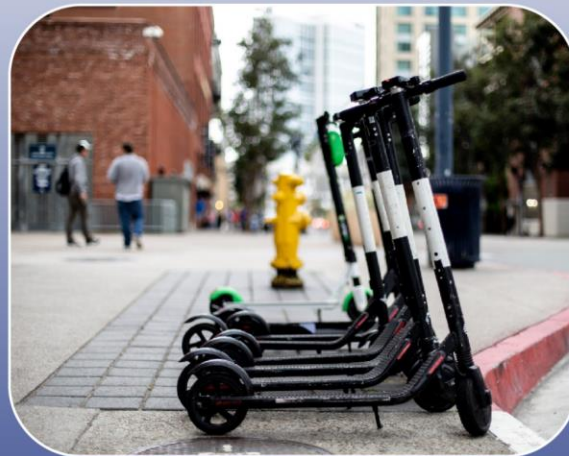




COLORADO EV EQUITY STUDY

APPENDICES

August 2022



Colorado EV Equity Study

Appendices

prepared for

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1.0 Key Assumptions for Emissions ROI Estimates

1.1 Electric Light-Duty Vehicles

The effects of light-duty electric vehicle consumer incentives were estimated from modeling conducted for the Transportation and Climate Initiative using the National Energy Modeling System (NEMS) (Cambridge Systematics, 2020). NEMS is an integrated model of the U.S. energy economy and includes a light-duty vehicle consumer choice model. It is used by the U.S. Department of Energy to develop energy demand forecasts through the year 2050 as reported in the Annual Energy Outlook (AEO).

NEMS reports changes in light-duty electric vehicle sales, stock, and VMT by year for a scenario compared to a reference case. The cumulative light-duty EV subsidy provided (as input to NEMS) was divided by the incremental number of EVs sold to determine the subsidy value per EV. The incremental VMT by EVs was converted into emissions change in each year using national average fuel economy projections and projections of CO₂ emissions from Colorado's electricity grid. Electricity in Colorado was estimated to produce 172 grams CO₂e per megajoule in 2018 (based on U.S. EPA eGRID data) and this was projected to decline at an annual rate of 2.5 percent, which is the declining annual cap set by a number of northeast and mid-Atlantic States participating in the Regional Greenhouse Gas Initiative.

1.2 Electric Trucks and Buses

Three classes of electric trucks and buses are modeled: (1) electric transit buses; (2) electric school buses; (3) electric medium-duty trucks. Heavy-duty trucks are not included because they are mainly used in long-haul applications where range limitations make battery electric technology less viable at the current time.

Similar methods were used for all vehicle types. Key assumptions are shown below by type of assumption. For some parameters, multiple data sources are shown for comparison, and the assumptions selected are shown in bold.

Base year efficiency is shown in Table 1, measured in miles per gallons gasoline-equivalent (MPGGE). Future year efficiencies are increased in proportion to AEO MPG forecast for trucks.

Table 1 Base (Gasoline or Diesel) Vehicle Efficiency

Vehicle Type	MPGGE (2017)	Source/Notes
Transit diesel buses	3.1	Alternative Fuels Data Center
School buses	6.3	Alternative Fuels Data Center
Trucks—MDT/urban	7.8	AEO—2019 Reference Case
Trucks—Class 8 long-haul	5.6	AEO—2019 Reference Case

Table 2 shows the energy efficiency ratio (EER) represents the relative efficiency of the vehicle using the energy input into the vehicle (fuel tank or plug). It does not account for lifecycle emissions (e.g., electricity generating and transmission losses).

Table 2 Energy Efficiency Ratio versus Base Vehicle

Vehicle Type	EER	Source/Notes
Electric transit bus	3.5	Giuliano et al. (2018) reproduce data from California Air Resources Board (CARB) (2017) showing observed EER for MD/HD electric trucks versus diesel ranges from ~3.5-4.0 at speeds above 20 mph, 4.0-5.0 for 10-20 mph, up to 7.0 for speeds below 10 mph. (Note—AEO shows somewhat lower ratios.) E.g., for Foothill Transit, “the BEB [battery electric bus] fuel economy was almost four times higher than that of CNG buses” (Hanlin, 2018). Recommended EERs are slightly lower than shown in CARB data to account for cold-climate inefficiencies.
Electric school bus	3.5	
Electric truck—MDT/urban	4.0	

Table 3 shows the incremental vehicle cost, which is the incremental cost of the alternative fuel vehicle compared to the base vehicle. For the tool, intermediate year values of 2020 and 2025 also are estimated.

Table 3 Incremental Vehicle Cost versus Base Vehicle

Vehicle Type	Incremental Cost—2017 ¹	Incremental Cost—2022	Incremental Cost—2030	Source/Notes
Electric transit bus	\$315,000	\$241,000	\$172,000	Appears to be general agreement on current range; using CARB numbers.
	\$315,000		\$171,818	Giuliano et al. (2018) citing CARB (2015b).
	\$300,000- \$400,000			New York State Energy Research and Development Authority (NYSERDA).
Electric school bus	\$200,000	\$153,000	\$110,000	NYSERDA and MassDOT correlate on 2017 costs. Factored to 2030 based on Wood et al incremental cost for MDT.
	\$120,000			Casale and Mahoney (2018).
	\$215,000			VEIC (2018) bus cost of \$325k from MA pilot compared to \$110k diesel bus cost cited in Casale and Mahoney (2018).
	\$200,000			NYSERDA.
Electric truck—MDT/urban	\$110,000	\$84,000	\$60,000	Wood et al. (2017).

¹ Where more than one value is cited per vehicle type, the value in bold is used.

Table 4 shows the estimated annual maintenance cost savings compared to an internal combustion engine vehicle.

Table 4 Annual Maintenance Cost Savings versus Base Vehicle

Vehicle Type	Annual Maintenance Cost Savings ¹	Source/Notes
Electric transit bus	\$0–2022 Increasing to \$5,000–2032	Using Wood et al. (2017) for long-term estimate, adjusted to be more conservative. Savings uncertain in short-term. Assuming that operation and maintenance (O&M) costs include midpoint battery replacement. ²
	\$6,947	Wood et al. (2017).
	Varies	Wide range of O&M costs reported. 46% of operators reported lower O&M costs for BEBs, 23% reported higher costs. Hanlin (2018).
Electric school bus	\$0–2022 Increasing to \$2,000–2032	Scaled from transit bus costs based on miles/year.
	\$2,547	Casale, M., and B. Mahoney (2018).
Electric truck—MDT/urban	\$0–2022 Increasing to \$530–2032	
	\$531	Wood et al. (2017).

¹ Where more than one value is cited per vehicle type, the value in bold is used.

² Most battery electric bus (BEB) manufacturers are offering a standard 6-year warranty for the batteries to get operators through the midway point of bus life and offering extended warranties up to 12 years to mitigate further risk (Proterra 2017).

Table 5 shows the assumed cost of a charging or refueling station on a per vehicle basis. On-route charging equipment may be deployed for longer bus routes and is around \$500,000 per charger (Hanlin 2018).

Table 5 Charging or Refueling Station Cost per Vehicle

Vehicle Type	Cost per Vehicle ¹	Source/Notes
Electric transit bus ²	\$143,000–2022 \$120,000–2032	Depot—\$50k for charger, \$20k for installation, \$50k for infrastructure, divided 1 per 2 buses; \$500k for on-route charger, 1 per 6 buses. Infrastructure costs only first 10 years.
	\$40,000	Estimates based on range of experience from Hanlin (2018) and Massachusetts DOT. For large scale applications, there may be additional upstream infrastructure costs (e.g., switchgear, transformers, substation upgrades) that are likely to be application-specific.
	\$67,000	Wood et al. (2017), rough midpoint of range cited (charger only).
		Average—depot equipment + installation. Hanlin (2018).
Electric school bus	\$40,000–2022 \$25,000–2032	Add 100% to MDT charger cost for installation costs and infrastructure upgrades.
	\$20,000	MDT charger (Wood et al. 2017, rough midpoint of a range cited).
	\$25,000	Plus \$125-175k equipment and systems per site in 2015 (lower cost today)—VEIC (2018).
Electric truck—MDT/urban	\$25,000	Wood et al. (2017). Range of \$9k-\$35k depending on rate of tech advancement.

¹ Where more than one value is cited per vehicle type, the value in bold is used.

² For future reference, consider different costs for urban/suburban systems versus rural systems. Rural: \$50k for charger, \$20k for installation, 1 per bus, infrastructure upgrades not needed for small system.

Table 6 shows the average annual miles driven per year per vehicle. Annual mileage of trucks varies depending on the age of the truck, and the average across all model years (computed as total miles driven divided by total vehicle stock in calendar year 2032) is taken from the Argonne National Laboratory VISION model v. 2019.

Table 6 Miles Driven per Year per Vehicle

Vehicle Type	Miles per Vehicle ¹	Source/Notes
Electric transit bus ²	26,000	Lower estimate questionable as a regional fleet average, but perhaps reasonable given limited range of BEBs—likely used for lower-mileage applications, at least at early stages.
	36,000	Assumed 12 hours/day of operation at 10 mi/hr. Validated as consistent with assumptions in EPA MOVES2014 model (EPA 2016).
	26,000	MassDOT/Massachusetts Bay Transportation Authority (MBTA).
	37,000	Hanlin (2018).
Electric school bus	10,000	Low end of national estimates considering limited range of BEBs.
	9,900	U.S. EPA (2016) sourcing 1997 School Bus Fleet Fact Book.
	12,000	National averaged cited in VEIC (2018).
Electric truck—MDT/urban	18,387	VISION model (v. 2019) average across all vehicle ages for Class 3-6 trucks.
	21,000	U.S. EPA (2016) for single-unit short-haul truck, 5 years age (sourcing 2002 Vehicle Inventory and Use Survey).

¹ Where more than one value is cited per vehicle type, the value in boldface/shaded cell is used.

² The miles per vehicle estimate for electric transit buses was made assuming these miles are the same as the miles driven by diesel buses.

Table 7 shows Reference Case fuel costs. A time stream of costs for each year is included in the tool. Costs for 2022 and 2032 are shown as representative of the study period.

Table 7 Fuel Costs (Per GGE)

Fuel Type	Cost—2022	Cost—2032	Source/Notes
Gasoline	\$3.03	\$3.42	AEO 2019 Reference Case.
Diesel	\$3.31	\$3.85	AEO 2019 Reference Case.
Electricity	12.6 c/kwh = \$4.28 /gge	13.4 c/kwh = \$4.55 /gge	AEO 2019 Reference Case.

Table 8 shows the years of fuel and maintenance cost savings that are considered when determining the amount of subsidy needed per vehicle. The full lifespan of the vehicle is considered for public sector vehicles, compared to a much shorter timespan for privately purchased vehicles.

Table 8 Years of Fuel and Maintenance Cost Savings Considered

Vehicle Type	Years of Fuel and O&M Cost Savings Included	Source/Notes
Electric transit bus	12	Average lifespan of bus.
Electric school bus	12	Average lifespan of bus.
Electric truck—MDT/urban	3	Typically, 3-5 years for consumer decisions; NEMS model coefficients infer about 3 to 4 years considered (per OnLocation staff).

Fleet Turnover Models

Fleet turnover models were used to convert sales of new electric trucks and buses in a given year to vehicle stock and VMT in future years. The models use miles driven per year and survival rates by vehicle age taken directly from the Argonne National Laboratory VISION model v. 2019, for Medium Trucks (Class 3-6). For transit buses, a mileage accrual rate of 26,000 miles per year is used as described above, with a survival rate from MOVES2014 for years 1-12, and no survival after year 12. For school buses, a mileage accrual rate of 10,000 miles per year is used with a 100 percent survival rate for 15 years.

1.3 Micromobility: Shared E-bikes and E-scooters

Data from shared mobility systems on average cost per trip, trips per day, trip length, and prior auto mode shares are used for these strategies. Assumptions also are made about offsetting GHG emissions from equipment purchase and servicing, and about the relative amount of physical activity of a user compared to walking or biking. Unless noted, data are from Portland Bureau of Transportation (PBOT) (2020) and/or North American Bikeshare Association (NABSA) (2020).

Key Assumptions

- Investment split 50 percent/50 percent between shared e-bikes and shared e-scooters.
- Average cost per trip of \$3.00. This is assumed to fully cover the capital and operating costs of the system.
- Average of 2.6 e-bike and 3.2 e-scooter trips per vehicle per day, which results in an annual capital and operating cost of \$2,850 for an e-bike and \$3,500 for an e-scooter.
- Average trip length of 1.1 miles (e-scooter) or 1.4 miles (e-bike).
- Prior auto mode share (including drive, taxi, and TNC) of 40 percent based on Buehler et al (2019), Mobility Lab (2019), NABSA (2020), Ramboll (2020), and MacArthur et al (2018).
- Lifecycle GHG offset of 50 percent of gross GHG emissions reductions. This accounts for the relative life-cycle emissions (vehicle, operation, and service) of an e-bike compared to a typical automobile. Values read from Figure 4 of ITF (2020).

1.4 Micromobility: E-bike Ownership

This strategy is evaluated similar to shared e-bikes but based on the cost per bike and with different parameters. This strategy appears more cost-effective due to a longer vehicle lifetime, no service costs, and lower lifecycle GHG emissions.

Key Assumptions

- Cost per new e-bike of \$2,000 (eBikesHQ.com, 2019). Price elasticity is unknown, so it is assumed that \$2,000 investment or subsidy results in one new e-bike.
- Lifetime of e-bike: six years (ITF, 2020).
- Trips per bike per week: 6 (1 round-trip, 3 days a week), with an average trip length of 5 miles, results in 1,560 miles per bike per year (matches assumption from ITF, 2020).
- Prior auto mode share (including drive, taxi, and TNC) of 40 percent based on Buehler et al (2019), Mobility Lab (2019), NABSA (2020), Ramboll (2020), and MacArthur et al (2018).
- Lifecycle GHG offset of eight percent of gross GHG emissions reductions. This accounts for the relative life-cycle emissions (vehicle and operation) of an e-bike compared to a typical automobile. Values read from Figure 4 of ITF (2020).

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2.0 Resource Review for Definitions of EV Equity Communities

2.1 Colorado State Sources

Colorado Department of Transportation: Statewide Transit Plan (2020)

The Statewide Transit Plan adopted in 2020 sets goals to establish efficient and affordable mobility, safety, and management of assets.¹ The Statewide Transit Plan serves as a decision-making guide for the Colorado Department of Transportation’s (CDOT’s) statewide transit investments. CDOT updates the plan every four years.

The Statewide Transit Plan defines underrepresented populations as people age 65+, people with disabilities, people of color, low-income populations, those with limited English proficiency (LEP), and those without access to vehicles. These variables are integrated into a Transit Need map where census tracts are assigned a category of need based on the concentration of underrepresented populations. Census tracts with high transit needs are found throughout the State, in both urban and rural areas, signaling the need for improved transit statewide.

The pl Statewide Transit Plan an also includes a disparate impact analysis conducted at the county level, where the percent of Federal and State transit funding is compared to the concentration of low-income, people of color, and LEP populations. Counties that receive a lower share of funds but have a higher share of underrepresented populations are flagged as having disparate impact. The findings of this analysis will inform the Colorado Department of Transportation’s (CDOT) future funding allocation methodologies.

Colorado General Assembly: House Bill 21-1266 (2021)

The House bill acknowledges that some communities in Colorado have borne a disproportionate burden of adverse human health or environmental effects, while at the same time experiencing a greater level of exclusion from environmental decision-making processes.²

In order to support the State’s efforts to correct historic environmental injustices, the bill provides a definition for disproportionately impacted communities at the census block level, including those where the proportion of low-income households exceeds 40 percent, the proportion of households who are people of color exceeds 40 percent, or the proportion of housing cost-burdened households exceeds 40 percent. A ‘low-income’ community is identified where the median household income of a census block is less than or equal to 200 percent of Federal poverty guidelines. ‘Cost-burdened’ households include any household that spends more than 30 percent of its income on housing.

Further, the definition of disproportionately impacted communities also includes “any other community as identified or approved by a State agency, if: the community has a history of environmental racism

¹ CDOT. 2020. Statewide Transit Plan. <https://www.codot.gov/programs/your-transportation-priorities/assets/statewidetransitplan.pdf>.

² Colorado General Assembly. 2021. House Bill 21-1266: Environmental Justice Disproportionate Impacted Community. https://leg.colorado.gov/sites/default/files/documents/2021A/bills/2021a_1266_ren.pdf.

perpetuated through redlining, anti-Indigenous, anti-immigrant, anti-Hispanic, or anti-Black laws; or the community is one where multiple factors, including socioeconomic stressors, disproportionate environmental burdens, vulnerability to environmental degradation, and lack of public participation, may act cumulatively to affect health and the environment and contribute to persistent disparities.”

Colorado Department of Transportation: Statewide Transportation Plan (2020)

In the Colorado Statewide Transportation Plan, CDOT defines equity as “when everyone, regardless of who they are or where they come from, has the opportunity to thrive. This requires eliminating barriers like poverty and repairing injustices in systems such as education, health, criminal justice and transportation.”³

The Colorado Statewide Transportation Plan’s demographic analysis focuses on historically underserved populations, including impacts on people of color, older adult, low-income individuals, and persons with a disability. People of color are defined according to guidance provided by the United States Department of Transportation (U.S. DOT), and include all individuals who are Black, Hispanic, Asian American, or American Indian or Alaska Native (see U.S. Department of Transportation Final DOT Environmental Justice Order 5610.2(a)). Older Adults are defined by the United States Department of Labor and include all individuals 65 years of age and older. Low-income individuals are also defined using guidance provided by the U.S. DOT and include individuals whose median household incomes fall at or below the Federal poverty guidelines. For each of the four historically underserved groups, the Plan identified which census tracts fell into the top quartile for that demographic indicator (e.g., which census tract contained the highest concentration of older adults). The Plan contains overlaid maps of the 10-Year Strategic Project Pipeline with the top census tracts in order to support analysis of how upcoming projects would affect those communities.

Colorado Department of Public Health and Environment: Climate Equity Data Viewer (2021)

The Colorado Department of Public Health and Environment (CDPHE) Climate Equity Data Viewer Data Viewer uses 17 demographic and environmental measures to identify disproportionately impacted communities.⁴ The indicators are combined to form climate equity cumulative ‘scores’ throughout the State to identify areas that are most disproportionately impacted. Data are taken from the United States Environmental Protection Agency (U.S. EPA) EJSCREEN tool. The Data Viewer categorizes areas as urban, rural, frontier (i.e., sparsely populated areas with six or fewer people per square mile), or oil and gas communities (i.e., communities that depend on fossil fuels economically that can overlap urban, rural, or frontier communities).

The Climate Equity Score considers the environmental burdens and overlays population characteristics to assign a score to every census block group in the State. The components of the climate equity score are included in Table 9.

³ CDOT. 2020. Statewide Transportation Plan. <https://www.codot.gov/programs/your-transportation-priorities/assets/statewidetransportationplan.pdf>.

⁴ CDPHE. 2022. Climate Equity Framework. <https://www.ArcGIS.com/apps/webappviewer/index.html?id=25d884fc249e4208a9c37a34a0d75235>.

Table 9 Colorado Department of Public Health and Environment Climate Equity Data Indicators

Indicator group	Measure(s)
Environmental burden	<ul style="list-style-type: none"> • Particulate matter • Ozone • Lead paint indicator: pre-1960 housing • Traffic proximity and volume • Diesel PM
Environmental effects	<ul style="list-style-type: none"> • Proximity to National Priorities List (NPL) sites • Proximity to Risk Management Plan (RMP) sites • Wastewater Discharge Indicator • Proximity to Hazardous Waste Facilities
Future climate hazard costs	<ul style="list-style-type: none"> • Flood • Drought • Wildfires
Population characteristics	<ul style="list-style-type: none"> • Sensitive populations: • Asthma hospitalization rate • Heart disease in adults • Low weight birth rate • Population under 5 • Population over 64 • Socioeconomic factors: • People of color (any race/ethnicity other than non-Hispanic white alone) • Low income (defined as 200% of Federal poverty guidelines) • Less than high school education • Linguistic isolation (households in which all members 14 years of age and older speak a non-English language and speak English less than ‘very well’)

Denver Climate Action Task Force: Denver Climate Action 2020 Recommendations Report (2020)

The Denver Climate Action 2020 Recommendation Report, led by Denver’s Climate Action Task Force, defines equity as “addressing broken systems connected to racial injustice and historic inequity.” The report seeks to identify policies, programs, and investments that reduce greenhouse gas (GHG) emissions while addressing historic inequalities in decision-making and the distribution of benefits and burdens.⁵ The report also observes that people of color, Native Americans, under-resourced communities, low-income households, children, older adults, individuals with disabilities, outdoor workers, the unhoused, and other frontline communities will be hardest hit by climate change.

The Climate Action Task Force developed a set of recommendations to the Mayor, City Council, and City Government to advance equitable climate action following extensive community engagement and public

⁵ Denver Climate Action Task Force. 2020. Denver Climate Action 2020 Recommendations Report. <https://www.denvergov.org/content/dam/denvergov/Portals/779/documents/climate/climate-action-task-force/ClimateActionRecommendationsReport.pdf>.

input. Four proposals were identified as top priority (given availability), three of which support transportation electrification, including:

- Deploy a citywide retrofit of existing homes and buildings (including use of and expansion of the Denver Green Buildings Ordinance).⁶
- Invest in an affordable, expanded, and carbon-free bus system.
- Invest in electric vehicle infrastructure, such as charging stations.

Denver Human Services: Denver Human Services Index (2021)

The Denver Human Service Index is intended to aid Denver Human Services (DHS) decision-makers and community partners to inform policies, services, and investments in Denver neighborhoods. Sixteen indicators at the neighborhood level inform the index, listed in Table 10.

Table 10 Denver Human Service Indicators

Indicator Group	Measure(s)
Health Indicators	<ul style="list-style-type: none"> • Number of SNAP (food assistance) eligible people that are not enrolled • Food deserts • Teen births • Uninsured
Education Indicators	<ul style="list-style-type: none"> • Children not participating in preschool • Children not reading at grade level by 3rd grade • Adults with less than a high school diploma
Community Indicators	<ul style="list-style-type: none"> • Households without Internet access • People in poverty • Unemployment • Violent crime rate • People over age 65 • People under age 18 • Foreign-born population • People who speak a language other than English at home • Cost-burdened housing

Indicators are mapped individually and as an index. The DHS aims to use the index to collaborate with community partners, track investments, and align work across the City.

⁶ While installing electric vehicle service equipment in buildings is not a specific recommendation of Denver’s Climate Action Task Force, compliance with the Denver Green Building Ordinance can be accomplished by providing electric vehicle charging infrastructure within buildings.

City and County of Denver: Denver Neighborhood Equity Index (2021)

The Denver Neighborhood Equity Index maps Denver’s underserved neighborhoods and identifies areas where investments and resources are most needed.⁷ The index includes five sub-indexes included in Table 11.⁸

Table 11 Denver Neighborhood Equity Index indicators

Indicator group	Measure(s)
<ul style="list-style-type: none"> Socioeconomic 	<ul style="list-style-type: none"> Families in poverty Educational attainment
<ul style="list-style-type: none"> Built Environment 	<ul style="list-style-type: none"> Access to full-service grocery stores Access to parks or open spaces
<ul style="list-style-type: none"> Access to Care 	<ul style="list-style-type: none"> 1st trimester care during pregnancy
<ul style="list-style-type: none"> Morbidity 	<ul style="list-style-type: none"> Children and youth obesity
<ul style="list-style-type: none"> Mortality 	<ul style="list-style-type: none"> Life expectancy

Each neighborhood is assigned a rank (1-5) for each indicator group and a cumulative score by averaging the indicator group scores. Ranks are established based on the indicator group’s standard deviation above the regional mean. Components of the Index are used in Denver’s Comprehensive Plan 2040 both as a metric to evaluate progress over time and identify areas for prioritization.

Colorado General Assembly: Senate Bill 21-260 (2021)

The Senate Bill prioritizes equitable distribution of transportation infrastructure addresses inequities in transportation access and the increased exposure to transportation-related air pollution for communities, including disproportionately impacted communities, communities near major roadways, and communities where many of the residents are Black or Hispanic. The Bill further directs transportation investments to reduce and mitigate adverse environmental and human impacts resulting from motor vehicle and other transportation -related emissions by incentivizing the widespread adoption of clean transportation options (including personal electric vehicles, electric fleet and transit, and EV charging stations).⁹

The Bill defines disproportionately impacted communities as a community that is in a census block group where the proportion of households that are low income is greater than forty percent, the proportion of households that are people of color is greater than forty percent, or the proportion of households that are housing cost-burdened is greater than forty percent.

⁷ City of Denver. 2019. Denver Neighborhood Index, Denver Comprehensive Plan 2040. <https://www.ArcGIS.com/apps/MapJournal/index.html?appid=2f30c73e83204e96824a14680a62a18e>.
⁸ City of Denver. 2019. Data & Measures for Neighborhood Equity Index, Denver Comprehensive Plan 2040. <http://geospatialdenver.maps.ArcGIS.com/sharing/rest/content/items/2085620f191f4ccb869806e71f3afa6c/data>.
⁹ Colorado General Assembly. 2021. SB 21-260: Sustainability of The Transportation System. <https://leg.colorado.gov/bills/sb21-260>.

2.2 Federal Sources

U.S. Department of Transportation: Final DOT Environmental Justice Order 5610.2(a) (2012)

Pursuant to Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994), each Federal agency was tasked with identifying and addressing disproportionately high and adverse human health or environmental effects on low-income populations and people of color. Order 5610.2(a) is a 2012 update to the U.S. DOT's original EJ order from 1997. This order is U.S. DOT's implementation of the EO 12898 and sets a consistent approach for how the U.S. DOT will incorporate EJ principles into programs, policies, and activities.¹⁰

The Order provides environmental justice definitions at both the individual and population level. It also provides guidance on identifying adverse effects and disproportionately high and adverse effects on people of color ('minority' in the guidance) and low-income populations.

For individuals, the relevant definitions include:

- Low-income: a person whose median household income is at or below the Department of Health and Human Services (DHHS) poverty guidelines.
- Minority: a person who is Black, Hispanic or Latino, Asian American, American Indian or Alaskan Native, Native Hawaiian and Other Pacific Islander.

For communities, the relevant definitions include:

- Low-income population: A group of readily-identifiable low-income persons living in geographic proximity, and (if circumstances warrant) a geographically dispersed/transient population (such as migrant workers) who would be similarly affected by a proposed U.S. DOT program, policy, or activity. Note that, in the latter case, the population does not have to be in close proximity.
- Minority population: A group of readily-identifiable minority persons who live in geographic proximity, and (if circumstances warrant) geographically dispersed/transient persons (such as Native Americans) who would be similarly affected by a proposed U.S. DOT program, policy or activity.

Identifying impacts to environmental justice communities includes identifying the presence of disproportionately high and adverse effects to those communities. The relevant definitions include:

- Adverse effects: This includes a broad list of both health and environmental effects. A partial list of impacts particularly important to consider in transportation electrification includes impacts of air, noise and water pollution; disruption of a community's economic vitality; and the denial of, reduction in, or significant delay in the receipt of benefits of DOT programs, policies, or activities.
- Disproportionately high and adverse effects on minority and low-income populations include effects that are (1) predominantly borne by a minority population and/or a low-income population, or (2) will

¹⁰ FHWA. 2017. Department of Transportation Order 5610.2(a) Final DOT Environmental Justice Order. https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/.

be suffered by the minority population and/or low-income population. These impacts must also be appreciably more severe or greater in magnitude than adverse effects born by non-minority and non-low-income populations.

Federal Highway Administration: Environmental Justice Analysis in Transportation Planning and Programming: State of the Practice (2019)

Environmental Justice Analysis in Transportation Planning and Programming: State of the Practice was prepared for the Federal Highway Administration (FHWA) to capture the state of the practice among State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) with respect to incorporating environmental justice concerns into transportation planning and programming.¹¹ The report summarizes research conducted on environmental justice (EJ) documents and techniques in use by all 52 State Departments of Transportation and a sample of Metropolitan Planning Organizations, with a focus on providing opportunities for meaningful public involvement, identify EJ populations, understanding EJ needs and concerns, assessing benefits and burdens of proposed plans, assessing whether transportation plans may result in disproportionately high and adverse effects on EJ populations, and deploying strategies to address such effects.

The report highlights the U.S. DOT and FHWA definitions for minority and low-income (as defined by Order 5610.2(a)—see above), as well current practices with respect to identifying EJ populations, focusing especially on challenges and innovations.

Challenges associated with the current approach to determining the presence of EJ communities focuses on the use of data. While the use of a threshold approach is common, it may lead to seeming arbitrary results that obscure important differences between certain communities. For this reason, current FHWA guidance is to instead focus on concentration levels instead of thresholds. The use of standard deviation was also highlighted in the report as another technique for successfully addressing challenges associated with the use of thresholds. The report also highlighted that ‘desktop’ mapping exercises can be improved by validating and enriching information with qualitative input from EJ stakeholders.

The report also summarizes several successful customized approaches to address regional concerns and unique characteristics of EJ populations. This includes 1) modifying or broadening the definition of ‘low-income’ to be more reflective of regional characteristics (instead of using the DHHS poverty guidelines), 2) including additional population groups in the analysis (beyond the required low-income and minority populations), and 3) developing an index approach that identifies areas with high concentrations of underserved populations.

A small sample of some of the additional measures included in transportation agencies’ definition of EJ communities include limited English proficiency, zero-vehicle households, seniors aged 75 and over, population with a disability, single-parent families, rent-burdened households, exposure to mobile source emissions, economically distressed areas, presence of Amish populations, foreign-born persons, and others.

¹¹ ICF. 2019. Environmental Justice Analysis in Transportation Planning and Programming: State of the Practice (FHWA). https://www.fhwa.dot.gov/environment/environmental_justice/publications/tpp/fhwahep19022.pdf.

U.S. Environmental Protection Agency: National Measures Technical Appendix for the EJ 2020 Action Agenda (2016)

The U.S. Environmental Protection Agency's National Measures Technical Appendix includes technical information about the national outcome measures that support the U.S. Environmental Protection Agency (U.S. EPA) Environmental Justice Action Agenda (referred to as EJ 2020), the U.S. EPA's strategic plan for advancing environmental justice from 2016 to 2020.¹² The National Measures Technical Appendix focuses on national outcome measures that support the four Significant National Environmental Justice Challenges discussed in EJ 2020. This document is included here to highlight the U.S. EPA's approach to assessing air quality (other Significant National Environmental Justice Challenges include addressing lead disparities, drinking water, and hazardous waste sites).¹³

For this measure, the U.S. EPA defines low-income as two times the poverty level in order to ensure adequate coverage of the at-risk populations. This higher threshold is also set in consideration of the higher prevalence of pre-existing disease, limited access to medical treatment, and increased level of nutritional deficiency in low-income populations. The poverty level is designated by the Census Bureau's annual poverty measure.

The U.S. EPA will measure the percentage of low-income populations living in areas with higher ambient concentrations of fine particles, defined as particulate matter with a diameter equal to or less than 2.5 microns, or PM_{2.5}. The performance measure is calculated by determining the concentration of PM_{2.5} in counties with PM_{2.5} monitoring data showing attainment of both the 24-hour and annual primary National Air Quality Standards, divided by the population of all low-income populations living in all counties with PM_{2.5} monitoring data.

U.S. Department of Energy: Environmental Justice Strategy (2017)

The U.S. Department of Energy (U.S. DOE) Environmental Justice Strategy outlines the U.S. DOE's strategy to integrate the requirements of Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, along with the Memorandum of Understanding on Environmental Justice signed by 16 other executive branch agencies in 2011.¹⁴

Environmental justice populations discussed in the strategy are not defined, but broadly include people of color, low-income, and Tribal populations. The Department's Four Environmental Justice Strategic Goals include:

1. Fully Implement Executive Order 12898 on Environmental Justice
2. Integrate Environmental Justice into the National Environmental Policy Act Process

¹² U.S. EPA. 2016. EJ 2020. <https://www.epa.gov/environmentaljustice/about-ej-2020#about>.

¹³ USEPA. 2016. National Measures Technical Appendix. https://www.epa.gov/sites/production/files/2016-05/documents/052216_ej2020_national_measures_technical_appendix_final.pdf.

¹⁴ U.S. DOE. 2017. Environmental Justice Strategy. https://www.energy.gov/sites/default/files/2017/01/f34/201708_EJStrategy.pdf.

3. Minimize Climate Change Impacts on Vulnerable Populations
4. Comply with Title VI of the Civil Rights Act of 1964

For some details, the Strategy refers back to the U.S. DOE’s Environmental Justice Five-Year Implementation Plan prepared in 2008.

National Academy of Sciences: TCRP Research Report 214—Equity Analysis in Regional Transportation Planning Processes, Volume 1—Guide (2020)

TCRP Research Report 214 provides a five-step equity-analysis framework for use in regional transportation plans and programs.¹⁵ The steps include 1) identifying the population for analysis, 2) identifying needs and concerns, 3) measuring impacts of proposed agency activity, 4) determining whether impacts are disparate or have disproportionately high and adverse effects, and 5) developing strategies to avoid or mitigate inequities.

The guide uses several terms to describe populations evaluated in equity analyses, including:

- **Required populations/population groups:** These include minority and non-minority racial/ethnic populations, low-income and non-low-income populations, and limited English proficiency (LEP) and non-LEP populations.
- **Underserved persons:** any person or population group that an MPO might want to consider for inclusion in an equity analysis. This term includes persons of the required population groups as well as members of other groups that may face disproportionate transportation-related burdens or inequities, such as older adults or persons with disabilities.
- **Underserved communities:** geographic areas or neighborhoods in which underserved persons live and includes areas that agencies have designated as high-priority areas for any given population of underserved persons.
- **Transportation disadvantaged:** persons who, because of physical or mental disability, income status, or age, are unable to transport themselves or to purchase transportation and who are, therefore, dependent on others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities.

Additionally, the guide highlights that other persons or communities might be included in certain planning organizations’ equity analyses. The report highlights a number of examples of broader designations, including persons with disabilities, older adults, and zero-vehicle households.

¹⁵ ICF. 2020. Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide. <https://www.nap.edu/download/25860>.

