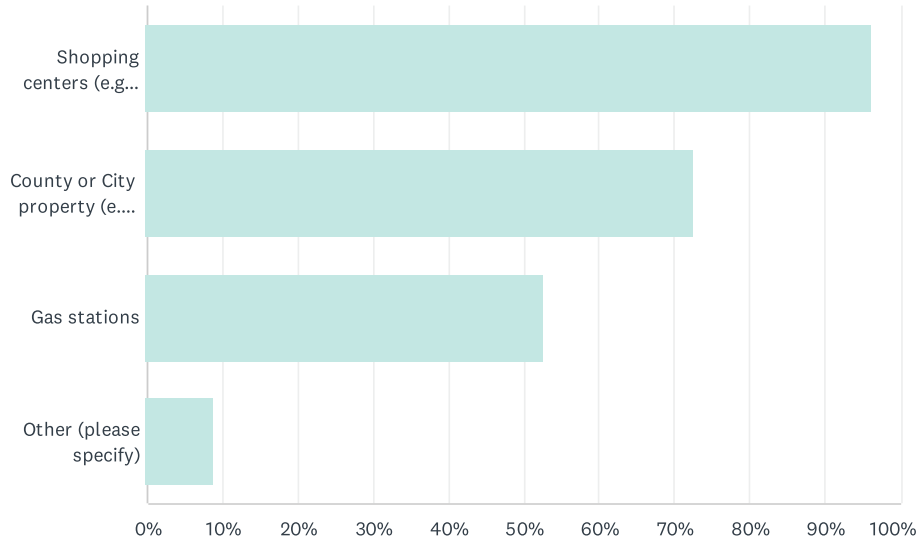
ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	44.00%	11
Charging options away from home (e.g., at work or in public)	60.00%	15
Price relative to ICE (internal combustion engine) vehicle	36.00%	9
Battery life span	24.00%	6
Limited vehicle formats	16.00%	4
Cost of at-home charging installation	44.00%	11
My landlord or housing provider won't provide charging	20.00%	5
I believe in taking transit as opposed to owning a personal vehicle	4.00%	1
I'm uncertain about the technology	12.00%	3
Other (please specify)	16.00%	4
Total Respondents: 25		

#	OTHER (PLEASE SPECIFY)	DATE
1	current elderly car still works fine	9/24/2022 11:57 AM
2	Waiting to get the full life out of my current car	9/15/2022 10:09 PM
3	Cost of vehicle	9/15/2022 8:34 PM
4	I'm not in the market for a new car right now.	9/15/2022 8:09 PM

Curbside Charging Survey

Q14 If you did own an EV, where in your community would you prefer to access public charging? Select all that apply.

Answered: 25 Skipped: 32



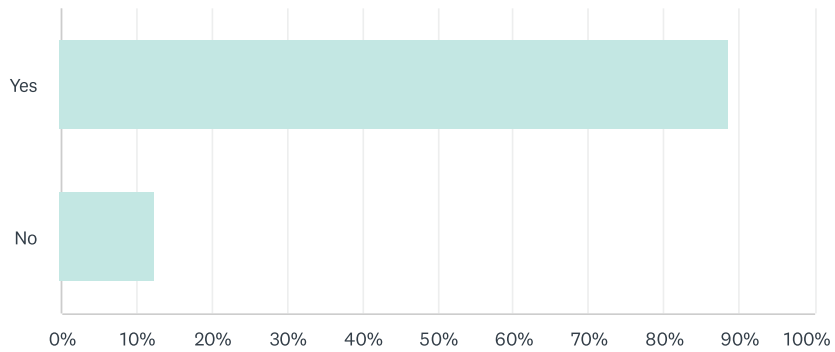
ANSWER CHOICES	RESPONSES
Shopping centers (e.g., grocery stores, malls etc.)	96.00% 24
County or City property (e.g., parks, public parking lots, transit centers community centers etc.)	72.00% 18
Gas stations	52.00% 13
Other (please specify)	8.00% 2
Total Respondents: 25	

#	OTHER (PLEASE SPECIFY)	DATE
1	Restaurants	9/16/2022 9:03 AM
2	...given the charging time required for this generation of batteries.	9/15/2022 2:57 PM

Curbside Charging Survey

Q15 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. If you did own an EV, would you find it beneficial to have a publicly available curbside charger installed near your residence?

Answered: 25 Skipped: 32

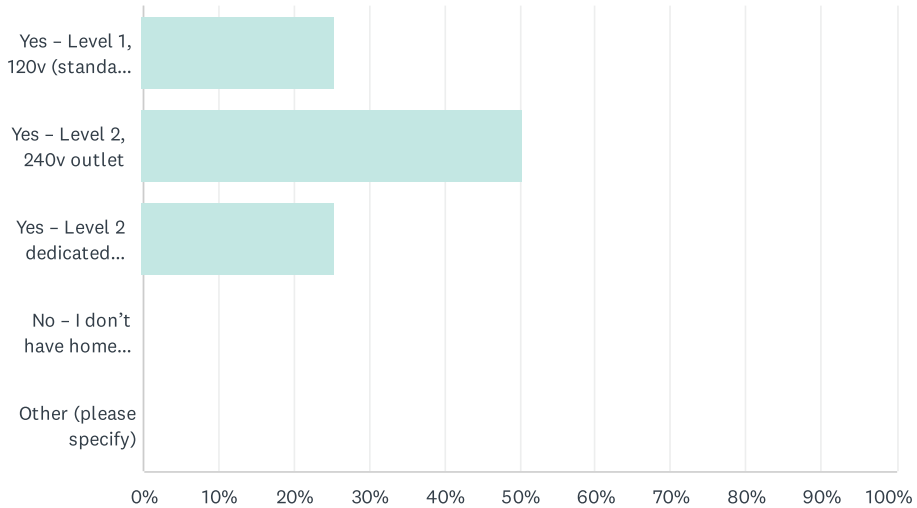


ANSWER CHOICES	RESPONSES	
Yes	88.00%	22
No	12.00%	3
TOTAL		25

Curbside Charging Survey

Q16 Do you have access to charging at your residence? If so, what type?

Answered: 4 Skipped: 53



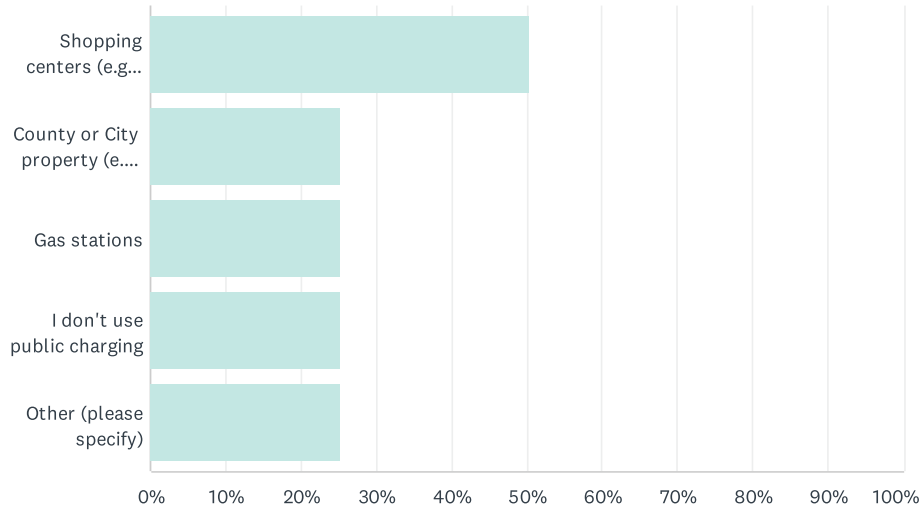
ANSWER CHOICES	RESPONSES	
Yes - Level 1, 120v (standard wall outlet)	25.00%	1
Yes - Level 2, 240v outlet	50.00%	2
Yes - Level 2 dedicated charger	25.00%	1
No - I don't have home charging	0.00%	0
Other (please specify)	0.00%	0
TOTAL		4

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Curbside Charging Survey

Q17 Where in your community do you prefer to access public charging?
Select all that apply.

Answered: 4 Skipped: 53

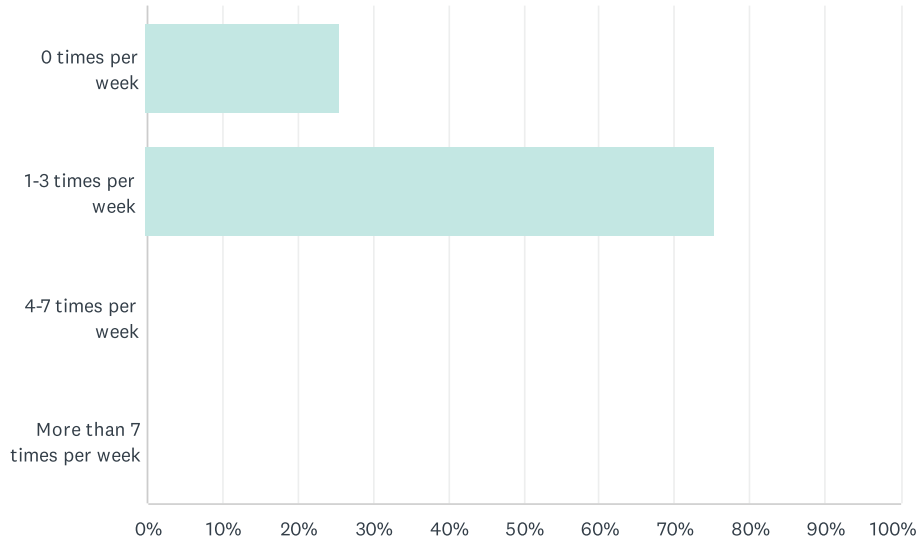


ANSWER CHOICES	RESPONSES
Shopping centers (e.g., grocery stores, malls, big box stores, etc.)	50.00% 2
County or City property (e.g., parks, public parking lots, transit centers, community centers, etc.)	25.00% 1
Gas stations	25.00% 1
I don't use public charging	25.00% 1
Other (please specify)	25.00% 1
Total Respondents: 4	

#	OTHER (PLEASE SPECIFY)	DATE
1	Tesla Charging stations	9/16/2022 11:20 AM

Q18 How many times per week do you use public charging?

Answered: 4 Skipped: 53

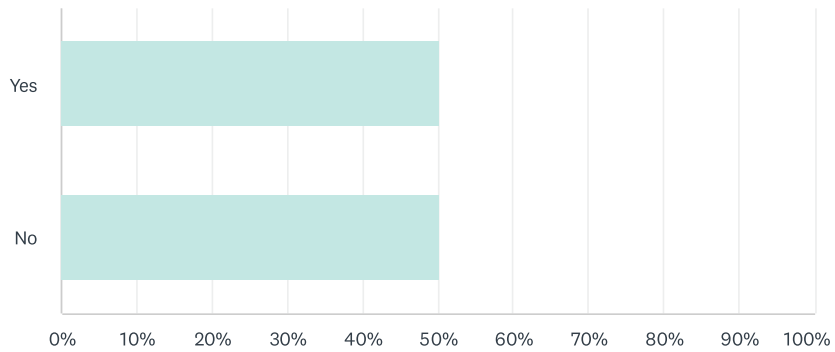


ANSWER CHOICES	RESPONSES	
0 times per week	25.00%	1
1-3 times per week	75.00%	3
4-7 times per week	0.00%	0
More than 7 times per week	0.00%	0
TOTAL		4

Curbside Charging Survey

Q19 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. Would you find it beneficial to have a publicly available curbside charger installed near your residence?

Answered: 4 Skipped: 53

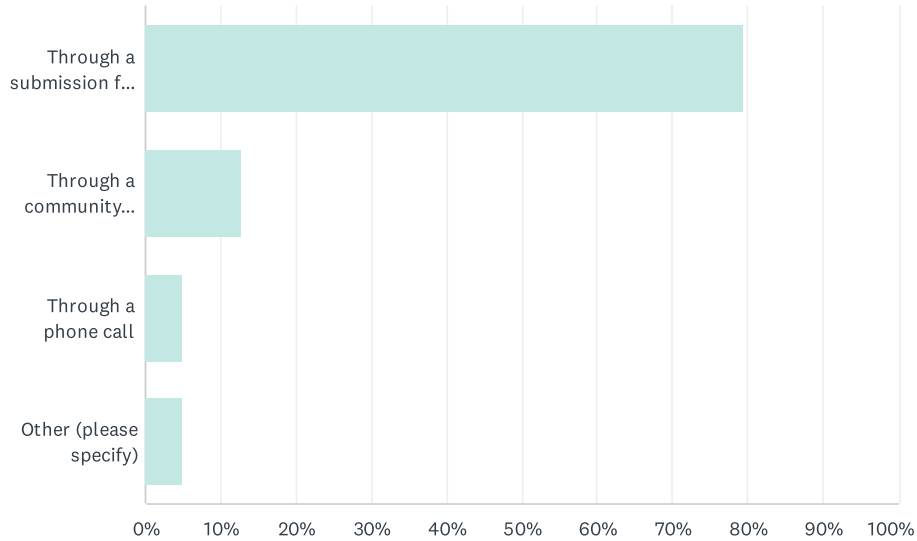


ANSWER CHOICES	RESPONSES	
Yes	50.00%	2
No	50.00%	2
TOTAL		4

Curbside Charging Survey

Q20 How would you like to let your municipality or utility know about your need for curbside charging?

Answered: 24 Skipped: 33



ANSWER CHOICES	RESPONSES
Through a submission form on a website	79.17% 19
Through a community meeting	12.50% 3
Through a phone call	4.17% 1
Other (please specify)	4.17% 1
TOTAL	24

#	OTHER (PLEASE SPECIFY)	DATE
1	I don't understand this question.	9/15/2022 8:09 PM

Curbside Charging Survey

Q21 Why not?

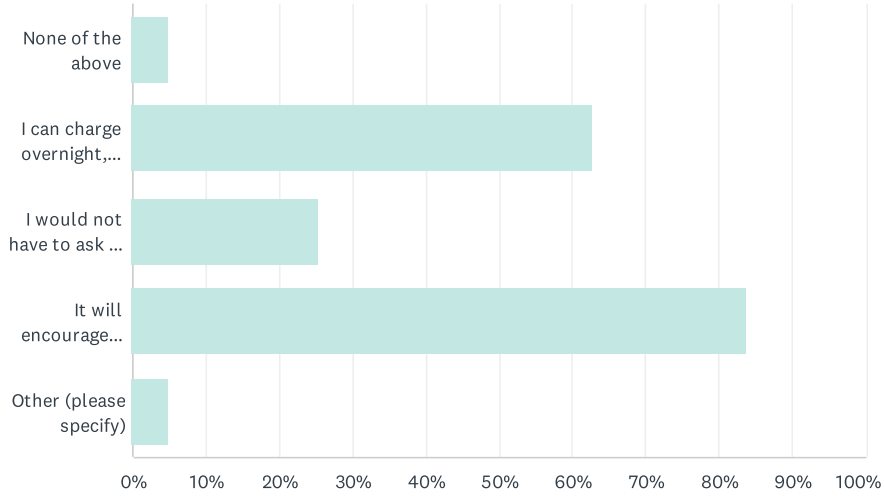
Answered: 5 Skipped: 52

#	RESPONSES	DATE
1	Can charge at home	9/16/2022 11:21 AM
2	Wouldn't be necessary.	9/16/2022 9:03 AM
3	Ok everywhere I might travel but don't need at my house	9/15/2022 4:39 PM
4	I have to walk to the curbside charging station and it's not convenient	9/15/2022 3:49 PM
5	Rural area	9/15/2022 2:53 PM

Curbside Charging Survey

Q22 What benefits do you foresee in having a public curbside charger installed near your residence? Select all that apply.

Answered: 24 Skipped: 33



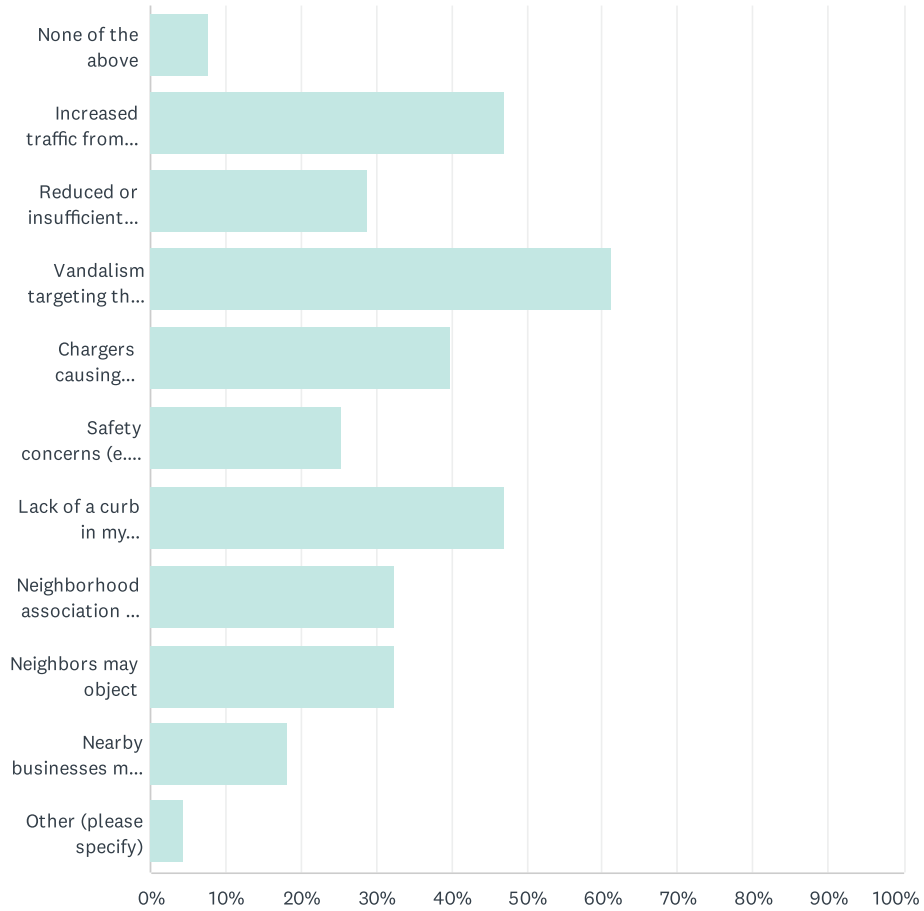
ANSWER CHOICES	RESPONSES
None of the above	4.17% 1
I can charge overnight, closer to home instead of relying on public chargers	62.50% 15
I would not have to ask my landlord or property manager to install charging at my residence	25.00% 6
It will encourage others to drive EVs by increasing the availability of public chargers	83.33% 20
Other (please specify)	4.17% 1
Total Respondents: 24	

#	OTHER (PLEASE SPECIFY)	DATE
1	People coming off of the Port Townsend ferry would have more charging options when passing through Coupeville	9/15/2022 3:42 PM

Curbside Charging Survey

Q23 What issues do you foresee in having a publicly available curbside charger installed near your residence? Select all that apply.

Answered: 28 Skipped: 29



Curbside Charging Survey

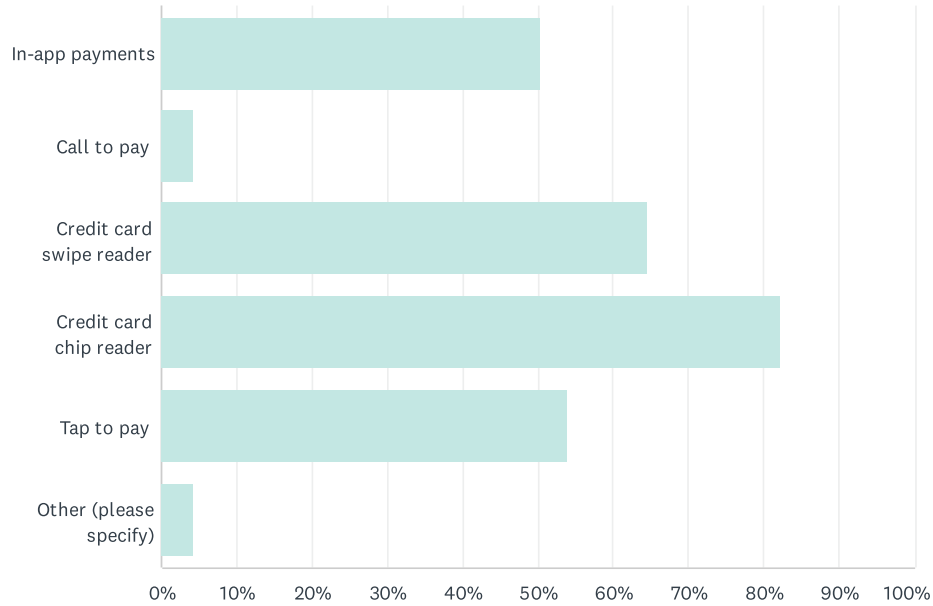
ANSWER CHOICES		RESPONSES
None of the above		7.14% 2
Increased traffic from drivers using the charger		46.43% 13
Reduced or insufficient street parking for non-EV drivers		28.57% 8
Vandalism targeting the chargers		60.71% 17
Chargers causing accessibility concerns for those with disabilities		39.29% 11
Safety concerns (e.g., tripping hazards)		25.00% 7
Lack of a curb in my neighborhood		46.43% 13
Neighborhood association or HOA may object		32.14% 9
Neighbors may object		32.14% 9
Nearby businesses may object		17.86% 5
Other (please specify)		3.57% 1
Total Respondents: 28		

#	OTHER (PLEASE SPECIFY)	DATE
1	I live in a sparsely populated neighborhood	9/16/2022 11:26 AM

Curbside Charging Survey

Q24 If using public charging stations, what is your preferred method of payment? Select all that apply.

Answered: 28 Skipped: 29



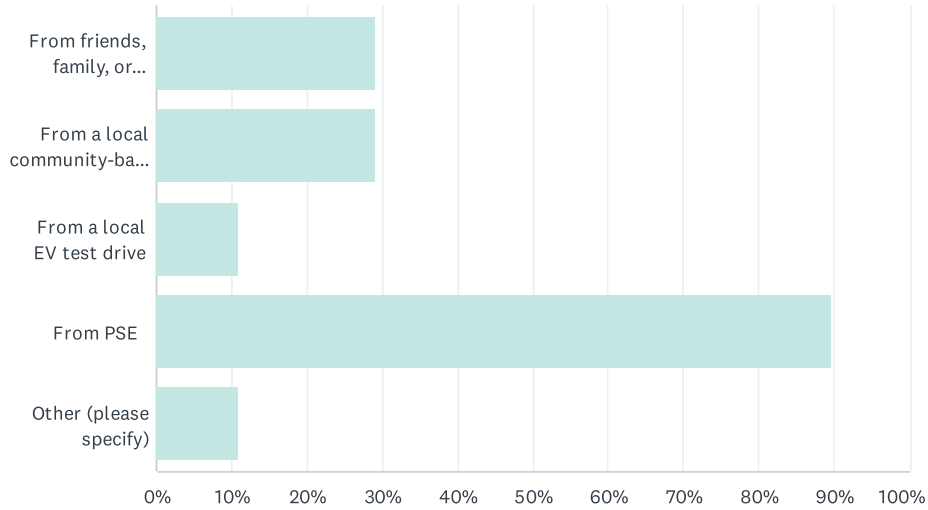
ANSWER CHOICES	RESPONSES
In-app payments	50.00% 14
Call to pay	3.57% 1
Credit card swipe reader	64.29% 18
Credit card chip reader	82.14% 23
Tap to pay	53.57% 15
Other (please specify)	3.57% 1
Total Respondents: 28	

#	OTHER (PLEASE SPECIFY)	DATE
1	An app that is linked to my existing PSE account would be most convenient.	9/15/2022 3:07 PM

Curbside Charging Survey

Q25 How would you prefer to learn about curbside charging programs?
Select all that apply.

Answered: 28 Skipped: 29



ANSWER CHOICES	RESPONSES
From friends, family, or neighbors	28.57% 8
From a local community-based organization	28.57% 8
From a local EV test drive	10.71% 3
From PSE	89.29% 25
Other (please specify)	10.71% 3
Total Respondents: 28	

#	OTHER (PLEASE SPECIFY)	DATE
1	Government	9/15/2022 10:10 PM
2	Utility news letters from PSE and town utility bills	9/15/2022 3:45 PM
3	Local News outlets should broad cast this, coupled with an accurate map of the designated charging locations complete with hourly rates.	9/15/2022 3:07 PM

Curbside Charging Survey

Q26 Is there anything else you'd like to share with us about curbside charging?

