EJ Communities' perspective

To: CWCC

From: Cadeo

Date: June 30, 2023

Re: EMPOWER Project – Employees in EJ communities' perspective and regional differences

---

As part of the Equitable Mobility Powering Opportunities for Workplace Electrification Readiness (EMPOWER) project, Cadeo researched the electric vehicle (EV) landscapes across regions in the U.S. and gathered the perspective of employees from EJ communities on EVs and workplace charging. The objective was to assess the barriers for EV adoption in these communities and understand how workplace charging can play a role.

The analysis sheds light on the commonalities and hurdles across regions in the transition to the electrification of transport. This analysis offers a basis for exchange of information and co-creation of potential solutions and collaboration among clean cities coalitions across regions. Additionally, findings from the perspectives of employees in EJ communities on EV adoption, and more specifically on workplace charging, can be used to increase the value proposition to employers regarding the impact of workplace charging in bringing equity into the sector.

Methodology

The methodology for this research included interviews with regional captains and surveys with employees from EJ communities.

Interviews with regional captains

To assess the EV landscape in each region (see Figure 1), Cadeo interviewed Clean Cities Coalition partners, mainly the 6 regional captains,[1] to gather high-level information on the following topics:

- Transport electrification initiatives in EJ communities
- State and local incentives
- Lessons learned from outreach to employers
- Local perception of EVs and charging infrastructure

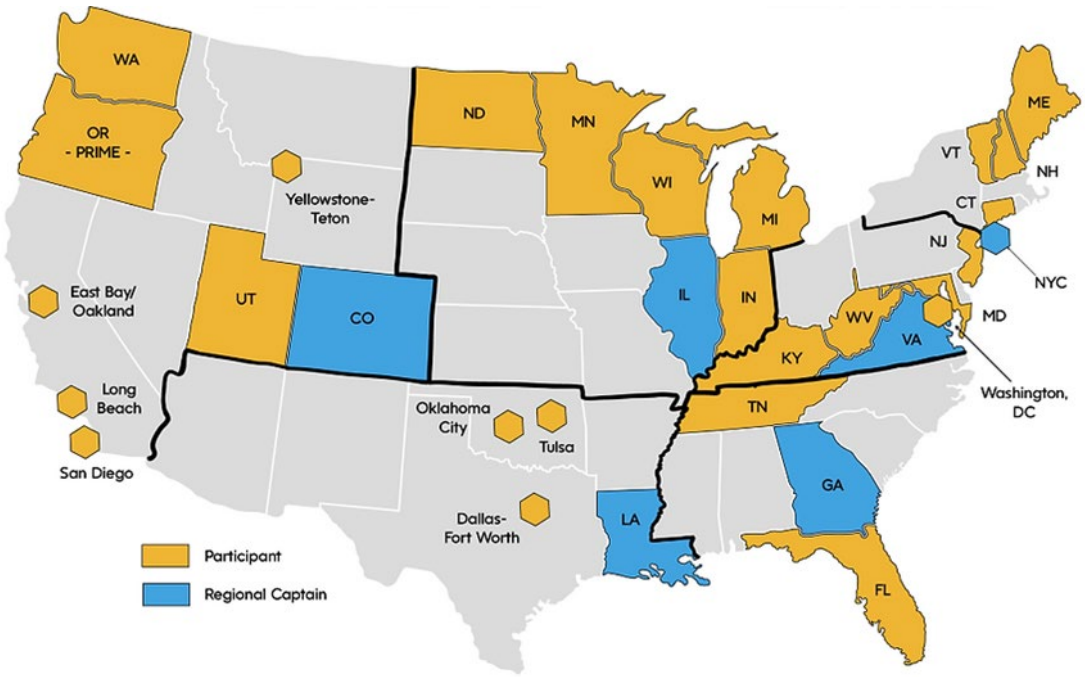
[1] VA, CO, GA, NY, LA, IL

Surveys with Employees from EJ communities

To understand the perspective of employees from EJ communities,[2] Cadeo surveyed eighty-nine such employees targeted across states and areas participating in the EMPOWER project (see Figure 1). To geographically target employees in EJ communities, Cadeo overlapped the federal initiative Justice40 map with zip codes areas in states and areas of interest to limit outreach to intended communities.