Executive Office of the President: Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (2021)

Executive Order 13985, issued by President Biden on January 20, 2021, directs the Federal Government to pursue a comprehensive approach to advancing equity for all.¹⁶ The order includes two equity-focused definitions:

- **Equity:** the consistent and systematic fair, just, and impartial treatment of all individuals, including those individuals who have belonged to underserved communities. Includes Black, Latino, Indigenous or Native American persons, Asian Americans and Pacific Islanders, and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.
- **Underserved communities:** populations that share a particular characteristic, as well as geographic communities, that have been systematically denied opportunities to participate in aspects of economic, social, and civic life.

The order directs the Director of the Office of Management and Budget (OMB) to study methods for assessing whether agency policies or actions create or exacerbate barriers to full and equal participation by all eligible individuals. The study should identify best practices (consistent with applicable law) in use to assist agencies in assessing equity. The order also requires engagement with members of underserved communities and establishes an Equitable Data Working Group.

Additionally, the order directs the head of each agency to conduct a review of programs and policies to assess whether underserved communities and their members face systemic barriers in accessing benefits and opportunities available under policies and programs. The order also requires agencies to develop strategies for allocating Federal resources and promoting equitable delivery.

The Federal Interagency Working Group on Environmental Justice: Promising Practices for EJ Methodologies in NEPA Reviews (2016)

Promising Practices for EJ Methodologies in NEPA Reviews was developed by The Federal Interagency Working Group on Environmental Justice (EJ IWG) National Environmental Policy Act (NEPA) committee. The Memorandum of Understanding on Environmental Justice and Executive Order 12898 (2011) established NEPA as an area of focus in agencies' environmental justice efforts, which led to the creation of a NEPA committee, representing different Federal departments, commissions, and councils. The report details how Federal agencies can identify minority and low-income populations while conducting an environmental review required under NEPA.¹⁷ The report provides guidance on meaningful engagement, the scoping process, defining the affected environment, developing and selecting alternatives, identifying

¹⁶ Executive Office of the President. 2021. EO13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. <https://www.federalregister.gov/documents/2021/01/25/2021-01753/advancing-racial-equity-and-support-for-underserved-communities-through-the-Federal-Government>.

¹⁷ Federal Interagency Working Group on Environmental Justice & NEPA Committee. 2016. Promising Practices for EJ Methodologies in NEPA Reviews. https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

minority and low-income populations, conducting impacts analysis, determining the presence of disproportionately high and adverse impacts, and mitigation and monitoring.

In identifying minority populations, the EJ IWG provides guidance on conducting a No-Threshold analysis, Fifty Percent analysis, and Meaningfully Greater analysis:

- The No-Threshold analysis involves identifying the appropriate unit of analysis (e.g., census block), determining the proportion of minority individuals (i.e., all individuals other than those who identify as non-Hispanic white alone) within that area of analysis, and identify whether that area should be identified for the existence of a minority population.
- The Fifty Percent analysis also involves identifying the appropriate unit of analysis and determining the proportion of minority individuals within that area of analysis. If the proportion of minority individuals exceeds 50 percent, the census tract should be noted to indicate the existence of a minority population.

The Meaningfully Greater analysis also involves identifying the appropriate unit of analysis and determining the proportion of minority individuals within that area of analysis. However, this analysis requires that a reference community be established as a basis of comparison. The analysis also requires the use of a reasonable, subjective threshold to use in that comparison. For example, in certain contexts, a minority community may be identified if the proportion of minority individuals in a census tract exceeds the proportion of minority individuals in the reference community. In other contexts, it may be appropriate to determine the presence of a minority community when the proportion of minority individuals is twenty percentage points greater than is true for the reference community.

Identifying low-income populations can be done either using the Alternative Criteria analysis or the Low-Income Threshold Criteria analysis:

- The Alternative Criteria analysis involves identifying the appropriate poverty threshold (as defined by the Census Bureau, the Department of Health and Human Services, or other), identifying the appropriate unit of analysis (e.g., census block), selecting an appropriate threshold for determining whether a particular unit of analysis is identified as a low-income population (e.g., any individual whose income falls below 200 percent of the DHHS poverty guidelines), determine the proportion of low-income individuals or households within that area of analysis, and identify the existence of a low-income area (e.g., a census tract where more than 30 percent of individuals have incomes that fall below 200 percent of DHHS poverty guidelines).
- The Low-Income Threshold Criteria Analysis involves identifying the appropriate poverty threshold (as defined by the Census Bureau, the Department of Health and Human Services, or other), identifying the appropriate unit of analysis (e.g., census block), selecting an appropriate threshold for determining whether a particular unit of analysis is identified as a low-income population (e.g., any individual whose income falls below 200 percent of the DHHS poverty guidelines), and determining the proportion of low-income individuals or households within that area of analysis. However, to identify the presence of a low-income population, it is also necessary to identify a reference community (e.g., a county, the State) and determine the proportion of low-income individuals or households within that reference community. To identify the presence of a low-income population in the area of analysis, the percentage of low-income individuals/households within the area of analysis must equal or exceed the percentage of low-income individuals/households within the reference community.

The document also provides some guidance for determining whether any minority or low-income or geographically dispersed populations reside seasonally within the affected area. Data sources can include the U.S. Department of Agriculture Census of Agriculture (specifically Table 7: Hired Farm Labor Less than 150 Days and Migrant Farm Labor on Farms with Hired Labor) and community members and other interested individuals or organizations.

2.3 Other States/MPOs/Counties

California Office of Environmental Health Hazard Assessment: CalEnviroScreen (2021)

The Office of Environmental Health Hazard Assessment (OEHHA) maintains the CalEnviroScreen tool and screening methodology to help identify California communities that are disproportionately burdened by multiple sources of pollution.¹⁸ CalEnviroScreen 4.0, released in 2021, ranks communities in California based on their exposure to pollution, adverse environmental conditions and identifies vulnerable populations that are exposed to these pollutants. Higher scores indicate areas that have higher pollution burden than areas with lower scores. The indicators used in the screening tool were chosen to fulfil the SB 535 requirement that disadvantaged communities “shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria.” The indicators are categorized into four groups summarized in Table 12.

¹⁸ California Office of Environmental Health Hazard Assessment. 2021. Draft CalEnviroScreen 4.0. <https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>.

Table 12 CalEnviroScreen 4.0 Indicators

Indicator Group	Measure(s)
Exposure	<ul style="list-style-type: none"> • Air Quality (PM 2.5 & Ozone) • Diesel Particulate Matter • Children’s Lead Risk from Housing • Drinking Water Contaminants • Pesticide Use • Toxic Releases from Facilities • Traffic Density
Environmental Effects	<ul style="list-style-type: none"> • Cleanup Sites • Groundwater Threats • Hazardous Waste Generators and Facilities • Impaired Water Bodies • Solid Waste Sites and Facilities
Sensitive Population	<ul style="list-style-type: none"> • Asthma • Cardiovascular diseases • Low birth weight infants
Socioeconomic factors	<ul style="list-style-type: none"> • Educational Attainment • Housing Burden • Linguistic isolation • Poverty • Unemployment

Omaha-Council Bluffs Metropolitan Area Planning Agency: Transportation Improvement Program (2020)

The Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA) conducts an equity analysis to ensure an equitable distribution of funding relative to the needs of the region and that burdens are not disproportionately distributed.¹⁹ For the analysis, percent of low-income and minority populations in all census tracts are calculated. Census tracts that have a value higher than one standard deviation of the average percent for the MPO planning area are designated as areas of concentrated low-income or minority populations, or environmental justice (EJ) areas. Funding for projects in the Transportation Improvement Program (TIP) were evaluated based on a project’s proximity and overlap with these EJ areas, by allocating a percent of total project funding based on the overlap. The equity evaluation concluded that EJ populations were not adversely impacted by federally funded projects in the MPO area, and that 56 percent of total funds were directed towards these areas.

¹⁹ Omaha-Council Bluffs Metropolitan Area Planning Agency. 2020. Transportation Improvement Program. <https://mapacog.org/wp-content/uploads/2020/05/MAPA-Draft-FY2021-TIP-V2-5-28-2020.pdf>.

Portland Department of Transportation: Equity Matrix (2021)

The Portland Bureau of Transportation (PBOT) has developed an Equity Matrix to achieve “Citywide Racial Equity Goals and Strategies” to guide projects, policies, and investments decisions.²⁰ The City’s Office of Equity and Human Rights identified three data indicators as most descriptive in creating an equity index for the City: race, income, and limited English proficiency. The concentration of these indicators in every census block group is calculated and compared against the citywide average. Census block groups with higher concentrations of these identified groups receive higher points and areas of lower concentration score lower.

PBOT acknowledges the need to review every program individually and evaluate additional relevant data on top of the equity matrix, if needed. Some additional data indicators identified include other demographics data, safety data, access to active modes of transportation, environmental impact, health impacts, community support, community benefits agreement and cost effectiveness.

North Central Texas Council of Governments: Environmental Justice Index (2021)

The North Central Texas Council of Governments (NCTCOG) has developed an EJ index to evaluate planning products in a range of planning programs, including the Metropolitan Transportation Plan, Transportation Improvement Programs, the Congestion Management Process, the Unified Planning Work Program (UPWP), public participation, and a regional tolling analysis.^{21,22}

To identify environmental justice (EJ) populations, the index is developed by calculating the proportion of low-income and minority individuals, at a block group level, and comparing that proportion to the regional averages. Minority communities include all individuals who do *not* identify as non-Latino white alone according to the U.S. Census. Low-income individuals include all individuals whose incomes fall below 125 percent of poverty guidelines established by the U.S. Census (similar to poverty guidelines established by the Department of Health and Human Services).²³

Supplemental data is provided within NCTCOG’s mapping tool as additional layers, including:

- Population density (number of people per square mile per block group)
- Dot density (including only EJ populations; shows areas with high concentrations of EJ community members)
- Individual racial/ethnic groups (i.e., Black, American Indian/Alaska Native, Asian, Hispanic/Latino, etc.)
- Age 65 and over

²⁰ Portland Bureau of Transportation. 2018. Portland Bureau of Transportation Equity Matrix. <https://www.portlandoregon.gov/transportation/74236>.

²¹ North Central Texas Council of Governments. 2016. Environmental Justice Index. <https://resources.nctcog.org/trans/sustdev/landuse/step/documents/EJIMap.pdf>.

²² North Central Texas Council of Governments. 2019. Environmental Justice Index. <https://nctcog.org/trans/involve/ej>.

²³ North Central Texas Council of Governments. 2019. Environmental Justice Index User Guide. https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Involve/Justice/2019-ACS-EJI-User-Guide_v2.pdf.

- People with disabilities (at the census tract level only)
- Zero-car households
- Female head of households
- Limited English proficiency by primary language spoken at home (e.g., Spanish, Asian Language, Other)

2.4 Non-Profit Organizations

Greenlining Institute: Mobility Equity Framework (2018)

The Greenlining Institute’s *Mobility Equity Framework* proposes a framework to support the equitable deployment of investments and policy interventions that would prioritize mobility needs of low-income individuals of color.²⁴ The document describes a three-step framework that includes 1) identifying the mobility needs of a specific low-income community of color, 2) conducting a mobility equity analysis to prioritize transportation modes to address needs (while maximizing benefit and minimizing burden), and 3) placing decision-making power in the hands of the local community.

The authors note that traditional equity analysis is often ineffective because of a failure to account for future displacement and current inequalities (e.g., segregation, lack of opportunity) and the fact that forecasting models (used in transportation plans) quickly become outdated relative to the plans that rely on model data.

To support step two of the framework described above, the Greenlining Institute has developed 12 mobility equity indicators that can be used to weigh the benefits and burdens of transportation modes, plans, and projects on low-income communities of color (Table 13).

²⁴ Greenlining Institute. 2018. Mobility Equity Framework. https://greenlining.org/wp-content/uploads/2019/01/MobilityEquityFramework_8.5x11_v_GLI_Print_Endnotes-march-2018.pdf.

Table 13 Greenlining Institute Indicators

Goal	Measure(s)
Increase Access to Mobility	<ul style="list-style-type: none"> • Affordability • Accessibility • Efficiency • Reliability • Safety
Reduce Air Pollution	<ul style="list-style-type: none"> • Clean air and positive health benefits • Reduction in greenhouse gases • Reduction in vehicle miles traveled
Enhance Economic Opportunity	<ul style="list-style-type: none"> • Connectivity to places of employment, education, services, and recreation • Fair labor practices • Transportation-related employment opportunities • Inclusive local business and economic activity

The report highlights the importance of considering the relative importance of individual modes of transportation in different contexts. For example, in rural areas, taxis may be a lower priority mode of transportation. In a suburban area, ride-hailing (e.g., Uber, Lyft) may be higher priority, where in an urban area rideshare (e.g., car/vanpool, microtransit) may be higher priority.

Greenlining Institute: Clean Mobility Equity: A Playbook (2021)

The Greenlining Institute’s *Clean Mobility Equity: A Playbook* provides a guide to continue evolving clean mobility programs to more meaningfully center equity.²⁵ The document focuses on clean transportation equity programs (e.g., electric vanpool, electric bikeshare, e-scooter sharing, and others). The Greenlining Institute conducted an equity evaluation for a variety of clean mobility programs that consists of two major components: Six Standards for Equitable Investment and the Making Equity Real Framework.

The Six Standards of Equitable Investment are intended to address failures of equity in current models of investment. These include:

1. Emphasize Anti-Racist Solutions

- Examples: Set investment targets and defining criteria to identify the highest-need communities, identify bias within internal policies and leadership structures.

2. Prioritize Multi-Sector Approaches

- Examples: Seek partnerships with community health care clinics, combine program outreach with services like obtaining a bank account.

²⁵ Greenlining Institute. 2021. *Clean Mobility Equity: A Playbook*. <https://greenlining.org/publications/reports/2021/clean-mobility-transportation-equity-report/>.

3. Deliver Intentional Benefits

- Examples: Have internal and external conversations with groups of stakeholders to define equity and identify priority populations, offer flexible benefits that can be used either toward the purchase of electric vehicle or electric carsharing.

4. Build Community Capacity

- Examples: Fund technical assistance for under-resourced communities, create networks for applicants and awardees to provide assistance and lessons learned to each other.

5. Be Community-Driven at Every Stage

- Examples: Involve stakeholders in the design and development of the program, build off existing mobility programs.

6. Establish Paths toward Wealth-Building

- Examples: Contract with women and minority-owned businesses, track how mobility programs benefit low-income household wealth.

The report also presents Greenlining’s Making Equity Real Framework to analyze how standards are upheld throughout a program. This framework includes identifying how equity is incorporated into a program’s:

7. Mission, Vision, and Values

8. Process

9. Outcomes

10. Measurement and Analysis

The report emphasizes the role of both quantitative and qualitative data. Qualitative data may provide insight into nuances of equity impacts that would not be identified through traditional sources. Measurement may also focus less on factors like ridership, and more on qualitative measures such as building community trust.

Twelve case studies are included that best illustrate how equity is incorporated throughout specific programs and policies developed to support clean mobility equity.

Urban Institute: Access to Opportunity through Equitable Transportation (2020)

The Urban Institute’s *Access to Opportunity through Equitable Transportation* report examines transportation equity through four case studies representing a range of challenges to providing equitable transportation.²⁶

²⁶ Urban Institute. 2020. Access to Opportunity through Equitable Transportation. https://www.urban.org/sites/default/files/publication/102992/access-to-opportunity-through-equitable-transportation_0.pdf.

The report highlights common challenges shared by all regions, including the lack of a shared definition of transportation equity among local leaders, fragmented systems and decision-making, lack of coordination with land use and other agencies, and insufficient funding.

To identify inequities by neighborhood within each case study, the report includes two metrics:

- **Spatial mismatch:** A measure of the number of jobs accessible to low-wage workers by mode of transportation.
- **Access to Job via Public Transit for Day and Night Shift Workers:** A measure of the number of jobs accessible via public transit for both day and night shift workers.

The Urban Institute recommends three opportunities to further transportation equity, including incorporating community engagement during the transportation decision-making process, developing partnerships in the community to fill transportation gaps (targeting employers, education institutions, and new mobility services), and developing better data to track transportation equity to enable equity to be prioritized while making transportation decisions.

PolicyLink: Equity Manifesto (2018)

PolicyLink’s Equity Manifesto, a collaborative product of PolicyLink and several partner organizations, provides a visioning framework to guide equitable participation and decision-making at the community level.²⁷ The manifesto defines equity as “just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. Unlocking the promise of the Nation by unleashing the promise in us all.” While the manifesto does not provide a method to measure equity, it serves as a reference for thoughtful consideration in identification of data indicators.

Transform: A Framework for Equity in New Mobility (2017)

Transform’s *A Framework for Equity in New Mobility* report examines the barriers of adopting new mobility options for vulnerable populations and suggests a framework to evaluate the impacts of new mobility programs using a social equity lens.²⁸ Recommendations on minimizing harm to these vulnerable populations, identified in this report as groups most impacted by the car-dominant culture in the United States, are also provided. Vulnerable populations are defined as low-income communities of color, people with disabilities, seniors, and youth. In addition to enduring poor access to opportunities, the report recognizes that these groups live in communities that have less than desirable mobility options, higher levels of air pollution, and are also left out of the decision-making process. The consequences of not being part of discussions around mobility have resulted in numerous community-wide health impacts—high car-related injuries and fatalities, higher rates of asthma, heart disease, and other pollution-related illnesses.

²⁷ PolicyLink. 2018. The Equity Manifesto. https://www.policylink.org/sites/default/files/pl_sum15_manifesto_FINAL_2018.pdf.

²⁸ Transform. 2017. A Framework for Equity in New Mobility. <https://www.transformca.org/transform-report/framework-equity-new-mobility>.

LINK Houston: Equity in Transit (2020)

LINK Houston, a non-profit organization, examines transit services in Houston to evaluate the level of equitable distribution of transit options in *Equity in Transit*.²⁹ The analysis identified areas in Houston that warrant strategic, equitable transit investment.

The analysis is conducted using a metric developed by LINK Houston called the Transportation Equity Demand Index (TEDI). TEDI combines 15 indicators to identify areas in Houston where safe, affordable transportation is most needed. These indicators are summarized in Table 14.

Table 14 LINK Houston Indicators

Indicator group(s)	Measures
Fundamental Demographic Need	<ul style="list-style-type: none"> • Households in Poverty (Low income) • Single Parent Female-Headed Households with Children Under Age 18 • Population with a Disability • Homes of Workers with Jobs Paying Less than \$15,000 Annually • Work Sites of Workers with Jobs Paying Less than \$15,000 Annually
Likely Higher Transit Use (i.e., propensity, latent demand, or induced demand)	<ul style="list-style-type: none"> • People of Color Population • Zero Vehicle Available Households • Workers Commuting by Transit • Homes of Workers with High School Education or Less • Work Sites of Workers with High School Education or Less
Human and Built Environment Suitability	<ul style="list-style-type: none"> • Population Density • Household Density • Street Intersection Density (walkability) • Average Block Perimeter—Feet (walkability) • Compact Neighborhood Score (1- 10 rating)

In some cases, measures are not included due to lack of data, such as regional sidewalk presence and condition. Data sources used include a mix of indicators developed by the U.S. Census Bureau’s American Community Survey Program and the Center for Neighborhood Technology.

²⁹ LINKHouston. 2020. Equity in Transit:2020. <https://linkhouston.org/reports-briefings/equity-in-transit-2020/>.

3.0 E-Blast Copy for EV Equity Survey

3.1 E-Blast

The future is electric! By 2040, forecasts project virtually every new car sold globally could be electric. Are you ready?

The Colorado Energy Office is thrilled to play a part in helping every Coloradan prepare for the exciting changes that will sweep the automobile industry and the transportation sector, including ridesharing and public transportation.

Our first step is to understand what Colorado citizens and organizations know about EVs, EV charging stations, and the availability and benefits of incentive programs. We kindly ask that you share the survey link below with your professional and personal contacts so we can better understand and identify any challenges that stop people from purchasing electric vehicles or using electric transportation. Anyone who completes the survey will be entered into a drawing to win a \$100 gift card to the supermarket of their choice!

[Survey link]

3.2 Social Post

The future is electric! By 2040, forecasts project that virtually every new car sold globally could be electric. Are you ready?

We're thrilled to play a part in helping every Coloradan prepare for the exciting changes that will sweep the automobile industry and the transportation sector, including ridesharing and public transportation.

Our first step is to understand what Colorado citizens and organizations know about EVs, EV charging stations, and the availability and benefits of incentive programs. Click the link below to complete a survey to help us understand and identify any challenges that stop people from purchasing electric vehicles or using electric transportation. By completing the survey, you will be entered into a drawing to win a \$100 gift card to the supermarket of your choice!

[Survey link]

[Image: CEO Logo with electric vehicle]



[Text: Take the Survey and Enter to Win a \$100 Gift Card]

4.0 English Language Survey

4.1 Survey Introduction

The following survey* will ask your opinion about electric vehicles in general and, if relevant, your experience with certain policies or programs designed to increase access to electric vehicles. This survey focuses on both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Specifically, we are looking for information on program features that ensure equitable access to the benefits of vehicle electrification.

The survey also will ask for your opinion about electric vehicles and electric vehicle charging stations. If you have received a tax credit or incentive in the past, we will ask you a few questions about your experience. By completing this survey, you will help us identify important program features that ensure that all Coloradans enjoy equal access to both electric vehicles and the benefits of electric vehicles (including air quality and reduced greenhouse gas emissions).

*This survey is constructed to only lead you to questions that apply to you. Some questions are required, but please skip questions that do not apply. This survey should take about 20 minutes to complete. To be entered in the \$100 gift card drawing, please enter your email address at the end of the survey.

4.2 Survey Questions

** 1. Which of the following apply to your transportation options? [select multiple]*

- I own a personal vehicle
- I own or manage a fleet of vehicles
- I use transit/bike/carpool

** 2. Which of the following apply to your properties? [select one]*

- I own or manage property (for example, a single-family home, townhouse, commercial building, multifamily residence, public building)
- I do not own property. I rent my home
- Prefer not to say

If the respondent chooses the second option, skip to question 25.

3. What kind of building(s)? [select multiple]

- Single-family home
- Multifamily housing

- Apartment building
- Townhouse
- Condominium
- Commercial building
- Public building
- Prefer not to say
- Other (please specify) [written response]

4. Are any of these buildings low-income housing qualified? [select one]

- Yes
- No
- I do not know
- Prefer not to say

5. Have you added EV charging infrastructure to your home or building? [select one]

- Yes
- I own property but have not added chargers
- I rent property and cannot add charging infrastructure

For option 2 or option 3, skip to question 20.

6. What factors led you to install/upgrade electric vehicle charging equipment at the property that you own or manage? Please select all that apply. [select multiple]

- I own/lease an electric vehicle
- I manage/own a fleet of electric vehicles
- Requested by my tenants
- Environmental considerations
- Availability of incentives
- Seek to differentiate my property
- Other (please specify)

7. At what type of building(s) did you install/upgrade electric vehicle charging? Please select all that apply. [select multiple]

- Single family house
- Townhouse/multifamily housing
- Retail/commercial structure
- Community/Government building (to charge a fleet of five or more vehicles)
- Community/Government building (to charge visitors' vehicles or a small number of Government-owned vehicles)
- Other (please specify)

** 8. What is the ZIP code (or codes) of the building you own/manage? Please separate multiple responses with a comma.*

[written response]

9. What are you most satisfied with, with respect to your electric charger? Please select up to two. [select multiple]

- Lower monthly driving costs (mine or others') Increases my tenants' satisfaction in the property
- Increased demand for my business's services/rentals in my building Boosts my building's image as a sustainable property
- Helps me to meet requirements of zoning codes (for example, Denver's Green Buildings Ordinance) Environmental benefits
- Allows me to better manage an EV fleet of vehicles
- Other (please specify)

10. What are you least happy with? [select one]

- High overall monthly costs
- Unpredictable monthly costs
- Maintenance costs of the charging infrastructure
- Amount of effort to maintain the equipment
- Inability to charge individual users for their electricity use
- I am satisfied with my EV charger
- Other (please specify)

11. Did you receive an incentive to install/upgrade your electric vehicle charger? [select one]

- Yes
- No

12. Were you aware of the incentive(s) prior to your decision to install/upgrade your electric vehicle charger? [select one]

- Yes
- No

13. Which program(s) did you participate in? [select multiple]

- Charge Ahead Colorado
- Alt Fuels Colorado
- ReCharge Colorado
- Plaza Program
- I Don't Know
- Other (please specify)

14. How important was the incentive in your decision to install/upgrade your electric vehicle charger? [select one]

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important at all

15. How difficult were paperwork and other program administration? [select one]

- Extremely difficult
- Very difficult
- Moderately difficult

- Slightly difficult
- Not difficult at all

16. Did an advisor help you process documents? [select one]

- Yes, an equipment manufacturer advised me
- Yes, a public employee advised me (e.g., Colorado Energy Office or CEO, Regional Air Quality Council or RAQC)
- Yes, an EV expert advised me (e.g., a ReCharge Coach)
- Yes, a friend or family member advised me No
- Not applicable

17. How would you rate your experience with that advisor? [select one]

- Positive
- Neutral
- Poor

18. How could the program have been improved? Please write your answer.

[written response]

19. How likely are you to recommend the program to others? [select one]

- Very likely
- Neither likely nor unlikely
- Not likely

Skip to question 25.

20. What obstacles prevent you from adding electric vehicle charging capabilities? Please select all that apply. [select multiple]

- Costs
- Would need to upgrade my electrical panel or other wiring
- Not possible to meter individual usage

- No outlet or plug possible (e.g., no garage or other physical infrastructure that could be wired)
- Discouraged by the perceived amount of work to receive the incentive
- Not requested by my tenants
- Not a high priority for me
- Other (please specify)

21. What costs are you concerned about? Please select all that apply. [select multiple]

- Cost of upgrading the parking space's electrical circuit
- Cost of the charging station itself (such as ChargePoint, Blink, EVGo)
- Cost of hiring electricians and/or contractors
- Cost of upgrading electrical service to the building (more common for buildings built before 1960)
- Cost of my time to manage the installation
- Ongoing cost of electricity once installed
- Ongoing cost of maintaining the charging station
- I do not know
- Other (please specify)

22. When considering the costs of electric vehicle charging, what do you perceive to be the biggest obstacle? [select one]

- The equipment
- Paying higher electricity costs
- Determining who will pay the costs and how
- I do not know

23. Are you aware that there is money available in Colorado through grants and other programs available to help offset the cost of electric vehicle charging stations? [select one]

- Yes
- No

24. Which of the following would help you consider installing/upgrading electric vehicle charging infrastructure? Please select up to three. [select multiple]

- An impartial advisor with no monetary interest in my decision (for example, a public employee who helps to administer the program, a loan officer helping you to process a loan, an EV expert, or an employee of a community-based organization)
- Support from the utility for help with power upgrades and other questions
- Reduced cost of the infrastructure
- Reduced cost of electricity
- A website that provides information on available options
- A phone number that I could call to ask questions
- Seeing a charger and becoming more familiar with it
- More flexibility to spend incentive money to meet my particular needs
- A payment system that allows me to charge the vehicle owners directly
- Instructions or other guidance from the building's owner(s)
- Permission from the building's owner(s)
- Resources shared amongst professionals in real estate/property management
- I would not consider this
- Other (please specify)

25. Have you received a tax credit toward the purchase of a battery electric vehicle (such as a Chevrolet Bolt or Nissan Leaf), plug-in hybrid electric vehicle (such as a Chevrolet Volt, Honda Clarity, or Toyota Prius Prime), hybrid electric vehicle (such as a Toyota Prius)? [select one]

- Yes
- No

If yes, skip to question 33.

26. Do you identify with any of the following? Please select all that apply. [select multiple]

- I have a low income
- I live on a fixed income (for example, Social Security payments)

- I am a person of color
- I have a disability
- I do not speak English well
- Prefer not to say

If 'person of color' is selected, proceed to Question 27, otherwise skip to 28

27. How do you identify? [select one]

- Black/African American
- Latino, Latina, or Latinx
- Indigenous/American Indian/Alaska Native Asian
- Native Hawaiian or other Pacific Islander Two or more races
- Other
- Prefer not to provide detail

28. What obstacles prevent you from owning/leasing an electric vehicle? Please select all that apply. [select multiple]

- Cost of the vehicle
- Very few used vehicles available
- Financing options available for electric vehicles do not meet my needs
- Not aware of tax credits or rebates to reduce the price of the vehicle
- I know that tax credits are available, but I do not know how to access them
- Tax credits do not apply to vehicles I want to buy (e.g., used vehicle, e-bike, other)
- Not familiar with electric vehicles and not sure about the technology
- No garage for home charging
- Do not own my home and am not able to install or upgrade a charger
- Not enough public charging stations
- Concerned about range of the vehicle

- I do not think the vehicles available meet my needs (for example: not large enough, not able to haul large cargo, not able to travel on dirt roads)
- None of the vehicles currently available would accommodate my physical disability (for example, use of a wheelchair)
- I do not own/lease a car and do not plan to buy one
- I am unable to drive Other

29. In general, when shopping for cars, where do you prefer to get information on your options? Please select all that apply. [select multiple]

- Consumer review websites
- Social media
- Friends or family
- Government websites (such as fueleconomy.gov, epa.gov)
- Community events
- Automobile shows
- In-person, at a dealership
- Manufacturer websites
- Other

30. For shorter trips (for example, trips to a grocery store or a workplace), which options would you consider? Select all that apply. [select multiple]

- Electric vehicle
- Gas or diesel-powered vehicle (internal combustion)
- Transit pass
- Taxi or Transportation Network Company services (such as Uber or Lyft)
- Carshare (such as Car2Go, Colorado CarShare)
- Walking
- Bicycle (not motorized)

- Bikeshare or scootershare (motorized or non-motorized) (such as Lime scooters or Jump bikes)
- E-Bike, e-scooter, or similar

31. Did you know that Colorado offers tax credits to help reduce the cost of an electric vehicle? [select one]

- Yes
- No

32. For your next vehicle purchase, what options would best help you to consider purchasing an electric vehicle? Please select up to two. [select multiple]

- An impartial advisor (for example, a public employee who helps to administer the program, a loan officer helping you to process a loan, an EV expert who is knowledgeable about EVs and tax credits, an employee at a community-based organization)
- A mailer sent to my house
- A flyer I receive in person
- A website that provides information on available options
- A phone number that I could call to ask questions
- A test drive to experience the vehicle
- Advice from a friend/acquaintance
- More flexibility to spend tax credit money the way I want (e.g., used car, transit, e-bike, etc.)
- I do not know
- Other (please specify)

33. Were you aware of the availability of EV tax credits prior to your car shopping experience? [select one]

- Yes
- No

34. Were you interested in purchasing an EV when you began car shopping? [select one]

- No, I was not familiar with EVs
- No, I had no interest in an EV

- Yes, I had some interest in an EV
- Yes, I was very interested in an EV
- Yes, I was only interested in an EV and would not have made a purchase if one had not been available

35. How important was the State tax credit in your decision to purchase an EV? [select one]

- Very important (would not have made the purchase without it)
- Important (might have made the purchase without it)
- Not very important
- Not at all important
- I don't know

36. How did you finance your EV? [select one]

- Cash purchase
- Loan
- Lease

37. Who financed your EV? [select one]

- Bank
- Credit union
- Dealer/Vehicle manufacturer
- Did not receive financing
- Other (please specify)

38. Did that financing agency provide you with information and guidance about tax credits that would lower monthly payments? [select one]

- Yes
- No
- Did not receive financing

39. How did you learn about the availability of the State tax credit? [select one]

- Dealer website
- Dealer in-person visit
- Automobile-focused consumer event (e.g., car show, ride n' drive event)
- Community event not related to automobiles
- Social media
- Federal or State Government website:
- News article
- Friend, colleague, or acquaintance
- EV advocacy group (e.g., Colorado Clean Cities, Women Who Charge, others)
- Other (please specify)

40. Did your dealer process the tax credit for you? [select one]

- Yes
- No
- I do not know

41. How difficult was it for you to find the information you needed to participate in the State tax credit (e.g., requirements, tax documents, others)? [select one]

- Very difficult
- Difficult
- Not very difficult
- Not at all difficult I do not know

42. Did you have any other guidance to purchase the EV? [select one]

- Yes, an EV expert advised me (through the Colorado Clean Cities Coalition, an EV club member)
- Yes, a friend or family member advised me
- Yes, others:
- No

43. How likely are you to recommend your purchase experience to others? [select one]

- Very likely
- Likely
- Not very likely
- Not likely
- I do not know

44. What other feedback do you have on your experience? Please write your answer.

[written response]

45. Which of the program features would you most like to see improved? Select all that apply. [select multiple]

- Information about the tax credit program prior to the car shopping experience
- Level of support from a person who could answer my questions
- Make funds available at the time of sale
- Flexibility to use tax credit funds in the way I need
- Ease of filling out forms and paperwork

46. How else could the program have been improved? Please write your answer.

[written response]

47. What is the ZIP code where your vehicle is registered?

[written response]

** 48. What is your household income? [select one]*

- Less than \$25,000
- \$25,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$199,999

- \$200,000 to \$299,999
- \$300,000 or more
- Prefer not to say

** 49. Do you identify as a person of color? [select one]*

- Yes, Black/African American Yes, Latino, Latina, or Latinx
- Yes, Indigenous/American Indian/Alaska Native Yes, Asian
- Yes, Native Hawaiian or other Pacific Islander Yes, two or more races
- Yes, some other race/ethnicity
- Yes, but prefer not to provide detail
- No
- Prefer not to say

** 50. Do you have access to a garage where you can charge? [select one]*

- Yes
- No
- Prefer not to say

** 51. What is your highest level of education? [select one]*

- No high school diploma
- High school diploma
- Some college or Associate's degree
- Technical/vocational degree or certification
- Bachelor's degree
- Master's degree or higher
- Prefer not to say

** 52. What is your age? [select one]*

- 17 or younger
- 18 and 19 years
- 20 to 24 years
- 25 to 29 years
- 30 to 34 years
- 35 to 39 years
- 40 to 44 years
- 45 to 49 years
- 50 to 54 years
- 55 to 59 years
- 60 to 64 years
- 65 to 69 years
- 70 to 74 years
- 75 years and over
- Prefer not to say

** 53. What is your gender? [select one]*

- Male
- Female
- Non-binary/other
- Prefer not to say

54. Please list any community organizations that are important to you when considering transportation issues or social justice issues.