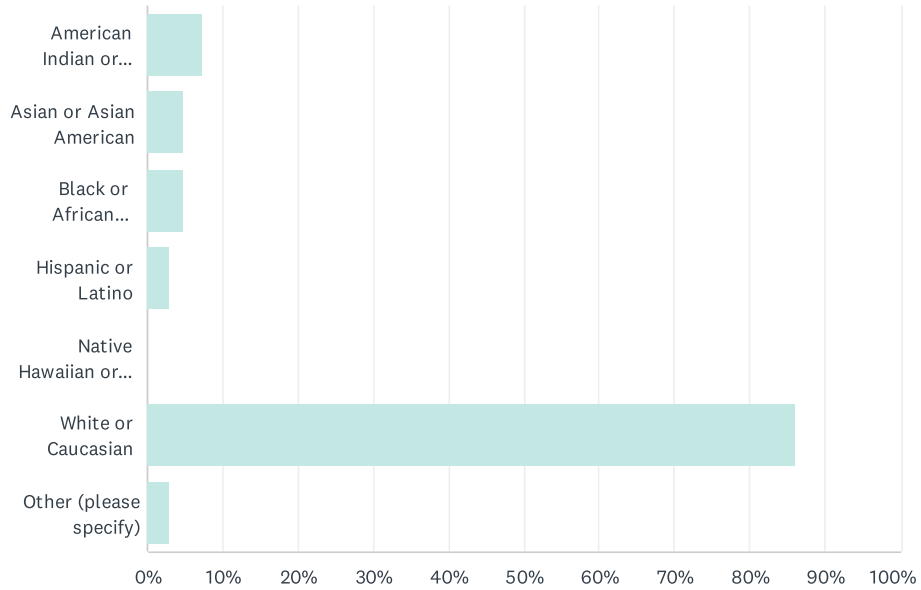
Answered: 7 Skipped: 50

#	RESPONSES	DATE
1	No	9/24/2022 12:03 PM
2	Unless it is a fast charger (250-350 KW), this would not be at all useful to me	9/16/2022 11:26 AM
3	No	9/15/2022 4:41 PM
4	None	9/15/2022 4:00 PM
5	I looked at ordering an all electric vehicle this week. It is the lack of charging opportunities that worries me about making the plunge. For example, Coupeville just installed its first charging station and until then, people driving EV's did not want to meet here because they couldn't charge.	9/15/2022 3:45 PM
6	These need to be coordinated with existing parking times and rates, i.e what would happen if my vehicle needed a 2 hour's charge and I'm in a one hour parking space?	9/15/2022 3:07 PM
7	Nothing	9/15/2022 2:40 PM

Curbside Charging Survey

Q27 What is your race? Select all that apply. (Optional)

Answered: 42 Skipped: 15

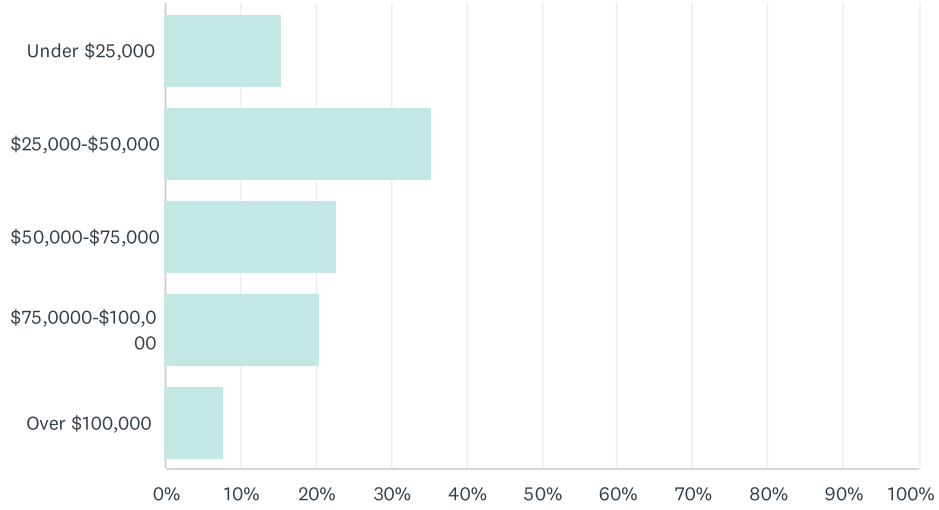


ANSWER CHOICES	RESPONSES
American Indian or Alaska Native	7.14% 3
Asian or Asian American	4.76% 2
Black or African American	4.76% 2
Hispanic or Latino	2.38% 1
Native Hawaiian or other Pacific Islander	0.00% 0
White or Caucasian	85.71% 36
Other (please specify)	2.38% 1
Total Respondents: 42	

#	OTHER (PLEASE SPECIFY)	DATE
1	Multiracial	9/15/2022 5:29 PM

Q28 What is your annual household income? (Optional)

Answered: 40 Skipped: 17



ANSWER CHOICES	RESPONSES
Under \$25,000	15.00% 6
\$25,000-\$50,000	35.00% 14
\$50,000-\$75,000	22.50% 9
\$75,000-\$100,000	20.00% 8
Over \$100,000	7.50% 3
TOTAL	40

Curbside Charging Survey

Q1 What zip code do you live in?

Answered: 52 Skipped: 0

#	RESPONSES	DATE
1	98033	9/28/2022 5:40 PM
2	98001	9/26/2022 7:42 PM
3	98118	9/26/2022 1:08 PM
4	98178	9/26/2022 6:43 AM
5	98168	9/25/2022 6:10 PM
6	98092	9/25/2022 8:03 AM
7	98404	9/24/2022 1:24 PM
8	98204	9/24/2022 3:51 AM
9	98188	9/23/2022 2:00 PM
10	98155	9/23/2022 10:51 AM
11	98148	9/23/2022 8:07 AM
12	98027	9/23/2022 6:37 AM
13	98168	9/23/2022 3:31 AM
14	98148	9/23/2022 12:56 AM
15	98204	9/22/2022 11:26 PM
16	98125	9/22/2022 10:07 PM
17	98466	9/22/2022 9:28 PM
18	98178	9/22/2022 9:15 PM
19	98122	9/22/2022 8:07 PM
20	98122	9/22/2022 8:00 PM
21	98104	9/22/2022 7:53 PM
22	98030	9/22/2022 7:07 PM
23	98036	9/22/2022 6:51 PM
24	98057	9/22/2022 6:35 PM
25	98503	9/22/2022 5:49 PM
26	98043	9/22/2022 5:41 PM
27	98012	9/22/2022 5:17 PM
28	98059	9/22/2022 5:03 PM
29	98198	9/22/2022 4:57 PM
30	98198	9/22/2022 4:57 PM
31	98198	9/22/2022 4:57 PM
32	98198	9/22/2022 4:31 PM
33	98387	9/22/2022 4:31 PM

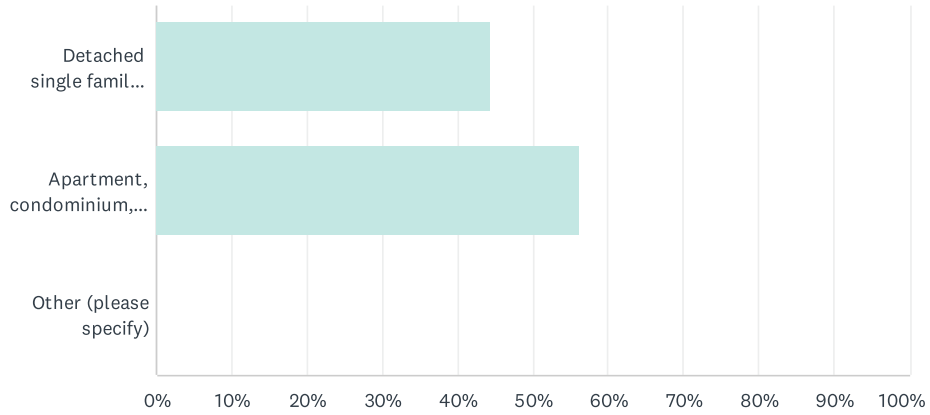
Curbside Charging Survey

34	98042	9/22/2022 4:31 PM
35	98188	9/22/2022 4:30 PM
36	98133	9/22/2022 4:18 PM
37	98133	9/22/2022 4:18 PM
38	98052	9/22/2022 3:59 PM
39	98108	9/22/2022 3:44 PM
40	98008	9/22/2022 3:43 PM
41	98133	9/22/2022 3:36 PM
42	98003	9/22/2022 3:35 PM
43	98133	9/22/2022 3:31 PM
44	98030	9/22/2022 3:29 PM
45	98252	9/22/2022 3:25 PM
46	98121	9/22/2022 3:25 PM
47	98036	9/22/2022 3:24 PM
48	98188	9/22/2022 3:24 PM
49	98125	9/22/2022 3:22 PM
50	98021	9/22/2022 3:22 PM
51	98092	9/22/2022 3:21 PM
52	98118	9/20/2022 4:47 PM

Curbside Charging Survey

Q2 What type of residence do you live in?

Answered: 52 Skipped: 0

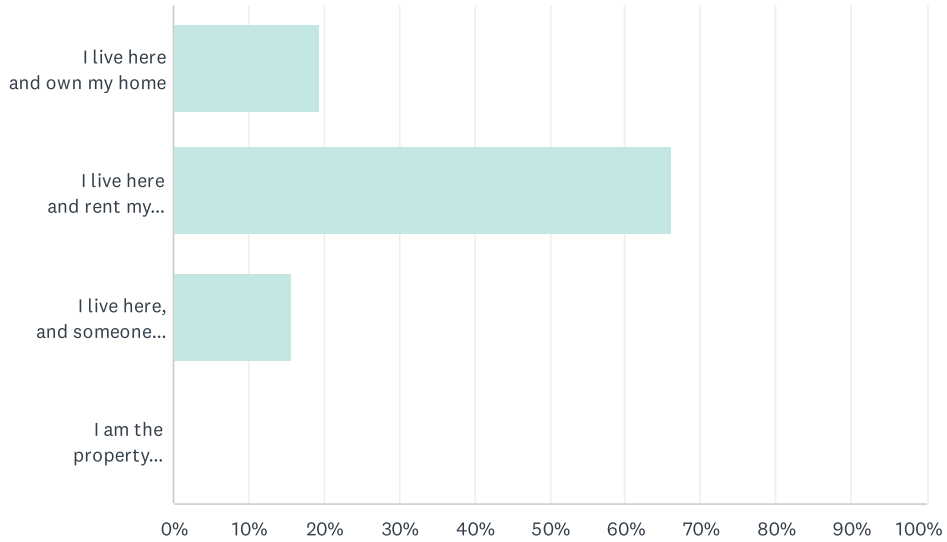


ANSWER CHOICES	RESPONSES
Detached single family house, duplex, triplex, fourplex, townhome, or accessory dwelling unit	44.23% 23
Apartment, condominium, houseboat community, or mobile home park with at least 5 housing units	55.77% 29
Other (please specify)	0.00% 0
TOTAL	52

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q3 Do you own, rent, or manage your home/property?

Answered: 52 Skipped: 0

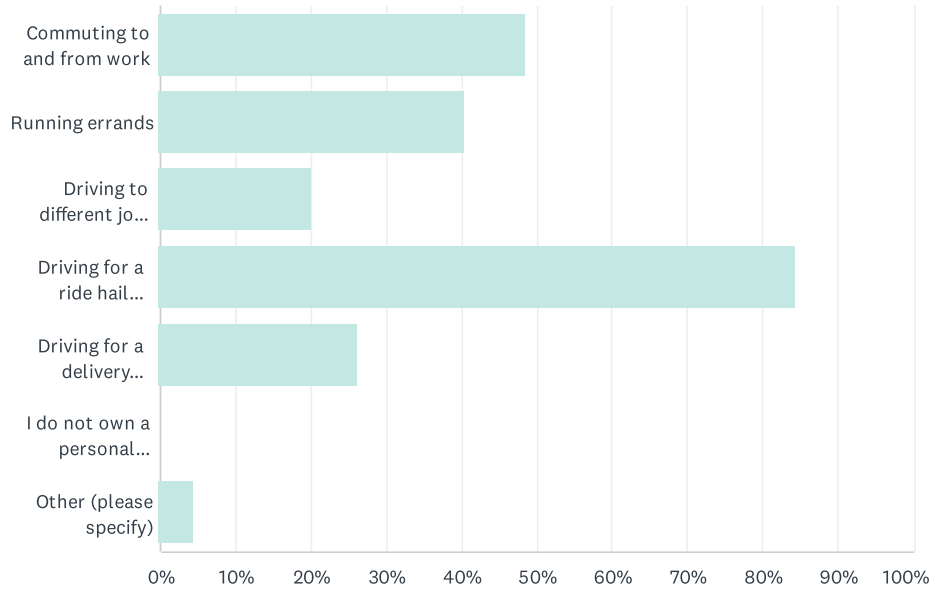


ANSWER CHOICES	RESPONSES	
I live here and own my home	19.23%	10
I live here and rent my home directly from a landlord or property manager	65.38%	34
I live here, and someone else owns or rents the home directly from a landlord or property manager	15.38%	8
I am the property manager or landlord of this property	0.00%	0
TOTAL		52

Curbside Charging Survey

Q4 If you own a personal vehicle, when do you use it? Select all that apply.

Answered: 50 Skipped: 2



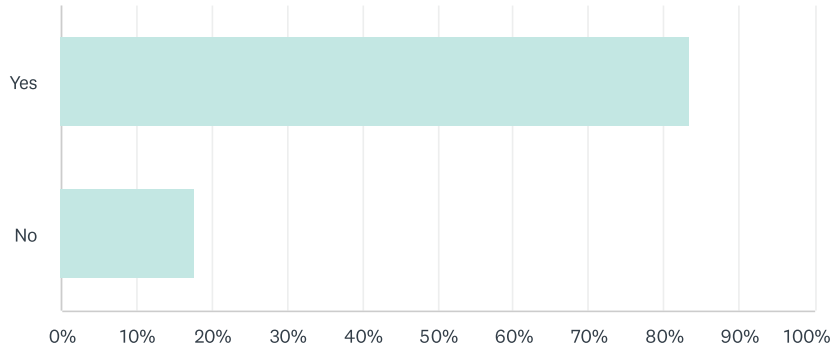
ANSWER CHOICES	RESPONSES
Commuting to and from work	48.00% 24
Running errands	40.00% 20
Driving to different job sites	20.00% 10
Driving for a ride hail service (e.g., Uber or Lyft)	84.00% 42
Driving for a delivery service (e.g., Doordash or Instacart)	26.00% 13
I do not own a personal vehicle	0.00% 0
Other (please specify)	4.00% 2
Total Respondents: 50	

#	OTHER (PLEASE SPECIFY)	DATE
1	I use it to run errands and visit family	9/22/2022 9:16 PM
2	Driving for LYFT only. NO UBER	9/22/2022 5:18 PM

Curbside Charging Survey

Q5 Do you make at least 50% of your income as a taxi driver, ride hail driver, or independent contractor delivery driver?

Answered: 47 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes	82.98%	39
No	17.02%	8
TOTAL		47

Curbside Charging Survey

Q6 On average, how many miles per day do you drive your personal vehicle for ride hail or delivery trips?

Answered: 46 Skipped: 6

#	RESPONSES	DATE
1	200	9/28/2022 5:41 PM
2	200	9/26/2022 7:43 PM
3	50	9/26/2022 1:09 PM
4	8	9/26/2022 6:44 AM
5	400	9/25/2022 6:13 PM
6	320 miles	9/25/2022 8:05 AM
7	10	9/24/2022 1:25 PM
8	225	9/24/2022 3:52 AM
9	300	9/23/2022 10:53 AM
10	150	9/23/2022 8:09 AM
11	100	9/23/2022 6:38 AM
12	200ml/300ml	9/23/2022 3:35 AM
13	300	9/23/2022 12:58 AM
14	100	9/22/2022 11:27 PM
15	200	9/22/2022 10:09 PM
16	215	9/22/2022 9:29 PM
17	40	9/22/2022 9:18 PM
18	10	9/22/2022 8:07 PM
19	200	9/22/2022 8:00 PM
20	300	9/22/2022 7:54 PM
21	30	9/22/2022 7:08 PM
22	300 +	9/22/2022 6:52 PM
23	3 hundred or more	9/22/2022 6:37 PM
24	320	9/22/2022 5:50 PM
25	200	9/22/2022 5:42 PM
26	60	9/22/2022 5:18 PM
27	150-200 miles a day	9/22/2022 5:05 PM
28	80	9/22/2022 4:59 PM
29	200	9/22/2022 4:58 PM
30	85 miles	9/22/2022 4:33 PM
31	100	9/22/2022 4:32 PM

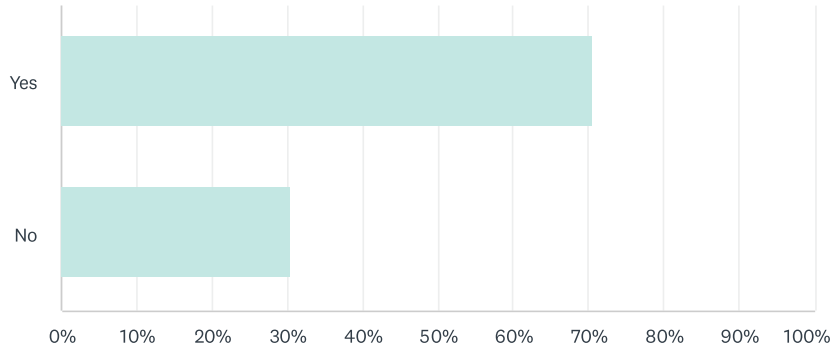
Curbside Charging Survey

32	350	9/22/2022 4:32 PM
33	300	9/22/2022 4:20 PM
34	100	9/22/2022 4:18 PM
35	100 or 120 miles per day	9/22/2022 3:45 PM
36	340	9/22/2022 3:44 PM
37	180	9/22/2022 3:36 PM
38	250	9/22/2022 3:32 PM
39	350+	9/22/2022 3:30 PM
40	150	9/22/2022 3:26 PM
41	150 miles	9/22/2022 3:25 PM
42	100	9/22/2022 3:25 PM
43	500	9/22/2022 3:25 PM
44	300	9/22/2022 3:23 PM
45	100	9/22/2022 3:22 PM
46	250	9/20/2022 4:48 PM

Curbside Charging Survey

Q7 Is off-street parking available at your residence (e.g., private driveway, carport, or garage)?

Answered: 47 Skipped: 5

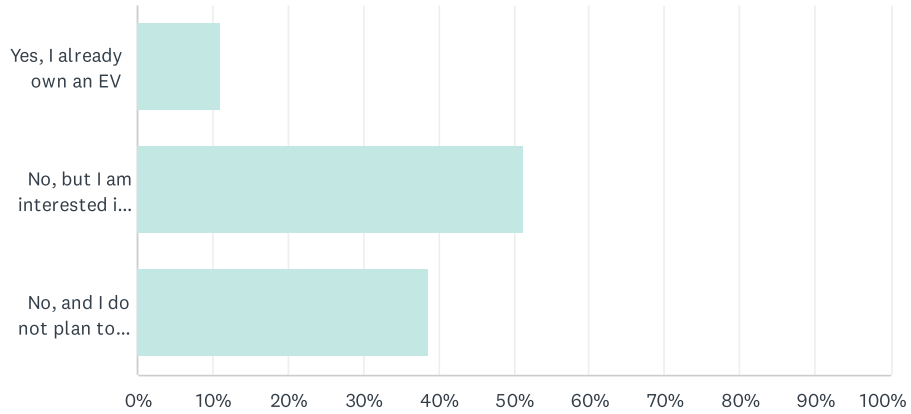


ANSWER CHOICES	RESPONSES	
Yes	70.21%	33
No	29.79%	14
TOTAL		47

Curbside Charging Survey

Q8 An electric vehicle (EV) refers to either a full, battery electric vehicle or a plug in hybrid vehicle. Is your personal vehicle an electric vehicle (EV)?

Answered: 47 Skipped: 5

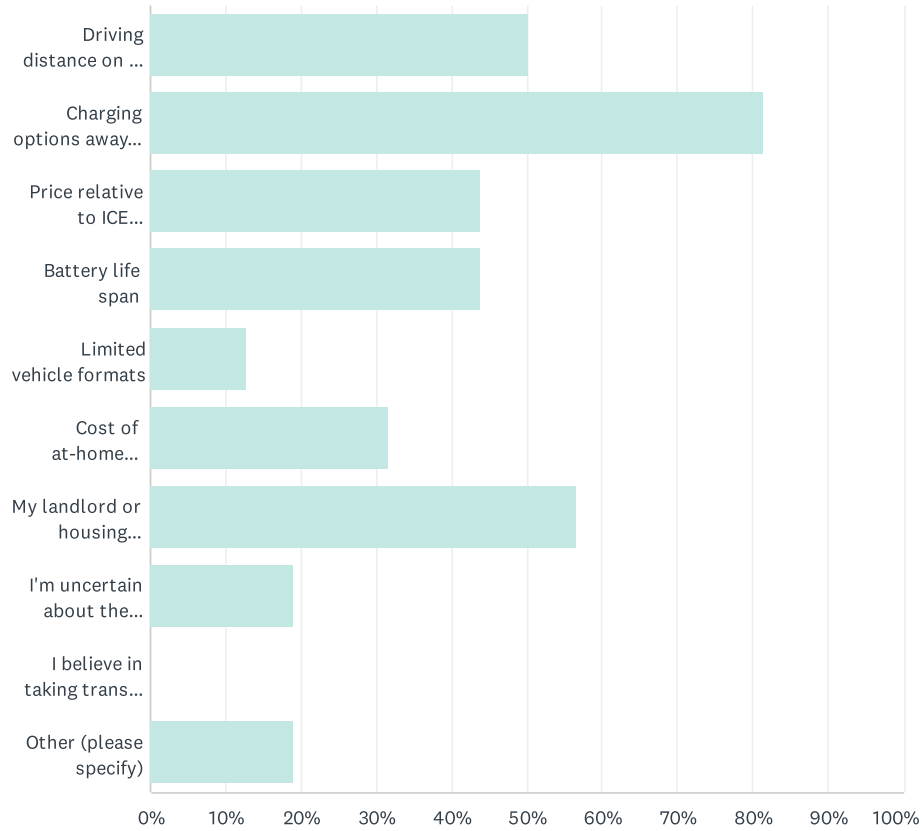


ANSWER CHOICES	RESPONSES
Yes, I already own an EV	10.64% 5
No, but I am interested in purchasing an EV	51.06% 24
No, and I do not plan to purchase an EV	38.30% 18
TOTAL	47

Curbside Charging Survey

Q9 What currently prevents you from purchasing an EV? Select all that apply.

Answered: 16 Skipped: 36



Curbside Charging Survey

ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	50.00%	8
Charging options away from home	81.25%	13
Price relative to ICE (internal combustion engine) vehicle	43.75%	7
Battery life span	43.75%	7
Limited vehicle formats	12.50%	2
Cost of at-home charging installation	31.25%	5
My landlord or housing provider won't provide charging	56.25%	9
I'm uncertain about the technology	18.75%	3
I believe in taking transit as opposed to owning a personal vehicle	0.00%	0
Other (please specify)	18.75%	3
Total Respondents: 16		

#	OTHER (PLEASE SPECIFY)	DATE
1	High price	9/26/2022 1:12 PM
2	They are not environment friendly. How do you dispose of the battery, and how will the current infrastructure handle all of these electric vehicles?	9/22/2022 4:45 PM
3	This whole insane unfeasible EV conspiracy is TOO EXPENSIVE TOO UNRELIABLE TOO DANGEROUS AND NOT AT ALL PRACTICAL!!! ANY ELECTRICAL ENGINEER CAN EXPLAIN IT IN VERY BLUNT AND UNFORGIVING TRUTHFUL ACCURATE DETAIL!!!!	9/22/2022 3:34 PM

Curbside Charging Survey

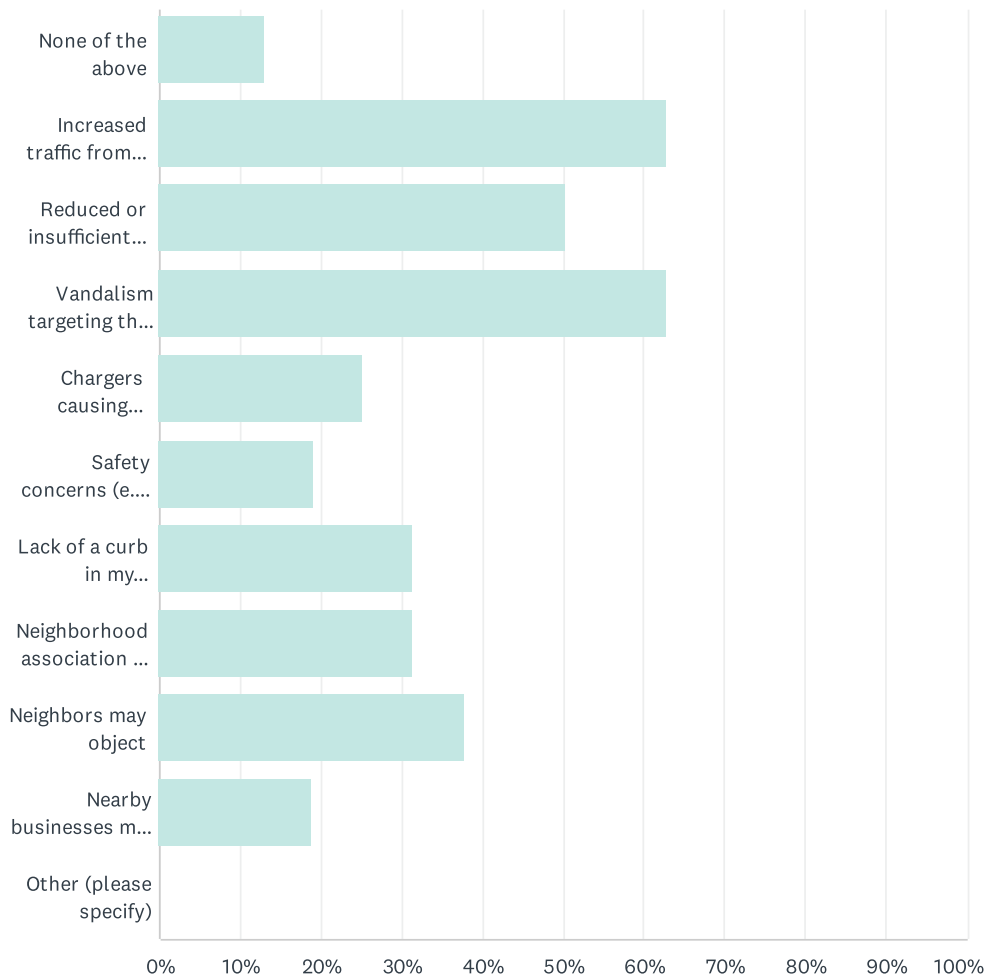
Q10 Could anything change your mind about EV ownership?