The survey focused on assessing familiarity with EVs, determining the perception of EVs in EJ communities and its barriers to adoption, the influence of workplace charging, and other factors in their consideration of EV ownership. For those who have adopted EVs (n=13), we asked about their access to and experience with workplace charging.

Figure 1: State and Areas Participating in the EMPOWER Project



Source: https://www.workplacecharging.com/

[2] Based on the Department of Energy definition utilized in Justice40 initiative, target communities were identified based on cumulative burden, developed through assessment of thirty-six burden indicators collected at the census level. The categories for the burden indicators are as follows:

1. Fossil Dependence
2. Energy Burden
3. Environmental and Climate Hazards
4. Socio-Economic Vulnerabilities

Source: "Justice 40 Initiative", Office of Economic Impact and Diversity https://www.energy.gov/diversity/justice40-initiative , assessed on June 21st, 2023

Note: Respondents are full-time employees that live in designated EJ communities according to Justice40 initiative map. Individual respondents might not necessarily reflect certain key demographic factors normally associated with EJ communities; they are geographically associated to these communities.

Results

Regional Captains Interviews

With no one size fits all to conducting outreach, each partner organization has developed a unique approach to engage employers in EJ communities with workplace charging efforts. Informed by the regional EV landscape, partnerships with external organizations and relationships as well as prior engagements with target communities, each organization crafted a strategy for optimizing their outreach goals.[3]

Several regional captains noted palpable interest and support for transportation electrification in the communities they serve.

- **Colorado**. Julie Davila from Drive Clean Colorado noted that, in general, the state of Colorado has a very positive outlook on EVs. She noted that rural communities, which tend to often be left out of transportation electrification, are very interested in pursuing charging projects, and switching to EVs where possible.
- **Illinois**. In Illinois, many communities are in general very receptive to alternative fuels in transportation, including electricity, according to Angela Tin of the Illinois Alliance for Clean Transportation. Local efforts, such as Chicago's funding for charging infrastructure, point to the state's commitment to promoting electrification.
- **Virginia**. The state of Virginia was highlighted as an EV-friendly environment. Matt Wade of Virginia Clean cities pointed to a recent research study that found that 60% of City of Virginia Beach residents would consider buying an EV as their next car. Overall, the rate of EV adoption in Virginia is showcasing a strong upward trend.
- **Georgia**. In Georgia, Samantha Pettigrew, of Clean Cities Georgia, shared that EVs are seen as an opportunity to create manufacturing jobs and as such have garnered support from different communities.
- **New York**. According to Joy Gardner of Empire Clean Cities, in the state of New York, EV adoption trends are also robust, especially in the commuter regions surrounding NYC. She also pointed out that several community-based organizations (CBOs) are excited about transitioning to EVs and making sure that charging stations are available in their communities.

Despite the positive approaches and upward trends of EV, each region faces some specific barriers. The following list includes the key issues highlighted by regional captains during our

[3] At the time we conducted our interviews, most organizations were in the initial stages of their outreach. As such, the findings presented in this memo reflect initial impressions and insights shared by the regional captains.

interviews regarding deployment of EV charging, including workplace charging, in their respective regions and more specifically in EJ communities.

- **Lack of funding.** Whether at local, state, or federal level, many interviewees pointed out that lack of dedicated funding to make EVs and charging infrastructure affordable is a big barrier for transportation electrification in EJ communities.
- **Uncertainty around charging infrastructure's impact on communities.** Specifically, EJ community members and CBOs serving them are worried about potential gentrification following introduction of charging infrastructure in their communities. Institutional mistrust, specifically around utility programs that lease private property to site utility-owned chargers also came up as a worry. At least one interviewee mentioned the need to use an EV dealer for car maintenance to be an issue in communities where local trusted mechanics are highly valued for personal vehicle maintenance.
- **Lack of momentum in EJ communities around workplace charging.** Very often, employers are driven either by employees' desires for workplace charging or by sustainability goals. Employers in EJ communities have different priorities as most often none of their employees have EVs and sustainability goals are not salient for them.
- **Low building/parking ownership amongst employers.** Without property ownership, siting workplace charging can become extremely difficult as this would involve negotiating with private parking garages or even the city in the case of curbside parking.
- **High installation costs for EV charging.** Without the chargers, EV adoption becomes difficult. Some interviewees pointed out that the costs for installing chargers are quite high.
- **Political Opposition to EVs.** Whether at the state or local level, political beliefs exert influence over attitudes towards EVs and subsequently adoption rates.
- **Lack of Education about EVs and charging infrastructure.** This includes benefits of EVs, what is required for maintenance, charging, and how electricity to charge is paid for (whether it is per kwh or time). This also includes lack of understanding around the longevity of charging equipment and the process of implementing charging projects.