[written response]

55. Please share any other thoughts or feedback on either electric vehicles, electric vehicle charging stations, or State tax credit and incentive programs designed to encourage equal access to electric vehicles and electric vehicle charging stations.

[written response]

56. To be entered into the \$100 drawing, please enter your email address. (It will not be used for any other purpose than the drawing.)

[written response]

For more information on Colorado’s electrification programs, visit the links below:

- Zero Emission Vehicle Tax Credits
- Can Do Colorado eBike Pilot Program
- EV Charging Station Grants Charge Ahead Colorado
- EV Coaching Services—ReCharge Colorado
- Electric Vehicle Fast-Charging Corridors
- DCFC Plazas Program

5.0 Spanish Language Survey

5.1 Survey Introduction

La siguiente encuesta* le pedirá su opinión sobre los vehículos eléctricos en general y, si es relevante, su experiencia con ciertas políticas o programas diseñados para incrementar el acceso a los vehículos eléctricos. Esta encuesta se centra tanto en los vehículos eléctricos de batería (BEV) como en los vehículos eléctricos híbridos de conexión (PHEV). Específicamente, buscamos información sobre las características de programas que aseguran un acceso equitativo a los beneficios de la electrificación de vehículos.

La encuesta también le pedirá su opinión sobre los vehículos eléctricos y las estaciones de carga para los mismos. Si ha recibido un crédito fiscal o un incentivo en el pasado, le haremos algunas preguntas sobre su experiencia. Al completar esta encuesta, nos ayudará a identificar características importantes sobre programas que garantizan que todos los habitantes de Colorado disfruten de un acceso equitativo tanto a los vehículos eléctricos como a los beneficios de los vehículos eléctricos (incluida la calidad del aire y la reducción de las emisiones de gases de efecto invernadero).

*Esta encuesta está diseñada para que responda únicamente las preguntas que apliquen a usted. Es necesario que responda algunas preguntas, pero omita las aquellas que no le correspondan. Esta encuesta debería tomarle aproximadamente 20 minutos en completarla.

Para participar en el sorteo de tarjetas de regalo de \$100, ingrese su dirección de correo electrónico al final de la encuesta.

5.2 Survey Questions

1. *¿Cuál de las siguientes opciones aplica a su medio de transporte? [select multiple]*

- Soy dueño de un vehículo personal
- Soy dueño o manejo una flota de vehículos
- Utilizo transporte público/Bicicleta/comparto vehículo

* 2. *¿Cuál de las siguientes opciones aplica en cuanto a sus propiedades? [select one]*

- Soy propietario o administro una propiedad (por ejemplo: una casa unifamiliar, una vivienda multifamiliar, un edificio comercial, una residencia multifamiliar, un edificio público)
- No soy dueño de alguna propiedad. alquilar mi hogar
- Prefiero no responder

If the respondent chooses the second option, skip to question 25.

3. ¿Que tipo de propiedades posee? [select multiple]

- Casa de unifamiliar
- Casa de múltiples familias
- Apartamentos
- Vivienda multifamiliar
- Condominio
- Edificio comercial
- Edificio público
- Prefiero no decir
- Otro (por favor especificar)

4. ¿Alguna de estas propiedades califica como viviendas de bajos ingresos? [select one]

- Sí
- No
- No estoy seguro
- Prefiero no decir

5. ¿Ha agregado infraestructura para carga de vehículos eléctricos a su hogar o edificio? [select one]

- Sí
- Soy dueño de mis propiedades, pero no he agregado estaciones de carga para vehículos eléctricos
- Alquilo mi propiedad y no puedo agregar estaciones de carga para vehículos eléctricos

For option 2 or option 3, skip to question 20.

6. ¿Que factores lo llevaron a instalar o actualizar equipos de carga para vehículos eléctricos en la propiedad que posee o administra? Por favor seleccione todas las respuestas válidas. [select multiple]

- Soy dueño/alquilo un vehículo eléctrico
- Soy dueño/manejo una flota de vehículos eléctricos

- Fue solicitado por mis inquilinos
- Consideraciones ambientales
- Disponibilidad de incentivos
- Busco diferenciar mi propiedad
- Otro (por favor especifique)

7. ¿En qué tipo de edificio(s) instaló/actualizó la estación para carga de vehículos eléctricos? Por favor seleccione todas las respuestas válidas. [select multiple]

- Casa unifamiliar
- Vivienda multifamiliar
- Estructura comercial
- Edificio comunitario/gubernamental (para cargar una flota de cinco o más vehículos)
- Edificio comunitario/gubernamental (para cada vehículo de los visitantes o una pequeña cantidad de vehículos gubernamentales)
- Otro (por favor especifique)

** 8. ¿Cuál es el código postal (o códigos) de el edificio que posee/administra? Separe las respuestas multiples con una coma.*

[written response]

9. ¿Con qué está más satisfecho con respecto a su cargador eléctrico? Seleccione hasta dos. [select multiple]

- Menos costos de conducción mensuales (míos o de otros)
- Aumenta la satisfacción de mis inquilinos en la propiedad
- Aumento en la demanda de los servicios/alquileres de mi empresa en mi edificio
- Aumenta la imagen de mi propiedad como propiedad sostenible
- Me ayuda a cumplir con los requisitos de los códigos de zonificación (por ejemplo, la Ordenanza de Edificios Verdes de Denver)
- Beneficios ambientales
- Me permite administrar mejor una flota de vehículos eléctricos
- Otro (por favor especifique)

10. ¿Con qué está usted menos contento? [select one]

- Costos mensuales impredecibles
- Costos de mantenimiento de la infraestructura para la carga
- Cantidad de esfuerzo para mantener el equipo
- Inhabilidad de cobrar a los usuarios de forma individual el consumo de electricidad
- Estoy satisfecho con mi cargador de vehículo eléctrico
- Otro (por favor especifique)

11. ¿Recibió un incentivo para instalar/actualizar su cargador de vehículo eléctrico? [select one]

- Sí
- No

12. ¿Conocía usted los incentivos antes de su decisión de instalar/actualizar su cargador de vehículo eléctrico? [select one]

- Sí
- No

13. ¿En qué programa(s) participó? [select multiple]

- Colorado Carga Adelante (Charge Ahead Colorado)
- Alt Fuels Colorado
- ReCharge Colorado
- No participé en ningún programa
- Otro (por favor especifique)

14. ¿Qué importancia tuvo el incentivo en su decisión de instalar/actualizar su cargador de vehículo eléctrico? [select one]

- Extremadamente importante
- Muy importante
- Moderadamente importante

- Poco importante
- Para nada importante

15. ¿Qué tan difícil fue el papeleo y la administración de otros programas? [select one]

- Extremadamente difícil
- Muy difícil
- Moderadamente difícil
- Poco difícil
- Para nada difícil

16. ¿Le ayudó un asesor a procesar sus documentos? [select one]

- Sí, me aconsejó un fabricante de equipos
- Sí, me informó un empleado público (por ejemplo, la Oficina de Energía de Colorado o el Director Ejecutivo, el Consejo Regional de Calidad del Aire o RAQC)
- Sí, me aconsejó un experto en vehículos eléctricos (p. Ej., Un entrenador de ReCharge)
- Sí, un amigo/amigo familiar me ayudó
- No
- No aplica

17. ¿Cómo calificaría su experiencia con ese asesor? [select one]

- Positiva
- Neutral
- Pobre

18. ¿Cómo se podría mejorar el programa? Por favor escribe su respuesta.

[written response]

19. ¿Qué tan probable es que recomiende el programa a otras personas? [select one]

- Muy probable
- Poco probable

- No probable

Skip to question 25.

20. ¿Qué obstáculos le impiden agregar estaciones de carga de vehículos eléctricos? Por favor seleccione todas las respuestas válidas. [select multiple]

- Costos
- Necesitaría actualizar mi panel eléctrico u otro cableado
- No es posible medir el uso individual
- No hay tomacorriente o enchufe posible (no hay garaje u otra infraestructura física que pueda estar cableada)
- Desánimo por la cantidad de trabajo percibida para recibir el incentivo
- No solicitado por mis inquilinos
- No es de gran prioridad para mí
- Otro (por favor especifique)

21. ¿Qué costos le preocupan? Por favor seleccione todas las respuestas válidas. [select multiple]

- Costo de la mejora del circuito eléctrico del garaje de estacionamiento
- Costo de la propia estación de carga (ChargePoint, Blink, EVGO)
- Costo de contratar electricistas y/o contratistas
- Costo de actualizar el servicio eléctrico del edificio (más común para edificios construidos antes de 1960)
- Costo de mi tiempo para gestionar la instalación
- Costo continuo de la electricidad una vez instalada
- Costo continuo de mantenimiento de la estación de carga
- No lo sé
- Otro (por favor especifique)

22. *Al considerar los costos de recarga de vehículos eléctricos, ¿cuál cree usted que es el mayor obstáculo? [select one]*

- El equipamiento
- Costos de electricidad más altos
- Determinar quién pagará los costos y cómo
- No lo sé

23. *¿Sabe usted que hay dinero disponible en Colorado a través de subvenciones y otros programas disponibles para ayudar a compensar el costo de las estaciones de carga de vehículos eléctricos? [select one]*

- Sí
- No

24. *¿Cuál de las siguientes opciones lo ayudaría a considerar la instalación/actualización de la infraestructura de carga de vehículos eléctricos? Seleccione hasta tres. [select multiple]*

- Un asesor imparcial sin interés en mi decisión (por ejemplo, un empleado público que ayuda a administrar el programa, un oficial de préstamos que ayude a procesar un préstamo, un experto en vehículos eléctricos o un empleado de una organización comunitaria)
- Apoyo de la utilidad para obtener ayuda con actualizaciones de energía y otras preguntas
- Costo reducido de la infraestructura
- Costo reducido de electricidad
- Una pagina web que proporcione información sobre las opciones disponibles
- Un número de teléfono al que pueda llamar para hacer preguntad
- Ver un cargador de vehículo eléctrico y poder familiarizarme con él
- Más flexibilidad para gastar dinero de incentivo para mejor satisfacer mis necesidades
- Un sistema de pago que me permita cobrar directamente a los propietarios del vehículo
- Instrucciones u otra orientación del propietario(s) del edificio
- Permiso del propietario(s) del edificio
- Recursos compartidos entre profesionales en gestión inmobiliaria

- No consideraría esto
- Otro (por favor especifique)

25. *¿Ha recibido un crédito fiscal para la compra de un vehículo eléctrico de batería (como un Chevrolet Bolt o Nissan Leaf), un vehículo eléctrico híbrido de conexión eléctrica (como un Chevrolet Volt, Honda Clarity o Toyota Prius Prime), o vehículo híbrido (como un Toyota Prius)? [select one]*

- Sí
- No

If yes, skip to question 33.

26. *¿Se identifica usted con alguna de las siguientes opciones? Por favor seleccione todas las respuestas válidas. [select multiple]*

- Tengo un ingreso bajo
- Vivo de un ingreso fijo (por ejemplo, pagos de Seguro Social)
- Soy una persona de color
- Tengo una discapacidad
- No hablo inglés
- Prefiero no responder

If 'Soy una persona de color' is selected, proceed to Question 27, otherwise skip to 28

27. *¿Cómo se identifica usted? [select one]*

- De color o Afro-Americano
- Americano
- Latino, Latina o Latinx
- Indígena/Indio Americano/Nativo de Alaska
- Asiático
- Nativo de Hawai o Isla del Pacífico
- Dos o más razas

- Otro
- Prefiero no responder

28. ¿Qué obstáculos le impiden poseer/alquilar un vehículo eléctrico? Por favor seleccione todas las respuestas válidas. [select multiple]

- Costo del vehículo
- Muy pocos vehículos usados disponibles
- Las opciones de financiamiento disponibles para vehículos eléctricos no satisfacen mis necesidades
- No tener conocimiento de bonificaciones o rebajas fiscales para reducir el precio del vehículo
- Sé que hay créditos fiscales disponibles, pero no sé cómo acceder a ellos
- Los créditos fiscales no aplican a los vehículos que quiero comprar (por ejemplo, vehículos usados, bicicletas eléctricas, otros)
- No estoy familiarizado con los vehículos eléctricos y no estoy seguro de la tecnología
- No tengo garaje para cargar el vehículo en casa
- No soy dueño de mi casa y no tengo disponibilidad para instalar o actualizar un cargador eléctrico
- No hay suficientes estaciones publicas para cargar los vehículos eléctricos
- Dudas sobre el alcance del vehículo
- No creo que los vehículos disponibles satisfagan mis necesidades (por ejemplo: no son lo suficientemente grandes, no pueden transportar carga grande, no pueden viajar por caminos de tierra)
- Ninguno de los vehículos disponibles actualmente se adaptaría a mi discapacidad física (por ejemplo, el uso de una silla de ruedas)
- No soy dueño/alquilo un automóvil y no planeo comprar uno
- No puedo conducir un vehículo
- Otro

29. En general, al comprar automóviles ¿dónde prefiere obtener información sobre sus opciones? Por favor seleccione todas las respuestas válidas. [select multiple]

- Sitios web de críticas de consumidores
- Redes sociales

- Amigos o familia
- Páginas web gubernamentales (como fueleconomy.gov, epa.gov)
- Eventos de la comunidad
- Exhibición de carros
- En persona, en un concesionario de vehículos
- Sitio web del fabricante
- Otro

30. Para viajes cortos (por ejemplo, idas al mercado o su sitio de trabajo), ¿Que opción consideraría usted? Seleccione todas las que apliquen. [select multiple]

- Vehículo eléctrico
- Vehículo a gasolina o diesel (combustión interna)
- Pase de tránsito
- Taxi o servicio de transporte (Uber o Lyft)
- Servicios de transporte compartido (Car2Go, Colorado CarShare)
- Caminando
- Bicicleta (No motorizada)
- Servicios de bicicletas o patinetas (Motorizadas o no motorizadas) (Lime scooters o Jump bikes)
- Bicicleta eléctrica, patineta eléctrica o similar

31. ¿Sabía que Colorado ofrece créditos fiscales para ayudar a reducir el costo de un vehículo eléctrico? [select one]

- Sí
- No

32. Para la próxima compra de su vehículo, ¿qué opciones le ayudarían mejor a usted para considerar la compra de un vehículo eléctrico? Seleccione hasta dos respuestas. [select multiple]

- Un asesor imparcial (por ejemplo, un empleado público que ayuda administrar el programa, un oficial de préstamos que le ayude a tramitar un préstamo, un experto en vehículos eléctricos con

conocimientos en vehículos eléctricos y créditos fiscales, o un empleado de una organización comunitaria)

- Un correo enviado a mi casa
- Un folleto que reciba en persona
- Una pagina web que proporcione información sobre las opciones disponibles
- Un número de teléfono al que pudiera llamar para hacer preguntas
- Una prueba de manejo para poder experimentar el vehículo
- Consejo de un amigo/conocido
- Más flexibilidad para gastar el dinero del crédito fiscal de la manera que desee (por ejemplo, automóvil usado, bicicleta eléctrica, etc.)
- No lo sé
- Otro (por favor especifique)

33. ¿Estaba usted al tanto de la disponibilidad de créditos fiscales para vehículos eléctricos antes de su experiencia de compra de un automóvil? [select one]

- Sí
- No

34. ¿Estaba interesado en comprar un vehículo eléctrico cuando comenzó con la búsqueda de un carro? [select one]

- No, no estaba familiarizado con los vehículos eléctricos
- No, no tenía interés en un vehículo eléctrico
- Sí, tenía un poco de interés en un vehículo eléctrico
- Sí, estaba muy interesado en un vehículo eléctrico
- Sí, solamente estaba interesado en un vehículo eléctrico, y no hubiese hecho una compra si no había un vehículo eléctrico disponible.

35. ¿Qué tan importante fue el crédito fiscal estatal en su decisión de comprar un vehículo eléctrico? [select one]

- Muy importante (no hubiera hecho la compra sin él)

- Importante (podría haber hecho la compra sin él)
- No muy importante
- Para nada importante
- No lo sé

36. ¿Cómo financió su vehículo? [select one]

- Compra en efectivo
- Préstamo
- Alquiler

37. ¿Quién financió tu vehículo eléctrico? [select one]

- Banco
- Exhibición de coches
- Concesionario/fabricante del vehículo
- No recibí financiamiento
- Otro (por favor especifique)

38. ¿Esa misma agencia financiera le proporcionó información y orientación sobre los créditos fiscales que reducirían los pagos mensuales? [select one]

- Sí
- No
- No recibí financiamiento

39. ¿Cómo se enteró usted de la disponibilidad del crédito fiscal estatal? [select one]

- Sitio web del distribuidor
- Visitando al distribuidor en persona
- Evento para consumidores de automóviles (Exhibición de autos, evento de viaje y manejo)
- Evento de comunidad no relacionado con automóviles
- Redes sociales

- Página web Federal o de el gobierno:
- Artículo en las noticias
- Amigo, colega o conocido
- Grupo de defensa de vehículos eléctricos (p. Ej., Ciudades Limpias de Colorado, Mujeres Que Cobran, otros)
- Otro (especifique)

40. *¿Su concesionario procesó su crédito fiscal por usted? [select one]*

- Sí
- No
- No lo sé

41. *¿Qué tan difícil fue para usted encontrar la información que necesitaba para participar en el crédito fiscal estatal (por ejemplo: requisitos, documentos fiscales u otros) [select one]*

- Muy difícil
- Difícil
- No muy difícil
- Para nada difícil
- No lo sé

42. *¿Tuvo alguna otra guía para comprar el vehículo eléctrico? [select one]*

- Sí, me aconsejó un experto en vehículos eléctricos (a través de la Coalición de Ciudades Limpias de Colorado, un miembro de club de vehículos eléctricos)
- Sí, un amigo de la familia me aconsejó
- Sí, otros:
- No

43. *¿Qué tan probable es que recomiende su experiencia de compra a otros? [select one]*

- Muy probable
- Probable

- Poco probable
- No probable
- No lo sé

44. *¿Qué otros comentarios tienen sobre su experiencia? Por favor escriba su respuesta.*

[written response]

45. *¿Cuáles de las funciones del programa le gustaría ver mejoradas? Seleccione todas las que correspondan. [select multiple]*

- Información sobre el programa de crédito fiscal antes de la experiencia de compra del vehículo
- Nivel de apoyo de una persona que podría responder a mis preguntas
- Hacer disponibles los fondos en el momento de la venta
- Flexibilidad para utilizar los fondos de crédito fiscal de la forma que necesite
- Facilidad para completar formularios y trámites

46. *¿De qué otra manera se podría mejorar el programa? Por favor escriba su respuesta.*

[written response]

47. *¿Cuál es el código postal en donde su vehículo está registrado?*

[written response]

* 48. *¿Cuál es el ingreso en su hogar? [select one]*

- Menos de \$25,000
- \$25,000 a \$49,999
- \$50,000 a \$74,999
- \$75,000 a \$99,999
- \$100,000 a \$199,999
- \$200,000 a \$299,999
- \$300,000 o más
- Prefiero no decir

** 49. ¿Te identificas como persona de color? [select one]*

- Sí, de color o Afro-Americano
- Sí, Latino, Latina o Latinx
- Sí, Indígena/Indio Americano/Nativo de Alaska
- Sí, Asiático
- Sí, Nativo de Hawai u otra Isla del Pacifico
- Sí, dos o más razas
- Sí, otra raza/etnia
- Sí, pero prefiero no dar detalles No
- Prefiero no compartir

** 50. ¿Tiene acceso a un garaje donde pueda cargar un vehículo eléctrico? [select one]*

- Sí
- No
- Prefiero no compartir

** 51. ¿Cuál es su nivel de educación más alto? [select one]*

- Sin diploma de escuela secundaria
- Diploma de escuela secundaria
- Algún título universitario o asociado
- Título o certificación técnica o vocacional
- Licenciatura
- Maestría o superior
- Prefiero no compartir

** 52. ¿Qué edad tiene usted? [select one]*

- 17 o más joven
- 18 y 19 años

- 20 a 24 años
- 25 a 29 años
- 30 a 34 años
- 35 a 39 años
- 40 a 44 años
- 45 a 49 años
- 50 a 54 años
- 55 a 59 años
- 60 a 64 años
- 65 a 69 años
- 70 a 74 años
- 75 años y más
- Prefiero no decir

**53. ¿Cuál es su género? [select one]*

- Hombre
- Mujer
- No-binario
- Prefiero no compartir

54. Por favor mencione las organizaciones comunitarias que sean importantes para usted al considerar asuntos de transporte o justicia social.

[written response]

55. Por favor comparta cualquier otra opinión o comentario sobre los vehículos eléctricos, las estaciones de carga de vehículos eléctricos, o los programas de incentivos y créditos fiscales estatales diseñados para facilitar el acceso equitativo a los vehículos eléctricos y sus estaciones de carga.

[written response]

56. Para participar en el sorteo de \$100, ingrese su dirección de correo electrónico. (No se utilizará para ningún otro propósito que no sea el sorteo.)

[written response]

Para obtener más información sobre los programas de electrificación de vehículos en Colorado, visite los enlaces a continuación:

- Créditos Fiscales Para Vehículos Con Cero Emisiones
- Programa Piloto de Bicicletas Eléctricas CanDo Colorado
- Subvenciones Para Estaciones de Vehículos Eléctricos Charge Ahead Colorado
- Servicios de Coaching Para Vehículos Eléctricos—ReCharge Colorado
- Zonas De Carga Rápida de Vehículos Eléctricos
- Programa de Plazas DCFC

6.0 Survey Results

6.1 Respondents

In order to support broader participation by the public and limit the number of questions asked by non-program participants, questions about age, gender, and income were only asked of those who had received a tax credit toward the purchase of an EV. The demographic information included in this section represents approximately 29 percent of total respondents. The project team compared the responses by those who had received a tax credit toward the purchase of electric vehicle to the State's general population as reported by the U.S. Census Bureau American Community Survey 5-Year Estimates (2015-2019).

Comparing demographics for the State of Colorado to those respondents who received a tax credit toward the purchase of a battery electric vehicle, men completed the survey at a higher rate than are represented in the general population of the State (Table 15). Note that as this was a push survey and these responses do not represent the broader population.

Table 15 Survey Respondents Compared to the General Population

Gender	Survey Respondents Who Received a Tax Credit		Census Data for Colorado
	Count	Share	Share
Male	272	65%	50%
Female	141	34%	50%
Non-binary/other	4	1%	n/a

Source: U.S. Census, American Community Survey 5-Year Estimates (2015-2019).

Educational attainment is also higher among survey respondents than the general population. The percentage of respondents with some college or an Associate's or degree is similar to the State level. However, the percentage of survey respondents with a Bachelor's degree is more than 10 percentage points higher than the rate for the general population. Survey participants indicated that they had a Master's degree at approximately twice the State rate (Table 16).

Table 16 Education Attachment of Survey Respondents Compared to the General Population

Educational Attainment	Survey Respondents Who Received a Tax Credit		Census Data for Colorado
	Count	Share	Share
No high school diploma	3	1%	8%
High school diploma	27	6%	21%
Some college or Associate's degree	104	25%	29%
Bachelor's degree	158	37%	26%
Master's degree or higher	131	31%	15%

Source: U.S. Census, American Community Survey 5-Year Estimates (2015-2019).

Household income of survey participants was also higher than is true for the general population (Table 17). Approximately 23 percent of survey respondents indicated that they had an income of \$200,000 or more, compared to only 10 percent for the general population. Conversely, only 3 percent of survey respondents indicated that they had an income of less than \$25,000, compared to 15 percent for the general population.

Table 17 Household Income of Survey Respondents Compared to the General Population

Income	Survey Respondents who Received a Tax Credit		Census Data for Colorado (Household Income)
	Count	Share	Share
Less than \$25,000	12	3%	15%
\$25,000 to \$49,999	30	7%	19%
\$50,000 to \$74,999	63	16%	17%
\$75,000 to \$99,999	61	15%	14%
\$100,000 to \$199,999	146	36%	26%
\$200,000 or more	91	23%	9%

Source: U.S. Census, American Community Survey 5-Year Estimates (2015-2019).

According to the American Community Survey, approximately 68 percent of Colorado residents are white and not Hispanic/Latino, meaning approximately 32 percent of residents could potentially identify as a person of color. Approximately 36 percent of survey respondents who added EV charging infrastructure to their home or building identified as a person of color. Approximately 42 percent of survey respondents who received a tax credit towards the purchase of a BEV reported identifying as a person of color.

For those who added EV charging infrastructure and provided the ZIP code where that building was located, approximately 47 percent of respondents reported that those installations occurred at buildings located in the Denver area, 12 percent in other Front Range MPOs,³⁰ 7 percent in other areas of Colorado, and 26 percent outside of Colorado (Table 18). Note that the survey instrument did not exclude participants outside of the State.

³⁰ The Pikes Peak Area Council of Governments (PPACG) and Pueblo Area Council of Governments (PACOG) include parts of Larimer, Weld, El Paso, Teller, and Pueblo Counties.

Table 18 Location of EV Charging Infrastructure Installations

Area	Count	Share
Denver Region	214	47%
North Front Range, PPACG, PACOG	55	12%
Other Colorado	31	7%
Out of State	117	26%
Did not respond	34	8%

Recipients who had received a tax credit toward the purchase of an electric vehicle were also predominantly located in the Denver region (Table 19). For those who received a tax credit and provided the ZIP code associated with that vehicle's registration, 31 percent of respondents reported those vehicles to be registered in the Denver area, 21 percent in other Front Range MPOs,³¹ 6 percent in other areas of Colorado, and 15 percent outside of Colorado.

Table 19 Location of Registered Vehicle for which a Tax Credit was Received

Area	Count	Share
Denver Region	136	31%
North Front Range, PPACG, PACOG	90	21%
Other Colorado	27	6%
Out of State	66	15%
Did not respond	115	26%

This survey provides a useful first step in better understanding program participants' experience with EV incentives, but results should be interpreted cautiously. Survey results included approximately 253 Colorado residents who received a tax credit for their light duty EV. With approximately 49,300 EVs on the road as of January 2022,³² the survey captures less than one percent of potential EV tax credit recipients in the State. Another note of caution is that the survey also attracted a small group of individuals with strong, negative opinions on EVs (made evident in written responses). The small sample size and possibility of a small, strongly biased population should encourage readers to review responses carefully.

6.2 Building Installations

415 respondents indicated they had installed EV charging infrastructure at the following building types (Table 20). The majority of respondents had installed EV charging infrastructure at single family houses (72 percent of respondents). The fewest responses were recorded for EV charging infrastructure installed at community/government buildings to support visitor or a small number of Government-owned vehicles (21 responses).

³¹ Larimer, Weld, El Paso, Teller, and Pueblo Counties.

³² <https://energyoffice.colorado.gov/zero-emission-vehicles/evs-in-colorado-dashboard>.

Table 20 EV Charging Infrastructure Installations by Building Type

Building Type	Single Family House	Townhouse/Multifamily Housing	Retail/Commercial Structure	Community/Government Building (to Charge a Fleet of Five or More Vehicles)	Community/Government Building (to Charge Visitors' Vehicles or a Small Number of Government-Owned Vehicles)
Count	296	87	56	42	21

Aside from the types above, respondents also provided the following answers for 'other':

- Apartment complex
- Detached garage behind our home
- The single-family house is the one we occupy. We also own a townhouse that we rent out. I wish there were a way to add a charging station, but we would have to work with the HOA on that. All parking spots are outside with no close electrical outlets

Of the buildings that did add EV charging infrastructure, approximately 42 percent indicated receiving an incentive to support the installation of that charging infrastructure. However, noting again that this survey is not statistically significant, only 15 percent of the Spanish language survey respondents indicated both receiving an incentive toward the installation of EV charging infrastructure (two out of 13) (Table 21).

Table 21 Building Installation Focus

Survey (Language)	Total Respondents	Added EV Charging Infrastructure	Received an Incentive Toward the Installation of EV Charging Infrastructure
English	1318	451	192
Spanish	202	13	2
Total	1520	464	194

Responses to questions about EV charging incentives are presented in Figure 1 to Figure 8 for property-owning and property-managing respondents, broken down by building type. When selecting all factors that led to installation or upgrade of EV charging (**Error! Reference source not found.**), a strong majority (65 percent) of single-family respondents already owned (or leased) an EV, while less than a third (31 percent) of multifamily respondents did, however for both residential groups this was the single strongest factors.

The availability of incentives was 50 percent more important for townhouse/multifamily building respondents relative to single family housing respondents (12 percent vs. 8 percent) and nearly three times higher for small Government-owned fleets (21 percent), which suggests that the incentives were not particularly important for single family respondents, and are more important across the other building types. Note that more than half of respondents who installed charging infrastructure at their properties also indicated that one of the reasons that they installed EV charging infrastructure was because they owned/leased an electric vehicle (52 out of 89 respondents), compared to a third who indicated that it

was requested by their tenants (29 out of 89), and less than a quarter who indicated that it was because of the availability of incentives (19 out of 89).

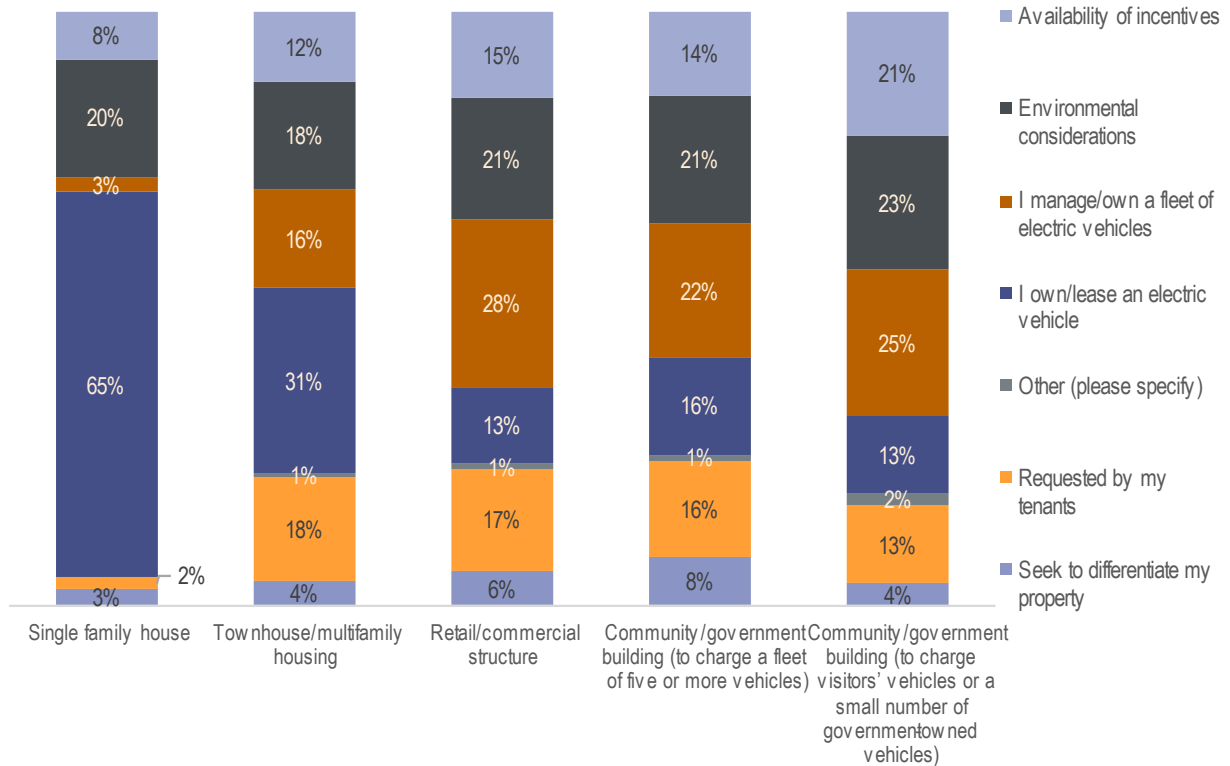
In terms of satisfaction with their EV charger (Figure 4), multifamily housing respondents listed lower driving costs and increased tenant satisfaction as the leading reasons (22 percent and 20 percent, respectively). Single family respondents were satisfied primarily with lower costs (50 percent) and the environmental benefits (37 percent). For all respondents other than single family, the leading reasons for dissatisfaction with their EV charger (Figure 5) were maintenance costs, unpredictable monthly costs, and the effort to maintain the charger. A strong majority of single-family respondents are satisfied with their charger (79 percent) compared to 19 percent of multifamily respondents and 12 percent of commercial respondents who had complete satisfaction, and even less for community/Government respondents.

Single family and community/Government visitor/small fleet respondents were the least likely to have known about incentives before installing the charging infrastructure (Figure 6), however those numbers are still relatively small (14 percent and 10 percent, respectively). This highlights the strong significance of educating prospective tax credit recipients, especially multifamily housing owners/managers, 0 percent of whom said that the incentive was not at all important in their installation decision (Figure 7). In fact, 76 percent of them said that the incentive was extremely or very important (the highest proportion of all response types), and the other 24 percent said it was moderately or slightly important. Retail and larger community/Government fleet respondents (68 percent and 72 percent, respectively) also overwhelmingly stated the significance of the incentive as extremely or very important, in contrast to only 39 percent of single-family respondents who said so.

The divide between single-family respondents and other building types persists in the experience of navigating the incentive paperwork (Figure 8). Fifty-one percent of single-family respondents said it was not at all difficult to manage paperwork, compared to just 14 percent of multifamily respondents and 0 percent of managers of community/Government buildings with public or smaller fleet charging. Across respondent types, all non-residential respondents reported a much more challenging time with the paperwork—more than 60 percent said it was extremely or very difficult. This is despite the fact that almost 100 percent of these respondents had some sort of advisor in the process (Figure 9), typically a public employee but in some cases an equipment manufacturer or other EV expert. Half of multifamily respondents used a public employee for help, with another 46 percent using one of those other two resources. In contrast, a majority of single-family respondents (62 percent) used no advisor. Larger community/Government fleet (92 percent) and multifamily respondents (80 percent) were most likely to report a positive experience with the incentive advisor (Figure 10), while 46 percent of single-family respondents rated their experience as neutral. In the future, surveys on this topic should include utilities as another source of advisors for navigating EV incentive programs to better understand user experiences across different incentive support services as the Advisory Services programs under Xcel Energy's Transportation Electrification Plan begin to engage with the public.³³

³³ https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/20A-0204E-2021-2023_TEP_Updated.pdf.