Answered: 12 Skipped: 40

#	RESPONSES	DATE
1	Gov subsidies.	9/28/2022 5:43 PM
2	0 interest on financing	9/26/2022 1:12 PM
3	No	9/23/2022 3:39 AM
4	Price	9/22/2022 11:29 PM
5	driving distance on single charge. Battery life span. Improvements in the technology.Affordability. Charging options away from home.	9/22/2022 9:34 PM
6	Yes, when it becomes cheaper.	9/22/2022 6:55 PM
7	Better infrastructure, and the disposal of batteries. Cost of the vehicle	9/22/2022 4:45 PM
8	No	9/22/2022 4:23 PM
9	Yes	9/22/2022 3:47 PM
10	More charging stations, especially at condos/apartments/etc.	9/22/2022 3:34 PM
11	Absolutely NOT!	9/22/2022 3:34 PM
12	If it is cheaper	9/22/2022 3:27 PM

Q11 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. What issues do you foresee in having a publicly available curbside charger installed near your residence? Select all that apply.

Answered: 16 Skipped: 36



Curbside Charging Survey

ANSWER CHOICES		RESPONSES	
None of the above		12.50%	2
Increased traffic from drivers using the charger		62.50%	10
Reduced or insufficient street parking for non-EV drivers		50.00%	8
Vandalism targeting the chargers		62.50%	10
Chargers causing accessibility concerns for those with disabilities		25.00%	4
Safety concerns (e.g., tripping hazards)		18.75%	3
Lack of a curb in my neighborhood		31.25%	5
Neighborhood association or HOA may object		31.25%	5
Neighbors may object		37.50%	6
Nearby businesses may object		18.75%	3
Other (please specify)		0.00%	0
Total Respondents: 16			
#	OTHER (PLEASE SPECIFY)	DATE	
	There are no responses.		

Curbside Charging Survey

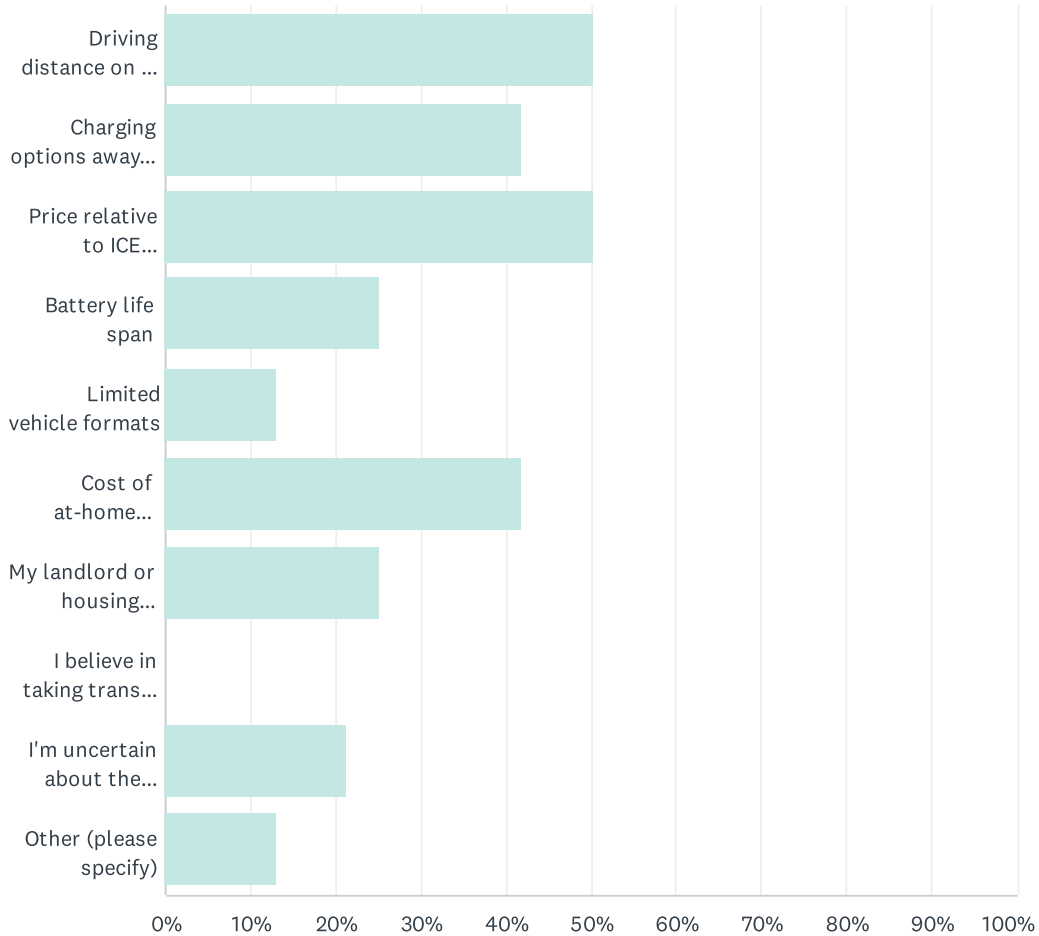
Q12 Is there anything else you'd like to share with us?

Answered: 11 Skipped: 41

#	RESPONSES	DATE
1	No	9/28/2022 5:43 PM
2	Affordable charging station	9/26/2022 1:12 PM
3	No	9/23/2022 3:39 AM
4	No	9/22/2022 11:29 PM
5	nOt at the moment.	9/22/2022 9:34 PM
6	No	9/22/2022 4:45 PM
7	No	9/22/2022 4:23 PM
8	No	9/22/2022 3:48 PM
9	YES THE COST IN DOLLARS IS IMPOSSIBLE AND THE ENVIORNMENTAL IMPACT IS TOTALLY DESTRUCTIVE. DID YOU BOTHER TO THINK THIS ALL OUT BEFORE TRYING TO SHOVE IT DOWN OUR THROATS????!!!!	9/22/2022 3:35 PM
10	No	9/22/2022 3:28 PM
11	Year 2030, is to early. Before the environment, worry about homelessness, poverty.	9/22/2022 3:28 PM

Q13 What currently prevents you from purchasing an EV? Select all that apply.

Answered: 24 Skipped: 28



Curbside Charging Survey

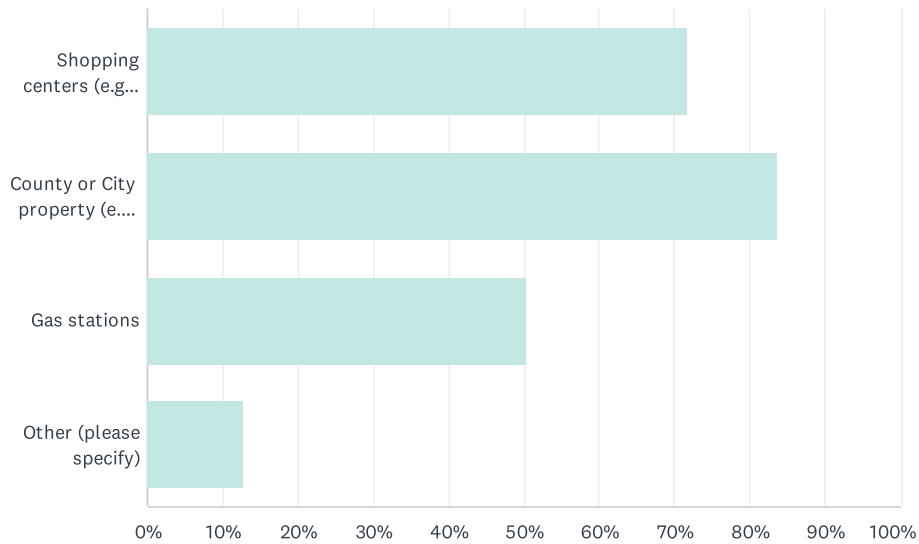
ANSWER CHOICES	RESPONSES	
Driving distance on a single charge ("range")	50.00%	12
Charging options away from home (e.g., at work or in public)	41.67%	10
Price relative to ICE (internal combustion engine) vehicle	50.00%	12
Battery life span	25.00%	6
Limited vehicle formats	12.50%	3
Cost of at-home charging installation	41.67%	10
My landlord or housing provider won't provide charging	25.00%	6
I believe in taking transit as opposed to owning a personal vehicle	0.00%	0
I'm uncertain about the technology	20.83%	5
Other (please specify)	12.50%	3
Total Respondents: 24		

#	OTHER (PLEASE SPECIFY)	DATE
1	I'm not clear of the details of EV	9/22/2022 9:22 PM
2	I don't have enough money to buy a EV	9/22/2022 5:20 PM
3	Cost of vehicle	9/22/2022 4:34 PM

Curbside Charging Survey

Q14 If you did own an EV, where in your community would you prefer to access public charging? Select all that apply.

Answered: 24 Skipped: 28



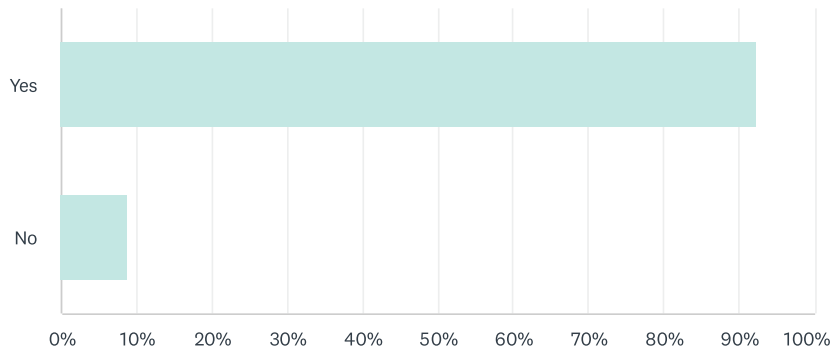
ANSWER CHOICES	RESPONSES
Shopping centers (e.g., grocery stores, malls etc.)	70.83% 17
County or City property (e.g., parks, public parking lots, transit centers community centers etc.)	83.33% 20
Gas stations	50.00% 12
Other (please specify)	12.50% 3
Total Respondents: 24	

#	OTHER (PLEASE SPECIFY)	DATE
1	A convenient spot to have the ability to stay charged for travel and emergency	9/22/2022 9:22 PM
2	At home too	9/22/2022 5:20 PM
3	Home	9/22/2022 4:34 PM

Curbside Charging Survey

Q15 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. If you did own an EV, would you find it beneficial to have a publicly available curbside charger installed near your residence?

Answered: 24 Skipped: 28

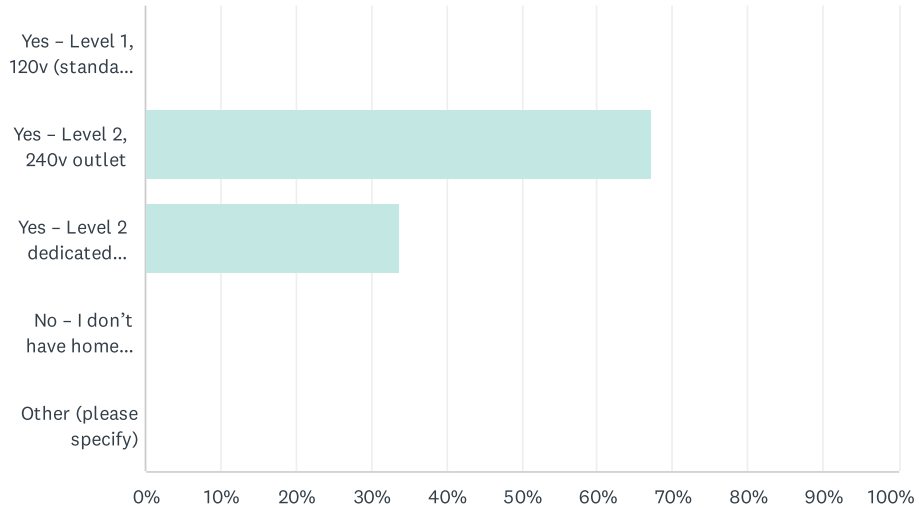


ANSWER CHOICES	RESPONSES
Yes	91.67% 22
No	8.33% 2
TOTAL	24

Curbside Charging Survey

Q16 Do you have access to charging at your residence? If so, what type?

Answered: 3 Skipped: 49

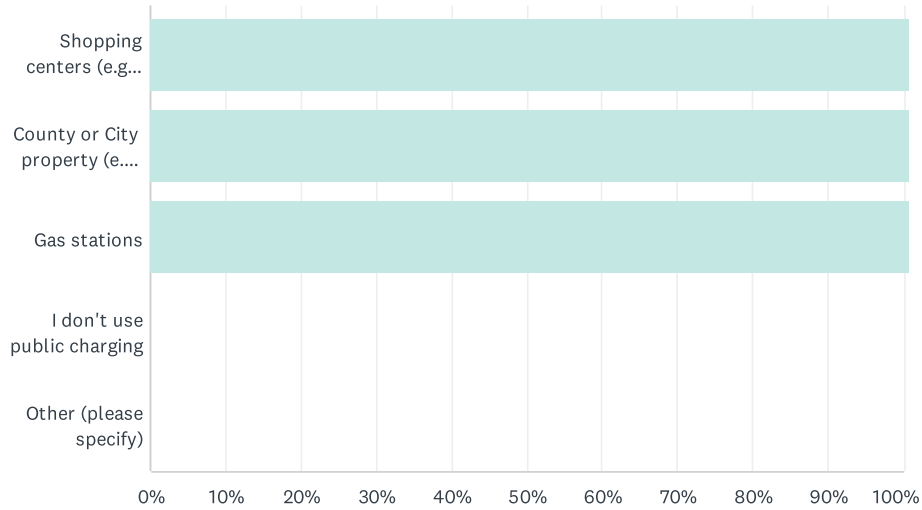


ANSWER CHOICES	RESPONSES
Yes - Level 1, 120v (standard wall outlet)	0.00% 0
Yes - Level 2, 240v outlet	66.67% 2
Yes - Level 2 dedicated charger	33.33% 1
No - I don't have home charging	0.00% 0
Other (please specify)	0.00% 0
TOTAL	3

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q17 Where in your community do you prefer to access public charging? Select all that apply.

Answered: 3 Skipped: 49

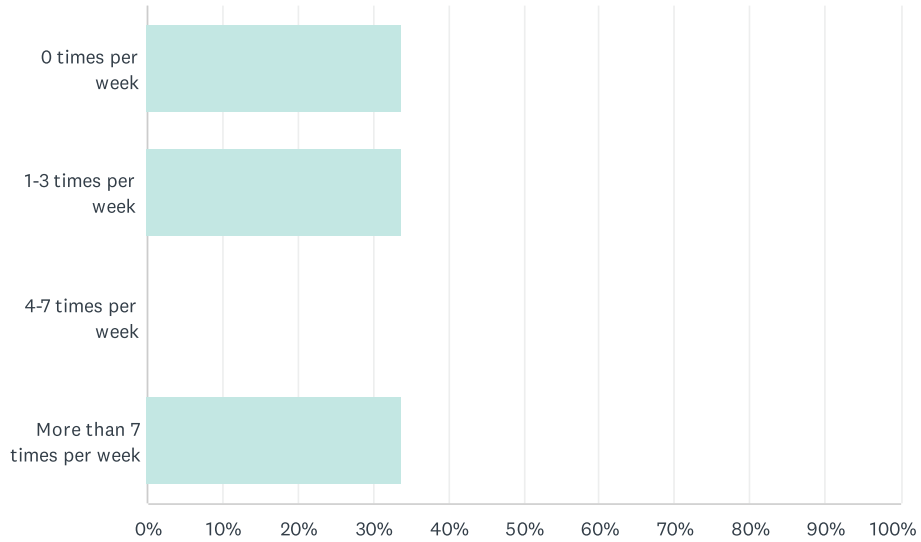


ANSWER CHOICES	RESPONSES
Shopping centers (e.g., grocery stores, malls, big box stores, etc.)	100.00% 3
County or City property (e.g., parks, public parking lots, transit centers, community centers, etc.)	100.00% 3
Gas stations	100.00% 3
I don't use public charging	0.00% 0
Other (please specify)	0.00% 0
Total Respondents: 3	

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q18 How many times per week do you use public charging?

Answered: 3 Skipped: 49

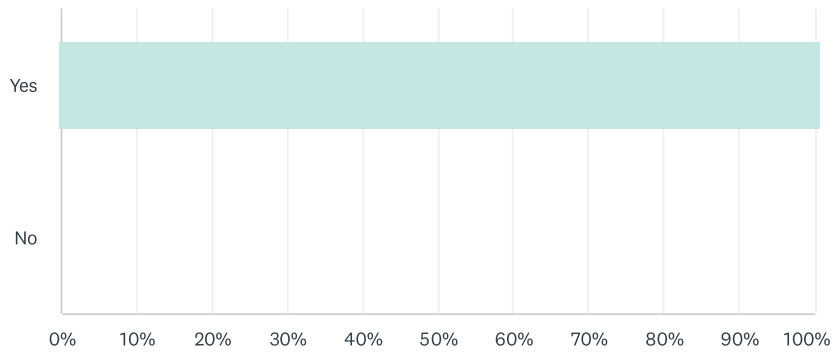


ANSWER CHOICES	RESPONSES	
0 times per week	33.33%	1
1-3 times per week	33.33%	1
4-7 times per week	0.00%	0
More than 7 times per week	33.33%	1
TOTAL		3

Curbside Charging Survey

Q19 Curbside chargers are EV charging stations that may be mounted on a streetlight, utility pole or other pole next to a curb. As these chargers would be publicly available, the spot will be marked 'EV only' and anyone who drives an EV will be able to park on the street next to the charger and charge their vehicle. Would you find it beneficial to have a publicly available curbside charger installed near your residence?

Answered: 3 Skipped: 49

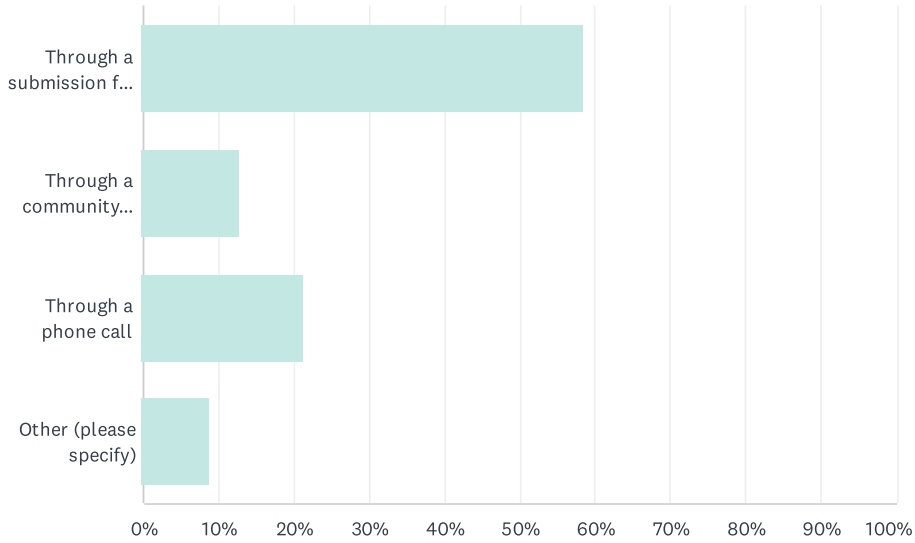


ANSWER CHOICES	RESPONSES	
Yes	100.00%	3
No	0.00%	0
TOTAL		3

Curbside Charging Survey

Q20 How would you like to let your municipality or utility know about your need for curbside charging?

Answered: 24 Skipped: 28



ANSWER CHOICES	RESPONSES
Through a submission form on a website	58.33% 14
Through a community meeting	12.50% 3
Through a phone call	20.83% 5
Other (please specify)	8.33% 2
TOTAL	24

#	OTHER (PLEASE SPECIFY)	DATE
1	EV cars dealers should know where the charges are they should let the customer knows.	9/22/2022 5:24 PM
2	I don't know	9/22/2022 3:26 PM

Curbside Charging Survey

Q21 Why not?

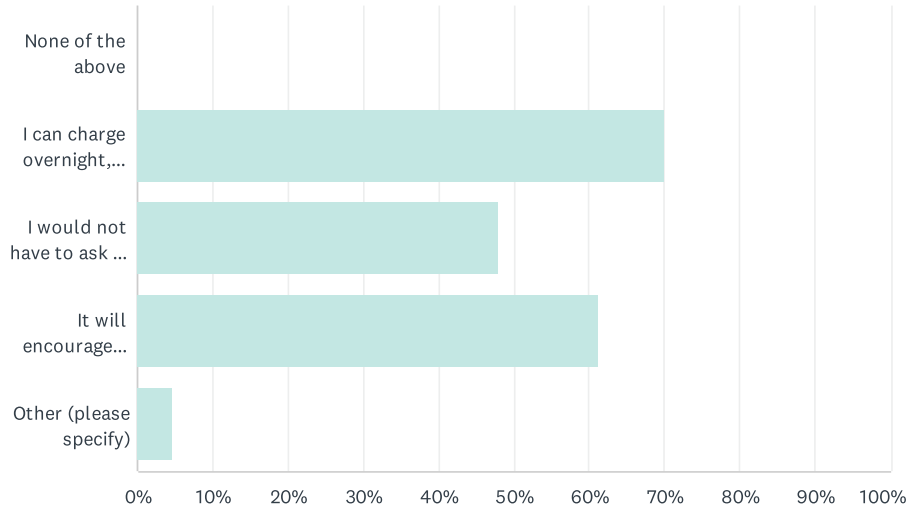
Answered: 2 Skipped: 50

#	RESPONSES	DATE
1	I Dont That	9/25/2022 6:17 PM
2	Just	9/22/2022 3:47 PM

Curbside Charging Survey

Q22 What benefits do you foresee in having a public curbside charger installed near your residence? Select all that apply.

Answered: 23 Skipped: 29



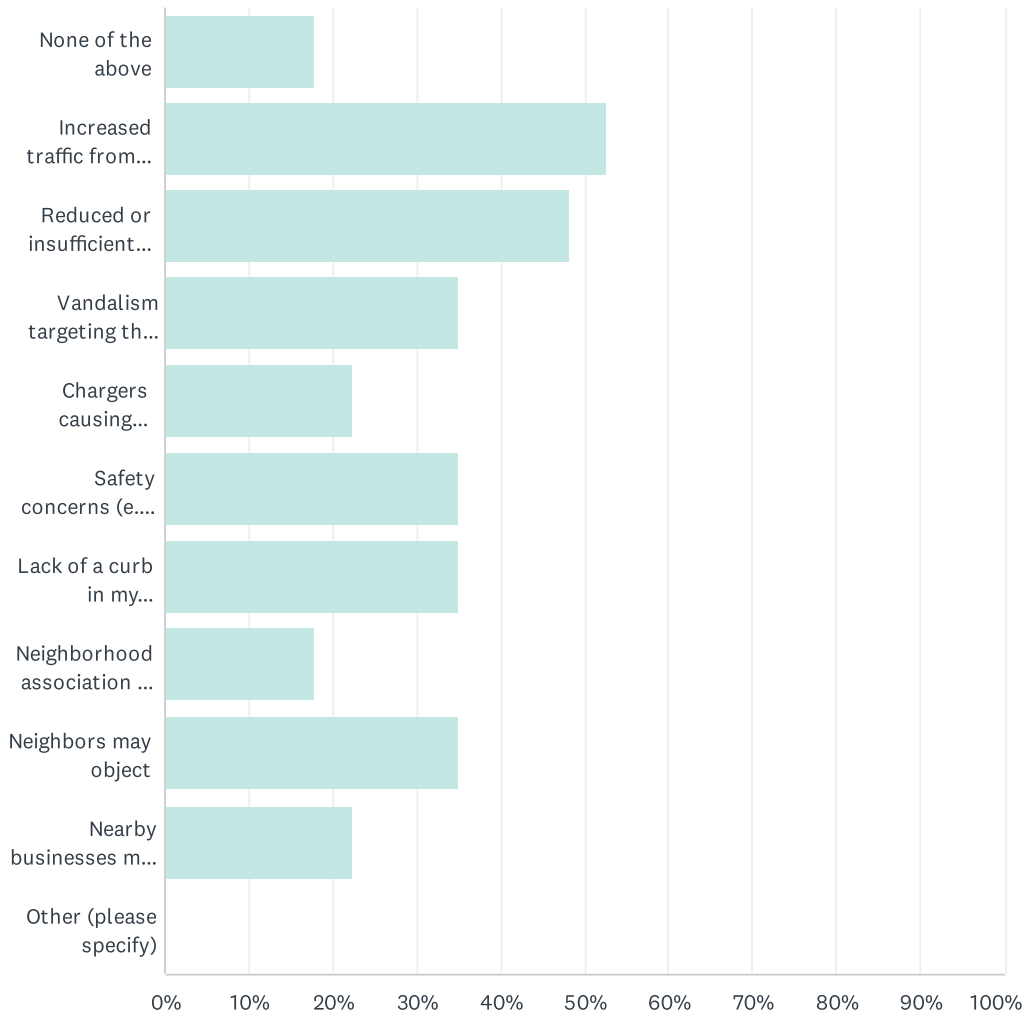
ANSWER CHOICES	RESPONSES
None of the above	0.00% 0
I can charge overnight, closer to home instead of relying on public chargers	69.57% 16
I would not have to ask my landlord or property manager to install charging at my residence	47.83% 11
It will encourage others to drive EVs by increasing the availability of public chargers	60.87% 14
Other (please specify)	4.35% 1
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
1	All the apartments should installed EV chargers	9/22/2022 5:26 PM

Curbside Charging Survey

Q23 What issues do you foresee in having a publicly available curbside charger installed near your residence? Select all that apply.