Table 1 summarizes the key issues by region.

Table 1: Key Issues Identified by Regional Captains

Organization	Lack of funding	Uncertainty of impacts	Lack of momentum	Low building/ parking ownership	High install cost	Political opposition	Lack of education
Illinois Alliance for Clean Transportation	✓	✓	✓				✓
Drive Clean Colorado		✓	✓				✓

Organization	Lack of funding	Uncertainty of impacts	Lack of momentum	Low building/ parking ownership	High install cost	Political opposition	Lack of education
Empire Clean Cities	✓			✓	✓		
Louisiana Clean Fuels	✓					✓	✓
Virginia Clean Cities		✓					✓
Clean Cities Georgia	✓	✓				✓	✓

Results of EJ Community Survey

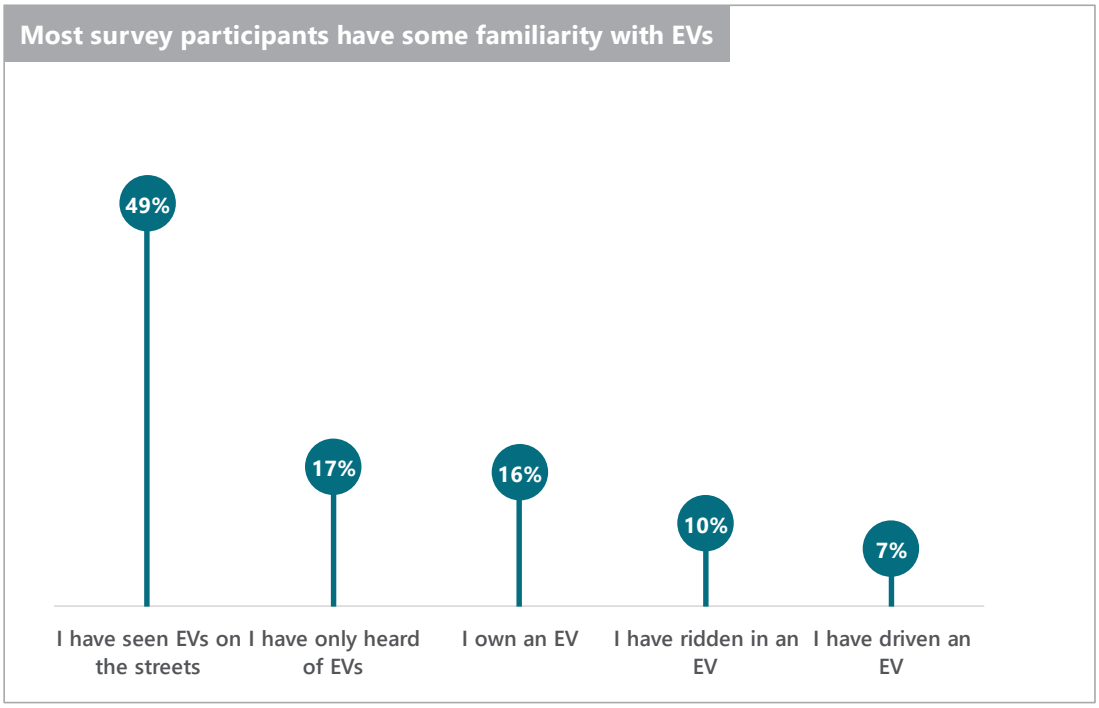
Our survey with employees in EJ communities aimed to gain insights into challenges of EV adoption and whether workplace charging can be an influential factor to increase EV adoption in these communities, increasing equity in transportation electrification. The findings from this survey are organized as follows:

- General Attitudes and Beliefs about EVs
- EJ employees with EVs
- EJ employees without EVs
- Barriers

General Attitudes and Beliefs

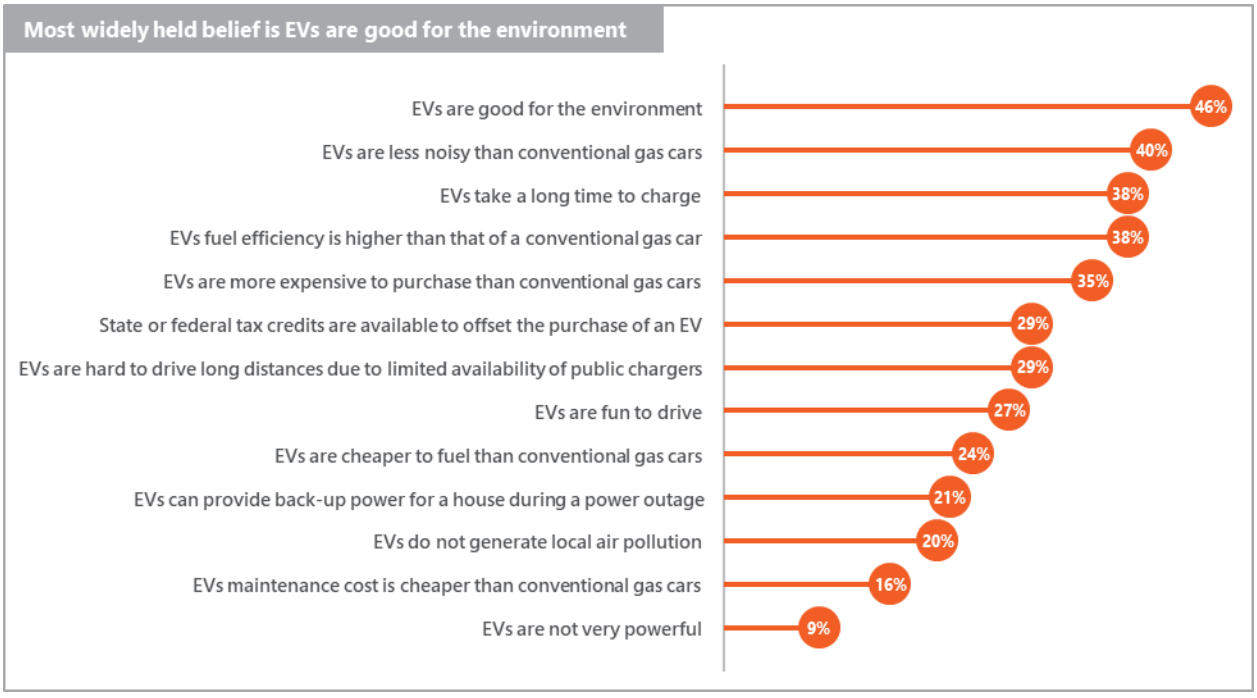
Based on the responses, all survey participants have some familiarity with EVs (see Figure 2).

Figure 2: Familiarity with EVs (n=86)



In terms of perceptions and beliefs, the most widely held belief is that EVs are good for the environment (see Figure 3).

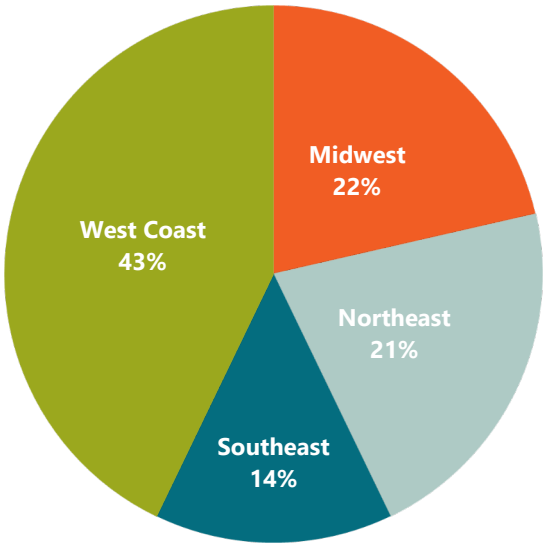
Figure 3: Beliefs about EVs (n=89, multiple response)



Employees with EVs

A total of 13 (15%) respondents indicated that they own either an EV or a plug-in hybrid vehicle, with most of respondents concentrated in the West Coast (see Figure 4). Most of the EV owners' respondents have a dedicated charger at home (84%), and the remaining owners rely on public charging.