Figure 1 What factors led you to install/upgrade electric vehicle charging equipment at the property that you own or manage?

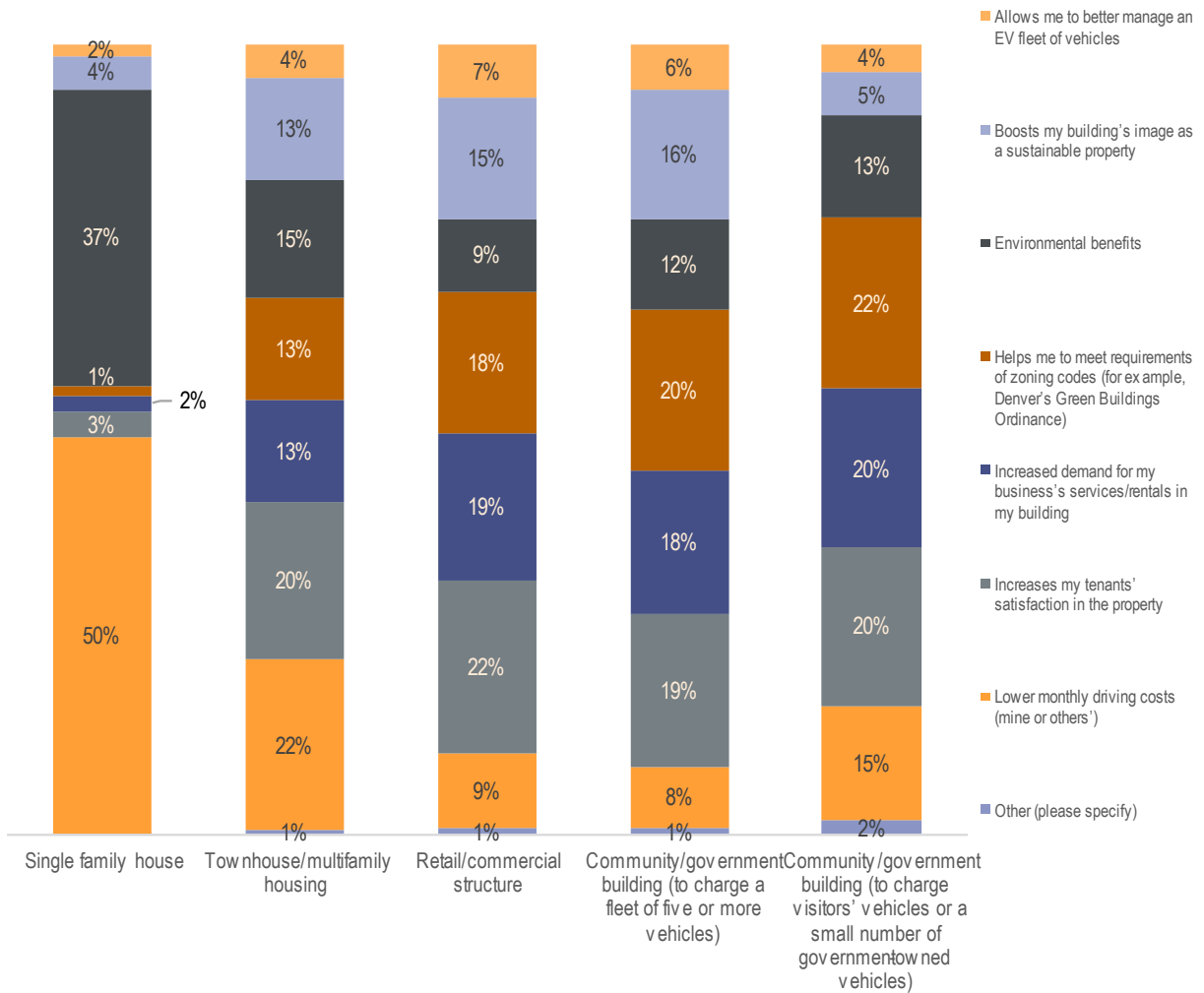


A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Required by new construction code
- in addition to an EV-auto, I also have & use a couple of electric bicycles... my preferred transport
- Plan to purchase electric vehicle
- It was already installed
- Nissan gave me a level 2 charger when I bought my first LEAF
- owned electric vehicles 1979-1985
- It's a Prius Prime gas vehicle with plug in
- I will convert to electric vehicles as soon as I can afford it
- My EV is on order. Expected delivery in January
- I used to have a plug-in hybrid
- I own a PHEV
- I own an electric bicycle
- Hoping to purchase EV
- wish not to say

- Plan to purchase an EV in the near future
- Buying an EV when it's available soon
- Save money on public charging stations
- Want it ready for my next car
- Ease of charging
- I wanted to save money on driving

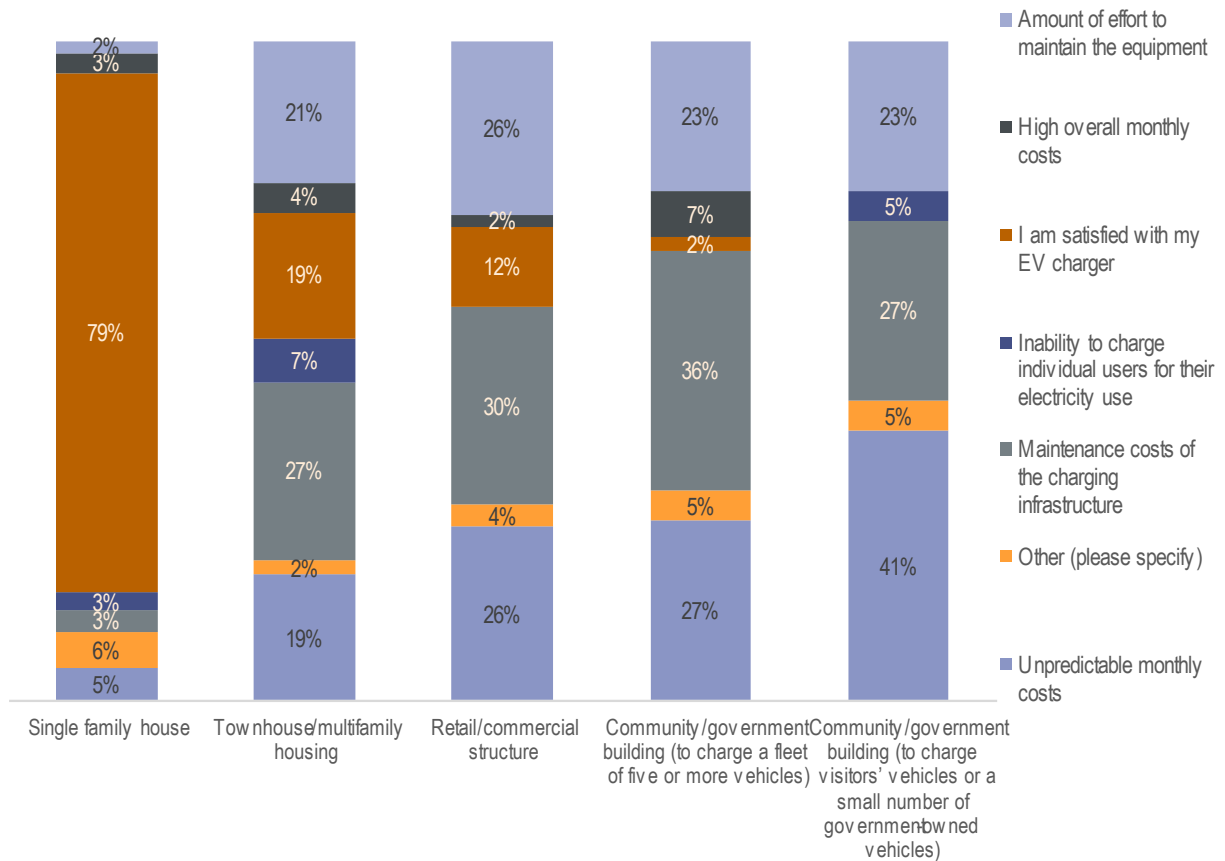
Figure 2 What are you most satisfied with, with respect to your electric charger? (multiple options allowed)



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- convenience
- Rebates!
- The car is "full" each morning

Figure 3 What are you least happy with? (Single option allowed)



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- That Colorado still relies heavily in coal for power. Go Nuclear!
- Challenge of improving charging in 84-unit condo building
- Not enough fast chargers and changing technology
- Local power company rules which limit the amount of Solar capacity at my residence that can be used to generate and store solar electricity in batteries for nighttime charging, and feeding into the grid for others to use. There need to be updated rules for residential micro-grids whether homes or business, as most charging of vehicles occurs at night when demand is greatest, prices highest, and availability lowest.

- Lack of standardization of charging technology/connectors
- It was expensive to install
- Electricity being used is coming from fossil plants
- Time and expense to install.
- Xcel doesn't offer incentives for the Tesla branded charger
- Installation cost
- I did not install more amps.
- loss of parking spaces without ability to utilize when chargers are not in use (and they are typically not in use)
- Cost to add/install
- Too slow
- Utility (Xcel) not offering a good EV rate

Figure 4 Were you aware of the incentive(s) prior to your decision to install/upgrade your electric vehicle charger?

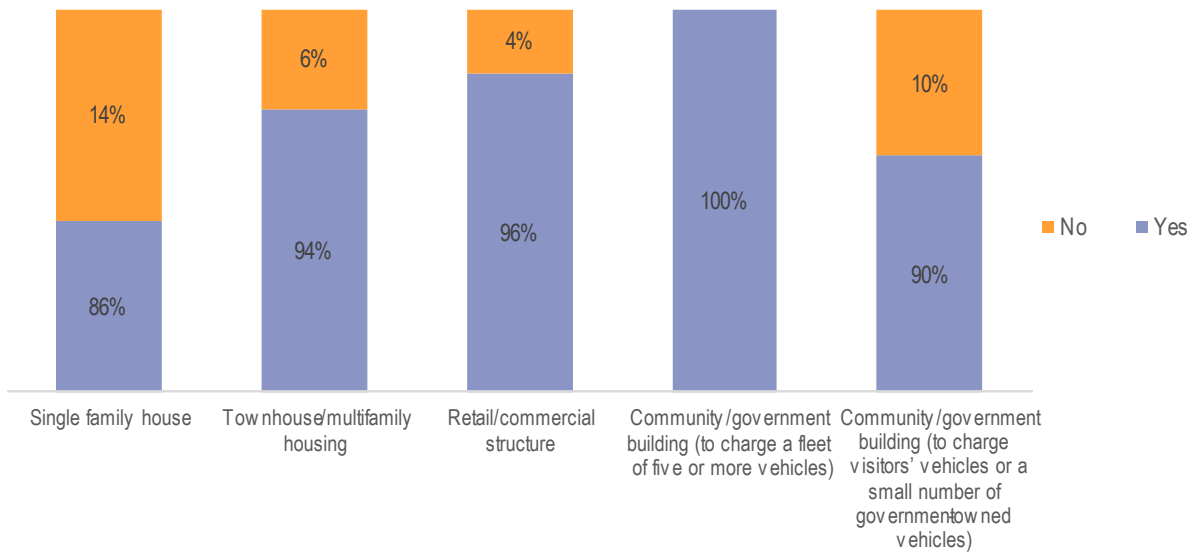


Figure 5 How important was the incentive in your decision to install/upgrade your electric vehicle charger?

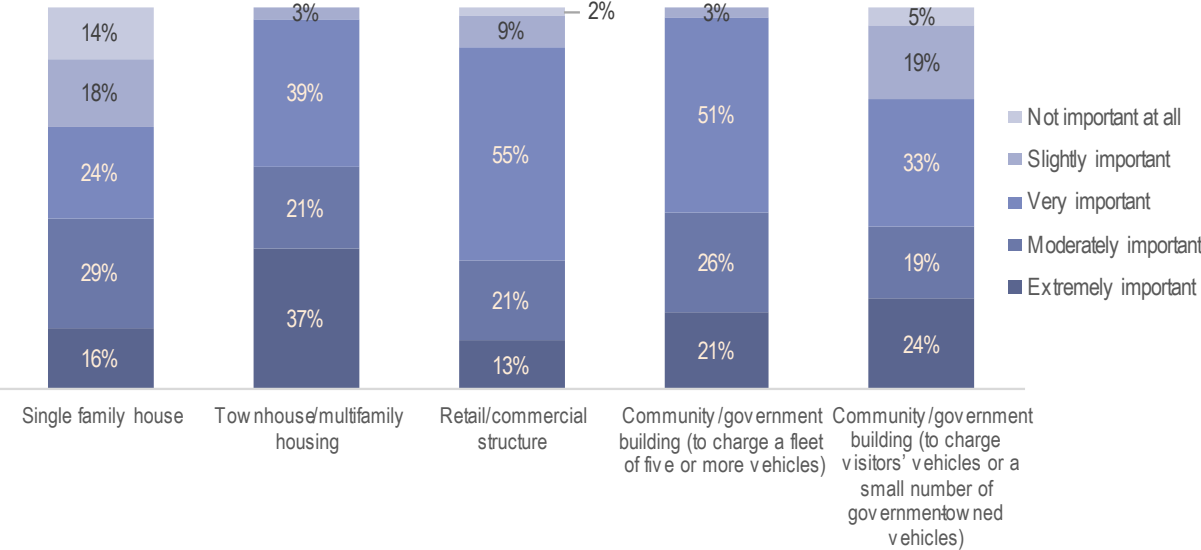


Figure 6 How difficult were paperwork and other program administration?

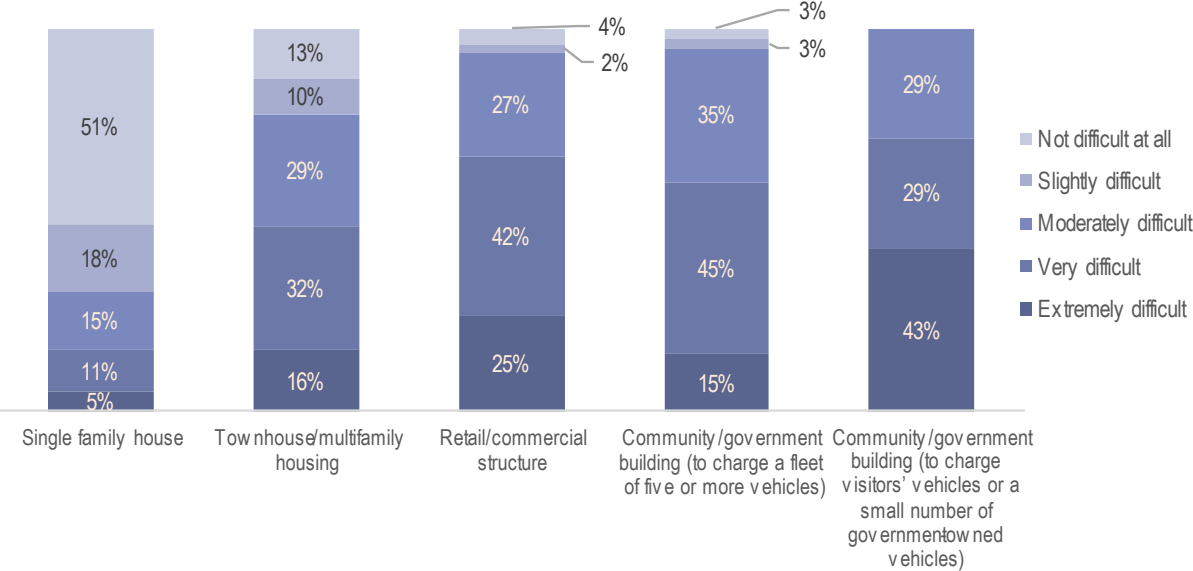


Figure 7 Did an advisor help you process documents?

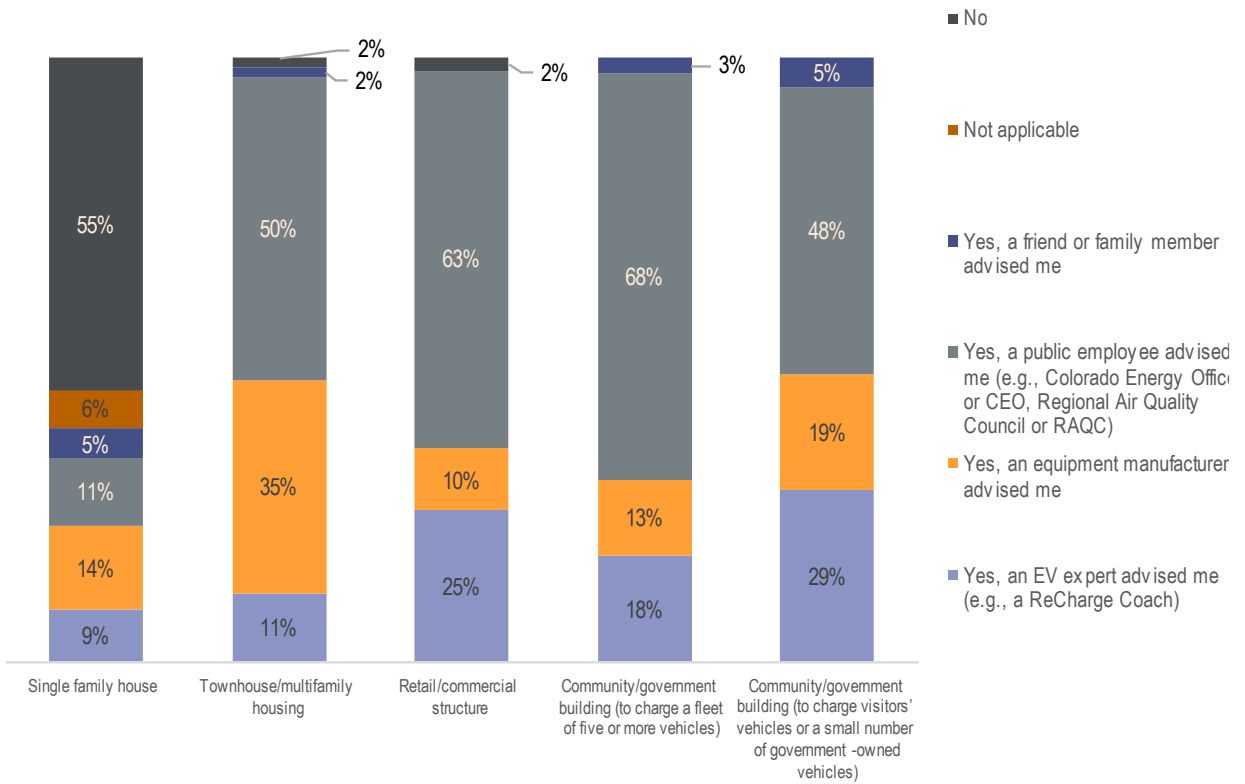
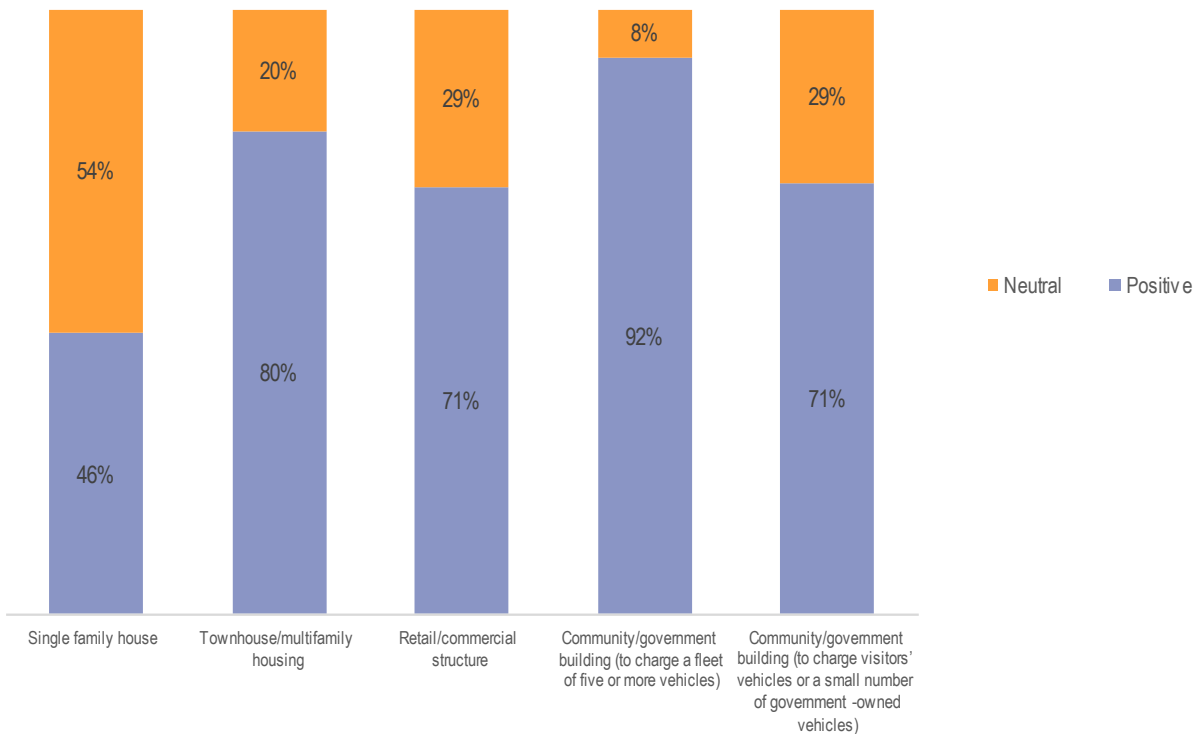


Figure 8 How would you rate your experience with that advisor?



6.3 EV Credit Recipient Responses by People of Color

Responses to questions about BEV purchase incentives are presented in Figure 9 to Figure 19 broken down by respondents' reporting of whether they identify as a person of color (POC) or not (non-POC). Of respondents who reported receiving a tax credit toward the purchase of a BEV, 42 percent identified as a POC, 52 percent did not identify as a POC, and 6 percent preferred not to say.

Regarding awareness of EV tax credits prior to purchase (Figure 9), POCs were more likely (8 percent) to be unaware of the incentive compared to non-POCs (4 percent), yet the overwhelming majority of respondents had prior knowledge. This may explain in part the fact that a full 20 percent of POC respondents were not familiar with EVs or had no interest in one when they began car shopping (Figure 10). More than three times as many POCs had some interest in an EV compared to non-POCs (43 percent vs. 12 percent, respectively), while a full 85 percent of non-POCs were either very interested or only interested in an EV (compared to 38 percent of POCs). This highlights the fact that information gathering during the shopping process may be more important for POC car shoppers. For getting that information, respondents reported a wide variety of sources for learning about the State tax credit (Figure 15). For POCs, the two most common sources (21 percent of respondents each) were community events not related to automobiles and social media. For non-POCs, the two most common sources were news articles (23 percent) and a friend/colleague/acquaintance (17 percent). These responses indicate a need for outreach through a range of mediums—there is no single dominant source of information reported by either group.

The incentive was compelling for a large majority of respondents, and decisive for more than one-third of POC respondents (36 percent) who stated that they would not have made their EV purchase without the State tax credit, and one quarter (25 percent) of non-POCs who said the same (Figure 11). POCs were more than twice as likely as non-POCs to finance their EV purchase with cash—68 percent vs. 32 percent, respectively (Figure 12), and the inverse was true for financing through a loan (61 percent vs. 28 percent for non-POCs and POCs, respectively). This tendency towards cash purchases may explain, in part, why incentives were a deciding factor for about 50 percent more POC respondents relative to non-POCs (Figure 11). For those who did seek financing (Figure 13), similar proportions of respondents used dealer/manufacturer financing (about 40 percent), however POCs were more likely to use a credit union instead of a bank (31 percent vs. 24 percent), compared to non-POCs who were more likely to use a bank compared to a credit union (38 percent vs. 21 percent). A solid majority (77 percent) of POCs reported that their financing agency provided information and guidance about tax credits as a way to lower monthly payments (Figure 14), while two-thirds (66 percent) of non-POCs reported that they did not receive that information.

Most POCs (74 percent) reported that the dealer processed the tax credit for them (Figure 16), however 37 percent also reported that getting information to participate in the State tax credit was difficult or very difficult (Figure 17). Only 26 percent of non-POCs reported that the dealer processed the tax credit, and only 15 percent of non-POCs said the information-gathering process was difficult or very difficult. POCs reported much higher rates of having someone guiding them in the process of the EV purchase (59 percent total), with 22 percent getting advice from an EV expert and 24 percent getting input from a friend or family member (Figure 18). On the other hand, 72 percent of non-POCs did not get additional guidance, and those who did primarily got it from friends or family (16 percent).

Ultimately, 86 percent of POCs and 97 percent of non-POCs are likely or very likely to recommend their EV purchase experience to others (Figure 19).

Figure 9 Were you aware of the availability of EV tax credits prior to your car shopping experience?

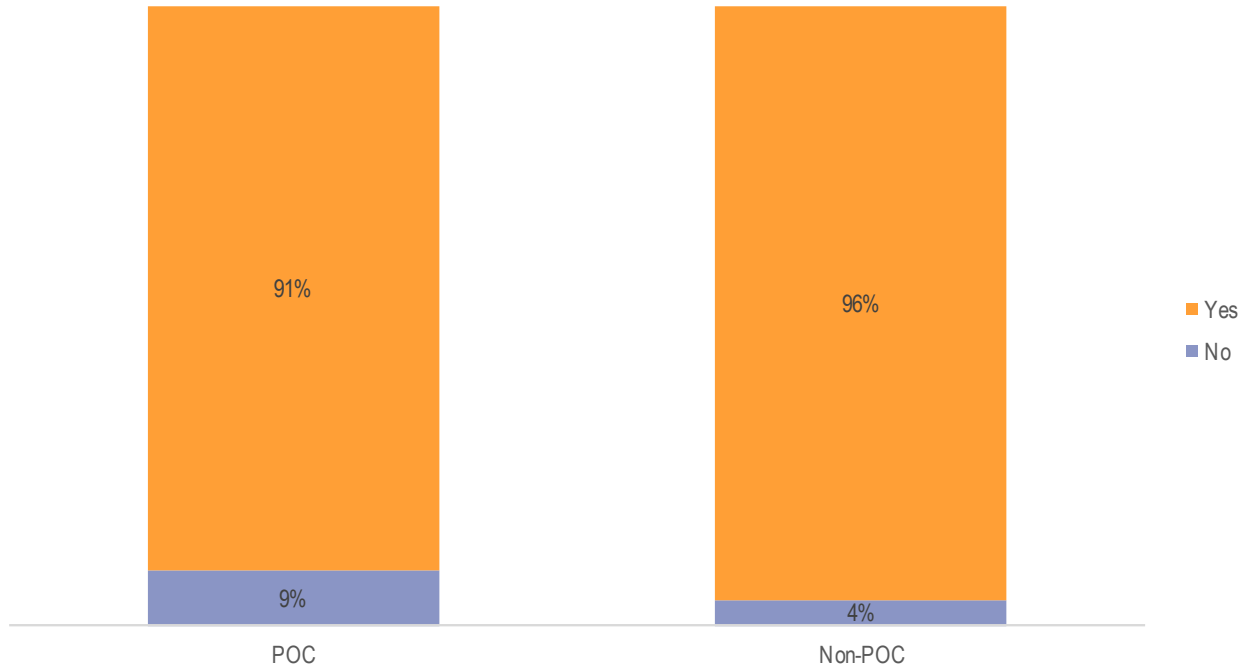


Figure 10 Were you interested in purchasing an EV when you began car shopping?

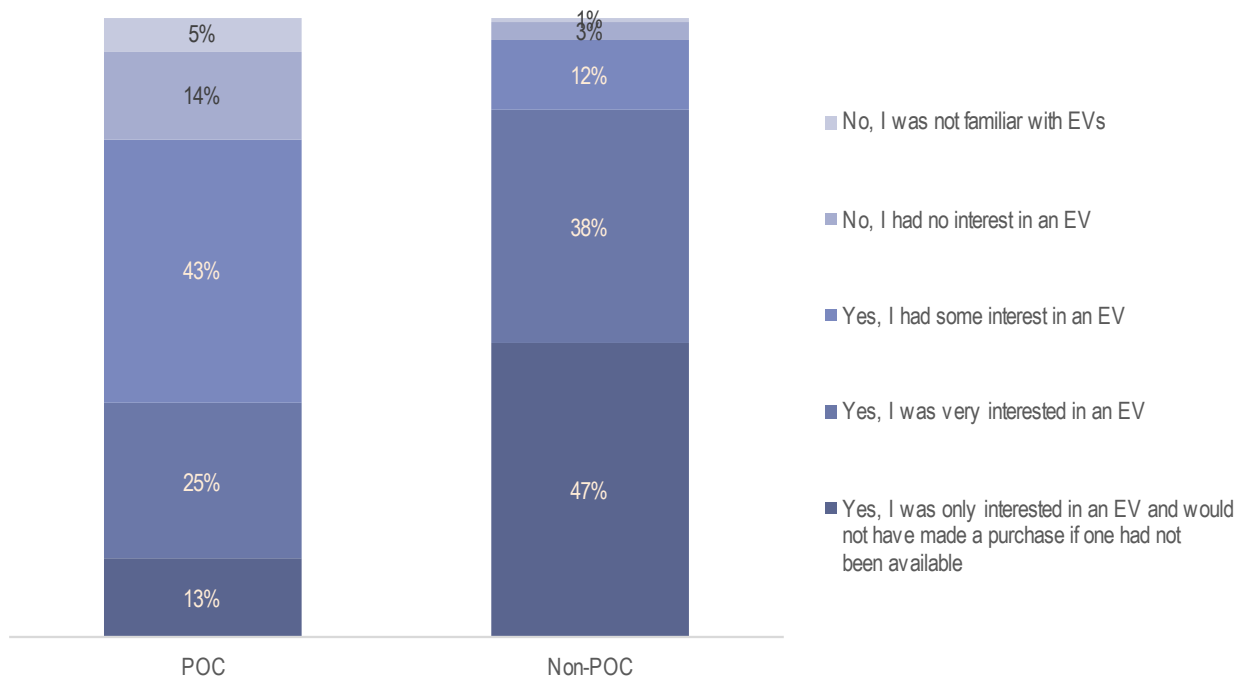


Figure 11 How important was the State tax credit in your decision to purchase an EV?

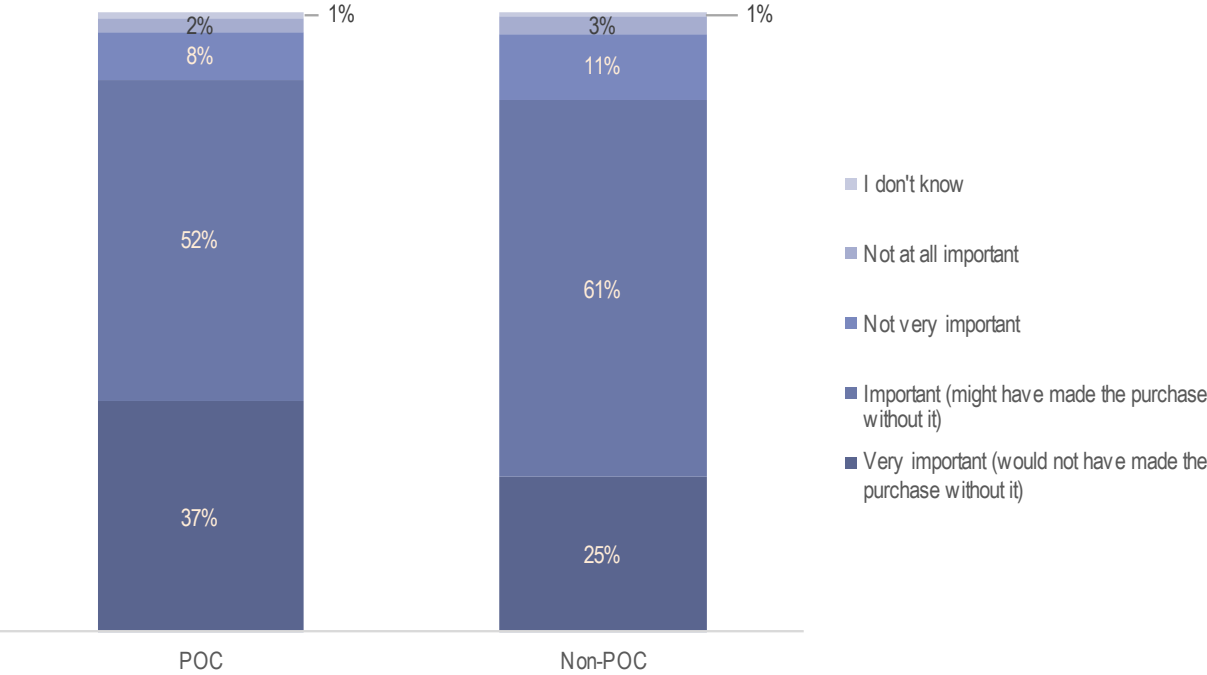


Figure 12 How did you finance your EV?