Answered: 23 Skipped: 29



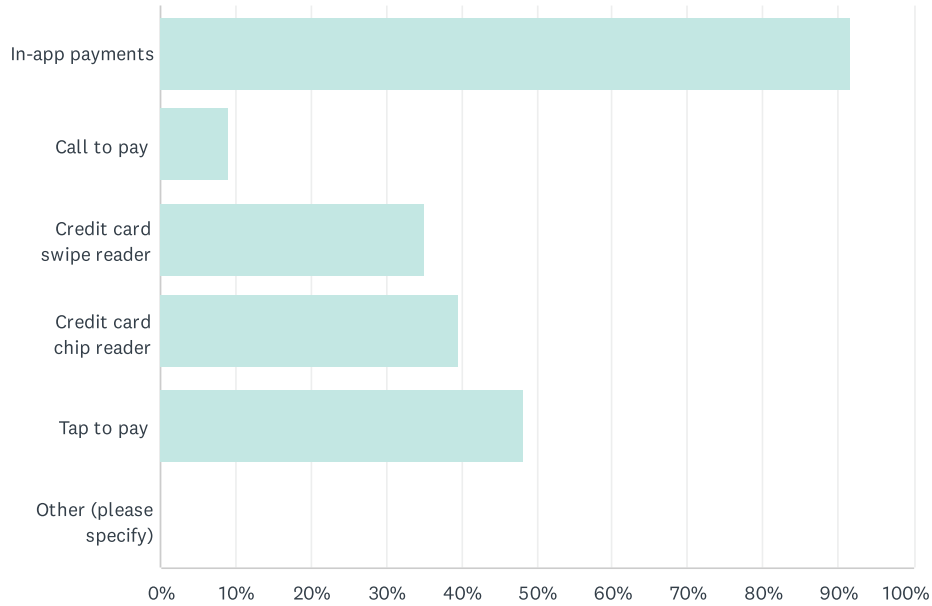
Curbside Charging Survey

ANSWER CHOICES		RESPONSES	
None of the above		17.39%	4
Increased traffic from drivers using the charger		52.17%	12
Reduced or insufficient street parking for non-EV drivers		47.83%	11
Vandalism targeting the chargers		34.78%	8
Chargers causing accessibility concerns for those with disabilities		21.74%	5
Safety concerns (e.g., tripping hazards)		34.78%	8
Lack of a curb in my neighborhood		34.78%	8
Neighborhood association or HOA may object		17.39%	4
Neighbors may object		34.78%	8
Nearby businesses may object		21.74%	5
Other (please specify)		0.00%	0
Total Respondents: 23			
#	OTHER (PLEASE SPECIFY)	DATE	
	There are no responses.		

Curbside Charging Survey

Q24 If using public charging stations, what is your preferred method of payment? Select all that apply.

Answered: 23 Skipped: 29



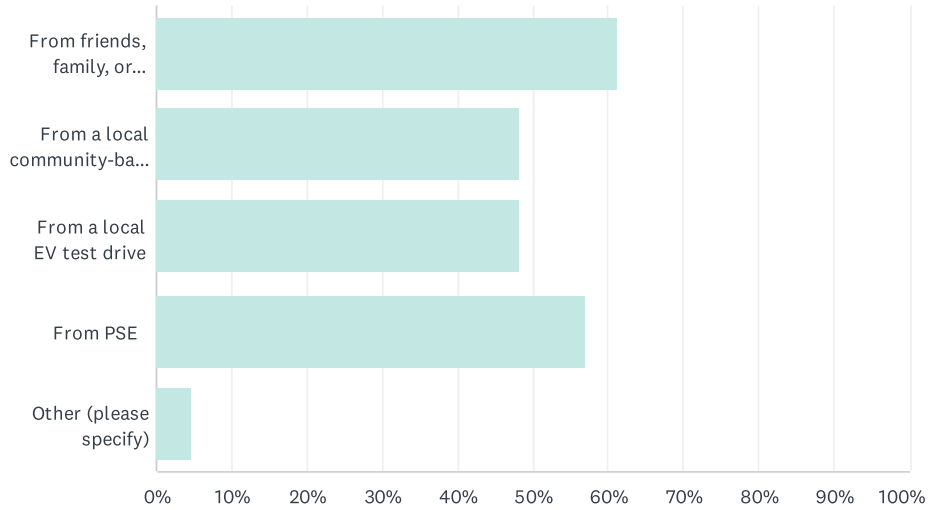
ANSWER CHOICES	RESPONSES
In-app payments	91.30% 21
Call to pay	8.70% 2
Credit card swipe reader	34.78% 8
Credit card chip reader	39.13% 9
Tap to pay	47.83% 11
Other (please specify)	0.00% 0
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Curbside Charging Survey

Q25 How would you prefer to learn about curbside charging programs?
Select all that apply.

Answered: 23 Skipped: 29



ANSWER CHOICES	RESPONSES
From friends, family, or neighbors	60.87% 14
From a local community-based organization	47.83% 11
From a local EV test drive	43.48% 10
From PSE	56.52% 13
Other (please specify)	4.35% 1
Total Respondents: 23	

#	OTHER (PLEASE SPECIFY)	DATE
1	I	9/22/2022 5:24 PM

Curbside Charging Survey

Q26 Is there anything else you'd like to share with us about curbside charging?

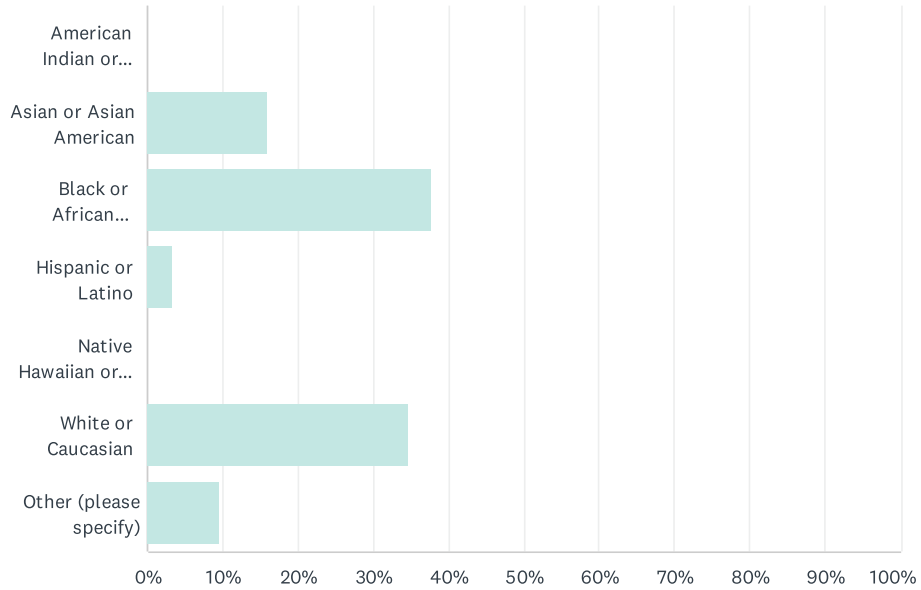
Answered: 15 Skipped: 37

#	RESPONSES	DATE
1	No	9/26/2022 7:46 PM
2	Every half a mile there should be a charging station	9/25/2022 8:12 AM
3	no	9/24/2022 1:29 PM
4	No.	9/24/2022 8:35 AM
5	Nope	9/23/2022 11:02 AM
6	Not at this time	9/22/2022 9:26 PM
7	None	9/22/2022 6:53 PM
8	N/a	9/22/2022 5:29 PM
9	Very convenient if closer to our home	9/22/2022 5:24 PM
10	Thank you	9/22/2022 5:02 PM
11	No	9/22/2022 4:36 PM
12	Do free	9/22/2022 3:49 PM
13	N/A	9/22/2022 3:42 PM
14	Need to improve the service	9/22/2022 3:29 PM
15	Better price	9/22/2022 3:23 PM

Curbside Charging Survey

Q27 What is your race? Select all that apply. (Optional)

Answered: 32 Skipped: 20

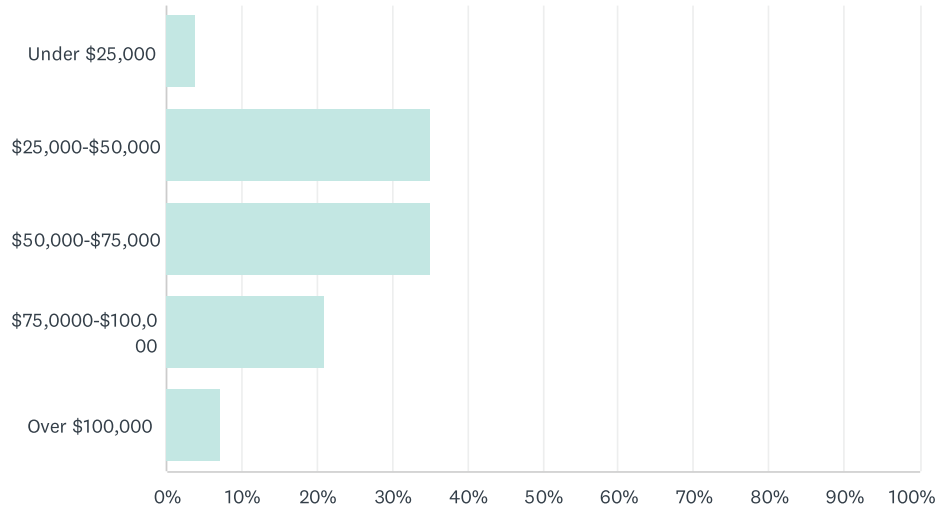


ANSWER CHOICES	RESPONSES
American Indian or Alaska Native	0.00% 0
Asian or Asian American	15.63% 5
Black or African American	37.50% 12
Hispanic or Latino	3.13% 1
Native Hawaiian or other Pacific Islander	0.00% 0
White or Caucasian	34.38% 11
Other (please specify)	9.38% 3
Total Respondents: 32	

#	OTHER (PLEASE SPECIFY)	DATE
1	African	9/22/2022 6:55 PM
2	American	9/22/2022 3:50 PM
3	None of your business!	9/22/2022 3:36 PM

Q28 What is your annual household income? (Optional)

Answered: 29 Skipped: 23



ANSWER CHOICES	RESPONSES
Under \$25,000	3.45% 1
\$25,000-\$50,000	34.48% 10
\$50,000-\$75,000	34.48% 10
\$75,000-\$100,000	20.69% 6
Over \$100,000	6.90% 2
TOTAL	29

استطلاع عن خدمة الشحن على الأرصفة

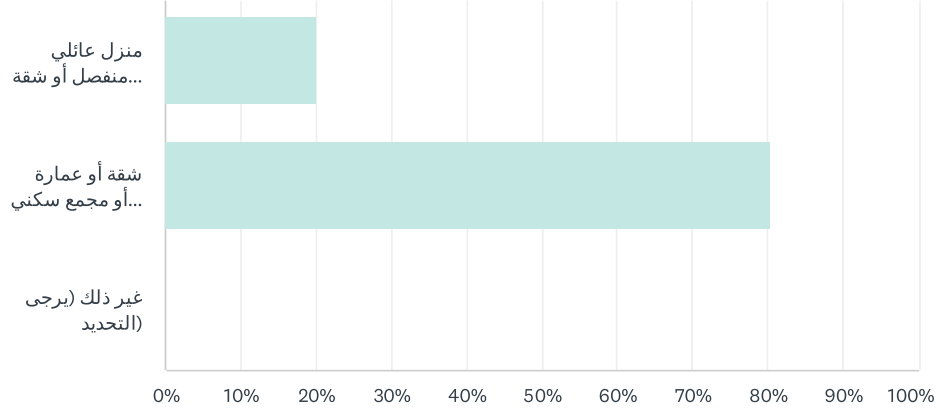
ما الرمز البريدي لمحل إقامتك؟ Q1

Answered: 5 Skipped: 0

#	RESPONSES	DATE
1	98003	9/23/2022 2:36 PM
2	98055	9/22/2022 7:16 PM
3	98036	9/22/2022 4:56 PM
4	98275	9/22/2022 4:10 PM
5	98029	9/22/2022 3:36 PM

ما نوع الإقامة لديك؟ Q2

Answered: 5 Skipped: 0

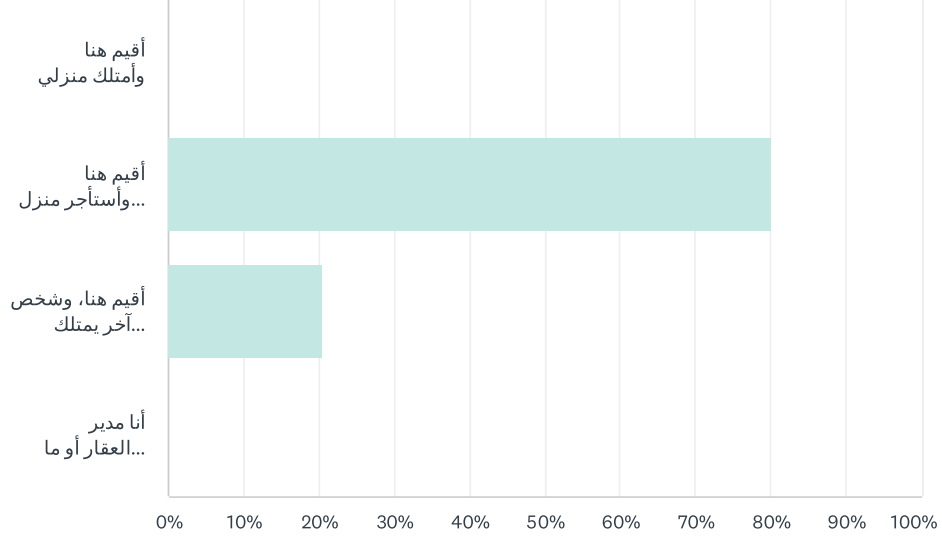


ANSWER CHOICES	RESPONSES
منزل عائلي منفصل أو شقة مزدوجة أو ثلاثية أو رباعية أو منزل مستقل أو وحدة سكنية ملحقة	20.00% 1
شقة أو عمارة أو مجمع سكني أو حديقة منزلية متنقلة تشمل 5 وحدات سكنية على الأقل	80.00% 4
(غير ذلك (يرجى التحديد)	0.00% 0
TOTAL	5

#	(غير ذلك (يرجى التحديد)	DATE
	There are no responses.	

هل تملك منزلك / عقارك أم تستأجره أو تديره؟ Q3

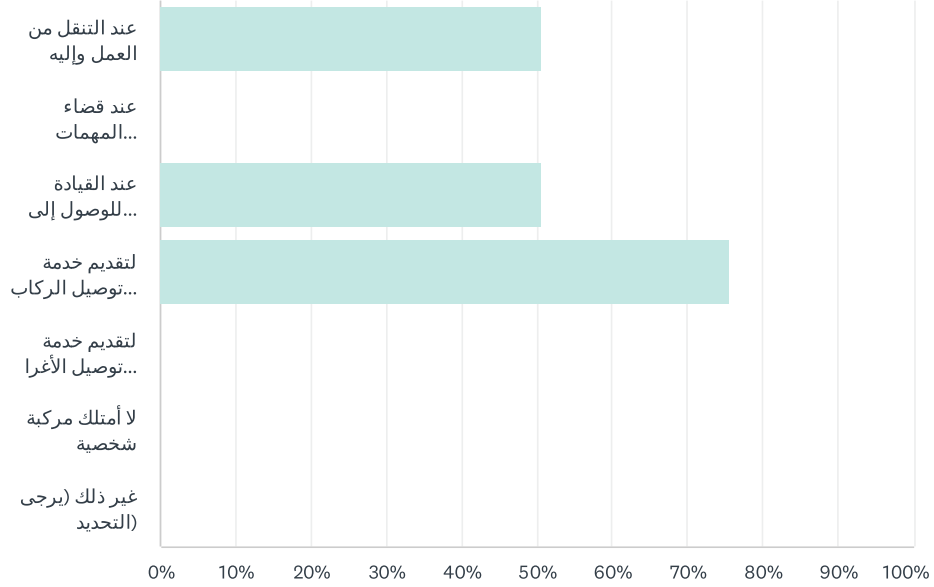
Answered: 5 Skipped: 0



ANSWER CHOICES	RESPONSES	عدد
أقيم هنا وأمتلك منزلي	0.00%	0
أقيم هنا وأستأجر منزلي مباشرةً من المالك أو مدير العقار	80.00%	4
أقيم هنا، وشخص آخر يمتلك المنزل مباشرةً من المالك أو مدير العقار	20.00%	1
أنا مدير العقار أو مالك هذا العقار	0.00%	0
TOTAL		5

إذا كنت تمتلك مركبة شخصية، فمتى تستخدمها؟ حدد كل ما ينطبق. Q4

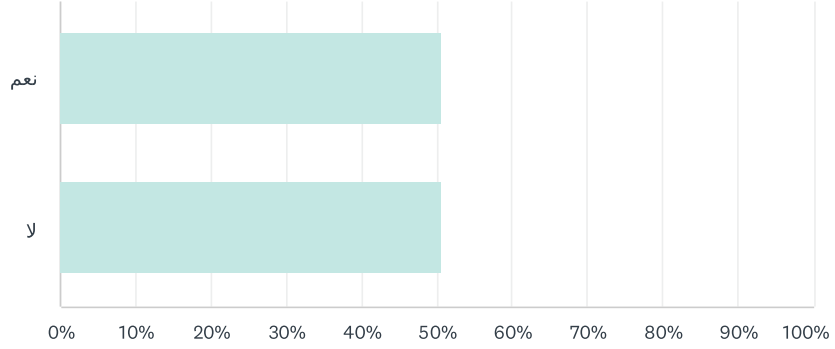
Answered: 4 Skipped: 1



ANSWER CHOICES	RESPONSES
عند التنقل من العمل وإليه	50.00% 2
عند قضاء المهمات الميدانية	0.00% 0
عند القيادة للوصول إلى أماكن عمل مختلفة	50.00% 2
Uber أو Lyft لتقديم خدمة توصيل الركاب (لصالح شركات مثل	75.00% 3
DoorDash أو Instacart لتقديم خدمة توصيل الأغراض (لصالح شركات مثل	0.00% 0
لا أملك مركبة شخصية	0.00% 0
(غير ذلك) (يرجى التحديد)	0.00% 0
Total Respondents: 4	
#	DATE
(غير ذلك) (يرجى التحديد)	
There are no responses.	

هل تحقق 50% من دخلك كسائق بالأجرة أم سائق تقديم خدمة توصيل Q5 الركاب أم سائق متعهد توصيل مستقل؟

Answered: 4 Skipped: 1



ANSWER CHOICES	RESPONSES	
نعم	50.00%	2
لا	50.00%	2
TOTAL		4

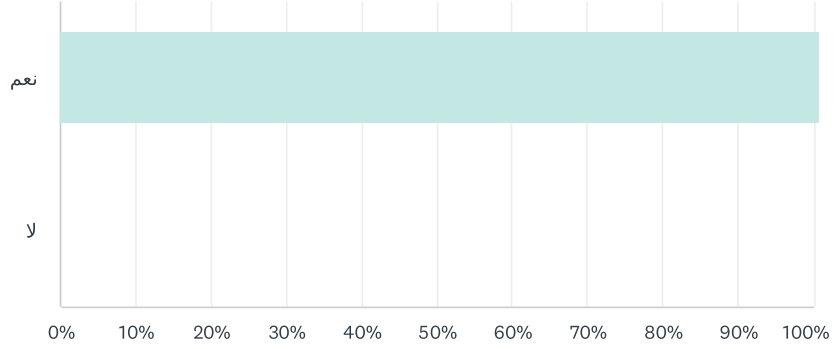
في المتوسط، كم عدد الأميال اليومية التي تقطعها مركبتك الشخصية لتقديم Q6
خدمة توصيل الركاب أو رحلات التوصيل؟

Answered: 4 Skipped: 1

#	RESPONSES	DATE
1	150	9/22/2022 7:17 PM
2	150	9/22/2022 4:57 PM
3	250	9/22/2022 4:12 PM
4	300	9/22/2022 3:37 PM

هل يتوفر موقف للمركبات خارج نطاق الشارع في مكان إقامتك (على سبيل Q7
المثال، ممر خاص أو موقف مركبات مغطى أو مرآب)؟

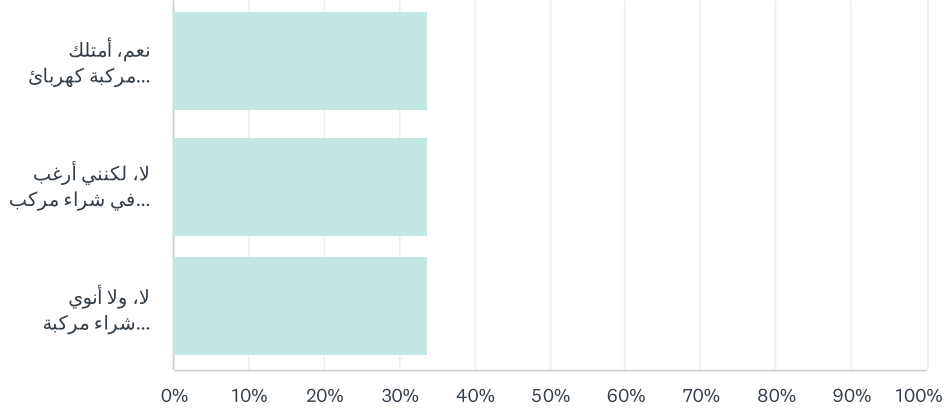
Answered: 3 Skipped: 2



ANSWER CHOICES	RESPONSES	
نعم	100.00%	3
لا	0.00%	0
TOTAL		3

إلى مركبة كهربائية تعمل بالبطارية أو (EV) يشير مصطلح المركبة الكهربائية Q8
مركبة كهربائية هجينة قابلة للشحن الخارجي. هل مركبتك الشخصية مركبة
كهربائية (EV)؟

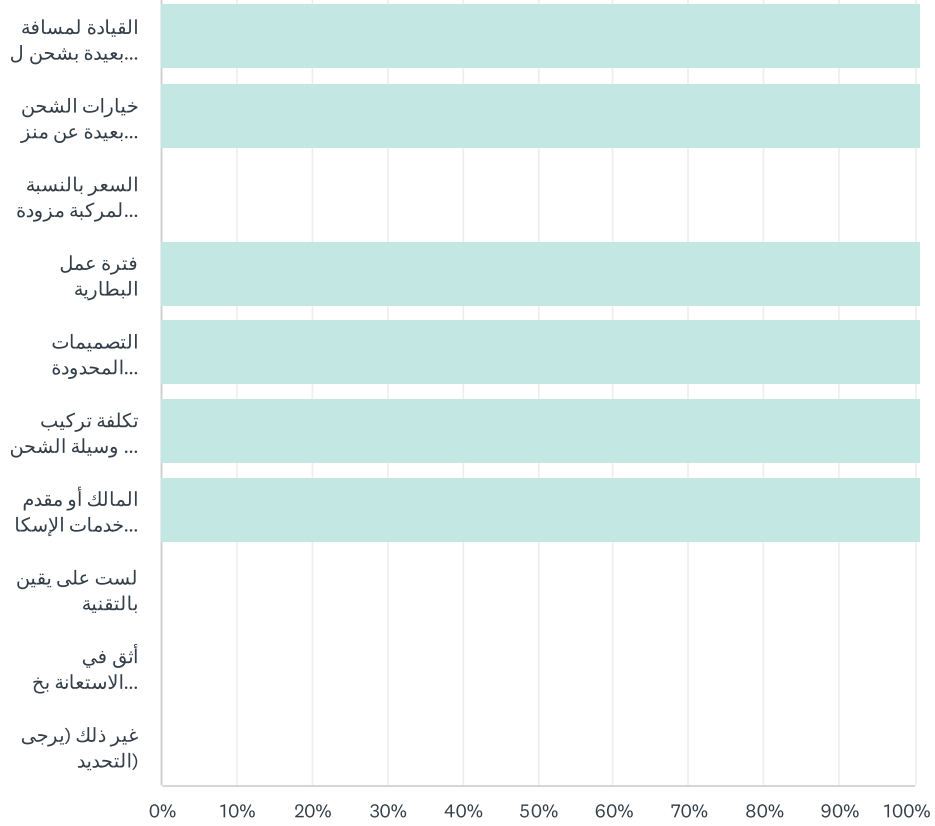
Answered: 3 Skipped: 2



ANSWER CHOICES	RESPONSES
نعم، أمتلك مركبة كهربائية بالفعل	33.33% 1
لا، لكنني أرغب في شراء مركبة كهربائية	33.33% 1
لا، ولا أنوي شراء مركبة كهربائية	33.33% 1
TOTAL	3