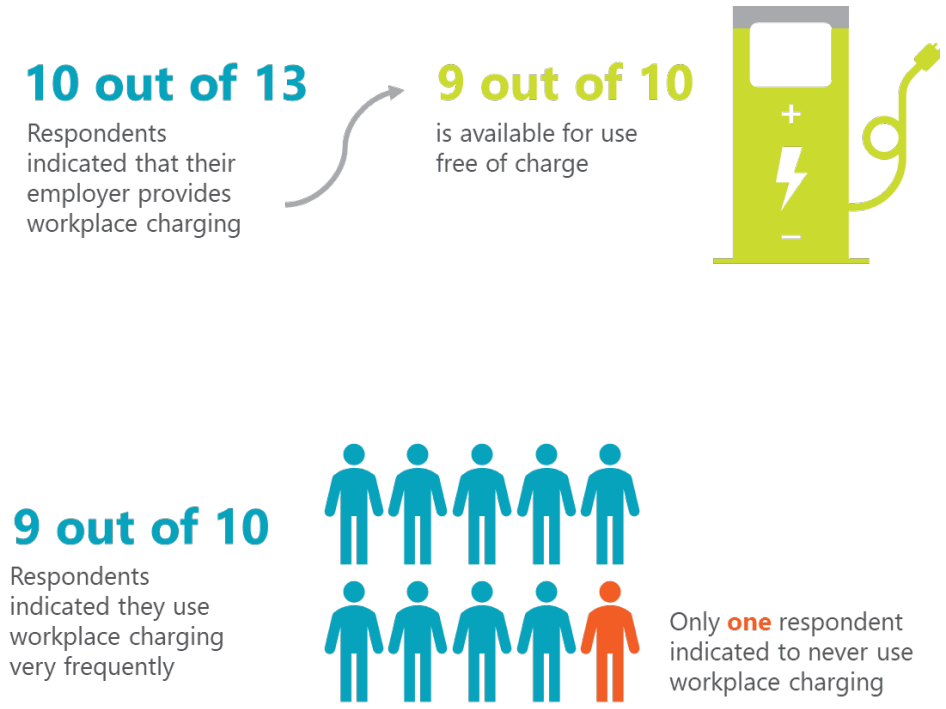
Figure 4: EV Owners by Region (n=13)



About workplace charging

Seventy nine percent of respondents with EVs (n=10) indicated that their employer provides workplace charging, all but one was available for use free of charge. The majority of them (n=9) indicated that they use workplace charging very frequently, either every day or almost every day. Only one respondent indicated to never use workplace charging. Of those EV owners who utilize workplace charging, eight keep their cars plugged in for half a day or more, which might be a result of charging for free.

Figure 5: Workplace Charging availability and frequency of charge.



When asked to provide input into how workplace charging can be improved, we received a wide range of responses. Some addressed the speed and availability of workplace charging. In particular, the respondents noted that greater availability of chargers would allow more employees to take advantage of workplace charging. Related to this, some have noted that availability of fast chargers would create marked improvement in their satisfaction with charging at work.