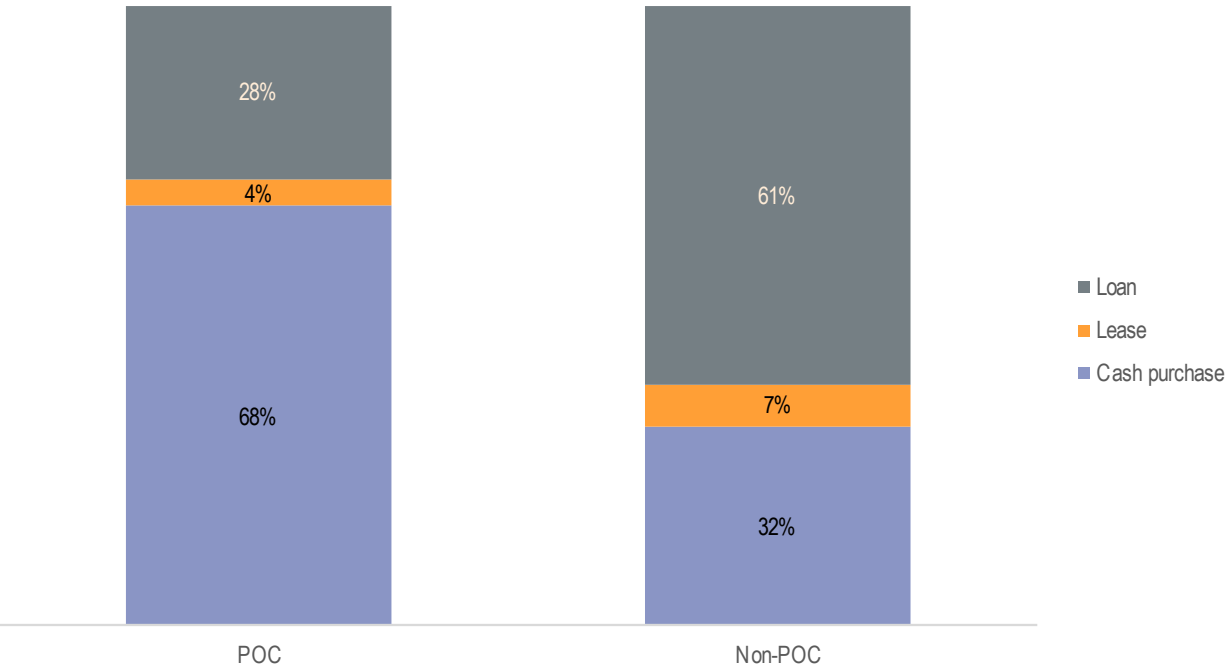
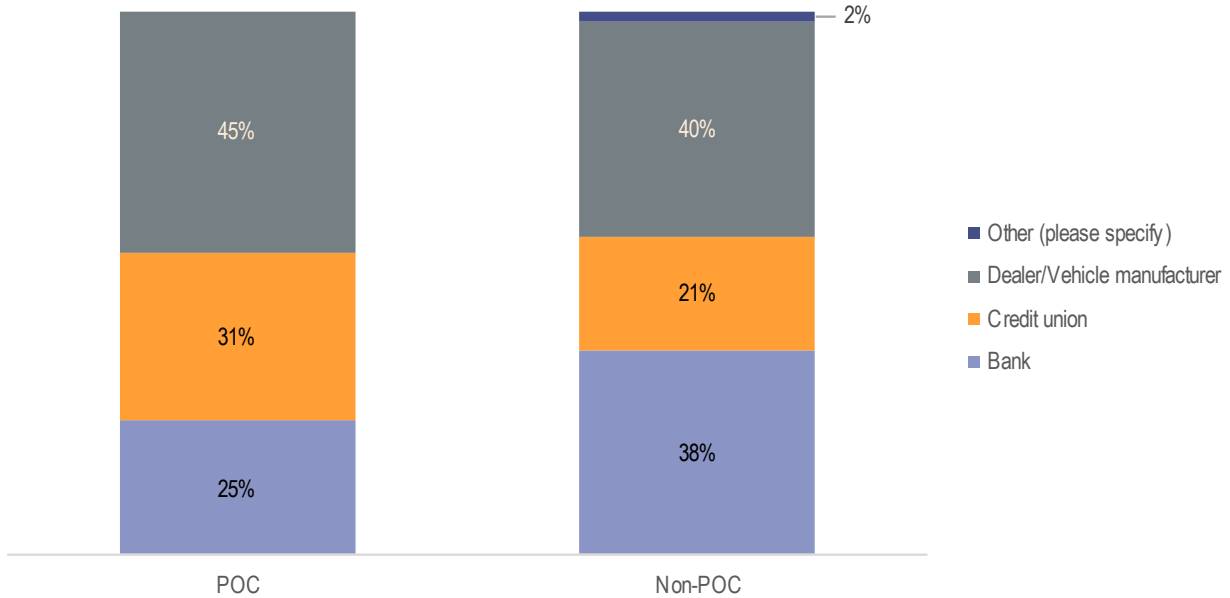


Figure 13 Who financed your EV?



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Should clarify that technically we financed, because that way Nissan would deal with getting the State credit. But we paid it off right away, so it wasn't a need to finance, in case that is something you're measuring.
- USAA [several responses]

Figure 14 Did that financing agency provide you with information and guidance about tax credits that would lower monthly payments?

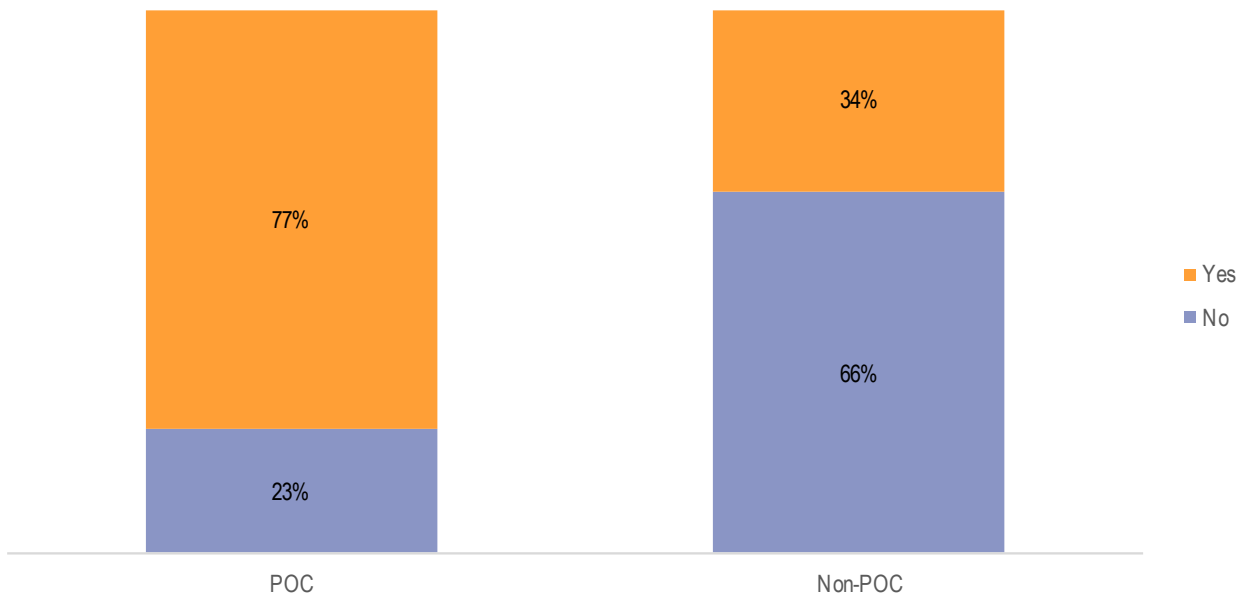
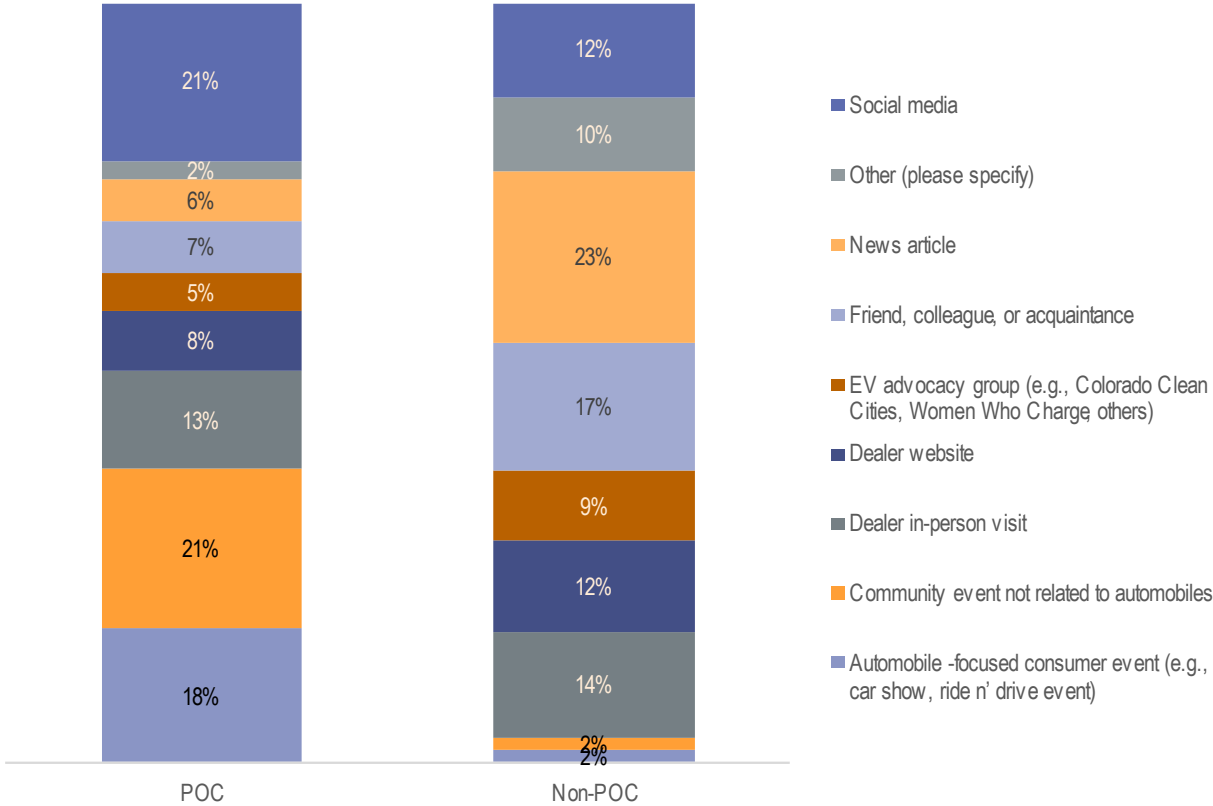


Figure 15 How did you learn about the availability of the State tax credit?



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Finance Advisor
- Google
- Multiple sources
- not sure, just knew based on what I have learned about EVs
- This was not our first EV/Plug in Hybrid—Prius Prime

Figure 16 Did your dealer process the tax credit for you?

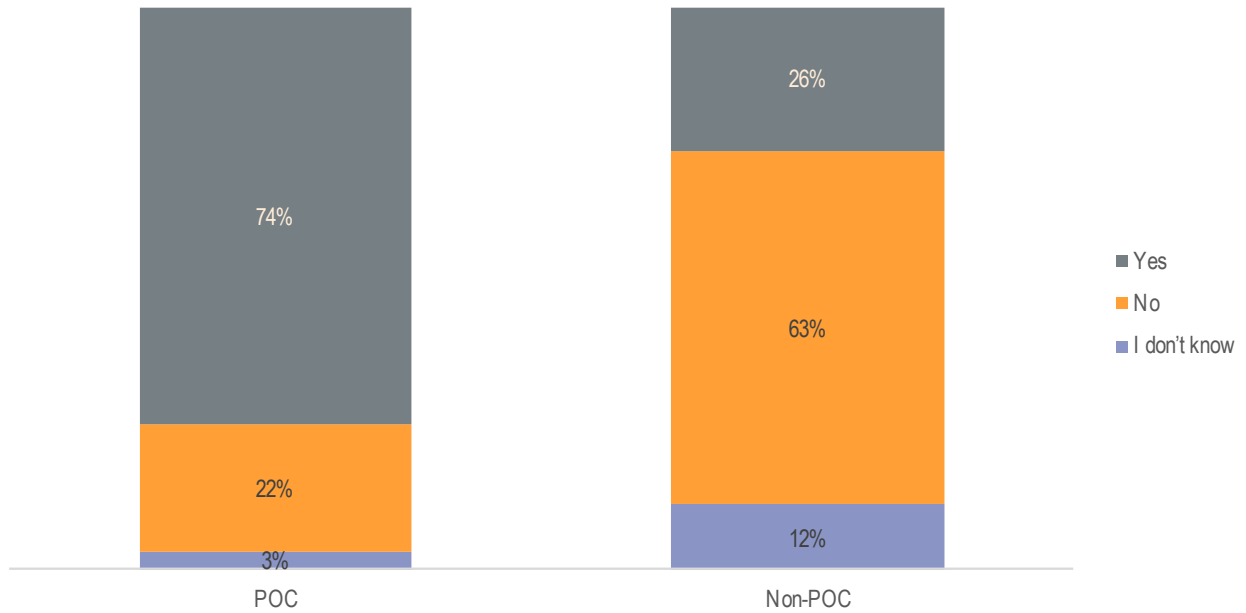


Figure 17 How difficult was it for you to find the information you needed to participate in the State tax credit (e.g., requirements, tax documents, others)?

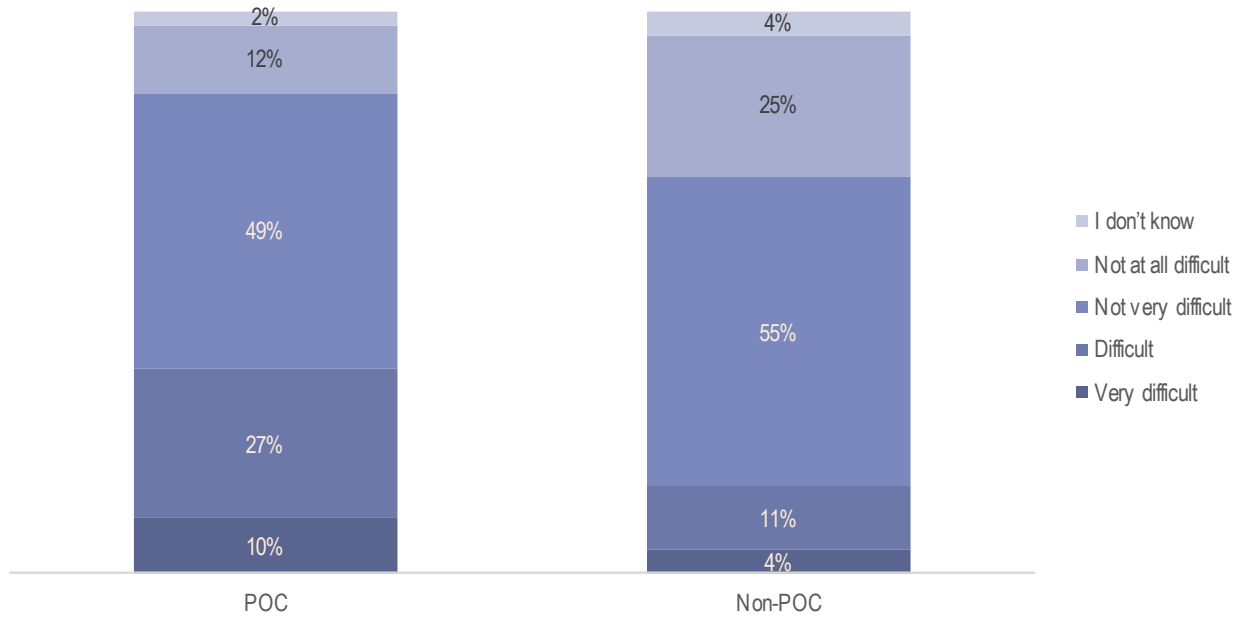


Figure 18 Did you have any other guidance to purchase the EV?

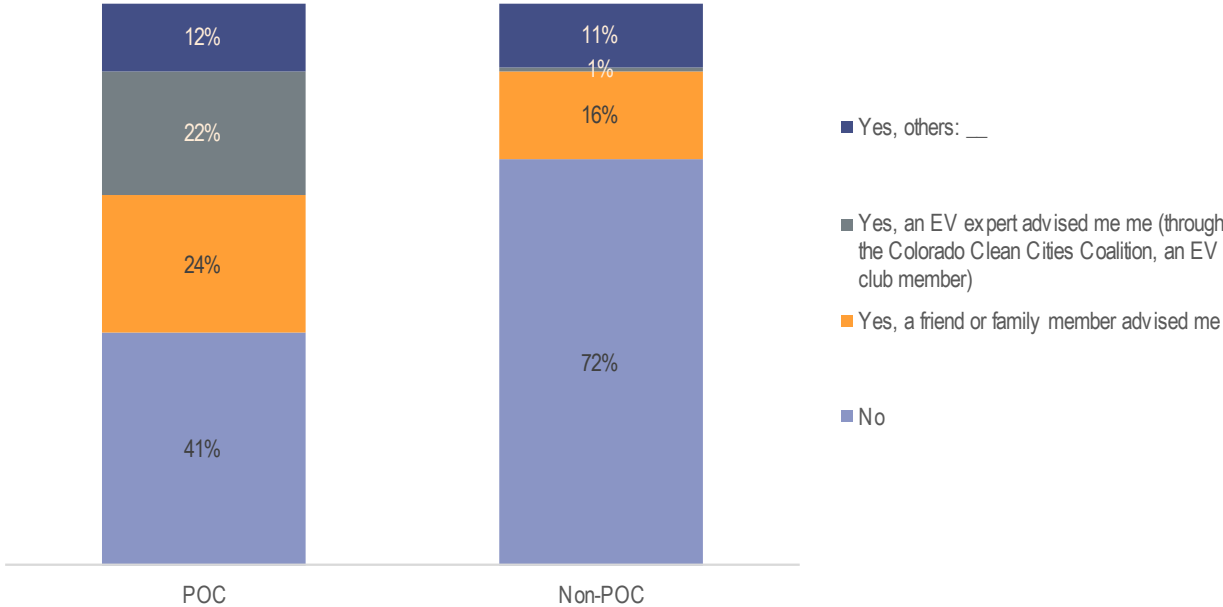
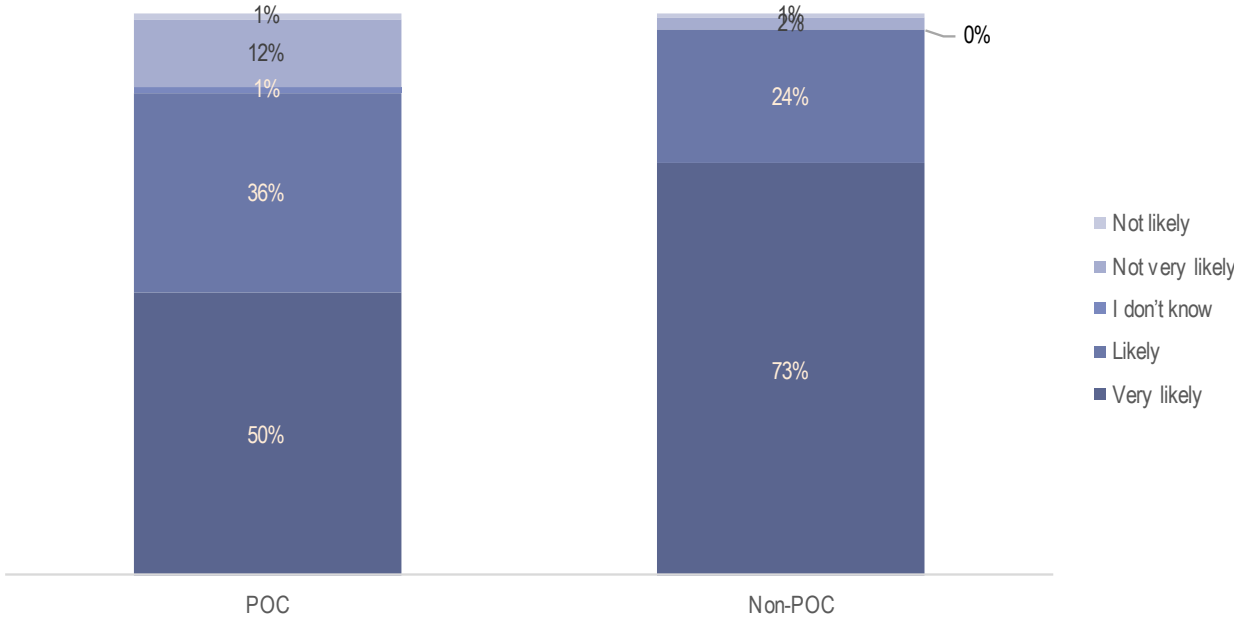


Figure 19 How likely are you to recommend your purchase experience to others?



6.4 EV Credit Recipient Responses by Income

Responses to these same questions about EV purchases incentives are presented in Figure 20 to Figure 30, broken down by respondents’ self-reported household income across three bins, referred to here as lower income (< \$50,000), middle income (\$50,000 to \$99,999) and higher income (\$100,000 or more).

This income-based analysis shows many noteworthy relationships. One is that lower income respondents were least likely to be aware of EV tax credits before shopping for a vehicle (10 percent unaware, Figure 20), while middle income respondents were the least likely to initially be interested in purchasing an EV (19 percent). A larger proportion of lower income (62 percent) and higher income (76 percent) respondents were either only interested in an EV or very interested in an EV when they began shopping, versus 40 percent of middle-income shoppers. Half of lower-income respondents stated that they would not have purchased an EV without the tax credit (Figure 22). This number was 29 percent for middle income respondents and 28 percent for higher income respondents. More than 85 percent of respondents across all incomes said the tax credit was either important or very important.

Similar to the breakdown across people of color (POCs) and non-POCs, all income groups reported a wide variety of sources of information about the State tax credit (Figure 26). The most common source for the lowest-income group was dealer websites (18 percent), while for middle income respondents it was community events not related to automobiles (22 percent). The highest income group reported social media and news articles (both 17 percent) as their most common sources.

Reported financing sources shows a clear trend (Figure 23), with a strong majority of lower income respondents paying cash (71 percent), a majority of middle-income respondents paying cash (62 percent), and fewer higher income respondents doing so (36 percent). For those who used financing (Figure 24), 50 percent of low-income respondents used the dealer or vehicle manufacturer, while a majority of middle- and higher-income respondents (57 percent and 58 percent, respectively) used credit unions or banks. The lower- and middle-income groups were more likely to get financing from a credit union than from a bank. Lower- and middle-income respondents were also far more likely to receive guidance about tax credits from their financing agency (70 percent and 71 percent, respectively; Figure 25), while only 44 percent of higher income respondents reported receiving such guidance.

Lower- and middle-income respondents were more likely to have had their dealer process the tax credit on their behalf (62 percent and 65 percent, respectively), while only 36 percent of the higher income group reported this to be the case (Figure 27). Low-income respondents had a much higher rate (21 percent) of reporting a very difficult time finding the information they needed to participate in the State tax credit (Figure 28). This number was 6 percent for the middle income and 4 percent for the higher income groups.

Half of the lower income group received additional guidance from an EV expert, friend/family member or other source in their EV purchasing process (Figure 29), while only 34 percent of the middle-income group and 31 percent of the higher income group said the same.

The lower income group was the most enthusiastic about sharing their experience with others (Figure 30), with approximately 71 percent of respondents indicating they were very likely to recommend the EV purchasing experience to others. Altogether, approximately 92 percent of lower income respondents indicated that they are either very likely or likely to recommend the EV purchasing experience to others. In the middle-income group, the very likely and likely responses totaled 86 percent, and in the higher income group they totaled 94 percent.

Figure 20 Were you aware of the availability of EV tax credits prior to your car shopping experience?

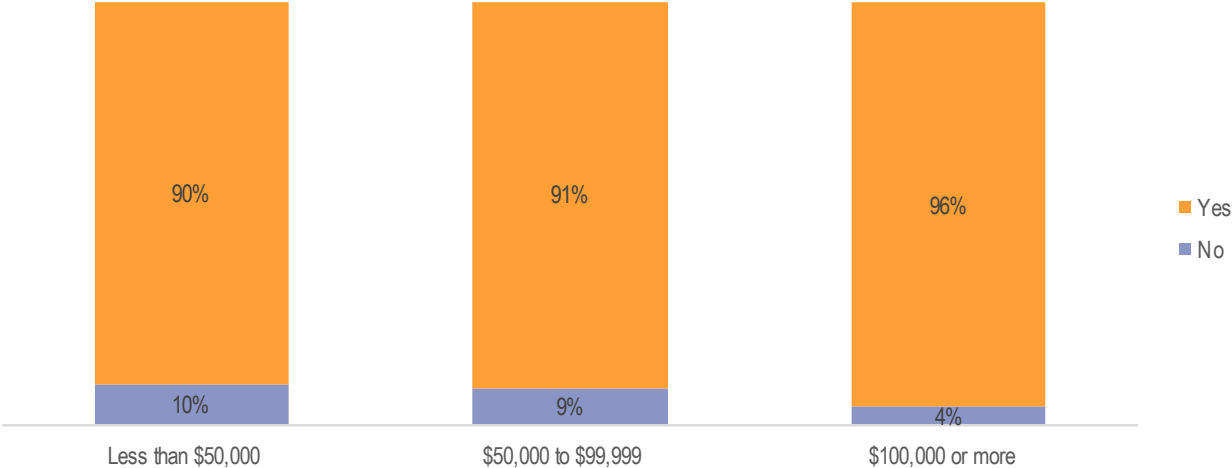


Figure 21 Were you interested in purchasing an EV when you began car shopping?

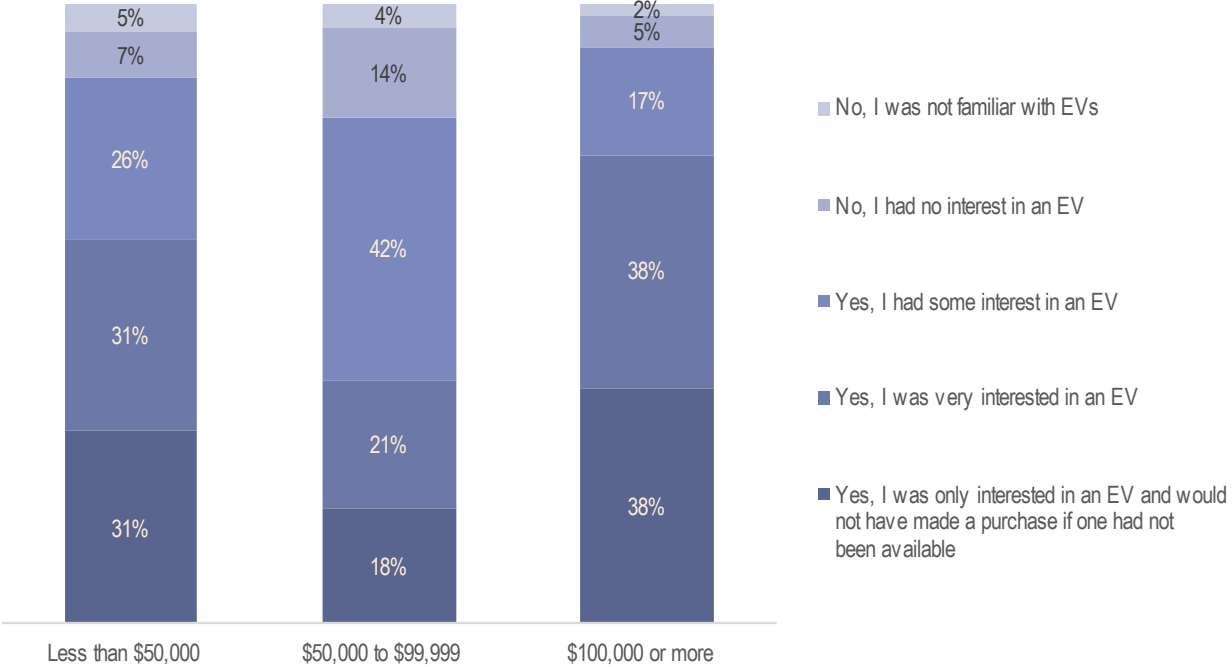


Figure 22 How important was the State tax credit in your decision to purchase an EV?

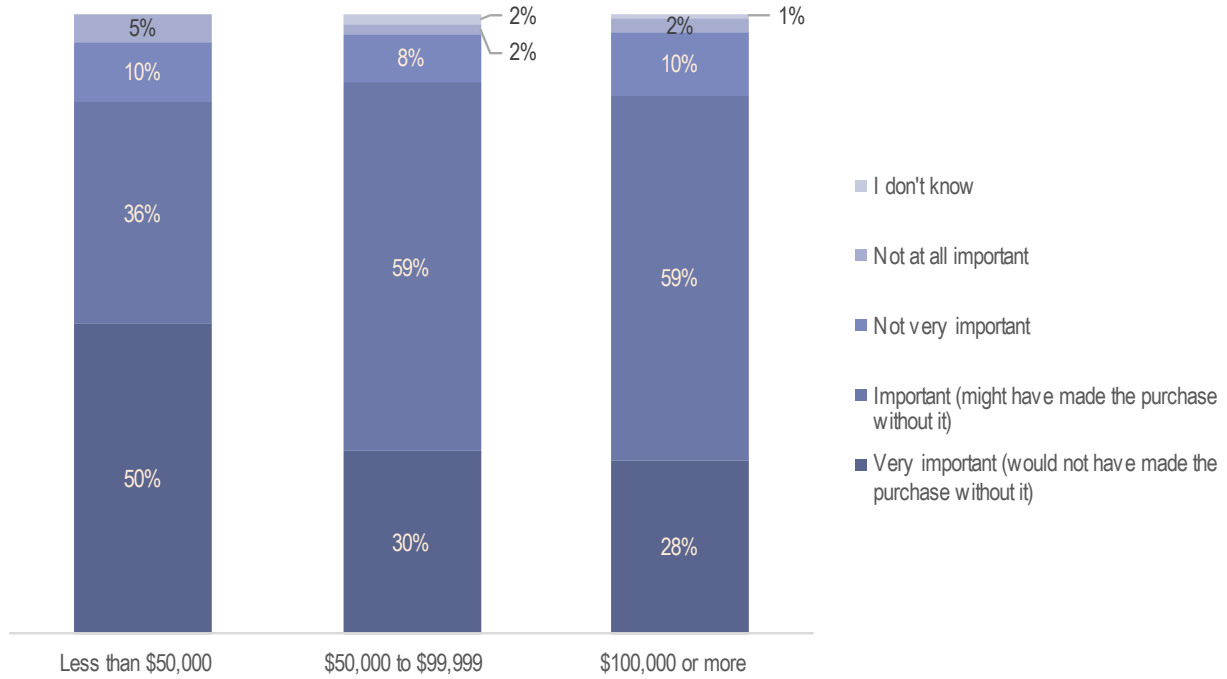


Figure 23 How did you finance your EV?

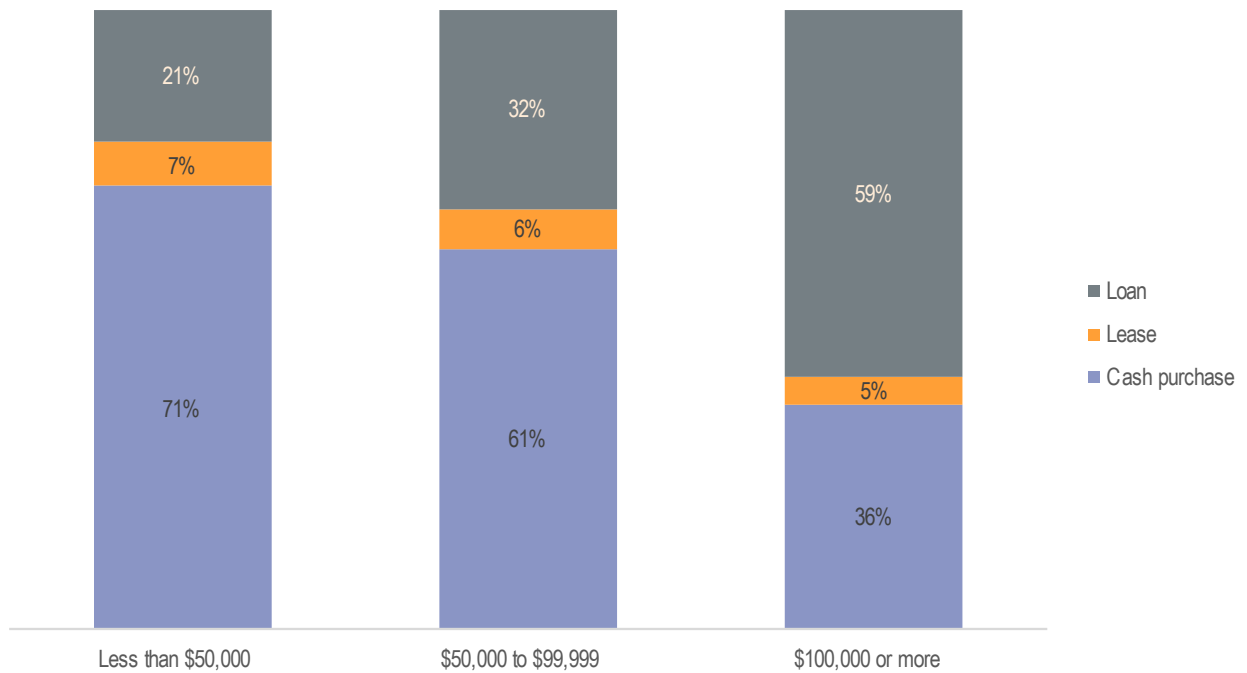
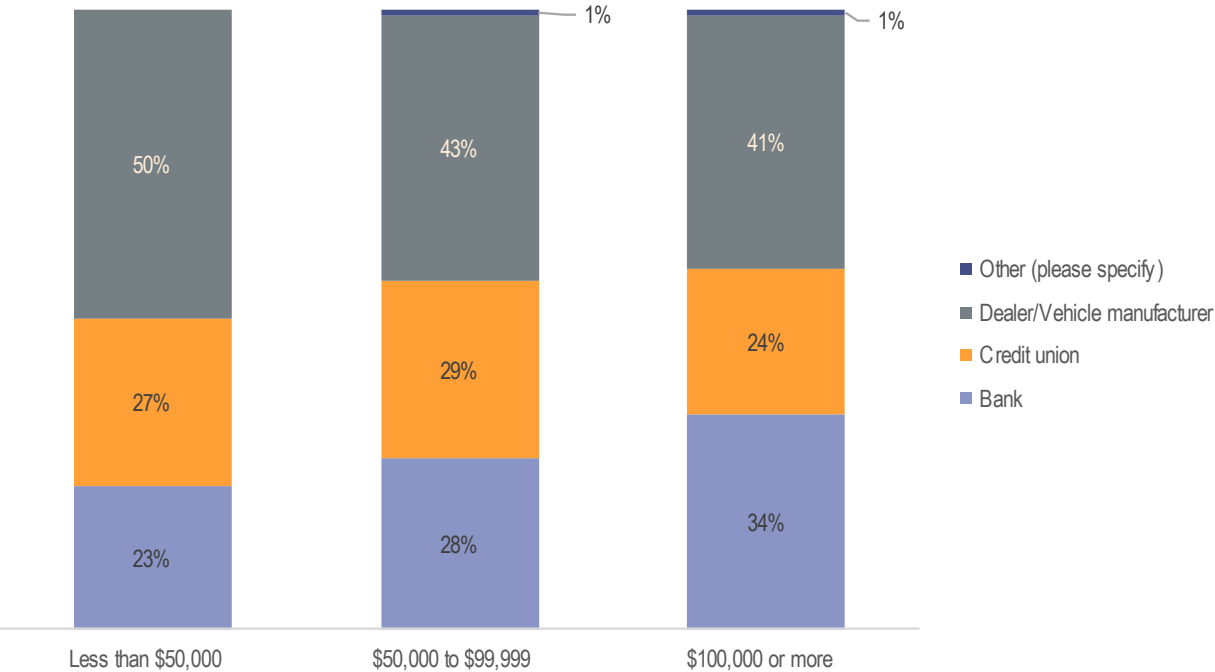


Figure 24 Who financed your EV?