ما الذي يمنعك حاليًا من شراء مركبة كهربائية؟ حدد كل ما ينطبق Q9

Answered: 1 Skipped: 4



استطلاع عن خدمة الشحن على الأرصفة

ANSWER CHOICES	RESPONSES	
(“القيادة لمسافة بعيدة بشحن لمرة واحدة”) غاز	100.00%	1
(خيارات الشحن بعيدة عن منزلي (على سبيل المثال، في العمل أو في الأماكن العامة	100.00%	1
(ICE) السعر بالنسبة لمركبة مزودة بمحرك احتراق داخلي	0.00%	0
فترة عمل البطارية	100.00%	1
التصميمات المحدودة للمركبات	100.00%	1
تكلفة تركيب وسيلة الشحن في محل السكن	100.00%	1
المالك أو مقدم خدمات الإسكان الذي أتعامل معه لن يقدم أي وسيلة شحن	100.00%	1
لست على يقين بالتقنية	0.00%	0
أثق في الاستعانة بخدمة الترانزيت مقارنةً بامتلاك مركبة شخصية	0.00%	0
(غير ذلك (يرجى التحديد	0.00%	0
Total Respondents: 1		

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

استطلاع عن خدمة الشحن على الأرصفة

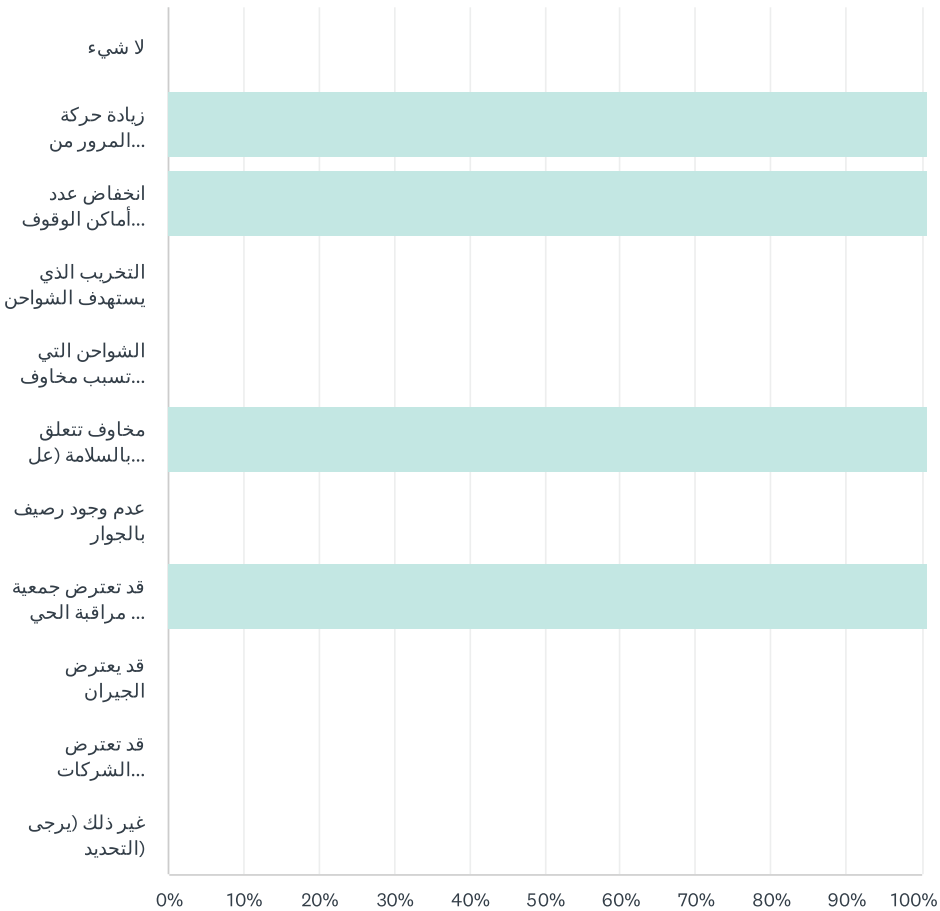
هل يمكن لأي سبب أن تغير رأيك بشأن امتلاك مركبة كهربائية؟ Q10

Answered: 1 Skipped: 4

#	RESPONSES	DATE
1	لا	9/22/2022 4:59 PM

تُعد شواحن الأرصفة محطات شحن للمركبات الكهربائية يمكن تركيبها على Q11 أعمدة إنارة الشوارع أو المرافق أو أي من الأعمدة الأخرى بجوار الرصيف. ونظرًا لأن هذه الشواحن ستكون متاحة للجمهور، فسيتم تمييز مكانها بعلامة "مركبات كهربائية فقط" وسيتمكن أي شخص يقود مركبة كهربائية من الوقوف في الشارع بجوار الشاحن لشحن مركبته. ما الميِّشكلات التي تتوقعها في وجود شاحن على جانب الرصيف متاح للجمهور ومُرْكَب بالقرب من مكان إقامتك؟ حدد كل ما ينطبق

Answered: 1 Skipped: 4



استطلاع عن خدمة الشحن على الأرصفة

ANSWER CHOICES	RESPONSES
لا شيء	0.00% 0
زيادة حركة المرور من السائقين الذين يستخدمون الشاحن	100.00% 1
انخفاض عدد أماكن الوقوف المتاحة بالشوارع المخصصة لسائقي المركبات الكهربائية أو عدم كفايتها	100.00% 1
التخريب الذي يستهدف الشواحن	0.00% 0
الشواحن التي تسبب مخاوف تتعلق بإمكانية الوصول للأشخاص ذوي الهمم	0.00% 0
(مخاوف تتعلق بالسلامة (على سبيل المثال، مخاطر التعثر	100.00% 1
عدم وجود رصيف بالجوار	0.00% 0
(HOA) قد تعترض جمعية مراقبة الحي أو جمعية مالكي المنازل	100.00% 1
قد يعترض الجيران	0.00% 0
قد تعترض الشركات المجاورة	0.00% 0
(غير ذلك (يرجى التحديد	0.00% 0
Total Respondents: 1	

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

استطلاع عن خدمة الشحن على الأرصفة

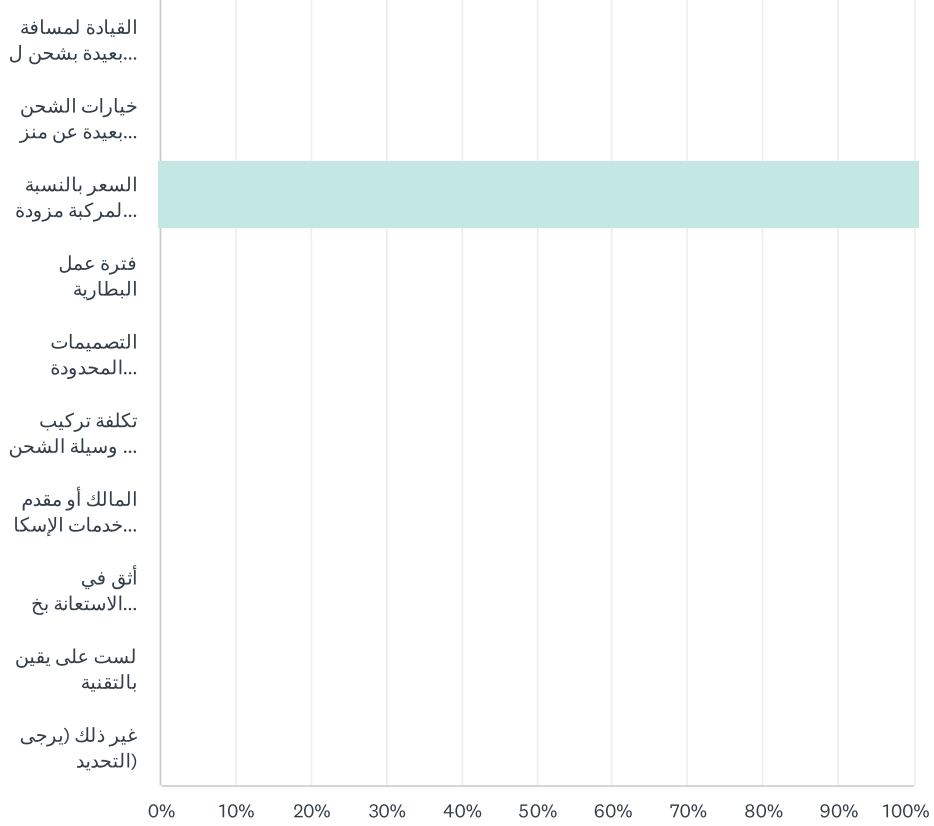
هل يوجد أي شيء آخر تود مشاركته معنا؟ Q12

Answered: 1 Skipped: 4

#	RESPONSES	DATE
1	لا	9/22/2022 4:59 PM

Q13. ما الذي يمنعك حاليًا من شراء مركبة كهربائية؟ حدد كل ما ينطبق Q13

Answered: 1 Skipped: 4



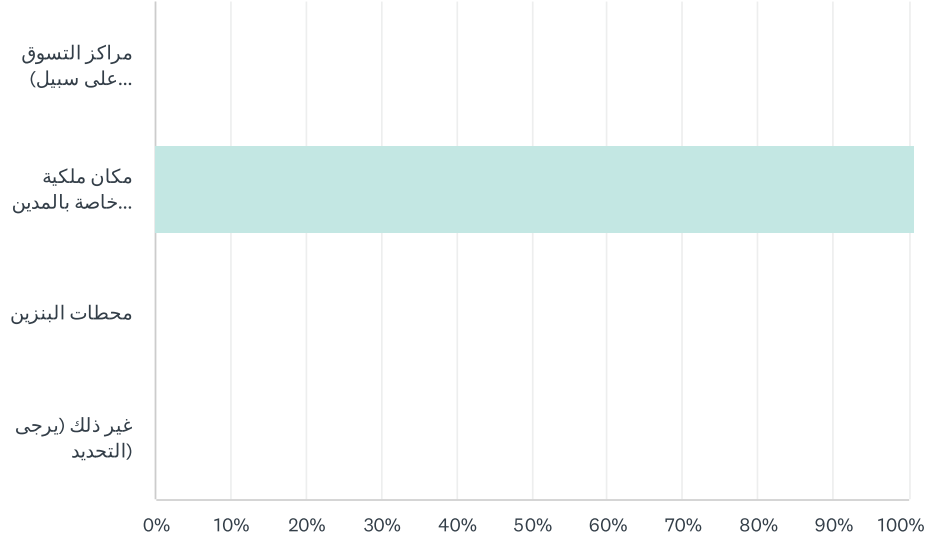
استطلاع عن خدمة الشحن على الأرصفة

ANSWER CHOICES	RESPONSES
(“القيادة لمسافة بعيدة بشحن لمرة واحدة”) غاز	0.00% 0
(خيارات الشحن بعيدة عن منزلي (على سبيل المثال، في العمل أو في الأماكن العامة	0.00% 0
(ICE) السعر بالنسبة لمركبة مزودة بمحرك احتراق داخلي	100.00% 1
فترة عمل البطارية	0.00% 0
التصميمات المحدودة للمركبات	0.00% 0
تكلفة تركيب وسيلة الشحن في محل السكن	0.00% 0
المالك أو مقدم خدمات الإسكان الذي أتعامل معه لن يقدم أي وسيلة شحن	0.00% 0
أثق في الاستعانة بخدمة الترانزيت مقارنةً بامتلاك مركبة شخصية	0.00% 0
لست على يقين بالتقنية	0.00% 0
(غير ذلك (يرجى التحديد	0.00% 0
Total Respondents: 1	

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

إذا كنت تمتلك سيارة كهربائية، فما المكان الذي تفضل الوصول من خلاله Q14 إلى وسيلة الشحن العامة في منطقتك؟ حدد كل ما ينطبق.

Answered: 1 Skipped: 4

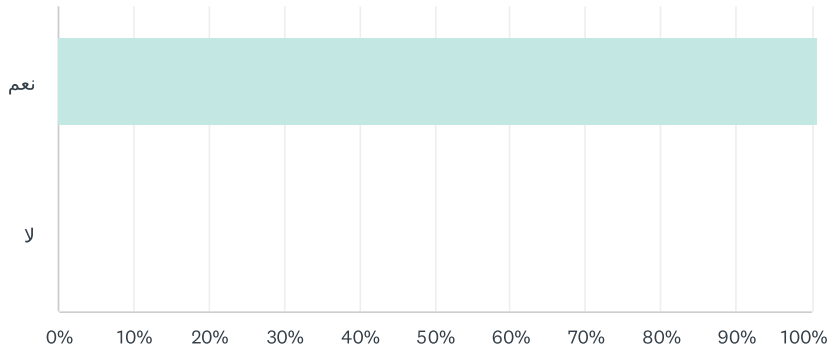


ANSWER CHOICES	RESPONSES
(مراكز التسوق (على سبيل المثال، محلات البقالة والمجمعات التجارية والمتاجر الكبيرة وما إلى ذلك	0.00% 0
مكان ملكية خاصة بالمدينة أو المقاطعة (مثل الحدائق ومواقف المركبات العامة ومراكز للتوقف المؤقت والمراكز الاجتماعية وما إلى ذلك	100.00% 1
محطات البنزين	0.00% 0
(غير ذلك (يرجى التحديد	0.00% 0
Total Respondents: 1	

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

تُعد شواحن الأرصفة محطات شحن للمركبات الكهربائية يمكن تركيبها على Q15 أعمدة إنارة الشوارع أو المرافق أو أي من الأعمدة الأخرى بجوار الرصيف. ونظرًا لأن هذه الشواحن ستكون متاحة للجمهور، فسيتم تمييز مكانها بعلامة "مركبات كهربائية فقط" وسيتمكن أي شخص يقود مركبة كهربائية من الوقوف في الشارع بجوار الشاحن لشحن مركبته. هل تجد أنه من المفيد تركيب شاحن على جانب الرصيف متاح للجمهور بالقرب من مكان إقامتك؟

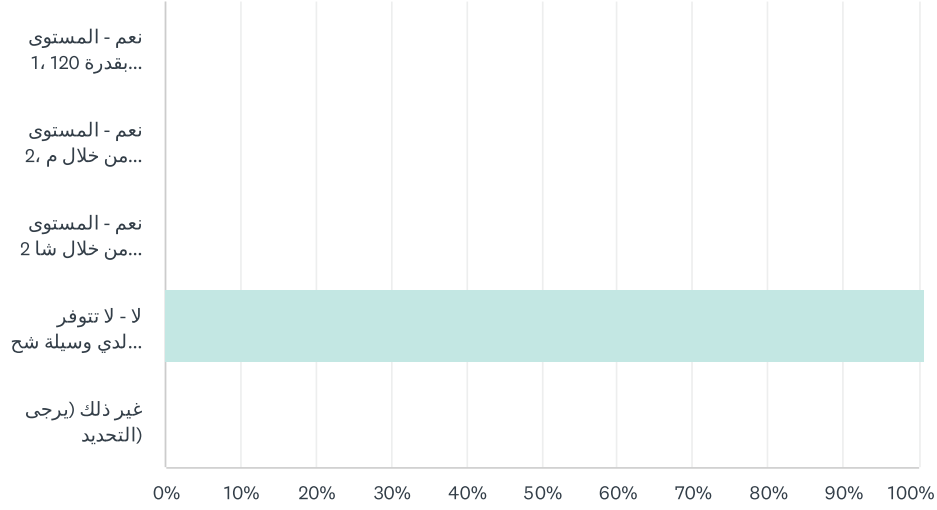
Answered: 1 Skipped: 4



ANSWER CHOICES	RESPONSES	
نعم	100.00%	1
لا	0.00%	0
TOTAL		1

هل لديك إمكانية للوصول إلى مكان للشحن في محل إقامتك؟ إذا كان الأمر Q16 كذلك، فما نوعه؟

Answered: 1 Skipped: 4

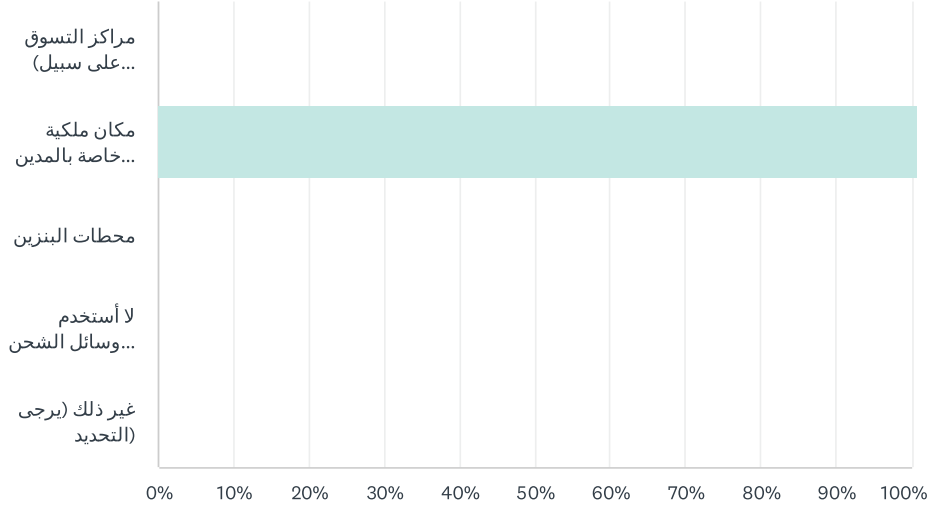


ANSWER CHOICES	RESPONSES
(نعم - المستوى 1، بقدره 120 فولت (من خلال مأخذ قياسي على الجدار	0.00% 0
نعم - المستوى 2، من خلال مأخذ بقدره 240 فولت	0.00% 0
نعم - المستوى 2 من خلال شاحن مخصص	0.00% 0
لا - لا تتوفر لدي وسيلة شحن بالقرب من المنزل	100.00% 1
(غير ذلك (يرجى التحديد	0.00% 0
TOTAL	1

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

في أي مكان بمنطقة تفضل إمكانية الوصول إلى وسيلة الشحن العامة؟ Q17 حدد كل ما ينطبق.

Answered: 1 Skipped: 4

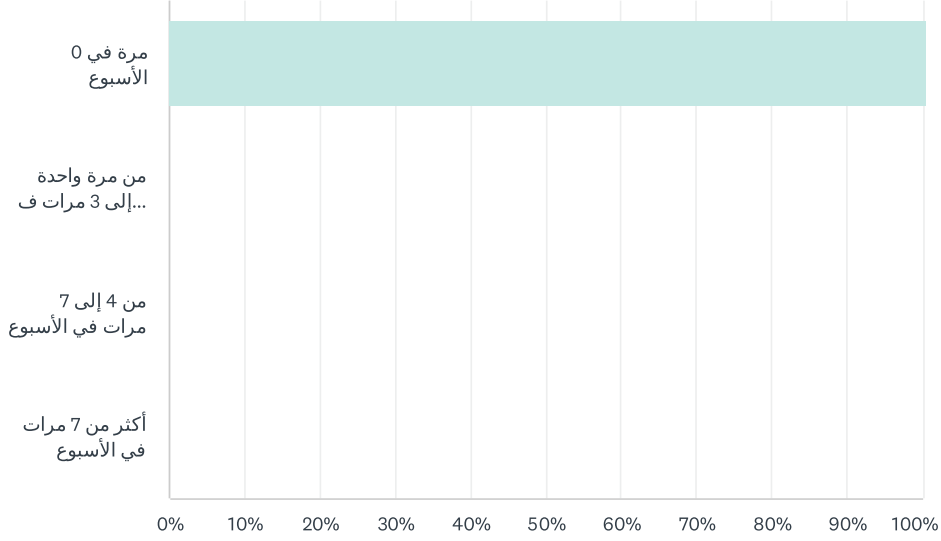


ANSWER CHOICES	RESPONSES
(مراكز التسوق (على سبيل المثال، محلات البقالة والمجمعات التجارية والمتاجر الكبيرة وما إلى ذلك	0.00% 0
مكان ملكية خاصة بالمدينة أو المقاطعة (مثل الحدائق ومواقف المركبات العامة ومراكز للتوقف المؤقت والمراكز الاجتماعية وما إلى ذلك	100.00% 1
محطات البنزين	0.00% 0
لا أستخدم وسائل الشحن العامة	0.00% 0
(غير ذلك (يرجى التحديد	0.00% 0
Total Respondents: 1	

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

كم مرة في الأسبوع تستخدم وسائل الشحن العامة؟ Q18

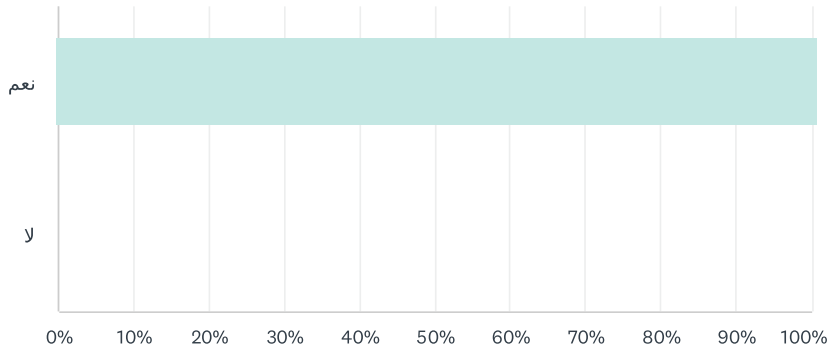
Answered: 1 Skipped: 4



ANSWER CHOICES	RESPONSES	
مرة في الأسبوع 0	100.00%	1
من مرة واحدة إلى 3 مرات في الأسبوع	0.00%	0
من 4 إلى 7 مرات في الأسبوع	0.00%	0
أكثر من 7 مرات في الأسبوع	0.00%	0
TOTAL		1

تُعد شواحن الأرصفة محطات شحن للمركبات الكهربائية يمكن تركيبها على Q19 أعمدة إنارة الشوارع أو المرافق أو أي من الأعمدة الأخرى بجوار الرصيف. ونظرًا لأن هذه الشواحن ستكون متاحة للجمهور، فسيتم تمييز مكانها بعلامة "مركبات كهربائية فقط" وسيتمكن أي شخص يقود مركبة كهربائية من الوقوف في الشارع بجوار الشاحن لشحن مركبته. هل تجد أنه من المفيد تركيب شاحن على جانب الرصيف متاح للجمهور بالقرب من مكان إقامتك؟

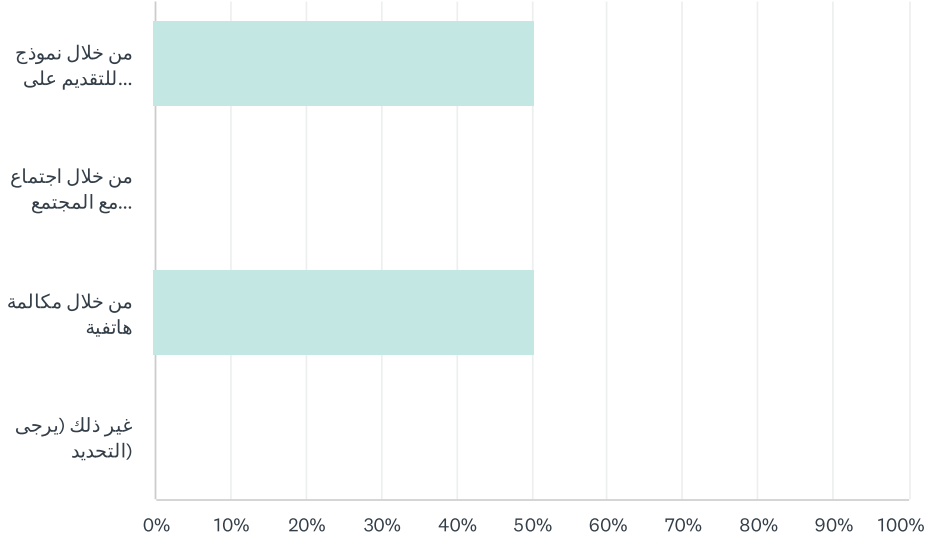
Answered: 1 Skipped: 4



ANSWER CHOICES	RESPONSES	
نعم	100.00%	1
لا	0.00%	0
TOTAL		1

ما الآلية التي تريد أن تخبر بها البلدية أو هيئة المرافق التابع لها عن حاجتك Q20 إلى وسيلة شحن على الرصيف؟

Answered: 2 Skipped: 3



ANSWER CHOICES	RESPONSES	
من خلال نموذج للتقديم على موقع عبر الويب	50.00%	1
من خلال اجتماع مع المجتمع المحلي	0.00%	0
من خلال مكالمة هاتفية	50.00%	1
(غير ذلك (يرجى التحديد	0.00%	0
TOTAL		2

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

استطلاع عن خدمة الشحن على الأرصفة

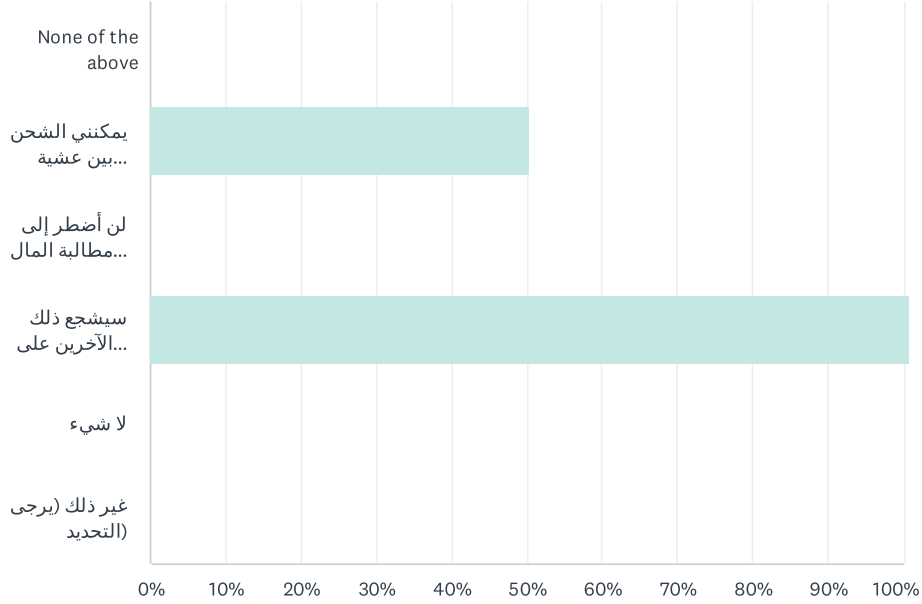
ما المانع؟ Q21

Answered: 0 Skipped: 5

#	RESPONSES	DATE
	There are no responses.	

ما الفوائد التي تتوقعها من وجود وسيلة شحن عامة على الرصيف مركبة Q22 بالقرب من مكان إقامتك؟ حدد كل ما ينطبق.