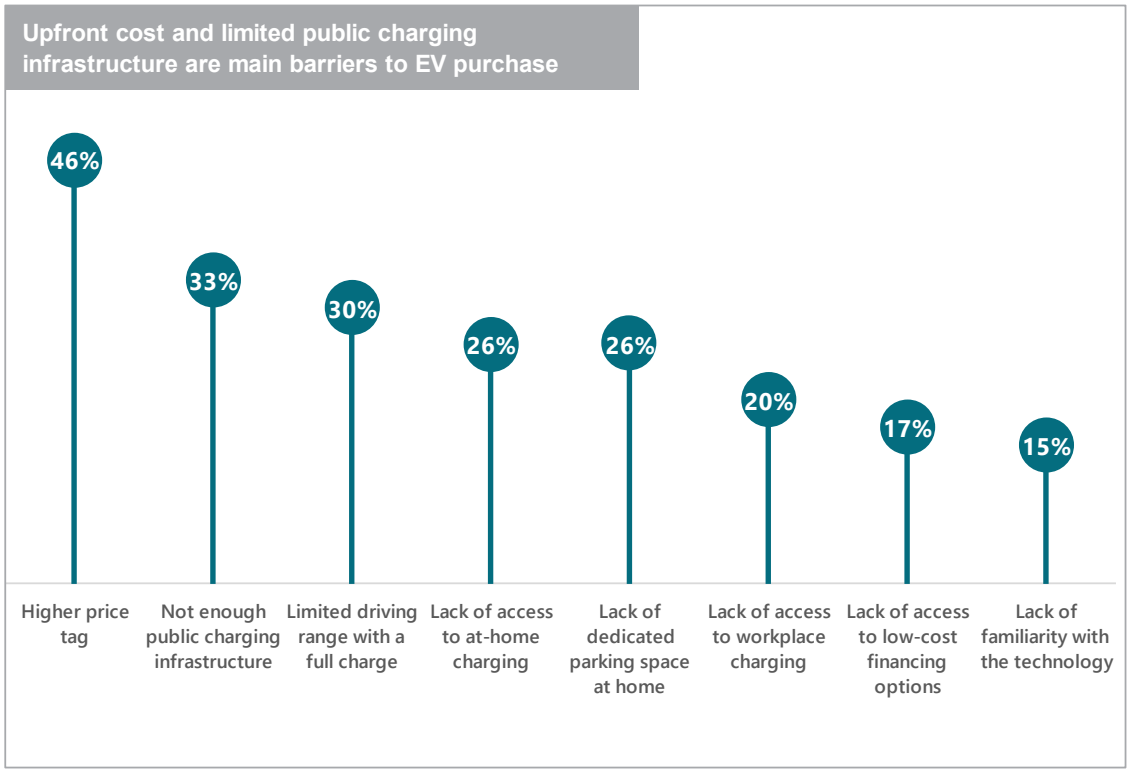
Of those respondents who do not have access to charging through their workplaces (n=3), all indicated that they would like their employer to offer workplace charging. Nevertheless, none of these individuals have made a request to their employer to offer this benefit. If charging were offered for free, they would use it daily but if it had a cost they would only charge at work if they really needed it or if it were cheaper than charging at home.

Employees without EVs

Thirty seven percent of employees without EVs (n=75) stated to have access to EV chargers in their workplace. A total of 61% of non-EV owners have considered purchasing an EV in the past, which includes 50% of respondents with available chargers at work. This implies that the availability of chargers at the workplace could be a precursor for EV adoption among employees.

While more than 50% had consider buying an EV, the upfront cost as well as the limited public charging infrastructure were the main reasons for not pursuing the purchase (Figure 6). About 10% of respondents highlighted lack of access to workplace charging as a contributing factor in their decision.

Figure 6: Reasons for not Purchasing an EV (n=46)



Almost 30% of respondents that had not considered purchasing an EV and do not have workplace charging (n=17) stated that availability of free workplace charging would help them reconsider purchasing an EV. Despite small sample sizes this suggests that free workplace charging could influence EV adoption for some people.

Thirty three percent of respondents that have not considered buying an EV before (n=22) indicated as their primary reasons the upfront cost of EVs and the limited availability of chargers. This is consistent with the reasons for those who had considered buying an EV. Additionally, other responses included uncertainty about the technology, safety, and environmental benefits of EVs.

Some quotes include:

I am not convinced of the safety of EVs.

I don't want the hassle of recharging and don't think they are any better for the environment.

I am not sure about the technology.

They do not help the environment as charging batteries uses fossil fuels.