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Should clarify that technically we financed, because that way Nissan would deal with getting the State credit. But we paid it off right away, so it wasn't a need to finance, in case that is something you're measuring.
- USAA [several responses]

Figure 25 Did that financing agency provide you with information and guidance about tax credits that would lower monthly payments?

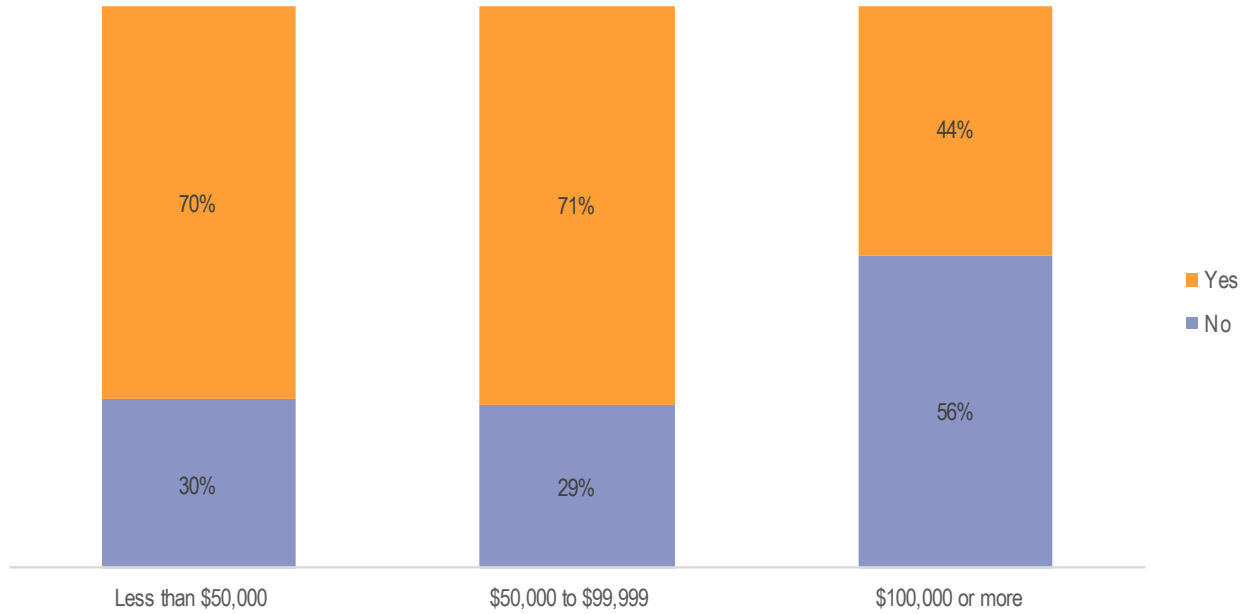
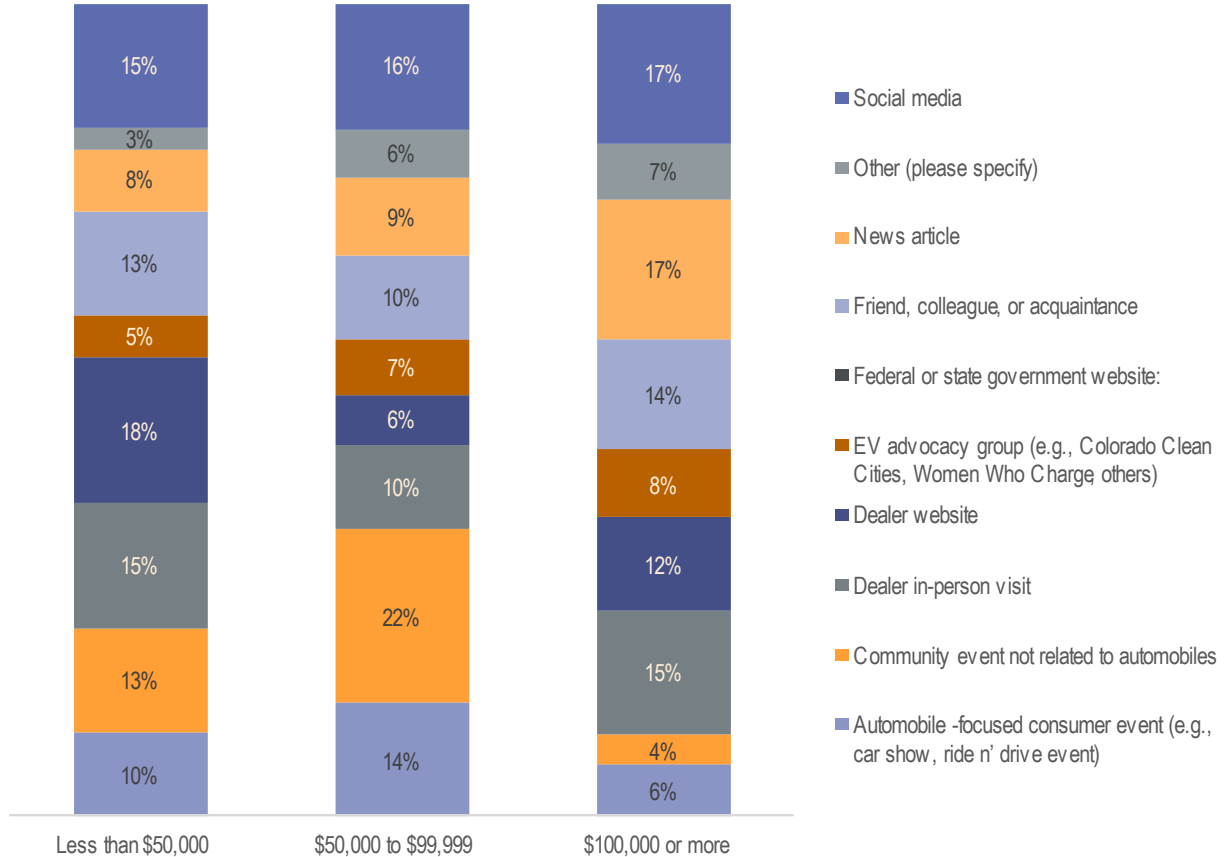


Figure 26 How did you learn about the availability of the State tax credit?



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Finance Advisor
- Google
- Multiple sources
- not sure, just knew based on what I have learned about EVs
- This was not our first EV/Plug in Hybrid–Prius Prime

Figure 27 Did your dealer process the tax credit for you?

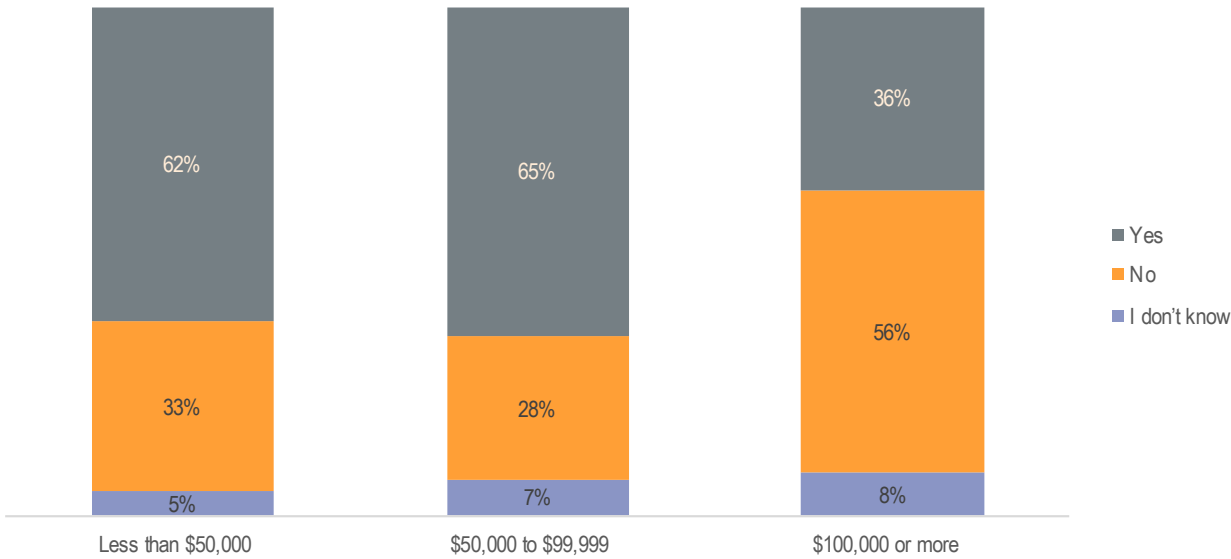


Figure 28 How difficult was it for you to find the information you needed to participate in the State tax credit (e.g., requirements, tax documents, others)?

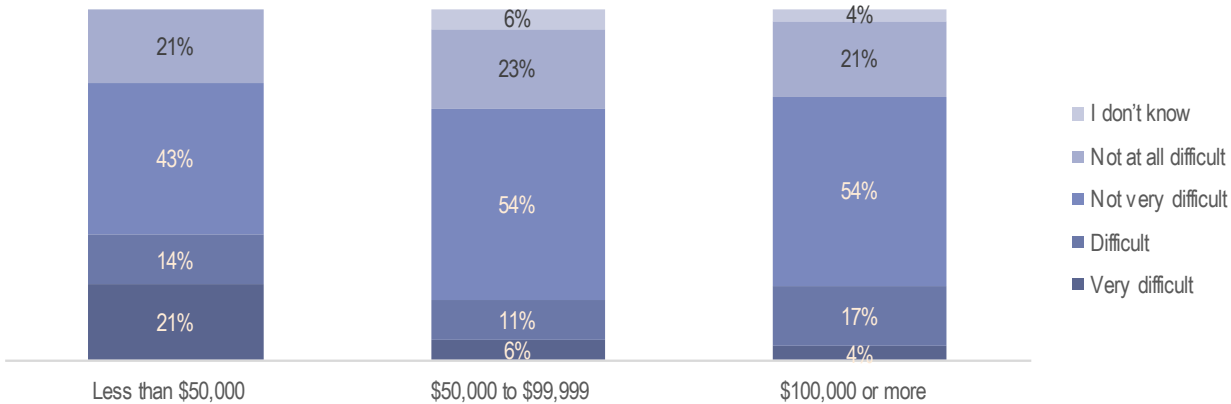


Figure 29 Did you have any other guidance to purchase the EV?

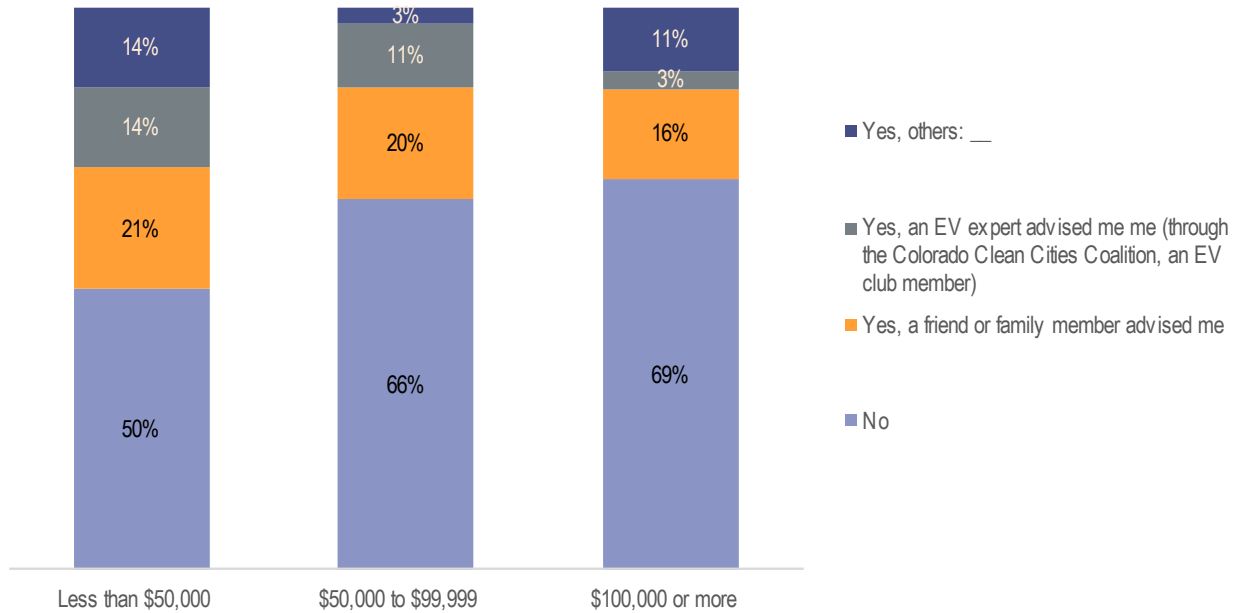
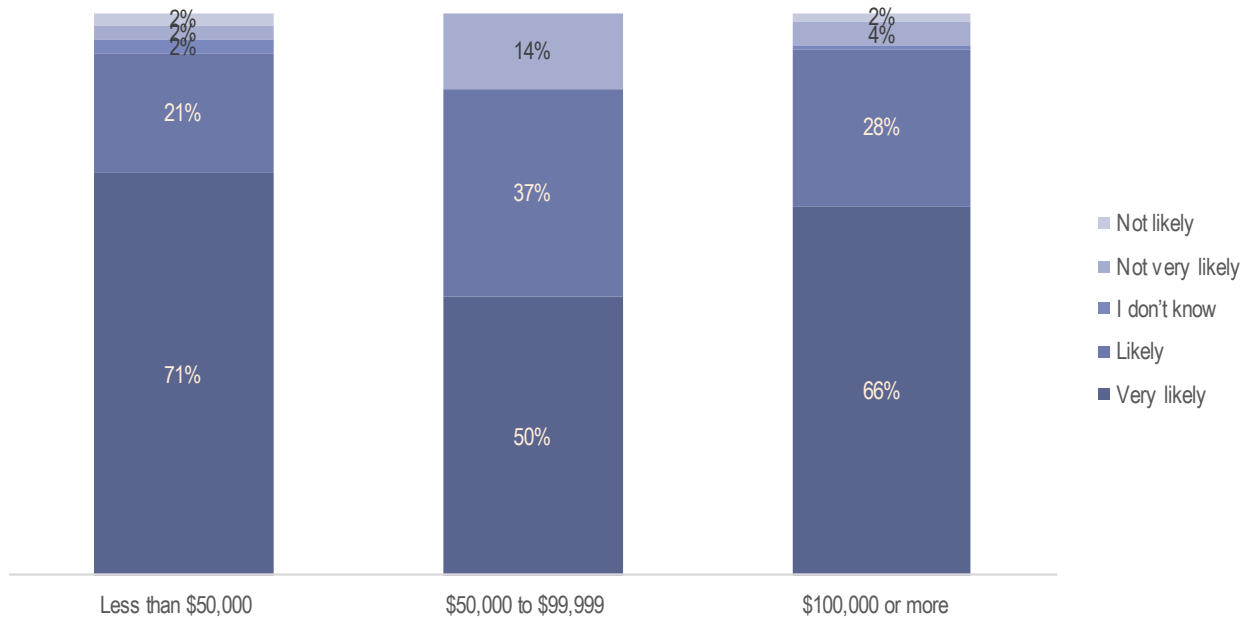


Figure 30 How likely are you to recommend your purchase experience to others?



6.5 EV Potentials

Respondents who did not report receiving a tax credit for a BEV were asked a set of questions about their barriers to potential ownership of a BEV (Figure 30 to Figure 35). These are shown comparing the responses of ‘equity populations’ (self-reported low income, fixed income, person of color, having a disability, or not speaking English well) with ‘non-equity populations’.

Across both groups, the relative significance of different obstacles preventing ownership to owning or leasing an EV were quite similar. The four most common obstacles cited were the same across the two groups and were cost, concern about range, the vehicles available not meeting their needs (not large enough, not able to haul cargo, and not able to travel on dirt roads), and the lack of adequate public charging stations (Figure 31). Less than 15 percent of each group cited lack of awareness of tax credits/rebates, not owning their home and not being able to install or upgrade a charger, or not being familiar enough with EV technology.

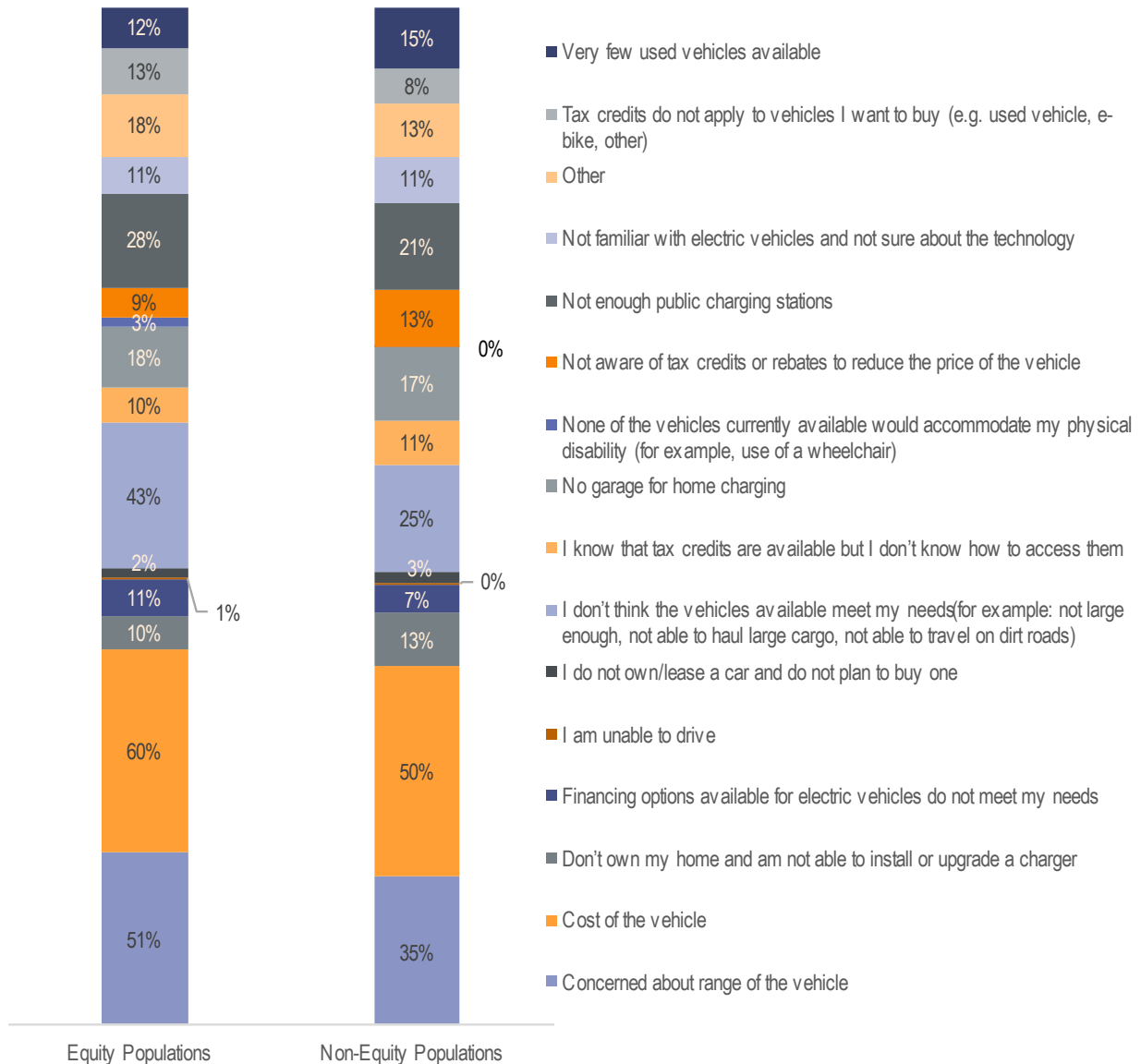
When asked their preferred source of information when shopping for a car, the distribution of responses was again similar for both groups. The most commonly chosen sources were consumer review websites, in-person at the dealership, and manufacturer's websites, as well as friends or family (Figure 32). Non-equity populations were slightly more likely to name Government websites as a source (18 percent vs. 13 percent of equity populations).

When asked about modes that respondents might consider for shorter trips, equity populations named gas or diesel vehicles most commonly (68 percent) and EVs as the next most common (46 percent) (Figure 33). Non-equity population respondents were roughly as likely to say an EV (54 percent) compared to a gas or diesel vehicle (55 percent). Active transportation modes (bicycle, bikeshare/scootershare, e-bike/e-scooter, and walking) were more frequently chosen by non-equity population responses than equity population responses, but generally just by a few percentage points. Non-equity populations were more likely to say they would consider carshare or transit as an option (18 percent and 13 percent, respectively) compared to the equity populations (16 percent and 11 percent, respectively).

More equity population respondents were aware of Colorado's EV tax credit (56 percent) compared to the non-equity population respondents (41 percent) (Figure 34). Though awareness is greater in equity populations, there is clearly room to expand awareness across both of these groups.

When asked what options would help respondents consider an EV for their next vehicle purchase, the distribution of responses between the groups was again very similar (Figure 35). A website with information on options and a test drive to experience the vehicle were the two most common responses (ranging from 31 percent to 41 percent). Advice from an impartial advisor was selected more frequently for both groups (19 percent for equity populations and 29 percent for non-equity populations) compared to advice from a friend/acquaintance (14 percent for both groups). Slightly more equity population respondents are interested in greater flexibility for how to spend the tax credit (e.g., used car, transit, e-bike), with 20 percent expressing interest in that option compared to 19 percent of the non-equity population respondents. A phone number to call with questions was slightly preferable to a mailer or an in-person flyer across both groups.

Figure 31 What obstacles prevent you from owning/leasing an electric vehicle? Please select all that apply.



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Ability to install on the parkway, between the sidewalk and the street. I have no garage.
- Better electrician availability and pricing
- Charge card charger for individuals to swipe in order to charge their vehicle
- HOA related barriers [several]
- I live in a rural area [several]
- If more electricity came from nuclear generation [several]
- larger SUV electric vehicles that go greater distances

- Lower overall environmental impact in manufacturing batteries
- More solar and other renewables in the grid mix [several]
- Range of distance far enough to make it comparable to existing vehicle. I drive to TX 11 hours or more.
- Someone to manage the installation of the stations. applying for the grants and filling in the applications on my behalf.

Figure 32 In general, when shopping for cars, where do you prefer to get information on your options? Please select all that apply.

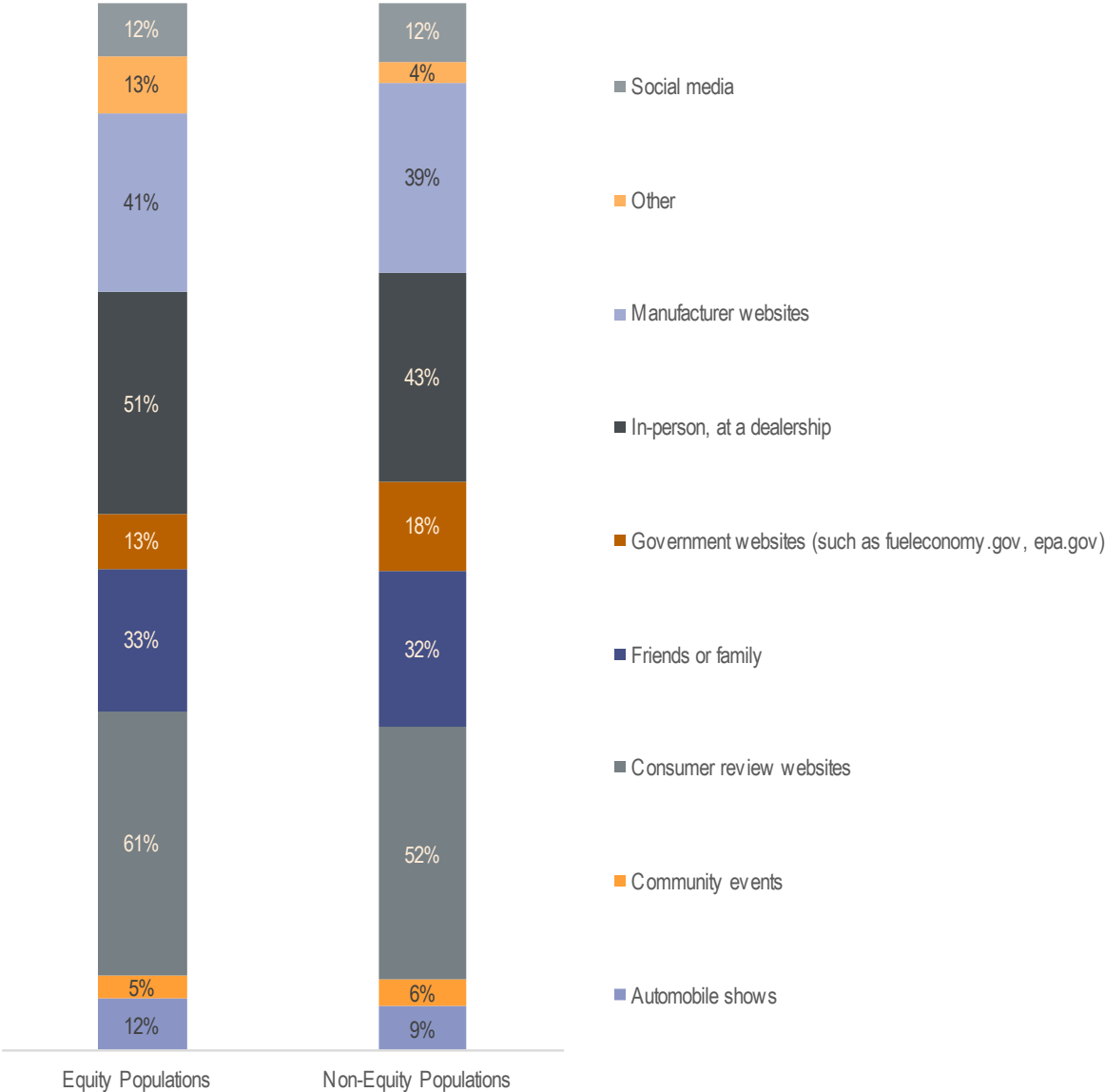


Figure 33 For shorter trips (for example, trips to a grocery store or a workplace), which options would you consider? Select all that apply.

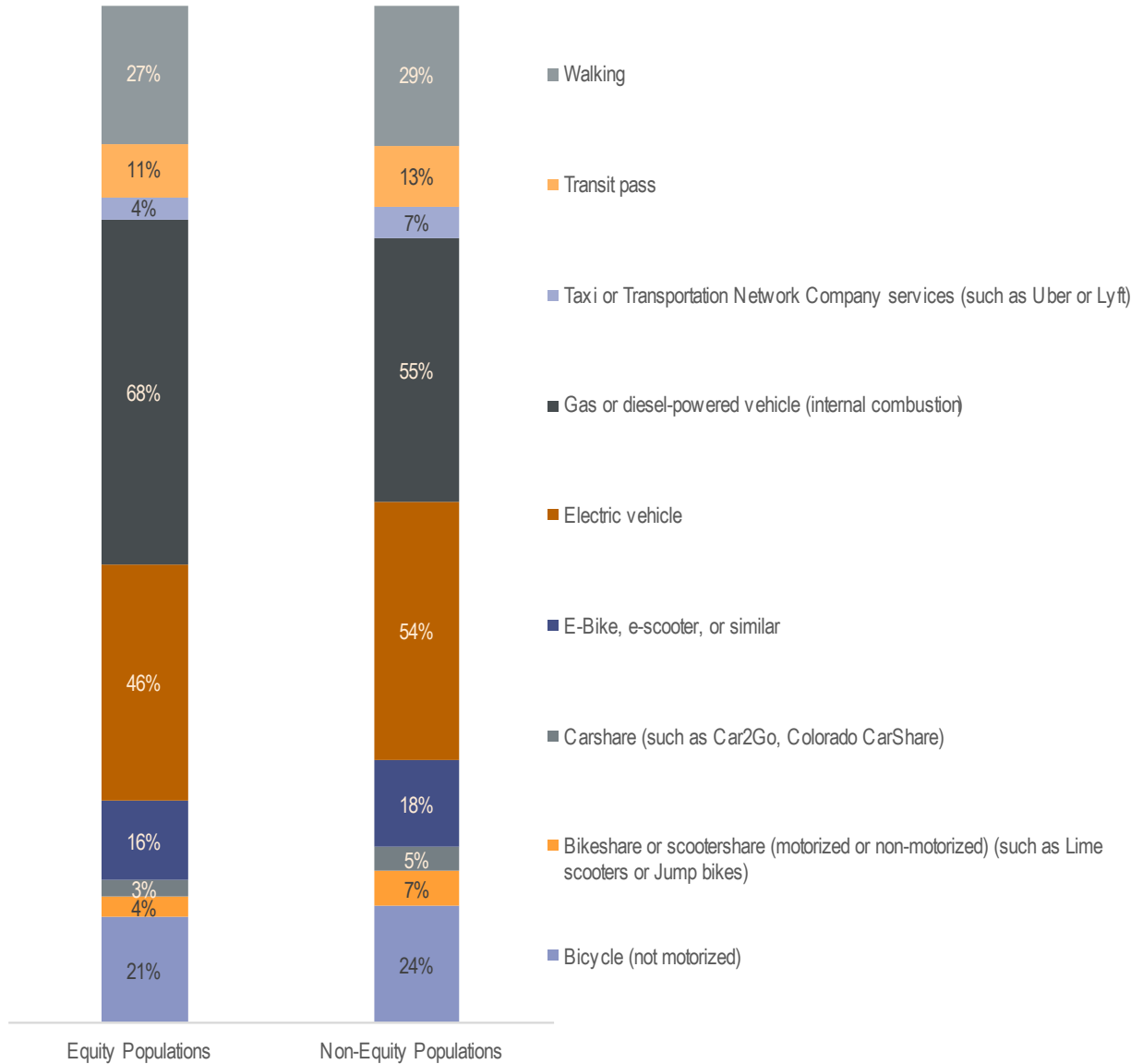


Figure 34 Did you know that Colorado offers tax credits to help reduce the cost of an electric vehicle?