Answered: 2 Skipped: 3

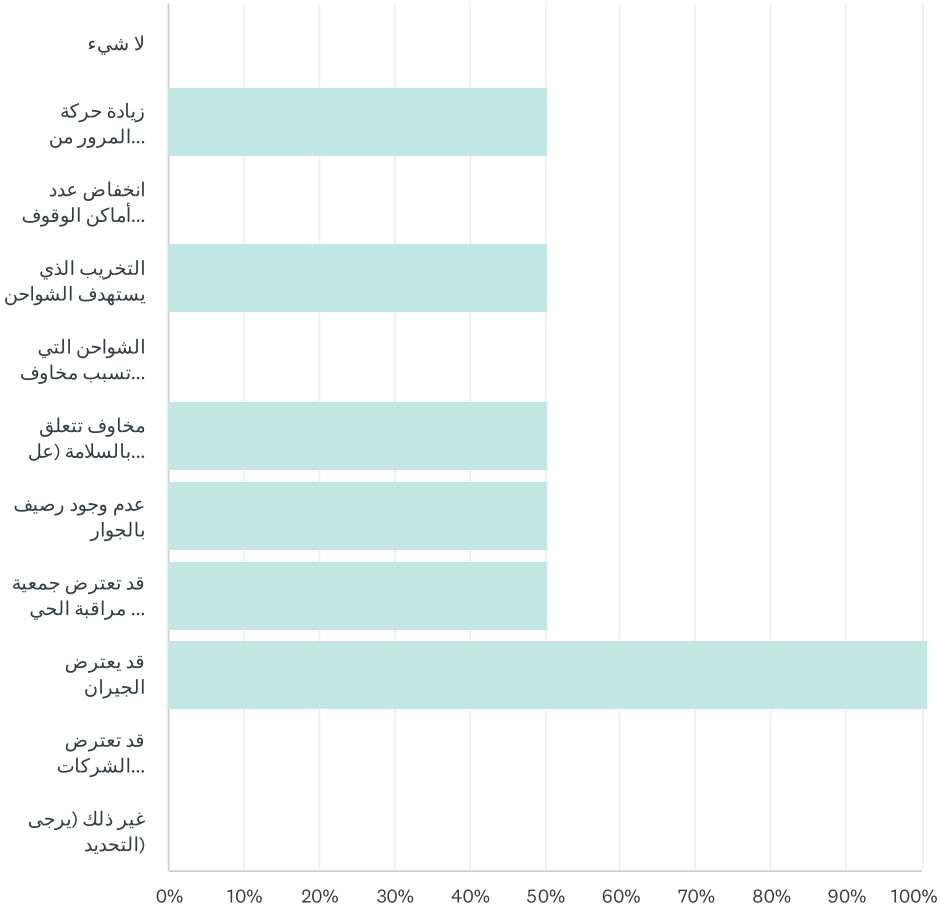


ANSWER CHOICES	RESPONSES
None of the above	0.00% 0
يمكنني الشحن بين عشية وضحاها، بالقرب من المنزل بدلاً من الاعتماد على الشواحن العامة	50.00% 1
لن أضطر إلى مطالبة المالك أو مدير العقار بتركيب وسيلة شحن في مكان إقامتي	0.00% 0
سيشجع ذلك الآخرين على قيادة المركبات الكهربائية من خلال زيادة توافر الشواحن العامة	100.00% 2
لا شيء	0.00% 0
(غير ذلك) يرجى التحديد	0.00% 0
Total Respondents: 2	

#	(غير ذلك) يرجى التحديد	DATE
	There are no responses.	

Q23 ما المشكلات التي تتوقعها في وجود شاحن على جانب الرصيف متاح Q23 للجمهور ومركب بالقرب من مكان إقامتك؟ حدد كل ما ينطبق

Answered: 2 Skipped: 3



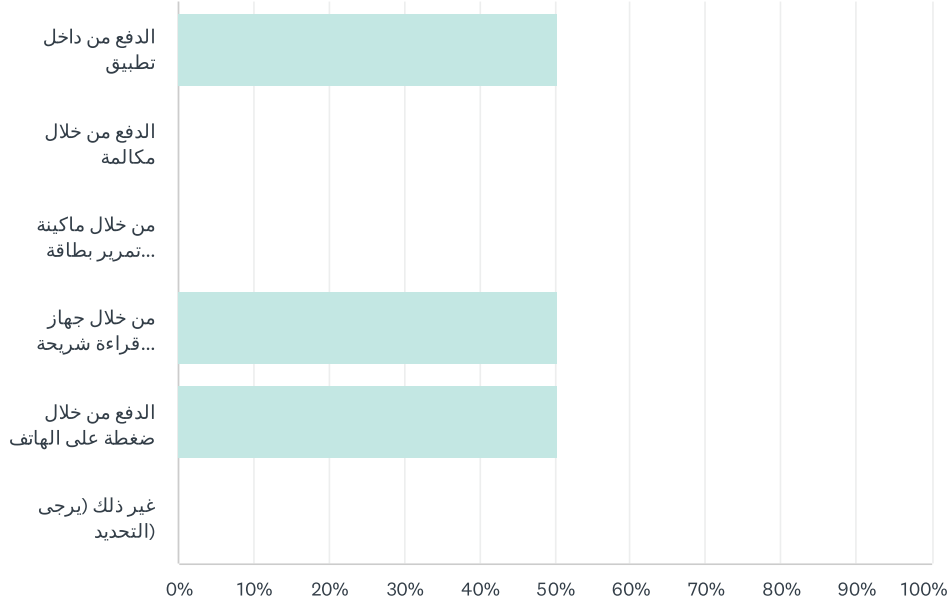
استطلاع عن خدمة الشحن على الأرصفة

ANSWER CHOICES	RESPONSES
لا شيء	0.00% 0
زيادة حركة المرور من السائقين الذين يستخدمون الشاحن	50.00% 1
انخفاض عدد أماكن الوقوف المتاحة بالشوارع المخصصة لسائقي المركبات الكهربائية أو عدم كفايتها	0.00% 0
التخريب الذي يستهدف الشواحن	50.00% 1
الشواحن التي تسبب مخاوف تتعلق بإمكانية الوصول للأشخاص ذوي الهمم	0.00% 0
(مخاوف تتعلق بالسلامة (على سبيل المثال، مخاطر التعثر	50.00% 1
عدم وجود رصيف بالجوار	50.00% 1
(HOA) قد تعترض جمعية مراقبة الحي أو جمعية مالكي المنازل	50.00% 1
قد يعترض الجيران	100.00% 2
قد تعترض الشركات المجاورة	0.00% 0
(غير ذلك (يرجى التحديد	0.00% 0
Total Respondents: 2	

#	(غير ذلك (يرجى التحديد	DATE
	There are no responses.	

في حالة استخدام محطات الشحن العامة، ما وسيلة الدفع المفضلة لديك؟ Q24 حدد كل ما ينطبق.

Answered: 2 Skipped: 3

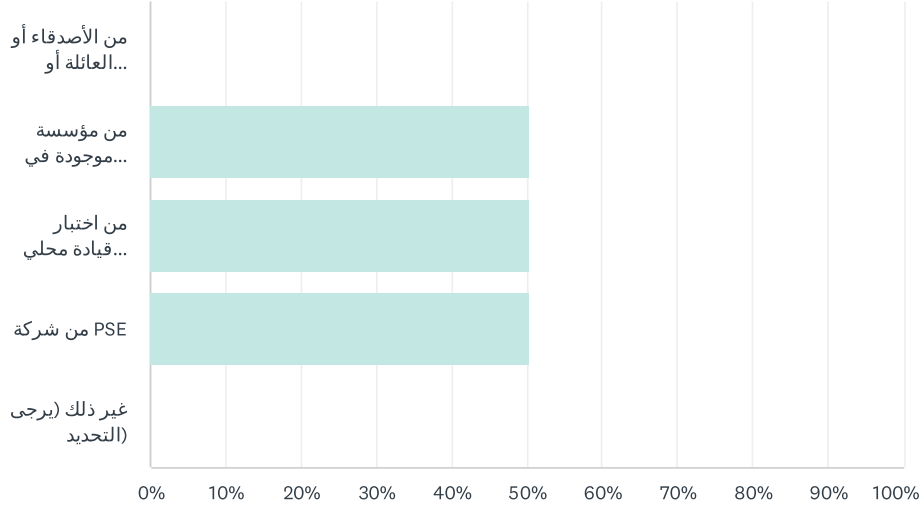


ANSWER CHOICES	RESPONSES	
الدفع من داخل تطبيق	50.00%	1
الدفع من خلال مكالمة	0.00%	0
من خلال ماكينة تمرير بطاقة الائتمان	0.00%	0
من خلال جهاز قراءة شريحة بطاقة الائتمان	50.00%	1
الدفع من خلال ضغط على الهاتف	50.00%	1
(غير ذلك (يرجى التحديد)	0.00%	0
Total Respondents: 2		

#	(غير ذلك (يرجى التحديد)	DATE
	There are no responses.	

ما الوسيلة التي تفضلها للتعرف على برامج الشحن بجانب الرصيف؟ حدد Q25 كل ما ينطبق.

Answered: 2 Skipped: 3



ANSWER CHOICES	RESPONSES
من الأصدقاء أو العائلة أو الجيران	0.00% 0
من مؤسسة موجودة في المجتمع المحلي	50.00% 1
من اختبار قيادة محلي للمركبات الكهربائية	50.00% 1
PSE من شركة	50.00% 1
(غير ذلك (يرجى التحديد)	0.00% 0
Total Respondents: 2	

#	(غير ذلك (يرجى التحديد)	DATE
	There are no responses.	

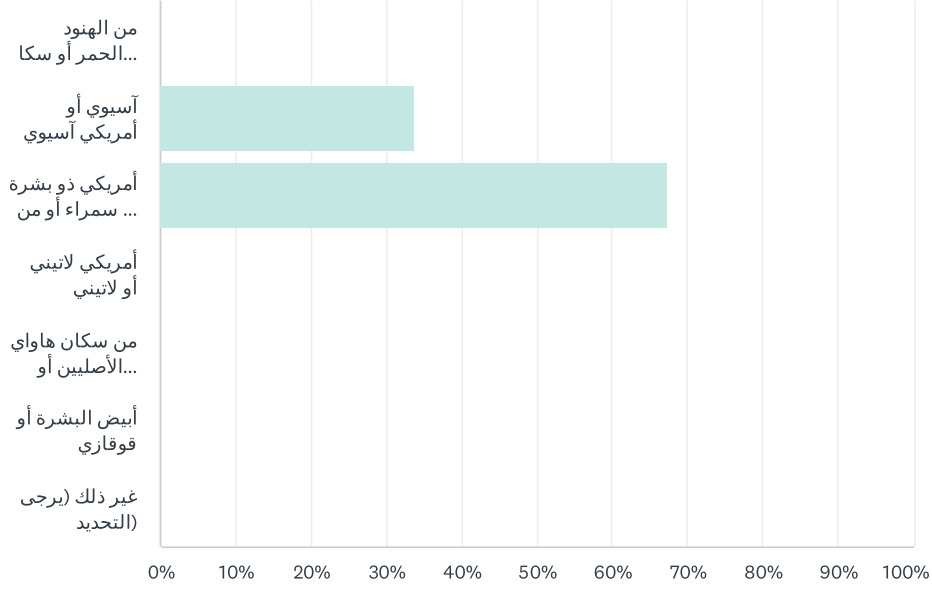
هل يوجد أي شيء آخر تود مشاركته معنا بشأن الشحن بجانب الرصيف؟ Q26

Answered: 0 Skipped: 5

#	RESPONSES	DATE
	There are no responses.	

(إلى أي عرق تنتمي؟ حدد كل ما ينطبق). (اختياري Q27)

Answered: 3 Skipped: 2

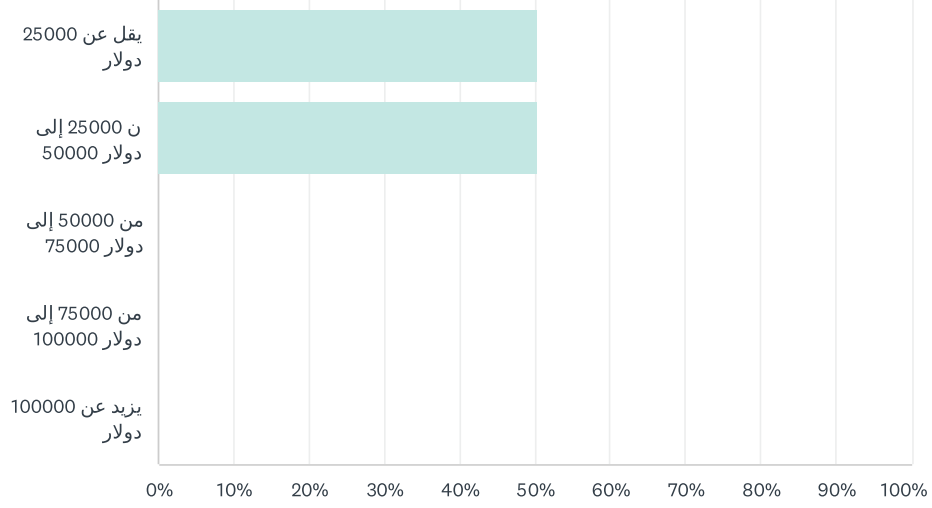


ANSWER CHOICES	RESPONSES
من الهنود الاحمر أو سكان ألاسكا الأصليين	0.00% 0
آسيوي أو أمريكي آسيوي	33.33% 1
أمريكي ذو بشرة سمراء أو من أصل إفريقي	66.67% 2
أمريكي لاتيني أو لاتيني	0.00% 0
من سكان هاواي الأصليين أو غيرهم من سكان جزر المحيط الهادئ	0.00% 0
أبيض البشرة أو فوقازي	0.00% 0
(غير ذلك) (يرجى التحديد)	0.00% 0
Total Respondents: 3	

#	(غير ذلك) (يرجى التحديد)	DATE
	There are no responses.	

Q28 (اختياري)؟ ما دخل أسرتك السنوي؟

Answered: 2 Skipped: 3



ANSWER CHOICES	RESPONSES	
يقبل عن 25000 دولار	50.00%	1
ن 25000 إلى 50000 دولار	50.00%	1
من 50000 إلى 75000 دولار	0.00%	0
من 75000 إلى 100000 دولار	0.00%	0
يزيد عن 100000 دولار	0.00%	0
TOTAL		2

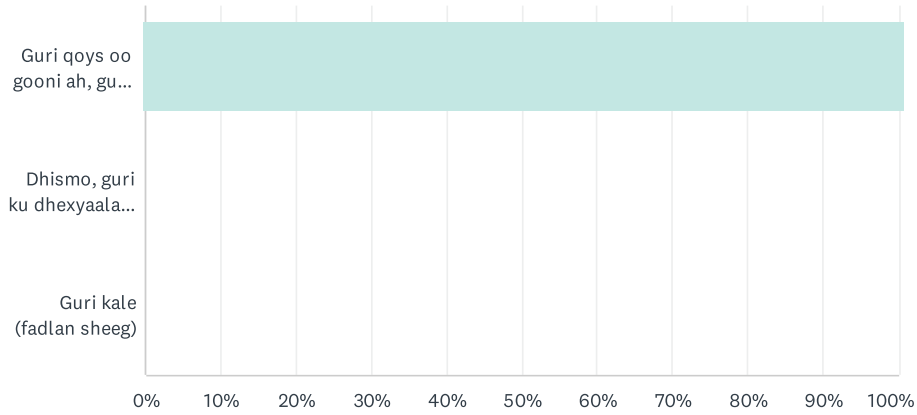
Q1 Waa maxay koodhka boostada aagga aad ku nooshahay?

Answered: 1 Skipped: 0

#	RESPONSES	DATE
1	98168	9/23/2022 7:29 AM

Q2 Xaafad noocee ah ayaad ku nooshahay?

Answered: 1 Skipped: 0

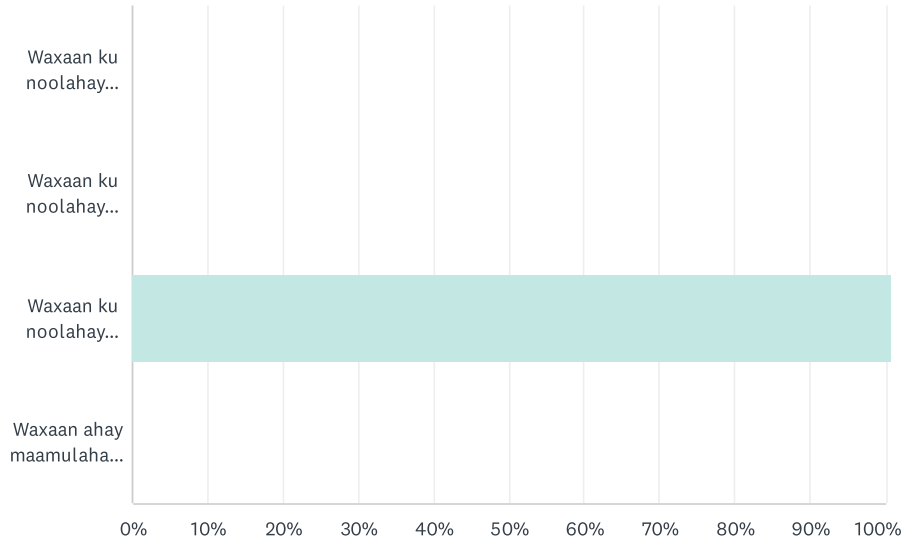


ANSWER CHOICES	RESPONSES
Guri qoys oo gooni ah, guri ka kooban labo dhismood, guri qoysk oo ka kooban saddex qaybood, guri qoysk oo ka kooban afar qaybood, guryaha magaalada ee dhaadheer, guri qoysk oo kooban	100.00% 1
Dhismo, guri ku dhexyaala dhismooyin kale, guri laga dhex sameeyay doon, aagga guryaha meel kale loo wareejin karo oo ugu yaraan leh 5 qaybood	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
TOTAL	1

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q3 Guri ma leedahay, ma kiraa degan tahay, ama ma maamushaa gurigaaga/dhismahaaga?

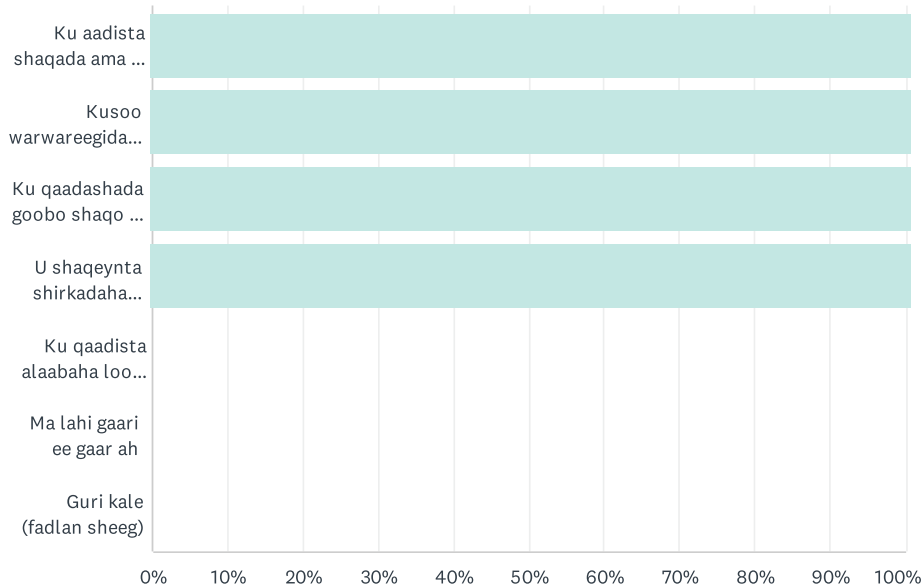
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES
Waxaan ku noolahay halkaan waxaana leeyahay guri	0.00% 0
Waxaan ku noolahay halkaan waxaana gurigayga oga kireystaan si toos ah mulkiilaha ama maamulaha dhismaha	0.00% 0
Waxaan ku noolahay halkaan, qof kale ayaa leh guriga ama si toos ah oga kireysta mulkiilaha ama maamulaha dhismaha	100.00% 1
Waxaan ahay maamulaha dhismaha ama mulkiilaha dhismahaan	0.00% 0
TOTAL	1

Q4 Haddii aad leedahay gaari, goorma ayaad isticmaashaa? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 1 Skipped: 0

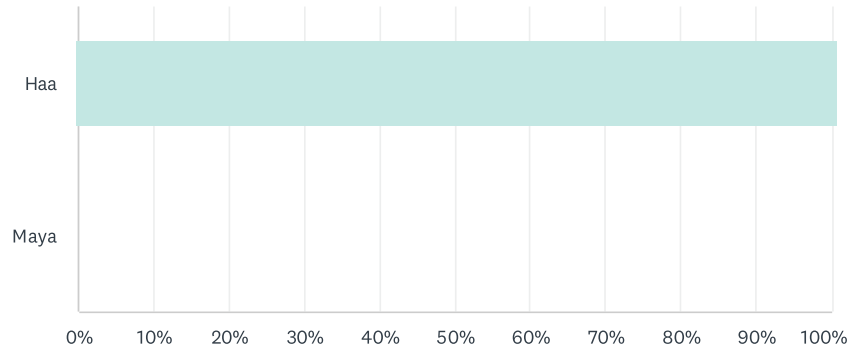


ANSWER CHOICES	RESPONSES
Ku aadista shaqada ama oga imaanshaha shaqada	100.00% 1
Kusoo warwareegida meelaha	100.00% 1
Ku qaadashada goobo shaqo oo kaladuwan	100.00% 1
U shaqeynta shirkadaha adeegyada gaadiidka (tusaale ahaan, Uber ama Lyft)	100.00% 1
Ku qaadista alaabaha loo geeyo dadka (tusaale ahaan, DoorDash, Instacart)	0.00% 0
Ma lahi gaari ee gaar ah	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 1	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q5 Ugu yaraan 50% kamid ah dhaqaalaha aad hesho maka sameysaa taksi aad darawal ka tahay, baabuur aad kireysato, ama gaari aad dawaral ka tahay oo si madax banaan alaabaha u geesaha xaafadaha?

Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Haa	100.00%	1
Maya	0.00%	0
TOTAL		1

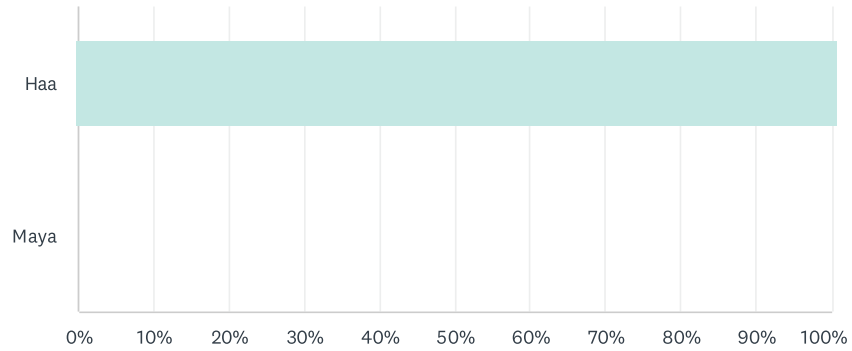
Q6 Celcelis ahaan, imisa mayl ayaad goysaa maalintaa marka aad wado gaariga dadku kireystaan ama marka aad ku jirto safarada aad dadka alaabaha ugu geyneyso?

Answered: 1 Skipped: 0

#	RESPONSES	DATE
1	300	9/23/2022 7:31 AM

Q7 Xaafada aad degan tahay malaga helaa baakinada ka baxsan wadada (tusaale ahaan, jidad gaar loo leeyahay, baakinada shiraaca leh, ama geerash)?

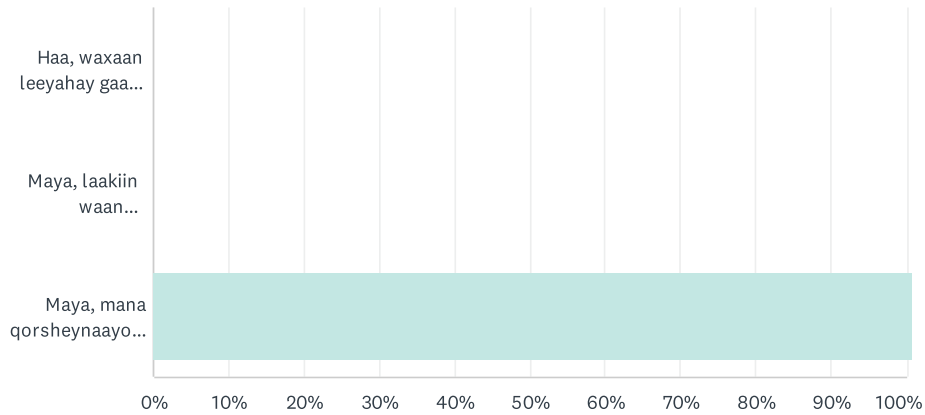
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Haa	100.00%	1
Maya	0.00%	0
TOTAL		1

Q8 Baabuurka korontada (EV) waxaa loola jeedaa baabuurta sida buuxda korontada ugu shaqeeya, baabuurka leh batariga korontada ku shaqeeya ama baabuurka korontada la geliyo. Gaarigaaga gaarka aad u leedahay ma yahay gaari koronto ku shaqeeya (EV)?