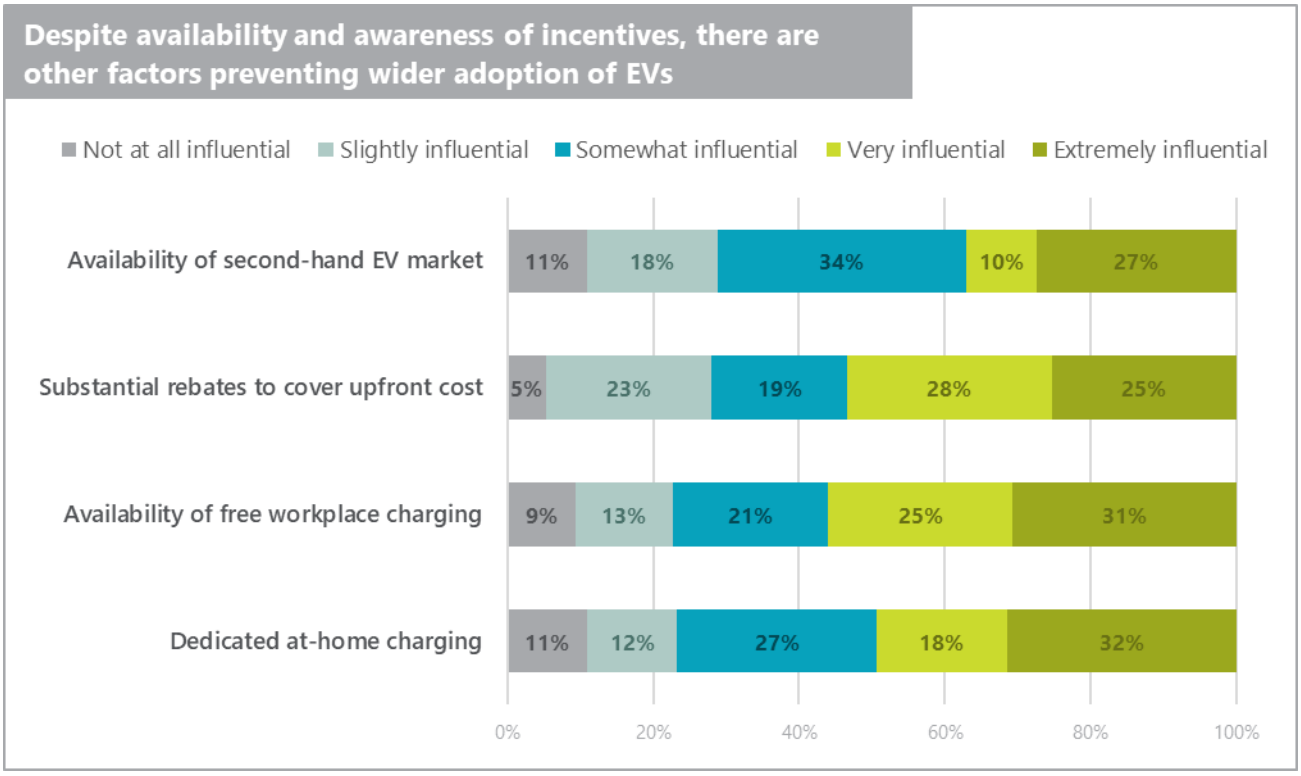
I don't like the batteries in them.

I prefer gas-powered vehicles.

When non-EV owners were asked to rate factors that would influence them to purchase an EV in order of importance (see Figure 7), free workplace charging was one of the dominating factors in the extremely influential category, only after dedicated at-home charging. Most participants indicated that availability of a used EV market would be somewhat influential to extremely influential. More than half of employees without EVs believe that substantial rebates to cover upfront cost are a highly influential factor.

Additionally, 80% of all respondents without EVs (n=75) are aware that there are local, state, and federal incentives for purchasing EVs. This suggests that despite availability and awareness of incentives, these are either not enough for certain groups in the population and/or there are other factors preventing wider adoption of EVs.

Figure 7: Influence of Other Factors on EV Purchase (n=75)



Barriers

All survey takers were asked to select the main barriers for EV adoption in their communities. The findings are presented by region in Table 2.