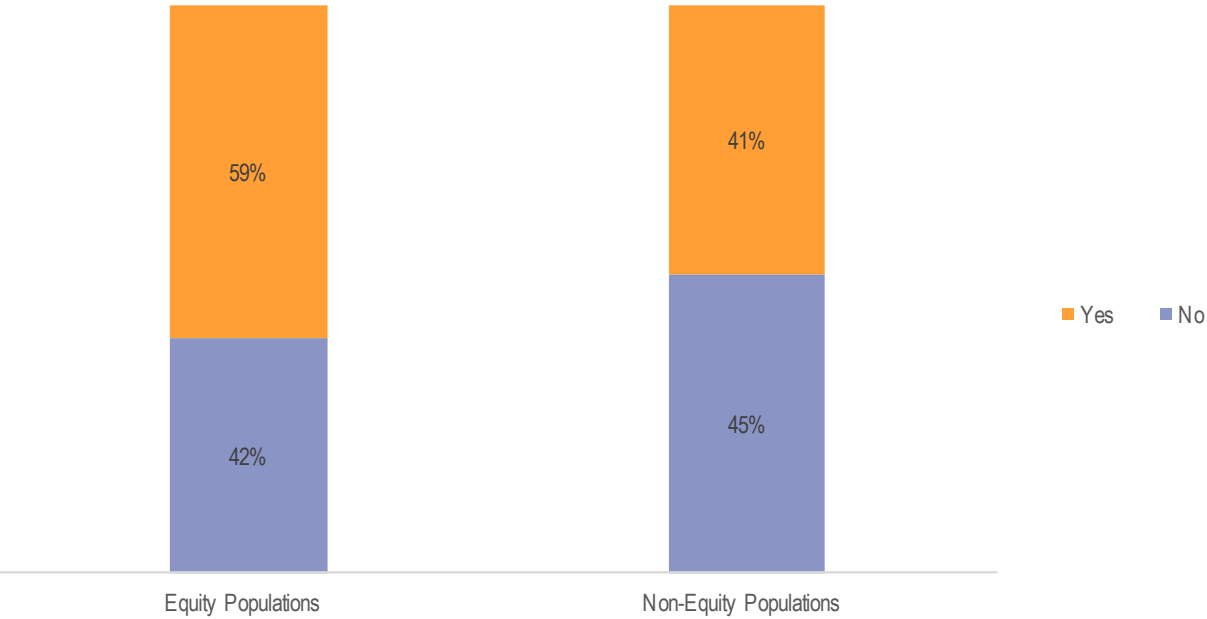
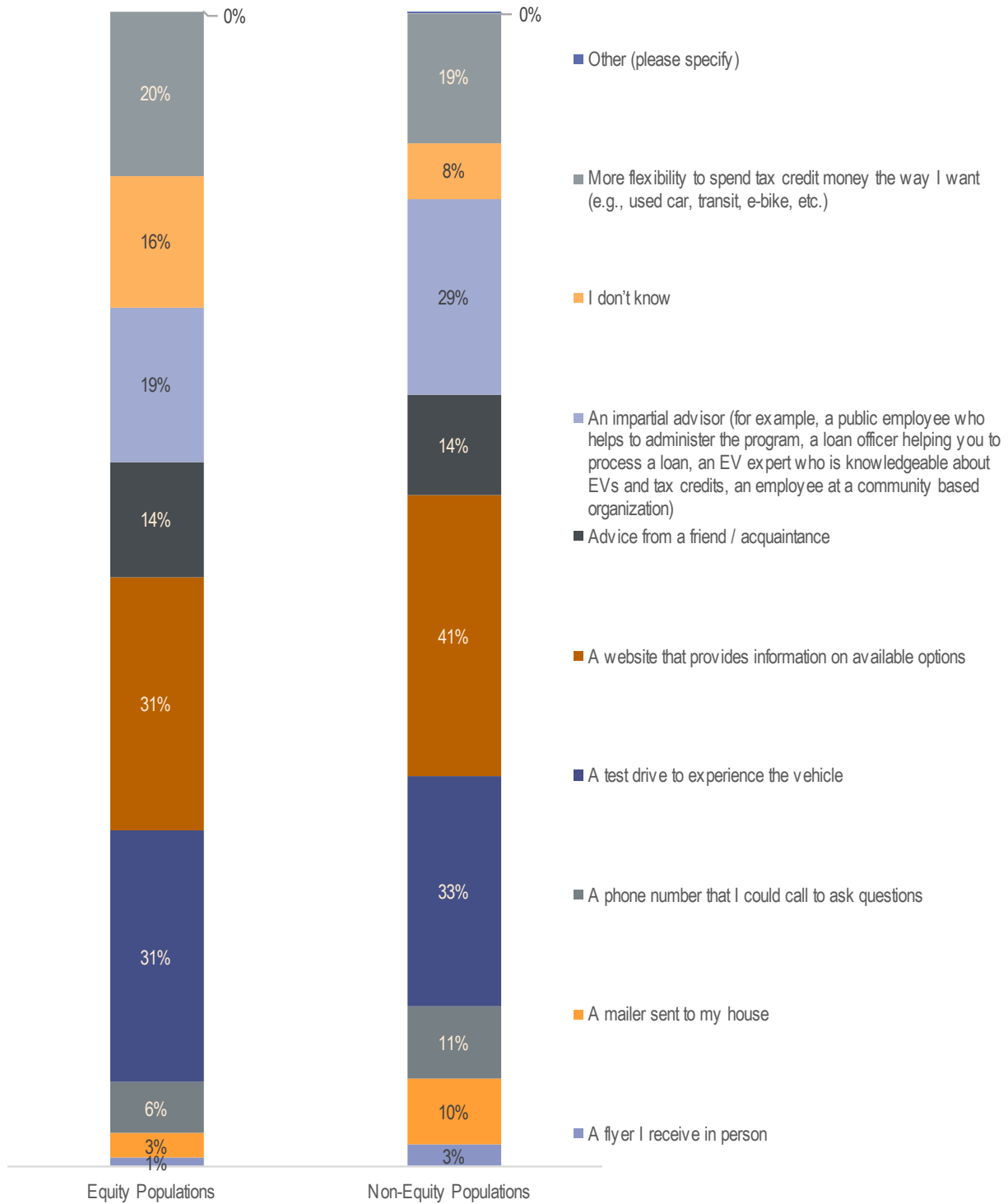


Figure 35 For your next vehicle purchase, what options would best help you to consider purchasing an electric vehicle? Please select up to two.



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- An impartial analysis showing the true cost of ownership/operation of electric vs internal combustion.
- Apply incentives at point of sale on new vehicle to reduced financed amount vs tax credit later
- Better vehicle specifications [several]
- Do not make enough money to take full advantage of tax credits (e.g., do not earn enough to file taxes) [several]
- Expanding on the website and phone number—a robust inventory of EV/PHEV models available in Colorado including cost, range, battery size, cargo room, FWD vs. AWD vs 4WD, clearance, battery lifetime, impacts of cold on battery performance & lifetime, any insurance differences between EV & gas cars, whether AAA provides emergency roadside assistance for charging an EV, safety features, and a charger map. The challenge with such a website or call center is keeping current enough on rapidly changing technologies and model availability.
- I purposely don't own a car. I don't want to ever buy a car again if possible because of the ease, health for me and health for planet and savings I experience for not owning a car. I do occasionally use Colorado Car Share and love that they have EV vehicles.
- Improved battery longevity. We tend to keep vehicles for at least 1 to 15 years. Need a battery that lasts that long with little or no degraded performance or a replaceable battery.
- Increased tax credit with lower income
- Carshare; for me I cannot afford to purchase one, but can afford to be a member of the carshare
- Knowing the costs of hiring an electrician to upgrade my wiring. Knowing the typical increase of cost on my electric bill
- More vehicle options and information about their performance (operating specifications and sustainability ratings, especially related to the battery) [several]
- positive review by Consumer Reports
- Social media
- Used car credit [several]
- Wider range of available EVs. How about an electric Subaru Forester?

6.6 EV Charging Infrastructure Potentials

Respondents who stated that they own or manage property, but have either not added chargers or stated that they rent the property and cannot add charging, were asked a series of follow-up questions about

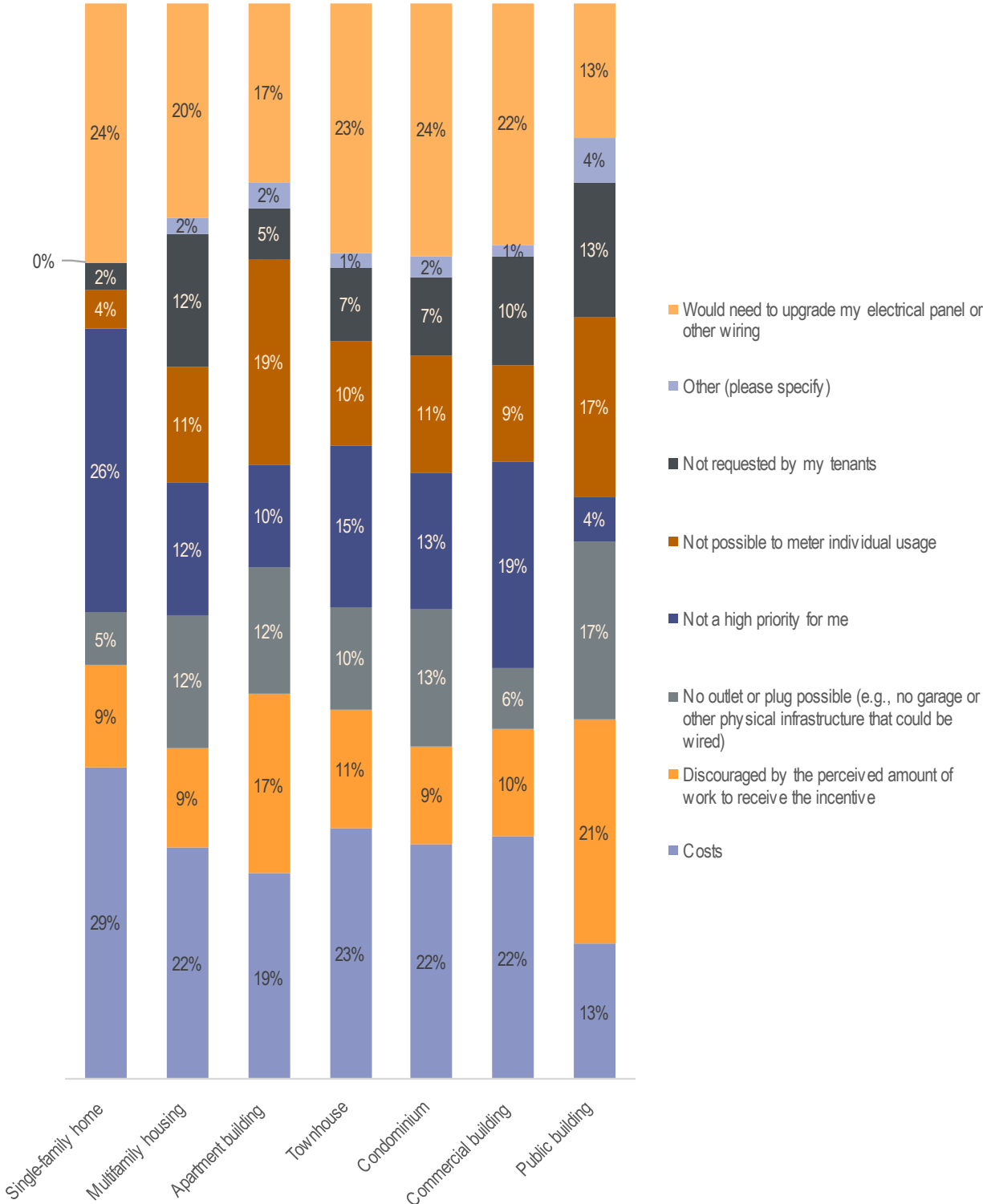
their barriers to potential installation of EV charging (Figure 36 to Figure 38). Responses are broken down by type of building that the respondent owns or manages.

Respondents were given eight options of obstacles preventing them from adding EV charging in their building (Figure 36). Single family home respondents were an outlier in saying that installing EV charging is not a priority for them (26 percent). They were also the most likely to cite costs as a barrier (29 percent). For all other groups the responses were more dispersed across the obstacles categories, with costs and needing to upgrade electrical panel or wiring most commonly cited. Between 20 and 25 percent of respondents for all categories except apartment buildings and public buildings said that upgrading electrical panel or other wiring is a barrier. Apartment building and public building respondents were the most likely to cite inability to meter individual usage (19 percent and 17 percent, respectively) and also the two groups most likely to be discouraged by the perceived amount of work to receive the incentive (17 percent and 21 percent, respectively).

Concerns about specific costs were also quite dispersed across the nine options provided (Figure 37), with up-front costs—electrical upgrades, cost of the charging station itself, and cost of electricians/contractors—generally of greater concern than ongoing costs of maintenance and electricity. The exceptions were apartment buildings, commercial buildings, and public buildings, for whom ongoing maintenance costs were of concern to a similar number of respondents as the up-front costs.

When asked to select up to 3 incentives that would help respondents consider installing/upgrading EV charging infrastructure, public building respondents preferred more flexibility for how to spend incentive money (14 percent), and reduced cost of electricity and infrastructure (11 percent each). Commercial building respondents said reduced cost of infrastructure (17 percent), would not consider this (13 percent), reduced cost of electricity (12 percent) and support from the utility (12 percent) as the top options. Condominium respondents named support from the utility most frequently (16 percent), then an impartial advisory (14 percent), and reduced cost of infrastructure (14 percent) rounded out their top three. For townhouse respondents, utility support and reduced cost of infrastructure were both 18 percent of responses, with reduced cost of electricity as the next most common (11 percent). For apartment buildings, utility support was also the most common response (14 percent); second, with 13 percent of respondents, was reduced cost of infrastructure, and then impartial advisors, a payment system that allows charging EV owners directly, a website that provides information on available options, and reduced electricity were all chosen by 10 percent of respondents. Multifamily housing respondents had a slightly different combination, with reduced cost of infrastructure and a website providing information on available options (13 percent each) and an impartial advisor (12 percent) rounding out their top three. Single family home respondents were more likely to say they would not consider EV charging (16 percent) and that utility support (15 percent), and reduced cost of infrastructure (16 percent) would be helpful. Across these responses, reduced infrastructure cost and support from the utility stand out as the most prominent opportunities to remove barriers to EV charging identified by these respondents.

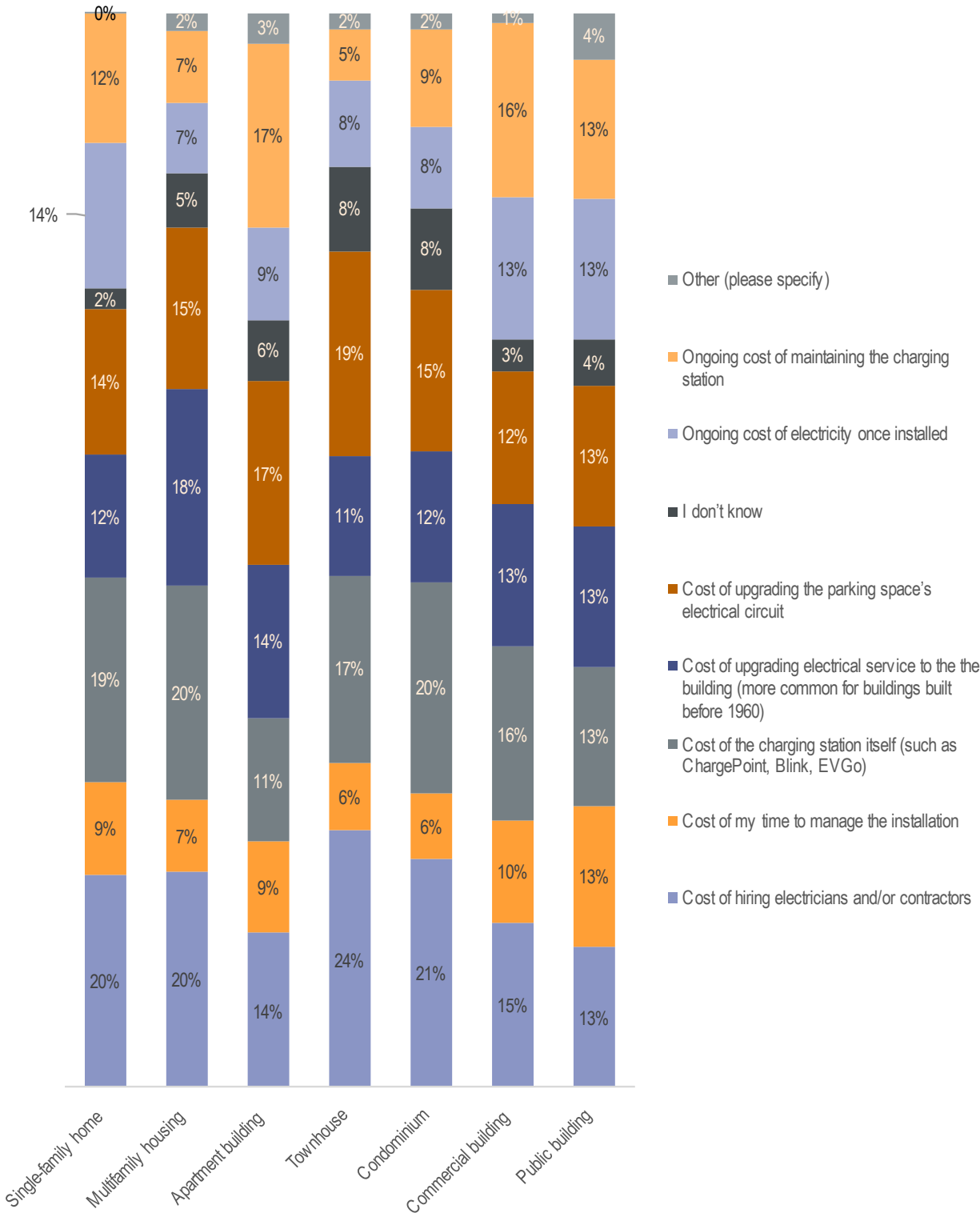
Figure 36 What obstacles prevent you from adding electric vehicle charging capabilities? Please select all that apply.



A selection of the 'other' responses is included below for respondents who provided additional detail:

- Condo HOA just accepted for Xcel Energy grant for EV charging infrastructure; separate grant for 2 dual port chargers
- HOA won't allow it
- I can charge my EV just fine off 12v outlet
- I haven't explored the process because my current hybrid car is only 5 years old.
- I own an electric vehicle; however, it was not necessary to install additional infrastructure as the existing wall plug is acceptable to charge the vehicle.
- Just confusion about the process
- Not planning to purchase EV because of concerns about range [several]
- Not enough space (garage too small, no garage, or no off-street parking) [several]
- Projected sale of home in a few years.
- There are no qualified electricians in Crowley County
- Uncertain about support from power company
- Use Level 1 and Level 2 plug-in chargers (both types of outlets were already in place)
- Waiting until EV purchase with V2H technology
- We have 22v Service in our garage, but don't know if that would apply if buying an EV.
- We need to buy an electric truck first, there is a long reservation list.

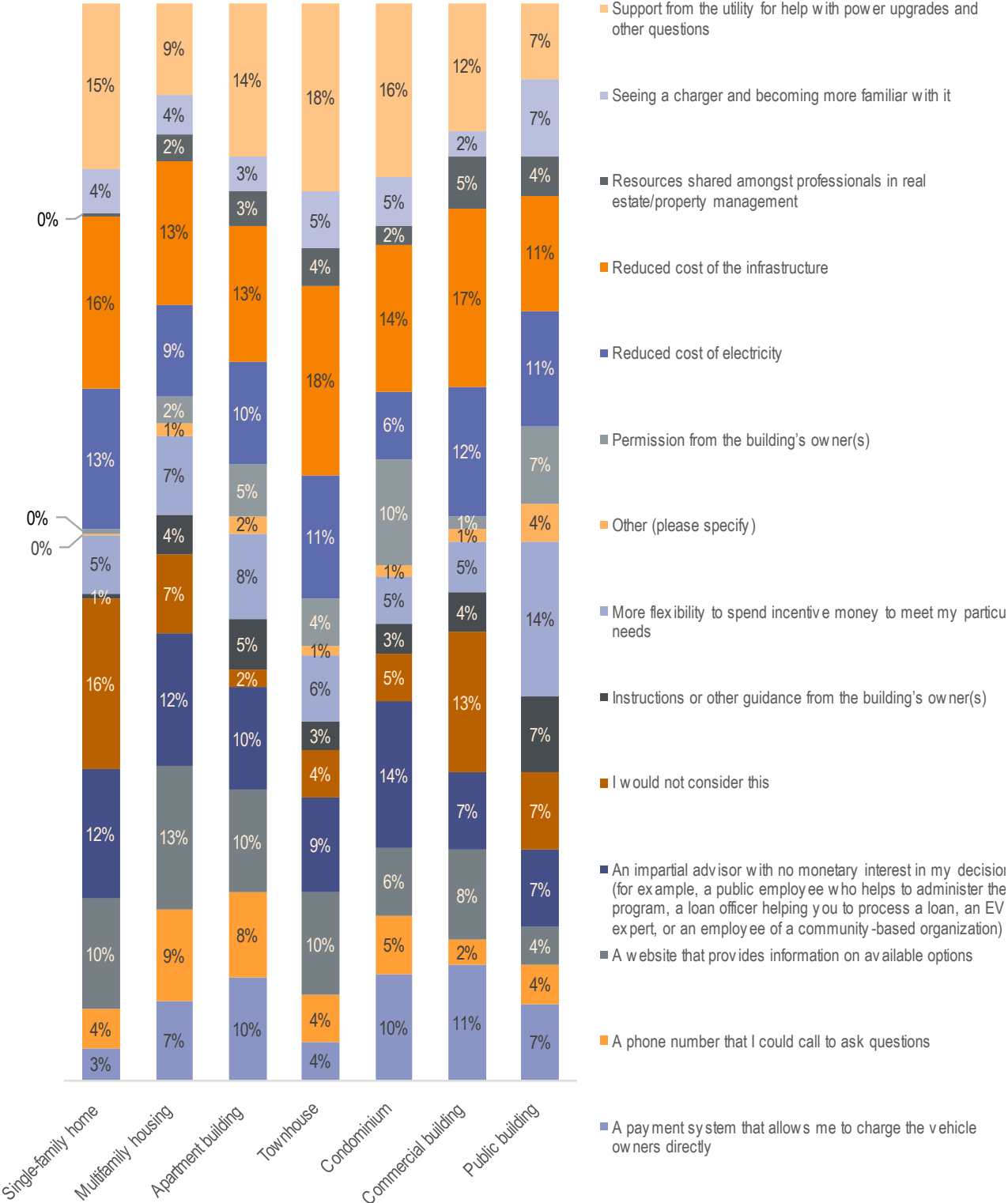
Figure 37 What costs are you concerned about? Please select all that apply.



A selection of the 'other' responses is included below for respondents who provided additional detail:

- All of the above [several]
- Initial cost of purchasing and financing the vehicle [several]
- Cost of garage/off street improvements needed
- HOA in process of choosing charger stations prior to installing
- Range, hauling capacity, and 4x4 capability in EV
- Repairing vandalism
- The cost of a high amp output charger, circuit breaker and wiring sized for the increased electrical load
- Xcel monthly cost on top of usage. Plans are too narrow in scope.

Figure 38 Which of the following would help you consider installing/upgrading electric vehicle charging infrastructure? Please select up to three.



A selection of the ‘other’ responses is included below for respondents who provided additional detail:

- Ability to install on the parkway, between the sidewalk and the street. I have no garage.
- Better electrician availability and pricing
- HOA related concerns [several]
- More nuclear or solar and other renewables in the Colorado grid [several]
- Should not be something the State spends taxpayer dollars on at all.
- someone to manage the installation of the stations. applying for the grants and filling in the applications on my behalf.

6.7 Community Organizations

Respondents were asked to identify important sources of information that are important when considering transportation issues or social justice issues (visualized in a word cloud in Figure 39).

Figure 39 Community Organizations Important in Social Justice Issues



The complete list of organizations include:

- 211
- 911
- 350 Colorado
- 4CORE
- 4H
- 9to5
- Alliance Center
- Alternative Fuels
- American Automobile Association (AAA)
- American Civil Liberties Union (ACLU)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)
- American Nuclear Society
- American Solar Energy Association
- Apollo Solar
- Arapahoe And Adams Co Human Services Office
- Audubon Society
- Aurora Education Association
- Bicycle Colorado
- Bikes Together
- Black Lives Matter
- Black Parents United Foundation
- Boulder B-Cycle
- Boulder Mobility for All
- Boy Scouts of America
- Cañon City's Energy Future
- Casa De Paz
- Catholic Church
- Catholic Outreach

- Chinook Fund
- Chispa
- Citizens Climate Lobby
- City Government
- Civic Center Conservancy
- Civilization Driving
- Clean Cities
- Clean Energy Economy for the Region (CLEER)
- Climate Justice Collaboratives (CJC)
- Climate Reality Chapters
- COLOR Latina
- Colorado Auto Dealers Association (CADA)
- Colorado Black Chamber
- Colorado Carshare
- Colorado Cattlemen’s Association
- Colorado Climate Group
- Colorado Coalition for The Homeless
- Colorado Common Cause
- Colorado Cross Disability Coalition
- Colorado Department of Natural Resources (DNR)
- Colorado Department of Public Health and Environment (CDPHE)
- Colorado Department of Transportation (CDOT)
- Colorado Electric Vehicle Coalition (CEVC)
- Colorado Energy Office (CEO)
- Colorado Farm Bureau
- Colorado Immigrant Rights Coalition (CIRC)
- Colorado Livestock Association
- Colorado Organization for Latina Opportunity and Reproductive Rights (COLOR)
- Colorado Public Radio (CPR)
- Colorado Renewable Energy Society
- Colorado Renewable Energy Society (CRES)
- Colorado Rising
- Community Cycles
- Commuting Solutions
- Conservation Colorado
- Consumer Reports
- CoPIRG
- CORE Electric Cooperative
- CSU Gilpin Extension
- Cultivando
- Cultivando
- Democratic Party
- Denver Bicycle Lobby
- Denver Clean City Coalition
- Denver Electric Vehicle Council
- Denver EV Facebook Group
- Denver Housing Authority
- Denver Metro Boma
- Denver Public Schools
- Denver Regional Council of Governments (DRCOG)
- Denver Rescue Mission
- Denver Streets Partnership
- Denver Tesla Owners Club
- Department of Motor Vehicles (DMV)
- Douglas County
- Drive Clean Colorado
- Earth Justice
- East Boulder County United
- East Central Council of Governments (ECCOG)
- Eco Transit
- Economic Development Agency
- El Paso County
- Electric Vehicle Clubs
- ELPASO Movement
- ELPASO Movement
- Energy Outreach Colorado
- EnergySmart Boulder
- Envida
- Environment Colorado
- Equity Climate Action Team (ECAT)
- Estes Valley Tesla Social Club
- EV Hybrid Noire
- Family & Intercultural Resource Center
- Family & Intercultural Resource Center (FIRC)
- Family & Intercultural Resource Center (FIRC)
- Family Life Services
- Farm Bureau
- FC Moves
- FLOWS

- Food Banks
- Foundations For Leaders Organizing for Water And Sustainability (FLOWS)
- Four Winds American Indian Council
- Future Farmers of America (FFA)
- Galloping Goose Historical Society
- Gilpin Emergency Management
- Grand Valley Transit
- Gratitude Class
- Green Latinos
- Greenpeace
- Grid Alternatives
- Gunnison County Sustainable Tourism and Outdoor Recreation Committee
- Habitat For Humanity
- High Country Conservation Center
- Honda
- Hospitals
- Human Rights Campaign (HRC)
- Humane Society
- I Have a Dream Foundation
- Ignite Denver
- Institute of Transportation Engineers (ITE)
- Integrated Community/Comunidad Integrada
- Jefferson Unitarian Church
- Judicial Watch
- Knights Of Columbus
- La Plata Electric Co-op
- Land Trust
- Larimer County
- Latin Community
- LGBT+ organizations 
- Lift-Up
- Local Church
- Local Transit Agencies
- Los Companeros
- Lyft
- Manaus
- Manna Soup Kitchen
- Medride
- Mi Familia Vota
- Mile High Connects
- Mission Zero Fund at The University Of Colorado
- Mobility For All
- Moms Clean Air Force
- Montbello wakings
- Mothers Out Front
- Move Colorado
- National Association for the Advancement of Colored People (NAACP)
- National Renewable Energy Laboratory (NREL)
- National Resource Defense Council (NRDC)
- Neighborhood Watch
- New Energy Colorado
- North Range Concerned Citizens
- Northeast Transportation Connections (NETC)
- Nucla-Naturita Chamber of Commerce
- Office Of Emergency Management
- OUR Center
- Owners Meetups
- Pedestrian Dignity
- Philanthropiece
- Physicians For Social Responsibility
- Plug In America
- Plug share
- Police
- Protect Our Winters
- Protegete
- Pueblo Electrical JATC
- Pueblo Senior Resource Development Agency (SRDA)
- Red Cloud Renewables
- Red Cross
- Region 10
- Registered Neighborhood Organizations (RNOs)
- RFTA
- Ridearrangers
- Roaring Fork Transportation Authority is an agency (RFTA)
- Rocky Mountain Institute (RMI)
- Routt County
- RTD
- Rural Community Center

- Rural Transit Authority
- Salvation Army
- Salvation Army
- School Districts
- Senior Center
- Senior Centers
- Sierra Club
- Small Town Project
- Social Services
- Southwest Energy Efficiency Project (SWEET)
- Specialty Equipment Market Association (SEMA)
- Sports Car Club of America (SCCA)
- Steamboat Springs Transit
- Summit County
- Supplemental Nutrition Assistance Program (SNAP)
- Sustainable Resilient Longmont
- Telluride Foundation
- Tesla Community
- Tourist Board
- Towards Justice
- Town Of Estes Park
- Trails and Open Space Coalition (TOSC)
- Transit Agency(ies)
- Transportation Management Associations and Organizations (TMAs)
- Uber
- Unitarian Universalists
- United States Forest Service (USFS)
- United Way
- University Of Colorado Boulder
- Urban League
- Veterans of Foreign Wars (VFW)
- Vive
- Voces Unidas
- Voces Unidas de las Montañas
- Walk Denver
- West End Economic Development Corporation
- Western Colorado Tesla Club
- Western Slope Water
- Wild Earth Guardians
- Women In Sustainability
- Women Who Charge
- Yimby Denver
- Zero Energy License Plates

6.8 EV Charging Infrastructure Programs Suggested Improvement

Survey respondents who reported receiving an incentive to install or upgrade an electric vehicle charger installed at their property were asked how the program could be improved. Those responses are included below (some repeated responses have been removed in this summary).

- Batteries should last longer
- Bigger incentives
- Charger could have been stocked at dealer instead of 6 week wait
- Claiming the credit should be as simple as placing a order on [an online retailer website]
- Didn't use processor as indicated above
- Easier application paperwork.
- Easier forms
- Expenditure and income are easy to understand
- Fine as it was
- I don't know
- I had no problem
- Improve charging function and reduce charging time
- Improved charge
- Increased security
- Info about how it may apply to a second EV
- It can offer more guidance and help
- It was fine
- It wouldn't have changed my decision-I got the charger when I was doing other work that made it economically feasible. The tax break was nice but didn't any impact on my decision.
- It's been 3 years. Do not remember.

- It's great
- No need to improve now is good enough
- No problems
- No suggestions
- Not currently
- Simpler operation
- Strengthen management
- The process went smoothly.
- The two EV chargers were free. So it could not be easier.
- Thought it was good.
- Was not a problem

7.0 Program Summaries for CO EV Equity Recommendations

7.1 Charge Ahead Colorado

Summary

Charge Ahead Colorado (CAC) is administered by the Regional Air Quality Council (RAQC) in the seven-county Denver metro area (i.e., Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson Counties) and by the CEO for the remainder of the State.³⁴ As of December 2021, both the CEO and the RAQC provided funding for Level 2 charging stations and DCFC.³⁵ Note that the Charge Ahead Colorado Program also includes grants to support the Electrified Scenic Byway program.³⁶

Both the RAQC program and the CEO will fund 80 percent of the cost of a charging station up to the following set maximum amounts:

- Level 2, Fleet Only Charging Stations: \$6,000.
- Level 2, Dual Port Station (up to 25kW): \$9,000.
- Level 3, Multiple Connection Standard Station (minimum 50kW+): \$35,000.
- Level 3, Ultra-fast Multiple Connection Standard Station (minimum 100kW+): \$50,000 (limited availability at the discretion of the awarding agency).

Objectives

The program objectives, as specified by the Charge Ahead Colorado Grant Application guide prepared May of 2021, include:

11. Promote installation of EVSE.
12. Increase number of EVs purchased.
13. Reduce GHG and air pollution.
14. Gather data on charging stations.

Program categories
EVSE (L2, DCFC)

Location
Statewide

Administration
Regional Air Quality Council (RAQC) (Denver Metro Area)
Colorado Energy Office (CEO) (all other areas)

Available funding
\$1,000,000

³⁴ Charge Ahead Colorado. 2021. Grant Application Guide. <https://raqc.egnyte.com/dl/ZphW107zjR>.

³⁵ Clean Air Fleets, 2022. Charge Ahead Colorado. <https://cleanairfleets.org/programs/charge-ahead-colorado>.

³⁶ Colorado Office of Economic Development and International Trade. Electric Byways Tourism Toolkit. <https://oedit.colorado.gov/electric-byways-tourism-toolkit>.

15. Support CO EV Plan.

Successful applicants must address how their project achieves two or more of these objectives.

RAQC and the CEO have slightly different funding priorities as well, as described below:

Table 22 Charge Ahead Colorado Funding Priorities

Colorado Energy Office Program	Regional Air Quality Council Program
<ul style="list-style-type: none"> Organizations excluded from existing State tax credits and incentives. Local governments. School districts. State agencies. Non-profit agencies. Apartment/condominium complexes. Businesses that own multi-vehicle parking facilities for fleet/public/guest/visitors. 	<ul style="list-style-type: none"> Private non-profit or for-profit corporations. State agencies. Federal agencies. Public universities. Public transit agencies. Local governments. Landlords of multifamily apartment buildings and homeowner associations.

Minimum Eligibility—Demographic and Place-Based

Workplaces and organizations that support multifamily housing (including homeowners' associations or HOAs, condominiums, and apartment complexes) are highly encouraged to apply.

Minimum Eligibility—Procedural and Technical

- Application must be submitted online.
- Project must not have been implemented prior to award.
- For RAQC funding, applicants must provide a DUNS number (a unique, nine-digit number assigned to a businesses entity).³⁷
- Be kept operational for at least five years following award.
- Have dedicated parking spaces for EV charging only.
- Claimed costs must be provided in a legible format with backup.
- For RAQC, steel and iron must be manufactured in the United States.
- Be owned, not leased by the applicant.
- Meet certification, warranty, code, permits, design standards, and other requirements.
- Be installed by a licensed electrician.
- Replacement stations may be considered, but new stations are prioritized.

³⁷ Dun & Bradstreet. D-U-N-S Number. <https://www.dnb.com/duns-number.html>.

- Project must be accessible to the public.

Data-Sharing Requirements

Awarded projects are required to publicly provide the project application, energy consumption, and station information to the project sponsor. That information is not available to the public. Additionally, applicant and bid documents must be open to the public. The location of funded site must be submitted to the U.S. Department of Energy's Alternative Fuels Data Center.

Stakeholder Engagement

The program promotes stakeholder engagement by encouraging applicants to complete surveys of potential EVSE use.³⁸

Program guidance on application best practices encourages applicants is to coordinate with other local cities/towns that have received Charge Ahead Colorado Grants to learn from their EV charging station experience and facilitate the development of EV charging corridors. Lists of cities are included in online documents. The CEO and RAQC also are available to provide an introduction.³⁹

Evaluation Criteria—Demographic and Place-Based Criteria

Program managers indicated that a key place-based factor includes the extent to which the proposed charger is likely to serve existing EVs (based on the number of EVs and PHEVs registered in the county) and the extent to which the project would encourage greater adoption of additional electric vehicles.

The program evaluation also may treat the concentration of chargers in the applicant's vicinity differently: for example, it may be more important that an application for a DC Fast Charger to be located in an area with few other DC Fast Chargers in order to ensure that DC Fast Chargers are more evenly distributed throughout the State. However, to ensure that there is wide availability of Level 2 chargers, the presence of nearby Level 2 or DC Fast Chargers may not be a factor in the evaluation of a Level 2 application.

Evaluation Criteria—General Requirements and Weighting

The program lists nine criteria that projects will be evaluated on (with no indication of the weighting of the criteria)⁴⁰. These nine criteria are:

16. How well the proposed project meets the five program objectives.
17. Benefits of the project to the public and current and future EV drivers.
18. Expertise, project planning, and willingness to learn about developing EV charging station plans.

³⁸ Charge Ahead Colorado. Electric Vehicle Charging Survey. <https://raqc.egnyte.com/dl/CclHbZcjjD>.