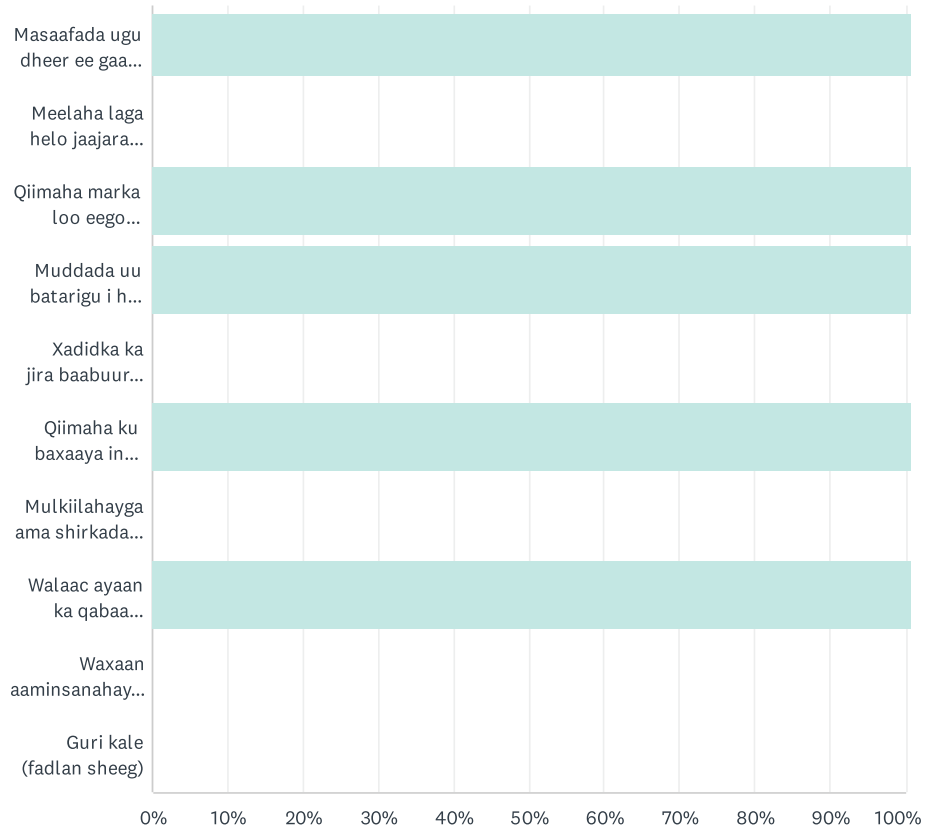
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES
Haa, waxaan leeyahay gaari koronto ku shaqeeya	0.00% 0
Maya, laakiin waan xiiseynayaa inaan soo gato gaari koronto ku shaqeeya	0.00% 0
Maya, mana qorsheynaayo inaan soo gato gaari koronto ku shaqeeya	100.00% 1
TOTAL	1

Q9 Waqti xaadirkaan maxaa kaa hor istaagaya inaad soo iibsato gaari koronto ku shaqeeya? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 1 Skipped: 0



Xog aruurinta Jaajarada geesaha Wadada

ANSWER CHOICES	RESPONSES	
Masaafada ugu dheer ee gaari la wadi karo marka hal mar la jaag gareeyo ("dherarka masaafada")	100.00%	1
Meelaha laga helo jaajarada way ka fog yihiin gurigayga (tusaale ahaan, kuwa ku yaala goobta shaqada ama meelaha dadwaynaha)	0.00%	0
Qiimaha marka loo eego baabuurta ICE (baabuurta leh matoorada ee ku shaqeeya shidaalka)	100.00%	1
Muddada uu batarigu i hayn karo	100.00%	1
Xadidka ka jira baabuurta korontada ee la heli karo	0.00%	0
Qiimaha ku baxaaya in gaariga lagu jaaj gareeyo guriga	100.00%	1
Mulkiilaha ama shirkadaha gurifa marna ma bixiyaan jaajar	0.00%	0
Walaac ayaan ka qabaa teknoolajiyada	100.00%	1
Waxaan aaminsanahay inaan raaco baabuurta dadwaynaha waxaana kasoo horjeedaa inaan gato gaari ii gaar ah	0.00%	0
Guri kale (fadlan sheeg)	0.00%	0
Total Respondents: 1		

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

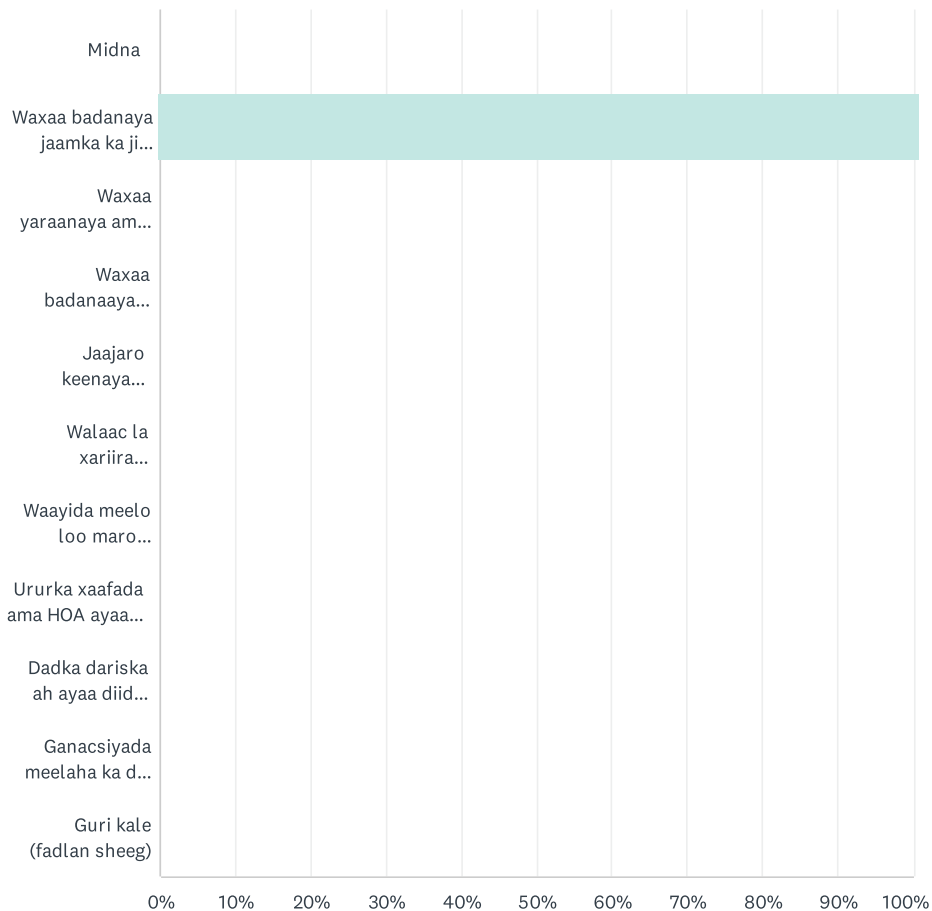
Q10 Majiri karaan wax badeli kara go'aankaaga ku aadan lahaanshaha gaari koronto ku shaqeeya?

Answered: 1 Skipped: 0

#	RESPONSES	DATE
1	Waa laga yaabaa	9/23/2022 7:35 AM

Q11 Jaajarada baabuurta (EV) oo laga yaabo in lagu rakibo meelaha leh baalasha layrarka, tiirarka korontada ama tiir kale oo kuyaala geeska wadada. Maadaama jaajaradaan si waadix ah looga heli karo meelaha dadwaynaha, goobta waxaa lagu calaamadin doonaa 'waxaa loogu talagalay baabuurta korontada ku shaqeeya oo kaliya (EV)', qof kasta oo wata gaari ku shaqeeya korontana wuxuu awoodi doonaa inuu gaariga ku baakimo wadada ku xigta jaajarka uuna jaajar gareeyo gaarigiisa. Waa maxay ciladaha aad arki karto inay ka dhalan karaan jaajarada baabuurta ee wadooyinka oo lagu rakibay aaga xaafadaada? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 1 Skipped: 0



Xog aruurinta Jaajarada geesaha Wadada

ANSWER CHOICES		RESPONSES	
Midna		0.00%	0
Waxaa badanaya jaamka ka jira wadooyinka maadaama baabuurta jaajar qaadanayaan		100.00%	1
Waxaa yaraanaya ama aan dadka ku filnaaneyn baakinada ay heli karaan dadka wata baabuurta korontada ku shaqeeya		0.00%	0
Waxaa badanaaya khasaaraha soo gaaraya jaajarada		0.00%	0
Jaajaro keenaya walaacyo la xariira sida ay u adeegsan karaan dadka naafada ah		0.00%	0
Walaac la xariira badqabka (tusaale, soo jiidashada fiilooyinka dabka leh)		0.00%	0
Waayida meelo loo maro xaafada		0.00%	0
Ururka xaafada ama HOA ayaa laga yaabaa inay diidaan		0.00%	0
Dadka dariska ah ayaa diidi kara		0.00%	0
Ganacsiyada meelaha ka dhaw ayaa diidi kara		0.00%	0
Guri kale (fadlan sheeg)		0.00%	0
Total Respondents: 1			
#	GURI KALE (FADLAN SHEEG)	DATE	
	There are no responses.		

Q12 Majiraan waxyaabo kale oo aad jeclaan lahayd inaad nala wadaagto?

Answered: 0 Skipped: 1

#	RESPONSES	DATE
	There are no responses.	

Q13 Waqti xaadirkaan maxaa kaa hor istaagaya inaad soo iibsato gaari koronto ku shaqeeya? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

⚠ No matching responses.

ANSWER CHOICES	RESPONSES
Masaafada ugu dheer ee gaari la wadi karo marka hal mar la jaag gareeyo ("dherarka masaafada")	0.00% 0
Meelaha laga helo jaajarada way ka fog yihiin gurigayga (tusaale ahaan, kuwa ku yaala goobta shaqada ama meelaha dadwaynaha)	0.00% 0
Qiimaha marka loo eego baabuurta ICE (baabuurta leh matoorada ee ku shaqeeya shidaalka)	0.00% 0
Muddada uu batarigu i hayn karo	0.00% 0
Xadidka ka jira baabuurta korontada ee la heli karo	0.00% 0
Qiimaha ku baxaaya in gaariga lagu jaaj gareeyo guriga	0.00% 0
Mulkiilaha ama shirkadaha gurifa marna ma bixiyaan jaajar	0.00% 0
Walaac ayaan ka qabaa teknoolajiyada	0.00% 0
Waxaan aaminsanahay inaan raaco baabuurta dadwaynaha waxaana kasoo horjeedaa inaan gato gaari ii gaar ah	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 0	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q14 Haddii aad leedahay gaari ku shaqeeya koronto, halkee kamid ah xaafadaada ayaad jeceshahay inaad kasoo jaajar gareysato gaarigaaga? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES
Xarumaha adeegyada (tusaale ahaan, bakhaarada raashinka, moolalka, dukaamada caanka ah iwm.)	0.00% 0
Dhismaha gobalka ama Magaalada (tusaale ahaan, beeraha, baakinada baabuurta dadwaynaha, xarumaha baabuurta ka baxaan, xarumaha bulshada iwm.)	0.00% 0
Xarumaha gaaska	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 0	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q15 Jaajarada baabuurta (EV) oo laga yaabo in lagu rakibo meelaha leh baalasha layrarka, tiirarka korontada ama tiir kale oo kuyaala geeska wadada. Maadaama jaajaradaan si waadix ah looga heli karo meelaha dadwaynaha, goobta waxaa lagu calaamadin doonaa 'waxaa loogu talagalay baabuurta korontada ku shaqeeya oo kaliya (EV)', qof kasta oo wata gaari ku shaqeeya korontana wuxuu awoodi doonaa inuu gaariga ku baakimo wadada ku xigta jaajarka uuna jaajar gareeyo gaarigiisa. Haddii aad leedahay gaari ku shaqeeya koronto, ma u aragtaa inay faa'ido kuu leedahay in jaajarada baabuurta korontada lagu rakibo meelo u dhaw xaafadaada?

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES	
Haa	0.00%	0
Maya	0.00%	0
TOTAL		0

Q16 Ma awooda inaad jaajar ka hesho xaafadaada? Haddii aad haa ku jawaabto, waa nooc ee?

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES
Haa – Heerka 1, 120v (Jaajarada leh soketka ku rakiban darbiga)	0.00% 0
Haa – Heerka 2, soketka 240v	0.00% 0
Haa – Heerka 2 jaajarka casriga ah	0.00% 0
Maya – gurigayga ma lahan jaajar	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
TOTAL	0

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q17 Halkee kamid ah xaafadaada ayaad jeceshahay inaad kasoo jaajar gareysato gaarigaaga? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES		RESPONSES	
Xarumaha adeegyada (tusaale ahaan, bakhaarada raashinka, moolalka, dukaamada caanka ah iwm.)		0.00%	0
Dhismaha gobalka ama Magaalada (tusaale ahaan, beeraha, baakinada baabuurta dadwaynaha, xarumaha baabuurta ka baxaan, xarumaha bulshada iwm.)		0.00%	0
Xarumaha gaaska		0.00%	0
Ma isticmaalo jaajarada dadwaynaha		0.00%	0
Guri kale (fadlan sheeg)		0.00%	0
Total Respondents: 0			

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q18 Imisa jeer asbuucii ayaad isticmaashaa jaajarada dadwaynaha?

Answered: 0 Skipped: 1

⚠ No matching responses.

ANSWER CHOICES	RESPONSES
0 jeer asbuucii	0.00% 0
1-3 jeer asbuucii	0.00% 0
4-7 jeer asbuucii	0.00% 0
Wax ka badan 7 jeer asbuucii	0.00% 0
TOTAL	0

Q19 Jaajarada baabuurta (EV) oo laga yaabo in lagu rakibo meelaha leh baalasha layrarka, tiirarka korontada ama tiir kale oo kuyaala geeska wadada. Maadaama jaajaradaan si waadix ah looga heli karo meelaha dadwaynaha, goobta waxaa lagu calaamadin doonaa 'waxaa loogu talagalay baabuurta korontada ku shaqeeya oo kaliya (EV)', qof kasta oo wata gaari ku shaqeeya korontana wuxuu awoodi doonaa inuu gaariga ku baakimo wadada ku xigta jaajarka uuna jaajar gareeyo gaarigiisa. Ma u aragtaa inay faa'ido kuu leedahay in jaajarada baabuurta korontada lagu rakibo meelo u dhaw xaafadaada?

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES
Haa	0.00% 0
Maya	0.00% 0
TOTAL	0

Q20 Sidee u jeclaan lahayd inaad ogeysiiso degmadaada ama waaxda koronta baahida aad u qabto jaajarada baabuurta ee laga helo wadooyinka geeskooda?

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES
Ayadoo la adeegsanaayo foomka codsiga ee lagu soo gudbiyo webseedka	0.00% 0
Kulanka Bulshada	0.00% 0
Wicitaan taleefoon	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
TOTAL	0

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q21 Maxay tahay sababta aadan u sameyneyn?

Answered: 0 Skipped: 1

#	RESPONSES	DATE
	There are no responses.	

Q22 Faa'idooyin sidee ah ayaad ka aragtaa inaad hesho jaajarada baabuurta ee wadooyinka oo lagu rakibay aaga xaafadaada? Fadlan tigsaaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

⚠ No matching responses.

ANSWER CHOICES	RESPONSES
Midna	0.00% 0
Habbeenkii ayaan jaajar gareysan karaa gaarigayga, meelo ii dhaw ayaana ka heli karaa jaajarka halkii aan ku tiirsanaan lahaa kan laga helo meelaha dadwaynaha	0.00% 0
Waxay arrintaan meesha ka saaraysaa inaan mulkiilahayga ama maamulaha dhismaha waydiiyo inuu jaajar kusoo rakibo gurigayga	0.00% 0
Waxay dadka kale ku dhiirigelinaysaa inay ka xaystaan baabuurta korontada ah marka la wadiyo jaajarada baabuurta korontada ah ee laga helo meelaha dadwaynaha	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 0	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q23 Waa maxay ciladaha aad arki karto inay ka dhalan karaan jaajarada baabuurta ee wadooyinka oo lagu rakibay aaga xaafadaada? Fadlan tigsaaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES	RESPONSES
Midna	0.00% 0
Waxaa badanaya jaamka ka jira wadooyinka maadaama baabuurta jaajar qaadanayaan	0.00% 0
Waxaa yaraanaya ama aan dadka ku filnaaneyn baakinada ay heli karaan dadka wata baabuurta korontada ku shaqeeya	0.00% 0
Waxaa badanaaya khasaaraha soo gaaraya jaajarada	0.00% 0
Jaajaro keenaya walaacyo la xariira sida ay u adeegsan karaan dadka naafada ah	0.00% 0
Walaac la xariira badqabka (tusaale, soo jiidashada fiilooyinka dabka leh)	0.00% 0
Waayida meelo loo maro xaafada	0.00% 0
Ururka xaafada ama HOA ayaa laga yaabaa inay diidaan	0.00% 0
Dadka dariska ah ayaa diidi kara	0.00% 0
Ganacsiyada meelaha ka dhaw ayaa diidi kara	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 0	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q24 Haddii aad isticmaalayso xarumaha jaajarada dadwaynaha, maxaad jeceshahay inaad lacagta ku bixiso? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

⚠ No matching responses.

ANSWER CHOICES	RESPONSES
Ablikeeshinada lagu bixiyo lacagta	0.00% 0
Wac si aad u bixiso	0.00% 0
Mashiinka lagu xoqo kaarka lacagta	0.00% 0
Mashiinka akhriya jiiimka kaarka lacagta	0.00% 0
Mashiinka la taabsiiyo kaarka	0.00% 0
Fadlan geli faallo	0.00% 0
Total Respondents: 0	

#	FADLAN GELI FAALLO	DATE
	There are no responses.	

Q25 Sidee jeclaan lahayd inaad ku barato barnaamijyada jaajarada baabuurta ee korontada? Fadlan tigsaar dhamaan meelaha ku khuseeya.

Answered: 0 Skipped: 1

 No matching responses.

ANSWER CHOICES		RESPONSES	
Inaan ka barto saaxiib, qoys, ama deris		0.00%	0
Inaan ka barto ururka ka dhex jira bulshada		0.00%	0
Inaan ka barto meelaha baabuurta korontada lagu barto ee deegaanka		0.00%	0
Inaan ka barto PSE		0.00%	0
Guri kale (fadlan sheeg)		0.00%	0
Total Respondents: 0			

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

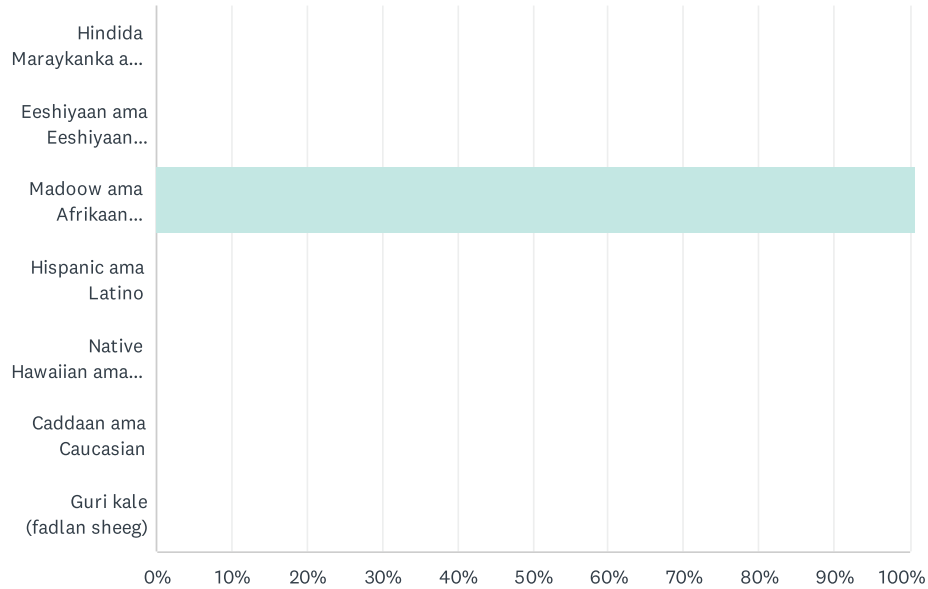
Q26 Majiraan waxyaabo kale oo aad jeclaan lahayd inaad nala wadaagto kuna saabsan jaajarka baabuurta ee korontada ah?

Answered: 0 Skipped: 1

#	RESPONSES	DATE
	There are no responses.	

Q27 Waa maxay jinsiyadaada? Fadlan tigmaar dhamaan meelaha ku khuseeya. (Waa ikhtiyaari)

Answered: 1 Skipped: 0

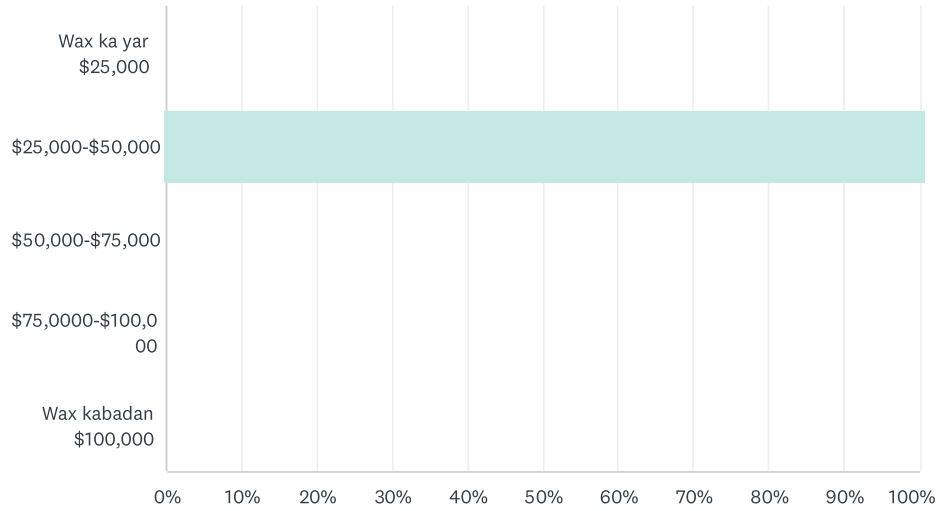


ANSWER CHOICES	RESPONSES
Hindida Maraykanka ama Dhaladka Alaska	0.00% 0
Eeshiyaan ama Eeshiyaan Ameerikaan	0.00% 0
Madoow ama Afrikaan Ameerikaan	100.00% 1
Hispanic ama Latino	0.00% 0
Native Hawaiian ama Pacific Islander kale	0.00% 0
Caddaan ama Caucasian	0.00% 0
Guri kale (fadlan sheeg)	0.00% 0
Total Respondents: 1	

#	GURI KALE (FADLAN SHEEG)	DATE
	There are no responses.	

Q28 Waa maxay dakhliga qoyskaaga ee sanadlaha ah? (Waa ikhtiyaari)

Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Wax ka yar \$25,000	0.00%	0
\$25,000-\$50,000	100.00%	1
\$50,000-\$75,000	0.00%	0
\$75,000-\$100,000	0.00%	0
Wax kabadan \$100,000	0.00%	0
TOTAL		1

APPENDIX I: TEP FACTSHEETS AND FLIERS

See next page.

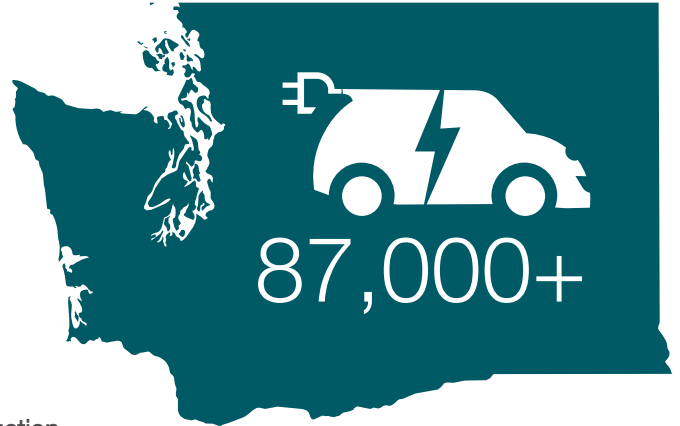
Get ready to electrify your ride

Spring 2022



Get ready to electrify your ride

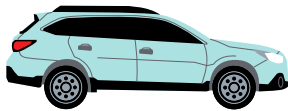
There are more than 1.8 million electric vehicles (EVs) on the roadways in the United States. Washington state has the third biggest market for EVs, with more than 87,000 registered as of December 2021. As part of PSE's commitment to be a Beyond Net Zero Carbon company by 2045, we're supporting communities in getting more EVs on the road by making it easier for customers to charge an EV at **home**, at **work** and in **public**.



Three reasons to electrify your ride

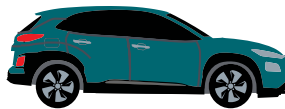
1 EVs are healthier for our planet because they don't produce tailpipe emissions.