Table 2: Barriers to EV Adoption by Region (n=84, multiple response)

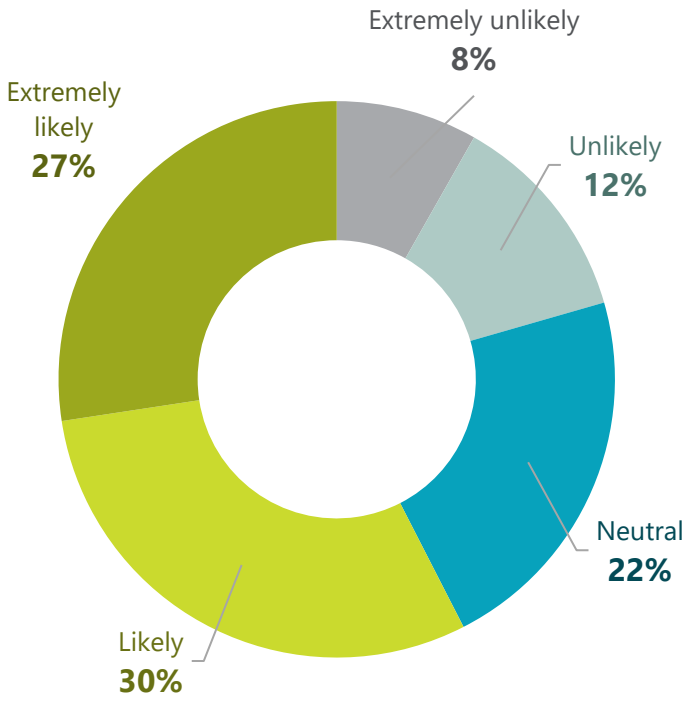
Responses	West Coast	Southeast	Northeast	Midwest	Mid-Atlantic	Gulf Coast	Overall
They are too expensive	47%	58%	50%	63%	43%	75%	52%

Responses	West Coast	Southeast	Northeast	Midwest	Mid-Atlantic	Gulf Coast	Overall
Lack of dedicated parking	18%	25%	21%	19%	24%	0%	20%
Lack of dedicated at-home charging	24%	33%	43%	38%	48%	0%	36%
Lack of chargers at workplace	18%	17%	29%	56%	38%	50%	33%
Lack of familiarity with the technology	12%	33%	21%	6%	19%	0%	17%
Not enough public chargers	47%	50%	21%	63%	67%	50%	51%
Used EV market is too small or inexistent	24%	33%	29%	31%	5%	25%	23%
Lack of understanding about the benefits of owning EVs	41%	0%	36%	38%	14%	0%	25%
Other, please specify:	0%	0%	0%	0%	0%	0%	0%
Don't know	0%	0%	7%	0%	5%	0%	2%
Number of unique respondents	**17**	**12**	**14**	**16**	**21**	**4**	**84**

While EVs being too expensive seems to be a constant barrier across regions, certain regions present unique characteristics such as availability of public chargers being less of a concern in the Northeast, as well as the lack of dedicated parking or at-home chargers in the Gulf Coast. This is certainly related to the characteristics of the existing EV market in these regions, as well as the housing characteristic and availability of local and state incentives and programs. The lack of workplace charging appears more prominently as a barrier in Midwest, Mid-Atlantic and Gulf Coast regions.

When asked if there was anything that can be done to reduce these barriers, once more most of the responses allude to more affordable EVs and more charging stations in stores, workplace, and public way. Other responses include more information, education, and test rides for the public and more involvement of local government. Despite the significant barriers faced by these communities, a stounding 75% answer that they see a growing interest in EVs in their communities. Figure 8 shows the likelihood of non-EV owner respondents to buy an EV in the future.

Figure 8: Likelihood Non-EV Owners Will Buy an EV in the Future (n=71)



Annex A – Survey respondents demographics and others

The age of respondents varies from 18 to 77 years old.

Table A-1: Distribution of Respondents by Building Type

	Single-family detached house (standalone house)	Single-family attached home (such as townhouse)	Duplex, triplex, or four-plex	Apartment or condominium with five units or more	Other
% of respondents by building type	69%	11%	2%	16%	2%

Table A-2: Distribution of Respondents by Parking Space

	Designated parking spot at a single level or multi-level parking garage	Non-designated spot at a single level or multi-level parking garage	Personal carport, garage, or driveway	Street Parking
% of respondents by parking space	44%	27%	24%	16%

Table A- 3: Distribution of Respondents by Race and Hispanic Origin

	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or Pacific Islander	Other	Prefer not to say
% of respondents by race	85.4%	10.1%	1.1%	3.4%	0	0	0

A total of 12.4% of respondents identified as Hispanic, Latino or Spanish Origin.