EVs' reduction in emissions holds true during use and in the production of the electricity powering it.



2022 COMPARABLE MODEL

4.6 TONS
ANNUAL CO₂ EMISSIONS



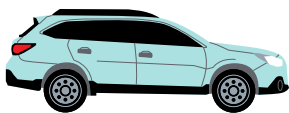
2022 HYUNDAI KONA ELECTRIC

1.8 TONS
ANNUAL CO₂ EMISSIONS

EMISSIONS ESTIMATES BASED ON PSE'S POWER GENERATION SOURCES. INDIVIDUAL RESULTS MAY VARY.

2 EVs require less maintenance and cost less to fuel.

EVs have far fewer moving parts to maintain and fix, and you don't have to buy gasoline.



2022 comparable model

Full tank of gas
13.2-gallon tank
~\$3.96/gallon*
\$52.27

Range
396 miles
30 miles/gallon in city

Yearly fuel cost
\$1,980
15,000 miles/year



2022 Hyundai Kona electric

Full charge
\$0.09/kWh**
\$5.76

Range
258 miles
132 miles/e-gallon in city

Yearly fuel cost
\$335
15,000 miles/year

* Average price of gallon of gas in February 2022 in Washington state

** Based on \$.09/kWh average in Washington state

Three reasons to electrify your ride (cont.)

3

Charging is no big deal, with a little planning

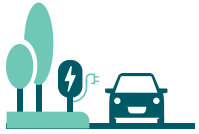
Charging can be done at home or on the go, and modern EV ranges will easily cover the daily needs of most drivers.



Level 1: Home

2–5 miles of range per hour

Drivers typically plug in when they get home and charge overnight.



Level 2: Home/work/public

25 miles of range per hour

A convenient option for drivers looking for a quicker charge, no matter where they might be.



DC Fast Charge: Public

Full charge in around an hour

A driver can plug in and come back to almost a full charge after a quick errand or coffee break!

Why host a PSE charging station?

- Promotes sustainability values and a commitment to protecting the environment.
- Charging stations and car shares are a great amenity at multifamily properties.
- Public charging stations bring more foot traffic to businesses and can increase purchasing opportunity.
- Reduces total cost of ownership for fleet vehicles.

Supporting communities in electrifying their rides

To support our customers' growing need to access more charging stations, we rolled out a new EV program in 2019: PSE Up & Go Electric. We're partnering with communities, businesses and multifamily properties to install more EV charging stations across our service area. Our charging programs are an easy, cost-effective way to bring EV charging to residents and customers.

As part of our Up & Go Electric program, we're working with community-based service providers to make EVs more accessible, make electric fueling more affordable and increase access to charging stations.

Interested in learning more about PSE's EV charging programs?

Visit pse.com/electriccars to learn more.



Prepárese para viajar en un vehículo eléctrico



Primavera 2022

Prepárese para viajar en un vehículo eléctrico

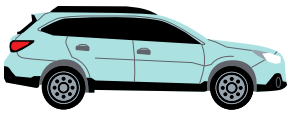
Hay más de 1.8 millones de vehículos eléctricos (EV) en los caminos de los Estados Unidos. El estado de Washington tiene el tercer mercado más grande de vehículos eléctricos, con más de 87,000 registrados a diciembre de 2021. Como parte del compromiso de PSE de ser una empresa Beyond Net Zero Carbon (que sobrepasa las cero emisiones netas de carbono) para el año 2045, estamos apoyando a las comunidades para que logren tener más vehículos eléctricos en el camino haciendo más fácil para los clientes cargar sus vehículos eléctricos **en casa, en el trabajo y en público.**



Tres razones para conducir un vehículo eléctrico

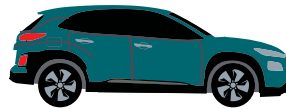
1 Son más saludables para nuestro planeta porque no producen emisiones por el tubo de escape.

La reducción de las emisiones de los vehículos eléctricos se mantiene durante el uso y la producción de la electricidad que los alimenta.



MODELO COMPARABLE 2022

4.6 TONELADAS
EMISIONES ANUALES DE CO2



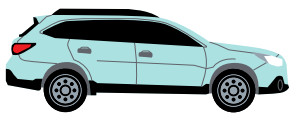
HYUNDAI KONA ELECTRICO 2022

1.8 TONELADAS
EMISIONES ANUALES DE CO2

ESTAS ESTIMACIONES DE EMISIONES ESTÁN BASADAS EN LAS FUENTES DE GENERACIÓN DE ENERGÍA DE PSE, LOS RESULTADOS INDIVIDUALES PUEDEN VARIAR.

2 Requieren menos mantenimiento y son menos costosos en combustible.

Los vehículos eléctricos tienen muchas menos partes móviles que hay que mantener y reparar, y no es necesario comprar gasolina.



Modelo Comparable 2022

Tanque lleno de gasolina
Tanque de 13.2 galones
~\$3.95/galón*
\$52.27

Distancia
296 millas
30 millas/galón en la ciudad

Costo anual de combustible
\$1,980
15,000 millas/año



Hyundai Kona Electrico 2022

Carga completa
\$0.09/kWh**
\$5.76

Distancia
258 millas
132 millas/e-galón en la ciudad

Costo anual de combustible
\$335
15,000 millas/año

* Precio promedio del galón de gasolina en febrero de 2022 en el estado de Washington

** Basado en un promedio de \$.09/kWh en el estado de Washington

Tres razones para conducir un vehículo eléctrico (cont.)

3

Cargarlo no es gran cosa, con un poco de planificación.

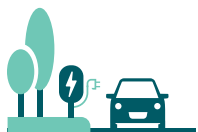
La carga se puede realizar en casa o durante su viaje, y las distancias de los vehículos eléctricos modernos cubrirán fácilmente las necesidades diarias de la mayoría de los conductores.



Nivel 1: En casa

2 a 5 millas de distancia por hora

Generalmente los conductores enchufan sus vehículos cuando llegan a casa y lo dejan cargando durante la noche.



Nivel 2: En casa/trabajo/público

25 millas de distancia por hora

Una opción conveniente para los conductores que buscan una carga más rápida, sin importar dónde se encuentren.



Carga rápida de DC: Pública

Carga completa en aproximadamente una hora

Un(a) conductor(a) puede enchufarlo y volver a tener una carga casi completa después de hacer un mandado rápido o de tomarse un café.

¿Por qué permitir que PSE instale una estación de carga?

- Promueve los valores de sostenibilidad y el compromiso con la protección del medio ambiente.
- Las estaciones de carga y los autos compartidos son un gran servicio en las propiedades multifamiliares.
- Las estaciones de carga públicas atraen más tráfico peatonal a los negocios y pueden incrementar las oportunidades de compra.
- Reduce el costo total de propiedad de los vehículos de la flota.

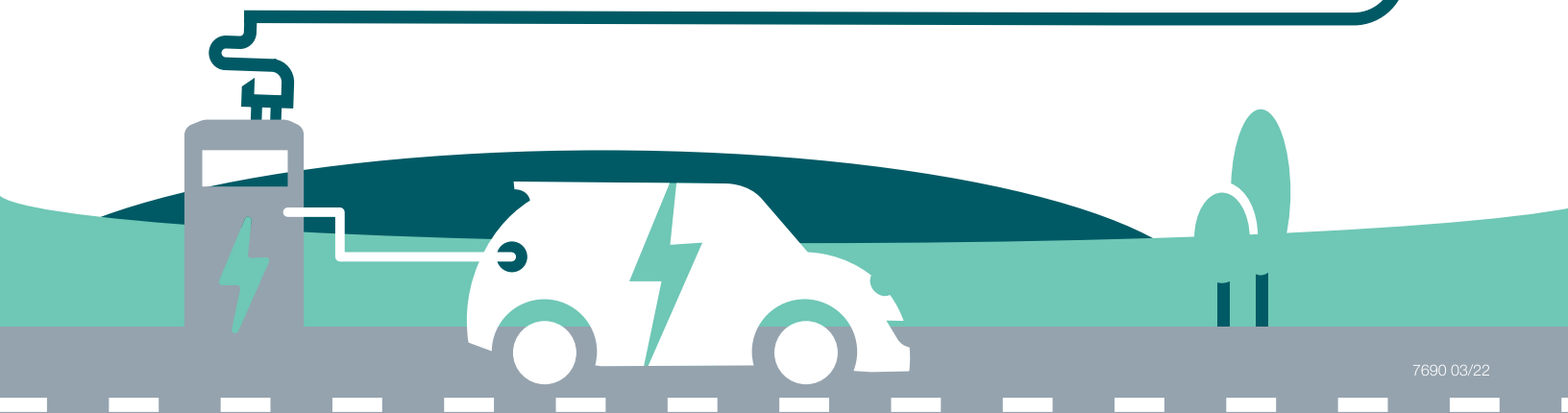
Apoyando a las comunidades para que conduzcan vehículos eléctricos.

Para cubrir la necesidad creciente de nuestros clientes para acceder a más estaciones de carga, implementamos un nuevo programa para vehículos eléctricos en 2019: PSE Up & Go Electric. Estamos colaborando con comunidades, negocios y propiedades multifamiliares para instalar más estaciones de carga de vehículos eléctricos en nuestra área de servicio. Nuestros programas de carga son una forma fácil y rentable de acercar a habitantes y clientes a los cargadores para vehículos eléctricos.

Como parte de nuestro programa Up & Go Electric, estamos trabajando con proveedores de servicios comunitarios para hacer que los vehículos eléctricos sean más accesibles, hacer que el combustible eléctrico sea más asequible y aumentar el acceso a las estaciones de carga.

¿Le interesa obtener más información sobre los programas de carga de vehículos eléctricos de PSE?

Visite pse.com/electriccars para obtener más información.



Transportation Electrification Community Engagement Plan

Spring 2022



PSE's Transportation Electrification Plan

PSE's [Transportation Electrification Plan](#) (TEP) is a comprehensive five-year strategic framework for electric vehicle programs and services that will allow PSE to take on a greater role in driving the transition to a cleaner energy future by further advancing electrified transportation in Washington state. This is a key part of PSE's pledge to become a [Beyond Net Zero Carbon company by 2045](#).

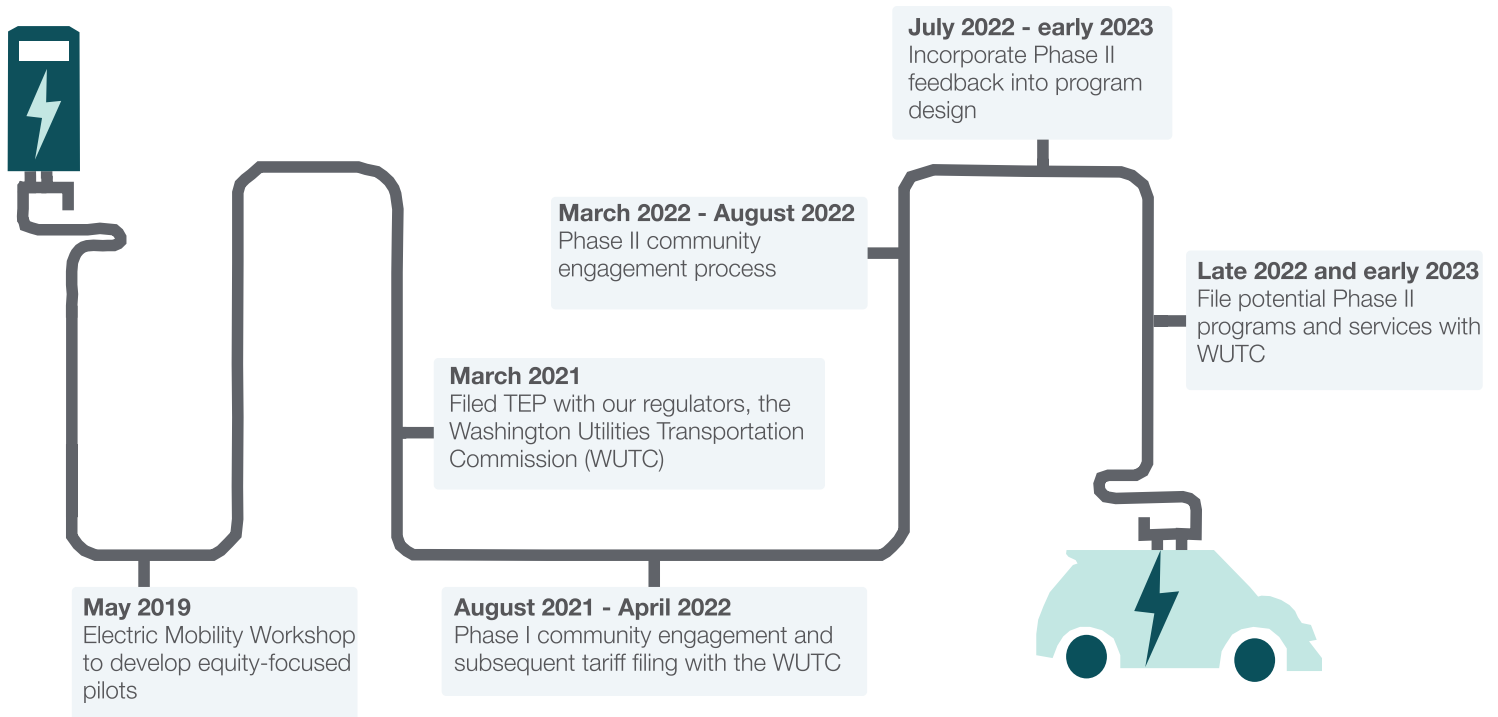
What are our goals?

- Develop and implement more electric vehicle programs and services
- Build and change our utility infrastructure to support increased demand for electric transportation over the next decade
- Partner with community members and key stakeholders to successfully electrify the transportation system
- Remove barriers to provide electrified transportation access to *all* customers
- Solicit feedback from customers with lower incomes, those with limited English proficiency, communities of color, rural communities and those that serve them

PSE has existing pilot programs through its Up & Go Electric program and is now working to scale those pilots into future programs and services while keeping equity in mind. Programs will come available in two phases. Community engagement for Phase I programs and services (Multifamily, Fleet and Commercial) was completed in 2021 and now we'd like to hear from our community on Phase II programs and services.

Timeline

The timeline below is subject to change.



Phase II engagement: Single Family Residential, Public, Workplace and New and Innovative

In order to design better programs, we want to hear from communities that reflect the geographic and demographic diversity of our electric service area regarding what barriers they may face in transportation electrification and ideate on how to reduce those barriers.

We're organizing interviews, focus groups and workshops of PSE electric customers living and/or operating in Single Family Residential, Public, Workplace and New and Innovative settings who might host electric vehicles, electric chargers and/or other modes of electric transportation to discuss:

- Benefits and barriers to programs and services
- Ownership and cost share preferences of electric vehicles and necessary charging infrastructure
- Education and outreach needs related to transportation electrification

When this engagement process is complete, community feedback will be integrated into our program design to be filed with our regulators, the WUTC. We anticipate launching these programs and services in 2023-2024.

	Single Family Residential	Public	Workplace	New and Innovative
Description	Residential customers who need at-home charging.	Customers who need access to convenient charging on the go	Customers or employers who need access to charging at their workplace	Project ideas that do not fit neatly within existing Phase I or II program buckets
Program example	An electric charger and corresponding electric vehicle incentive for lower-income community members	Increased charging for rideshare drivers	Increased charging for community colleges or rural hospitals	Electrification of transportation options for shift workers

Examples of potential customers and/or services within the Single Family Residential, Public, Workplace, and New and Innovative service areas and potential programs that may be included within them.

Plan de participación comunitaria para la electrificación del transporte



UP & GO
ELECTRIC

Primavera 2022

Plan para la electrificación del transporte de PSE

El [Plan para la electrificación del transporte](#) (TEP por sus siglas en inglés) de PSE es una estructura estratégica integral de cinco años para crear programas y servicios de vehículos eléctricos que permitirá que PSE asuma un papel más importante en impulsar la transición hacia un futuro con energías más limpias mediante el avance del transporte electrificado en el estado de Washington. Esta es una parte clave de la promesa de PSE de convertirse en una empresa Beyond Net Zero Carbon (que sobrepasa las cero emisiones netas de carbono) para el año 2045.

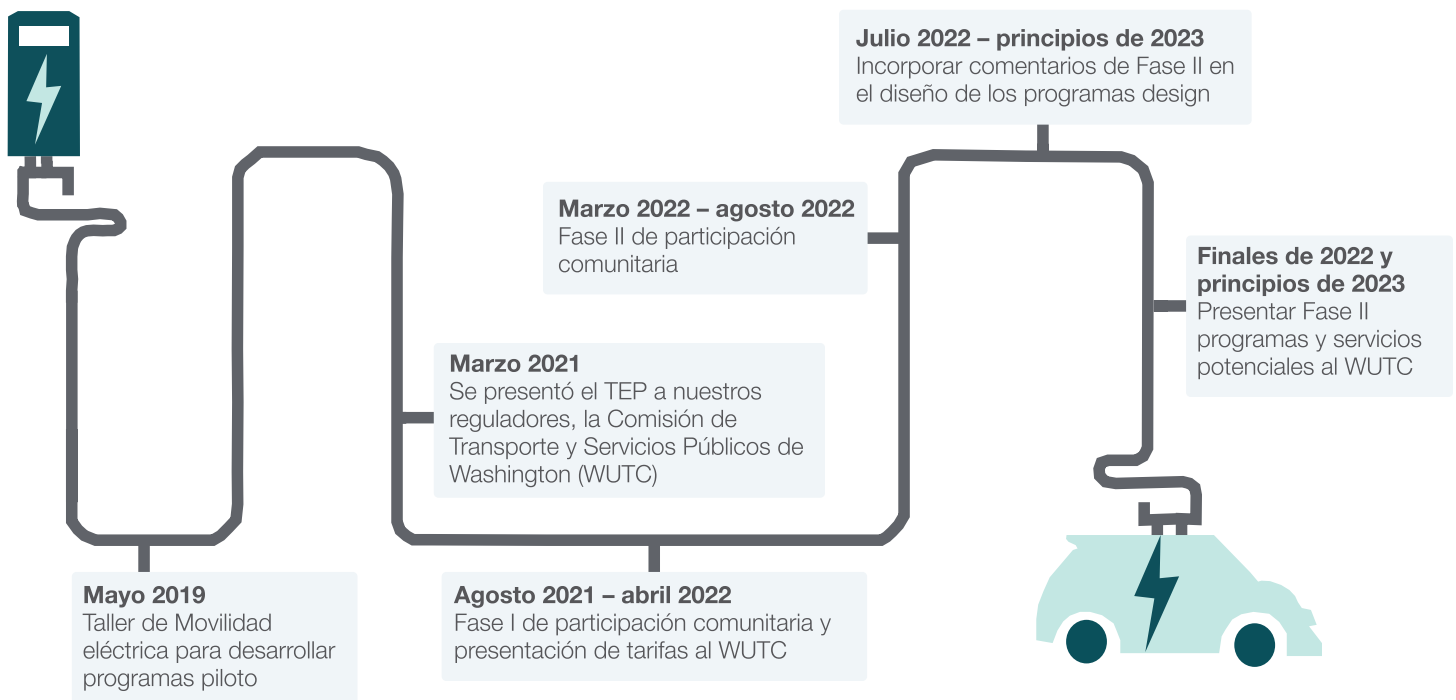
¿Cuales son nuestros objetivos?

- Desarrollar e implementar más programas y servicios de vehículos eléctricos
- Construir y cambiar nuestra infraestructura de servicios públicos para respaldar el aumento en la demanda de transporte eléctrico durante la próxima década
- Colaborar con miembros de la comunidad y partes interesadas clave para electrificar con éxito el sistema de transporte
- Eliminar obstáculos para que todos los clientes tengan acceso al transporte electrificado
- Solicitar opiniones de miembros de la comunidad con ingresos mas bajos, aquellos con dominio limitado en inglés, comunidades de color, comunidades rurales y aquellos que les sirven

PSE tiene programas piloto a través de su programa Up & Go Electric y ahora está trabajando para escalar esos pilotos en programas y servicios futuros, teniendo en cuenta la equidad. Los programas estarán disponibles en dos fases. La participación comunitaria para los programas y servicios de la Fase I (Multifamiliar, Flota y Comercial) se completó en 2021 y ahora queremos escuchar de nuestra comunidad sobre los programas y servicios de la Fase II.

Calendario

El calendario está sujeto a cambios.



Fase II compromisos: Residencial Unifamiliar, Público, Lugar de Trabajo, y Nuevo e Innovador

Para diseñar mejores programas, queremos escuchar de las comunidades que reflejan la diversidad geográfica y demográfica de nuestra área de servicio eléctrico con respecto a las barreras que pueden enfrentar con la electrificación del transporte y también idear como reducir esas barreras.

Estamos organizando entrevistas, grupos focales y talleres con clientes eléctricos de PSE que viven y/u operan en entornos Residenciales Unifamiliares, Públicos, Lugares de Trabajo, y Nuevos e Innovadores y que puedan albergar vehículos eléctricos, cargadores eléctricos y/u otros modos de transporte eléctricos. Deseamos hablar sobre:

- Los beneficios y obstáculos a programas y servicios
- Las preferencias de propiedad y participación en los costos de los vehículos eléctricos y de la infraestructura de carga necesaria
- Las necesidades de educación y divulgación relacionadas con la electrificación del transporte

Cuando se complete este proceso de participación, los comentarios de la comunidad se integrarán en el diseño de nuestros programas para ser presentados a nuestros reguladores, el WUTC.

	Residencial Unifamiliar	Público	Lugar de Trabajo	Nuevo e Innovador
Descripción	Clientes residenciales que necesitan cargar en casa.	Clientes que necesitan acceso a cargadores convenientes en lugares públicos.	Clientes o empleadores que necesitan acceso a cargar en su lugar de trabajo.	Ideas de proyectos que no encajan perfectamente dentro los cubos de programas en Fase I o II
Ejemplo de programa	Un cargador eléctrico y incentivos para vehículos eléctricos para miembros de la comunidad de bajos ingresos.	Un aumento en carga para conductores de viajes compartidos.	Un aumento en carga para colegios comunitarios o hospitales rurales.	Opciones de electrificación de transporte para trabajadores por turnos.

Ejemplos de posibles clientes y/o servicios dentro de las áreas de Residencial Unifamiliar, Público, Lugar de Trabajo y Nuevo e Innovador y posibles programas que pueden estar incluidos dentro de esas áreas de servicio.



Share your voice in the transition to electric vehicles

Are you interested in learning about electric vehicles — cars, bikes, scooters?

Do you live in a single-family home?

Are you a PSE electric customer?

If you answered **yes to all three questions**, join Puget Sound Energy to discuss transportation electrification, clean energy, and benefits for your community!

Interested in learning more about electric vehicles?

Visit pse.com/electriccars to learn more.

When

Choose from two workshop dates!

Monday, May 9

1-2 p.m.

or

Tuesday, May 10

5-6 p.m.

Where

Online Zoom meeting (10-15 participants total).

To participate, you will need a computer or laptop and reliable internet access.

Participants receive a **\$50** Visa or Fred Meyer gift card stipend for participating.

If interested, please call Lucila Gambino at 786-246-0637 or email at

lgambino@triangleassociates.com.

Share your voice in the transition to electric vehicles Comparta su voz en la transición a vehículos eléctricos

Are you interested in learning about electric vehicles – cars, bikes, scooters?

Do you live in a single-family home?
Are you a PSE electric customer?

If you answered **yes to all three questions**, join Puget Sound Energy to discuss transportation electrification, clean energy, and benefits for your community in a **Spanish session!**

¿Quieres aprender sobre vehículos eléctricos – carros, bicicletas, scooters?

¿Vives en una vivienda unifamiliar?
¿Eres un cliente eléctrico de Puget Sound Energy?

¡Si su respuesta es **'Si' a las tres preguntas**, únase en **una discusión en Español** con PSE sobre la electrificación del transporte, la energía limpia, y de los beneficios e intereses de su comunidad!

When

Thursday, April 21,
5 - 6:30 p.m.

Where

Online Zoom meeting (10-15 participants total).
To participate, you will need a computer/laptop and reliable internet access.

Participants receive a \$75 Visa or Fred Meyer gift card stipend for participating.

If interested, please call Lucila Gambino at 786-246-0637 or email at lgambino@triangleassociates.com.

¿Cuándo?

Jueves, 21 de abril
de 5 - 6:30 p.m.

¿Adónde?

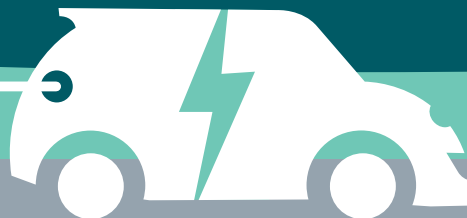
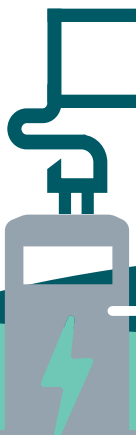
Virtual por Zoom (10-15 participantes en total).
Para participar necesitará una computadora/laptop y acceso a un servicio de Internet confiable.

Los participantes recibirán un estipendio de \$75 de Visa o Fred Meyer por su tiempo.

Para participar, llamen a Lucila Gambino al 786-246-0637 o envíenle un email a lgambino@triangleassociates.com.

Interested in learning more about PSE's electric vehicle charging programs?
Visit pse.com/electriccars to learn more.

¿Quieres más información sobre los programas de carga de vehículos eléctricos que ofrece PSE?
Visita pse.com/electriccars para aprender más.



PSE