³⁹ Charge Ahead Colorado. Best Practices for Electric Vehicle Charger Selection, Installation, and Operation. <https://docs.google.com/document/d/1ycunouaMCowdpmEbpi-Q6C-YMLsRuVQPcwMS8rdb3vc/edit>.

⁴⁰ Charge Ahead Colorado. 2021. Grant Application Guide <https://raqc.egnyte.com/dl/ZphW107zjR>.

19. Funding match that exceeds the 20 percent minimum AND demonstration that the grant is allowing the charging station to be installed.
20. The accessibility of the charger, including factors like the appropriateness of the level of charger chosen, the number and variety of vehicles that can access the charger, whether parking fees apply, how charging fees will be structured, and generally how well the charger is likely to serve existing EVs and encourage acquisition of more EVs.
21. Ability to report data for five years.
22. Thought-out plan for ongoing operation and maintenance.
23. Commitment to renewable energy and energy efficiency.
24. A well thought out and well written application.

Outcomes

Information on individual stations awarded CAC grant funding is available from the Alternative Fuels Data Center. The program's desired outcomes are stated in the program objectives (see above). Information on which stations received CAC funding is available upon request from the RAQC. As of December 2021, grant recipients as of 2017 were available online.⁴¹

The project website also reports that that more than 930 electric vehicle charging stations across Colorado have been funded through both Charge Ahead Colorado Programs.⁴²

Measurement

Performance measures for this program were not identified.

⁴¹ Clean Air Fleets. 2017. Charge Ahead Colorado Awarded Projects. https://cleanairfleets.org/documents/electric/charge_ahead_colorado_awarded_projects.

⁴² Colorado Department of Transportation. State Programs and Grants. <https://www.codot.gov/programs/innovativemobility/electrification/state-programs-and-grants>.

7.2 Electric Car Sharing for Underserved Communities Pilot (Xcel Energy TEP)

Summary

Xcel Energy’s Electric Car Sharing for Underserved Communities Pilot is designed to reduce upfront and operational costs of electrifying and expanding the use of light-duty cars, trucks, and sports utility vehicles for car sharing services in underserved communities. The Pilot will provide rebates for purchase or lease of 25-35 electric vehicles located in Xcel Energy’s service area. The partnership will be conducted in partnership with Colorado CarShare, a non-profit car sharing service.⁴³

Objectives

The pilot aims to support three primary objectives:

- Study electrification of car-sharing services at scale and reach new communities that are typically later adopters and/or later users of EVs.
- Provide insights to inform expansions of electrified car sharing communities and inform the development of a report to inform the development of similar future programs.
- Deliver benefits of transportation electrification to more diverse communities.

In addition to these primary objectives, the pilot also aims to support the objectives of Xcel Energy’s Transportation Electrification Plan (TEP) Partnerships, Research, and Innovation (PRI) portfolio.

In addition to these objectives, the program aims to deliver benefits associated both with transportation and with transportation electrification. These include:

- Expand car sharing services into underserved communities.
- Reduce costs of transportation to communities served.
- Reduce pollution.
- Reduce noise.
- Enhanced performance characteristics.
- Support a more diverse transportation ecosystem that may include walking, biking, public transit, and micromobility (e.g., e-scooters).

Program categories
EV carshare
EVSE to support carshare
Other carshare program support

Location
Xcel Energy service territory within Colorado

Administration
Xcel Energy
Colorado CarShare

Available funding
\$2,495,000

⁴³ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

Minimum Eligibility—Demographic and Place-Based

Xcel’s Electric Car Sharing for Underserved Communities Pilot centers equity by intending to prioritize communities that have at least one of three criteria:

- Located within a disproportionately impacted community as defined by Colorado HB 21-1266.
- Live in an income-qualified communities or High Emission Communities (HECs) as defined in Xcel Energy’s TEP programs.
- Have insufficient access to transportation services or other affordable transportation options.

Minimum Eligibility—Procedural and Technical

- Availability of dwell space for vehicle charging.
- Accessibility and site compliance.
- Opportunities for siting combinations of sedans, trucks, SUVs, and other types.
- Potential for grid studies and distribution planning factors.

Data-Sharing Requirements

Applicants must enroll in Xcel Energy’s Fleet Electrification Advisory Program (FEAP), through which the project will be advised on gathering telematics data and reports, including VMT, state of charge, charging analysis and recommendations, Total Cost of Ownership (TCO), and GHG reductions.

Xcel Energy also will report (to the extent data is available) program costs, vehicle utilization rates (including number of trips taken and miles driven), differences between design and actual cost, operating metrics of vehicles, outreach to communities, electricity consumption for carshare vehicles, level of energy demand for carshare vehicles, and geographic distribution of program participants.

Stakeholder Engagement

The program includes non-profit carshare organization Colorado CarShare. Community organizations also will be invited to support the development and distribution of outreach materials, and partners will be engaged throughout the process.

Evaluation Criteria—Demographic and Place-Based Criteria

Projects will be evaluated based on the following factors:

- Relevance to underserved community focus, based on income qualification, relevant location, and/or higher emissions impact.
- Neighborhood density/established need relevant to the community needs.

- Assessment study and impacting underserved communities in urban, metropolitan, rural, and/or mountainous areas.
- Existing public mobility options available in the areas, including access to other car sharing services.
- Proposed co-funding by the community and any other community partners, including siting/hosting costs, or in kind-contributions. Communities and partners who propose to provide this combined support may receive preference.
- Availability of dwell space for vehicle charging.
- Amenities in or around the siting area that are best served by car sharing services.
- Accessibility and site compliance with legal requirements.
- Opportunities for siting combinations of sedans, trucks, SUVs that may demonstrate a range of EV classes to further inform the study.
- Potential for relevant grid studies in the area and distribution planning factors.
- Income, location, and areas of higher emission impact.
- Neighborhood density.
- Need as defined in the community needs assessment.
- Existing public mobility options in the area.
- Amenities around the siting area that support car sharing services.

Evaluation Criteria—General Requirements and Weighting

There is no additional detail than the evaluation criteria previously listed.

Outcomes

The Car Share Pilot is designed to support four outcomes, including:

- A community needs assessment of communities in Xcel Energy’s service area to understand where best to place electrified car sharing vehicles.
- Operate vehicles in select locations.
- Gather data to inform future approaches to car sharing electrification.
- Develop insights with respect to outreach for users of electric car share services and organizations.

Measurement

Reporting on the Pilot progress will be conducted through Xcel Energy's semi-annual TEP reporting process. Where data are available, reporting will include:

- Number of applications received.
- Number of projects funded, and the number that were not selected.
- Additional analysis, including qualitative insights for applications yet accounting for what voluntary information communities are willing to provide.
- On a voluntary basis, Xcel Energy may report participant demographic information (noting that Xcel Energy is bound to customer data privacy and confidentiality rules and will only report information that is available and in compliance with such rules).
- Program/project costs.
- Vehicle utilization rates, including number of trips taken, and miles driven (to be provided by Colorado CarShare).
- Insights that help to compare and contrast the models deployed, such as differences in infrastructure and program design, varied operating metrics of the vehicles, and outreach required to support the varied communities.
- Estimated consumption of electricity (kilowatt hours) resulting from the supported car sharing vehicle charging.
- Estimated level of demand (kilowatts) resulting from vehicle charging at Company-owned charging stations.
- Geographic distribution of the program's participants.

7.3 Municipal Refuse Fleet Pilot (Xcel Energy TEP)

Summary

Xcel Energy’s Municipal Refuse Fleet Pilot provides waste management fleet partners with heavy-duty (HD) EVs. Applicants will be leased an electric truck (or trucks) and also receive charging, education, outreach, and project management support.

Xcel Energy hopes to better understand how vehicle performance changes in different environments. Through data collection on energy consumption, emissions reductions, and customer experiences, Xcel Energy will be able to evaluate whether HD electric refuse trucks are a viable option for waste management fleets.

The pilot will provide one to four refuse trucks to accepted applicants at a cost of \$500-\$750k per vehicle, with additional funding for chargers and education, outreach, and project management.⁴⁴

Objectives

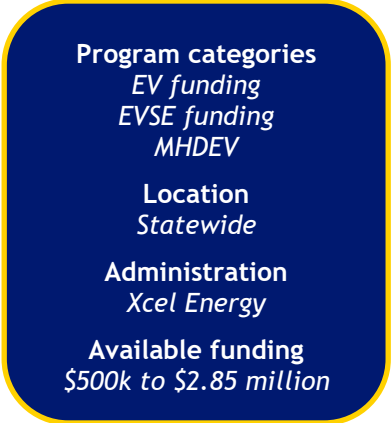
The pilot has four main objectives:

- Make EV charging easier, especially for HD vehicles, by providing a blueprint for wider adoption of medium and heavy-duty charging equipment.
- Collect data on vehicle range, real-time cost monitoring, and charger interoperability to lower system costs and increase EV charging benefits.
- Gain insights around total cost of ownership (TCO), operational experience, grid and environmental impact, customer experience, and other critical data points to stimulate innovation around EVs.
- Promote the commercialization of EVs by providing proof of concept and acting as an overall blueprint for adoption among fleets.

The purpose of the pilot is to better understand how vehicle performance of HD EVs varies in different environments (urban, suburban, rural).

Minimum Eligibility—Demographic and Place-Based

Applicants must be municipal or private refuse fleets, but prioritization is given to fleets that service HECs.



Program categories
EV funding
EVSE funding
MHDEV

Location
Statewide

Administration
Xcel Energy

Available funding
\$500k to \$2.85 million

⁴⁴ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

Minimum Eligibility—Procedural and Technical

Applicants who have the capacity to complete the project within three to four months of partnership will be more strongly considered. Furthermore, applicants who have demonstrated technical capacity through recent technological advancements in the space or who have experience with pilots will be prioritized.

Data-Sharing Requirements

Both VMT and electricity consumption by MHDEVs are to be measured and shared with Xcel Energy.

Stakeholder Engagement

Xcel Energy conducted meetings with several stakeholder groups in developing the program. These groups include:

- Environmental Justice Coalition.
- Energy Outreach Colorado.
- Natural Resources Defense Council.
- Southwest Energy Efficiency Project.
- Wester Resource Advocates.
- Transportation Electrification Stakeholder Group.
- CEO.
- CDOT.
- RAQC.

Xcel Energy also will provide education, outreach, and project management support to accepted applicants for the pilot.

No expectations for applicants to demonstrate stakeholder engagement was identified in the application criteria.

Evaluation Criteria—Demographic and Place-Based Criteria

As previously mentioned, fleets that service HECs (charging or operation) will be prioritized. There are no other demographic or place-based criteria.

Evaluation Criteria—General Requirements and Weighting

Not explicitly identified.

Outcomes

The program's desired outcomes are stated in the program objectives (see above).

Measurement

Xcel plans to track and report on the following metrics from the pilot:

- Project costs and impacts.
- VMT, per demonstration.
- Electricity consumption (kWh) and demand (kW) from electric refuse truck charging, including during on-peak and off-peak periods.
- Geographic distribution of participants.
- Anonymized customer survey information.

7.4 Electrify Paratransit Mobility Pilot (Xcel Energy TEP)

Summary

The Electrify Paratransit Mobility Pilot will provide rebates for the purchase and/or lease of three to six electric paratransit shuttles buses. Xcel Energy also will provide funding for the necessary charging equipment and electric vehicle supply infrastructure, if not support by other TEP programs. This program is meant to bring the benefits of transportation electrification to underserved community members and those with disabilities.

The program will cover up to 75 percent of eligible upfront costs or \$350k per electric paratransit bus and \$10.5k per charging station for up to three chargers.⁴⁵

Program categories
MHDEV, EVSE

Location
Statewide

Administration
Xcel Energy,
and coordination with
CEO and RAQC

Available funding
\$2.65 million

Objectives

This pilot has three stated goals:

- Study how to be electrify paratransit mobility services, including ideal vehicle specifications, optimal charging setup, dwelling locations, and grid and service infrastructure.
- Develop a knowledge base of the operational characteristics and community needs of electrified paratransit that can be used to more cost effectively expand and scale the electrification of paratransit over time.
- Provide health, operational performance, and cost-saving benefits of EVs to underserved customers and communities.

Minimum Eligibility—Demographic and Place-Based

The program is limited to paratransit, which limits the project applicants to those who seek to provide services to persons having a disability.

Minimum Eligibility—Procedural and Technical

Some knowledge of paratransit fleet management is expected of applicants. Communities will be asked to provide proposed siting and location information for their electrified paratransit vehicle operations. And partnerships with organization or transit providers with some level of current expertise in paratransit mobility is encouraged.

⁴⁵ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

Data-Sharing Requirements

Selected applicants are expected to share the following data:

- Paratransit utilization rates.
- Number of trips taken, and miles driven.
- Operating cost.
- Estimated consumption of electricity in kWh and demand in kW.

Stakeholder Engagement

Xcel Energy will educate multiple audiences about the goals and benefits of the pilot. Efforts will be directed to communities in general as well as persons with disabilities. Xcel will conduct this outreach through information on their website, digital and print campaigns, case studies, white papers, videos, and other interactive media. Xcel also plans to host events to educate communities about the technology.

Program guidance does not call for extensive stakeholder engagement by applicants.

Evaluation Criteria—Demographic and Place-Based Criteria

There are several demographic and place-based criteria pilot applicants, including:

- Whether the project is relevant to underserved communities (based on income qualification and high emissions impact).
- Neighborhood density and the need for study of diverse areas ranging from urban to rural and mountainous.
- The existence of public mobility options in the area, specially access to other paratransit mobility options.
- Amenities in the area that are best served by paratransit providers.
- Potential for relevant grid studies in the area.

Evaluation Criteria—General Requirements and Weighting

The program does not assign points to evaluation categories. However, applications are evaluated on the following criteria:

- Relevance to underserved based on income qualification, relevant location, high emissions impact.
- Neighborhood density/established need relevant to the study and impacting underserved communities in urban, metropolitan, rural, and/or mountainous areas.

- Existing public mobility options available in the areas, including access to other paratransit mobility options.
- Proposed co-funding by the community making the request.
- Potential for relevant grid studies in the area.
- Availability of dwell space for vehicle charging both at the depot and in-route as needed.
- Amenities in or around the area that are best served by paratransit services.
- Siting opportunities that further inform this and other PRI studies.

Outcomes

The pilot program is intended to have three main outcomes:

- Produce a community needs assessment that optimizes placement of shuttles, charging equipment, and routes.
- Provide insights on electrification of paratransit vehicles in different locations.
- Inform how best to conduct outreach to impacted riders, communities, and operators.

Measurement

Beyond what is previously mentioned under “Data-Sharing Requirements,” Xcel Energy also will report on project costs, including operating costs, and the geographic distribution of program participants.

7.5 ALT Fuels Colorado

Summary

Since 2018, the ALT Fuels Colorado (AFC) program has used a combination of Volkswagen Diesel Emissions Settlement and FHWA’s Congestion Mitigation and Air Quality Improvement (CMAQ) funding. The program is administered by the Regional Air Quality Council (RAQC) to incentivize the replacement and scrappage of pre-2009 vehicles with fully electric and Renewable Natural Gas (RNG) fleet vehicles.⁴⁶ These funds are available to all public, private, and non-profit fleets statewide within Colorado. The RAQC intends to expend all funds by fiscal year 2023.

Eligible equipment includes vehicles, charging equipment, and others all shown in Table 23.

Program categories
*MHDEV
 EVSE (L2, DCFC)
 Other alternative fuel vehicles and equipment*

Location
Statewide

Administration
Regional Air Quality Council (RAQC)

Available funding
\$400k to \$6.5 million each round, with 6 rounds completed as of July 2021

Table 23 Eligible Vehicles and Equipment for ALT Fuels

Category	Details
Vehicles	<ul style="list-style-type: none"> Class 8 Local Freight Trucks (Heavy-Duty) Greater than 33,000 lbs. Class 4-7 Local Freight Trucks (Medium-Duty) Between 14,001 and 33,000 lbs. Class 4-8 School and Intra-facility Shuttle Buses, Between 14,001 and 33,000 lbs.
Equipment	<ul style="list-style-type: none"> Railroad Freight Switchers. Airport Ground Support Equipment. Heavy Forklifts, greater than 8,000-pound lift capacity.
Charging Equipment	<ul style="list-style-type: none"> All chargers must be networked in order to report charging data to the program.
Eligible Fuels	<ul style="list-style-type: none"> All electric. CNG Vehicles, fueled with 100% RNG (Renewable Natural Gas).

For vehicles, both public and private fleets are eligible for awards, capped at different levels. Generally speaking, awards for electric vehicles have a higher cap than awards for Renewable Natural Gas vehicles. School buses are eligible for slightly higher awards in order to encourage greater participation by school districts in the program.

⁴⁶ <https://cleanairfleets.org/programs/alt-fuels-colorado>.

Vehicle	Public fleet	Private fleet
Electric vehicle	110% of the difference between ICEV and EV purchase price	110% of the difference between ICEV and EV, capped at 75% of new vehicle price
Renewable Natural Gas vehicle	110% of the difference between ICEV and RNG purchase price	110% of the difference between ICEV and RNG, capped at 25% of new vehicle price
School bus	117% of the difference between ICEV and EV/RNG purchase price	N/A

Objectives

The program website states that the objective is to improve air quality throughout the State of Colorado.

Minimum Eligibility—Demographic and Place-Based

No additional applicant criteria beyond technical and procedural requirements.

Minimum Eligibility—Procedural and Technical

Technical criteria for vehicles:

- One qualifying comparable vehicle must be scrapped for each new vehicle funded.
- Scrapped vehicles must be drivable at the time of the applications and must have been registered, operated, and insured in Colorado over the past two years.
- Vehicles should be purchased (RAQC will consider vehicle-only lease proposals).
- Vehicles must be domiciled in Colorado and spend at least 60 percent of their time operating within the State boundaries.
- No retroactively purchased vehicles or ordered prior to application.
- EPA or CARB certified engine configuration.
- Applicant must share data on vehicle use per reporting requirements listed in application.
- Applicant must allow RAQC to make bid documents available to the public.
- Tax and freight chargers not eligible for funding.
- Claimed costs and invoicing must be provided in a legible format.
- Only EV or CNG vehicles fueled exclusively with RNG are eligible to receive funding.
- Applicant fleets must agree to operate the vehicles for a minimum of five years.
- Vehicle inspection upon RAQC request.

Technical criteria for charging stations:

- Must provide a minimum of one quote for the desired station with their application for a networked, data-capable, charging stations.
- Must provide proof that they have contacted their utility to discuss feasibility and planning for charging station installation.
- For vehicle to grid (V2G) capable stations, applicants will need to specify planning discussions had with their local utility.
- Applicants must have title ownership of the site or facility where the proposed charging station is being installed. If not, applicants must provide written approval for charging station installation from the title owner of the site.
- All charging stations must be certified and compliant with relevant codes.
- Qualified, licensed, and insured electricians must install the stations.
- Relevant permits and zoning requirements must be followed.
- Applicants must follow recommendations on the installation of charging stations in compliance with the Americans with Disabilities Act (ADA).
- Charging stations must be purchased, not leased or financed.

Procedural criteria for both vehicles and charging stations:

- Applicant's understanding of the program rules and requirements.
- Applicant has secured budget and spending approval for the proposed project by the date of application submission equal to at least 100 percent of the total vehicle and charging station cost.
- Reasonable anticipated project completion time.
- Experience with managing a complex and long-term project.
- Commitment and planning for electric or RNG vehicle deployment, operation, and maintenance.
- Project impact, including (but not limited to) emissions reductions.

Data-Sharing Requirements

Grantees are responsible for sharing the following data with the RAQC or the public:

- With the RAQC: Biannual reports on vehicle use for five years after receiving funds on monthly mileage, monthly fuel use, and fueling location for each vehicle.
- With the RAQC: Data on station use, including overall energy consumption and interval data.

- With the public: all applications and bid documents (with confidential/proprietary information must be readily identified and clearly marked).

Stakeholder Engagement

The applicant is required to identify a Colorado-based point of contact for the proposed project that can speak knowledgeably about the proposed project.

Evaluation criteria—Demographic and place-based

No demographic or place-based criteria identified.

Evaluation Criteria—General Requirements and Weighting

According to a scoring rubric current as of December 2021, provided on request:

Category	Points
Application quality	20
Fleet readiness and planning	40
Purchasing process	20
Project benefits	20

Outcomes

An estimate of the program’s geographic distribution of spending is available on the Colorado EV Equity Dashboard.

Measurement

No measurement conducted.

7.6 Electric Vehicle Direct Current Fast-Charging (DCFC) Plazas Program

Summary

The DC Fast Charging (DCFC) Plazas Grant Program helps to meet the need for DCFC identified in Colorado.^{47,48} The purpose is to increase access to DCFC across the State of Colorado to enable statewide travel in an EV. The program is designed to increase access to high-speed charging across the State through large banks of fast chargers. The program is distinct from Charge Ahead Colorado in that the program also includes expanded requirements associated with planning, design and operation, and technical specifications.

Program categories
EVSE

Location
Statewide (max award amounts vary based on location)

Administration
Colorado Energy Office (CEO)

Available funding
\$4,000,000

Objectives

The program aims to increase access to DCFC across Colorado. The program supports funding for DCFC up to 80 percent of total project costs for chargers based on geographic location (Table 24).

Table 24 DCFC Plazas Program

Location	DCFC Output	DCFC	Incentive Per Charger	Max Eligible Funding Percentage
Seven-County Denver Metro Area	150kW+	2-8	\$80,000	50%
Front Range Urban	150kW+	2-8	\$105,000	65%
Rural	150kW+	2-8	\$125,000	80%

Locations are defined as:

- Seven-County Denver Metro Area: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas and Jefferson County.
- Front Range Urban Locations: Pueblo, El Paso, Larimer and Weld County.
- Rural: Includes the remainder of the State beyond the counties listed above.

Minimum Eligibility—Demographic and Place-Based

No additional applicant criteria beyond technical and procedural requirements.

⁴⁷ Colorado Energy Office. EV Fast-Charging Plazas. <https://energyoffice.colorado.gov/zero-emissions-vehicles/ev-fast-charging-plazas>.

⁴⁸ The International Council on Clean Transportation. 2021. Colorado Charging Infrastructure Needs To Reach Electric Vehicle Goals. <https://theicct.org/publications/colorado-charging-infra-feb2021>.

Minimum Eligibility—Procedural and Technical

Applicants must meet the following specifications:

- Accessible design criteria (i.e., designed to accommodate persons with disabilities).
- Safety (including lighting, level of public activity, signage, safety precautions).
- Connector protocols (i.e., CHAdeMO, SAECCSJ1772).
- Charging equipment requirements (i.e., kW charging, payment terms, local codes, backward compatibility, power usage reporting requirements, physical appearance, function, design, warranties).
- Operation and maintenance (including payment of leases, maintenance, minimum operational time, snow removal plan, requirement to offer nameplate kW at all times).
- Payment options.
- Customer service.
- Highway and on-site signage.
- Completion date (i.e., project must be completed within 12 months of contract execution).
- Utility coordination.
- Business model and utilization (i.e., a business model, including a project budget and usage estimates, price to charge for drivers).
- Branding/co-branding (i.e., co-branding with the State of Colorado logo).
- Minimum number of DCFC (i.e., not less than two and no more than eight).
- Sufficient parking spaces.
- Facilities (i.e., 24-hour access, restrooms, shelter during inclement weather).
- Public amenities (i.e., access to full-service amenities within a short walking distance).
- Future proofing.
- Local Government and stakeholder collaboration.
- Electric utility collaboration and program participation.

Data-Sharing Requirements

Grantees must report every three months for the five-year contract term to CEO on program effectiveness. Grantees also are expected to inform the public of project results using a variety of distribution methods, including press releases, case studies, and the CEO website. Grantees also are expected to meet the reporting requirements of FHWA and CDPHE. Reports should include, but may not be limited to, the following:

- Plaza usage report (including number of charging events, connect and disconnect times, start and end charge times, average power, total energy per charging event in kWh, date/time stamp, unique ID for charging event, Unique ID for identifying the EVSE, other non-dynamic EVSE information [e.g., GPS, ID, type, contact info]).
- Summary of quantifiable metrics (including monthly e-gallon/electricity sales, average monthly e-gallon prices, safety and management; and additional expenses such as replacement of equipment).
- Project constituent testimonials/quotes.
- Summary of communications to and from the public associated with the station project (including press releases, advertising, newsletters).
- Summary of operability (e.g., any down time or lapse regarding service to the public and steps taken to minimize future interruptions).

Stakeholder Engagement

According to the program's equity guidelines, program applicants who include community engagement strategies that include diverse demographics that typically do not have access to EV charging infrastructure are evaluated more favorably.

Applicants also are encouraged to:

- Partner with utilities to ensure long-term viability of the plaza through opportunities, including utility-funded make-ready equipment, utility ownership of or funding for charging equipment, and innovative rates.
- Collaborate with local or county governments for each site and address the local economic, environmental, and/or social benefits arising from the plaza.
- Document engagement with other local and regional stakeholders involved in ensuring successful plaza development, operation, and utilization.
- Describe the relationship between the lead applicant and other parties to the application, including site hosts or other parties with a financial stake in the project.

Evaluation Criteria—Demographic and Place-Based Criteria

Applicants who provide a description of how the project will help increase more equitable access to transportation electrification will be evaluated more favorably. The program guidance provides the following examples of equity:

- Locating Plazas within 2-3 blocks of high-density residential areas (including apartment complexes, multifamily housing).
- Locating chargers in underserved areas (e.g., within ¼ of a mile of housing authorities; or areas where low-income populations commute and shop).
- Locating plazas in Colorado Opportunity Zones (i.e., a census tract where the poverty rate is at least 20 percent, or median family income is no greater than 80 percent of the statewide median family income or metropolitan area median family income [whichever is higher] as of the 2011-2015 American Community Survey 5-Year Estimates).⁴⁹
- Locating plazas in distressed locations as defined using CDPHE’s Center for Health and Environmental data or defined on the Climate Equity Map.

Evaluation Criteria—General Requirements and Weighting

Category	Percentage
Project abstract and narrative	5%
Plaza locations and access to amenities	20%
Plaza design, facilities requirements, and minimum station specifications	15%
Project communication and strategic partnerships	10%
Project cost, match, and overmatch as well as proposed pricing structure	15%
Organization, staff experience, qualifications	10%
Innovation, sustainability, equity	15%
Project schedule	10%

Outcomes

Awardees not identified on program website. The program’s desired outcomes are stated in the program objectives (see above).

Measurement

Program measurement not identified on program website.

⁴⁹ Colorado Office of Economic Development and International Trade. Colorado Opportunity Zone Program. <https://oedit.colorado.gov/colorado-opportunity-zone-program>.

7.7 Innovative Motor Vehicle and Truck Credits for Electric and Plug-in Hybrid Electric Vehicles

Summary

The Innovative Motor Vehicle and Truck Credits for Electric and Plug-in Hybrid Electric Vehicles is a tax credit toward the purchase, lease, or conversion of motor vehicles, trucks, and trailers that use certain alternative fuels. Credits are allowed for electric or plug-in hybrid electric vehicles (PHEV).⁵⁰ A credit can be claimed by any taxpayer for each qualifying motor vehicle or truck they purchase, lease, or convert.

The credit amount depends on the tax year, classification of the vehicle, and whether it is being purchased, leased, or converted.

Tax credit for purchases of light duty vehicles were approximately \$5,000 prior to the start of tax year 2020 and are scheduled to end by January of 2026 (Table 25). Tax credits toward the purchase of light-duty, medium-duty, and heavy-duty trucks similarly decrease over time. Transportation Network Companies are able to claim credits toward the purchase of a light duty passenger vehicle equal to the amount offered to individual consumers.

Program categories
LDEV, MHDEV, other alternative fuel vehicles

Location
Statewide

Administration
Department of Revenue, Taxation Division

Available funding
Approximately \$6,800,000 to \$16,600,000 per year 2021-2025

Table 25 Credit Amounts for Purchases of Qualifying Electric and Plug-in Hybrid Electric Vehicles and Trucks

Classification	Gross Vehicle Weight Rating (GVWR)	01/01/17 to 01/01/20	01/01/20 to 01/01/21	01/01/21 to 01/01/23	01/01/23 to 01/01/26
Light duty passenger vehicle	N/A	\$5,000	\$4,000	\$2,500	\$2,000
Light duty electric truck	greater than 8,500, but not more than 10,000 lbs.	\$7,000	\$5,500	\$3,500	\$2,800
Medium duty electric truck	greater than 10,000, but not more than 26,000 lbs.	\$10,000	\$8,000	\$5,000	\$4,000
Heavy duty truck	greater than 26,000 lbs.	\$20,000	\$16,000	\$10,000	\$8,000

Similarly, credits toward the lease of light duty passenger vehicles started at approximately \$2,500 prior to the start of tax year 2020 and are scheduled to expire by January of 2026 (Table 26).

⁵⁰ Colorado Department of Revenue Taxation Division. 2021. Income 69: Innovative Motor Vehicle and Truck Credits for Electric and Plus-in Hybrid Electric Vehicles. https://tax.colorado.gov/sites/tax/files/documents/FYI_Income_69_July_2021.pdf

Table 26 Credit Amounts for Leases of Qualifying Electric and Plug-in Hybrid Electric Vehicles and Trucks

Classification	Gross Vehicle Weight Rating (GVWR)	01/01/17 to 01/01/20	01/01/20 to 01/01/21	01/01/21 to 01/01/26
Light duty passenger vehicle	N/A	\$2,500	\$2,000	\$1,500
Light duty electric truck	greater than 8,500, but not more than 10,000 lbs.	\$3,500	\$2,750	\$1,750
Medium duty electric truck	greater than 10,000, but not more than 26,000 lbs.	\$5,000	\$4,000	\$2,500
Heavy duty truck	greater than 26,000 lbs.	\$10,000	\$8,000	\$5,000

Objectives

No objectives identified.

Minimum Eligibility—Demographic and Place-Based

Any Colorado taxpayer with a qualifying motor vehicle or truck they purchase, lease, or convert can claim the tax credit. State and local governments cannot claim the credit, only private entities. Only lessees, not the lessor, can claim the credit (except in the case of transportation network companies, who as a lessor can claim the credit).

Minimum Eligibility—Procedural and Technical

The purchased/leased/converted vehicle must meet the following requirements:

- For purchases and leases, the motor vehicle or truck must be new and not previously titled or registered in any jurisdiction (note that a motor vehicle or truck is considered used if it was previously titled or registered and/or if it has 1,500 miles or more at the time of purchase or lease).
- The motor vehicle or truck must be titled and registered in Colorado.
- The motor vehicle or truck must have a maximum speed of at least 55 miles per hour.
- The motor vehicle or truck must be propelled to a significant extent by an electric motor.
- The motor vehicle or truck's battery must have a capacity of at least 4 kWh.
- The motor vehicle or truck's battery must be capable of being recharged from an external power source.

Applicants are required to include several attachments to their Colorado income tax return, regardless of whether the credit is being claimed as a purchaser, lessee, vehicle owner, or financing entity. These include a completed Form DR 0617; copy of the invoice/purchase agreement/lease agreement; a completed Form DR 0618 (for financing entities that accept assignment of the credit only).

Data-Sharing Requirements

No data-sharing requirements.

Stakeholder Engagement

No stakeholder engagement criteria.

Evaluation Criteria—Demographic and Place-Based Criteria

No demographic or place-based requirements.

Evaluation Criteria—General Requirements and Weighting

Not applicable.

Outcomes

No outcomes identified.

Measurement

No program measurement identified.

7.8 Energy/Mineral Impact Assistance Fund Grant (EIAF)

Summary

The EIAF program assists public entities that are impacted by the development, processing, or energy conversion of minerals and mineral fuels.⁵¹ Funds come from the State severance tax on energy and mineral production and from a portion of the State's share of royalties paid to the Federal Government for mining and drilling of minerals and mineral fuels on federally owned land.

Alternative fuels are included as one project type and includes compressed natural gas (CNG), CNG bi-fuel, propane, or plug-in electric vehicles.⁵² Funds can support local Government efforts in the incremental upgrade on the replacement of a vehicle to one that uses alternative fuel and the construction of alternative fueling station infrastructure for publicly owned fleets.

Program categories
LDEV, MHDEV, EVSE

Location
State of Colorado

Administration
Colorado Department of
Local Affairs (DOLA)

Available funding
\$10,000,000 (2022)
\$6,500,000 (2021)

Objectives

The purpose of the EIAF Program is to assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels. The grant program is meant to promote sustainable community development, and to increase livability and resilience of communities through strategic investments in asset-building activities.

Minimum Eligibility—Demographic and Place-Based

Funding is meant for areas affected by the development, processing, or energy conversion of minerals and mineral fuels. So, the public entity must demonstrate the area is negatively impacted by minerals and mineral fuels and that the project has a relationship to and addresses energy and mineral industry impacts. This is done in Section H “Energy & Mineral Relationship” where applicants must describe this relationship and cite data to verify the relationship.

Minimum Eligibility—Procedural and Technical

Applicants are required to contact their DOLA Regional Manager in the early stages of their project. Regional Managers can assist in project development and application preparation. Local governments must submit applications through the Division of Local Government Online Grants Portal.

Data-Sharing Requirements

None stated in the program guidelines.

⁵¹ Colorado Department of Local Affairs. Energy/Mineral Impact Assistance Fund Grant (EIAF). <https://cdola.colorado.gov/funding-programs/energy/mineral-impact-assistance-fund-grant-eiaf>.

⁵² Colorado Department of Local Affairs. 2021. Energy and Mineral Impact Assistance Fund Program Grant Application Guidelines. <https://drive.google.com/file/d/16LBF9sJUL6nx3cv1K0B73lTMgH1teAT9w/view>.

Stakeholder Engagement

Local governments are required to consult with DOLA partner agencies like CEO, CDOT, and RAQC regarding fueling stations and the purchase of alternative fuel vehicles.

Evaluation Criteria—Demographic and Place-Based Criteria

Projects are evaluated based on whether they satisfy nine resiliency criteria and their energy/mineral impact (see next section). Of the nine resiliency criteria, several are place-based. Adaptive capacity refers to how well a project includes flexible measures that consider the unknowns of changing climate and changing economic and social conditions in the area. Co-benefits considers solutions that address issues across multiple sectors, including housing, infrastructure, and natural resources.

The energy and mineral impact is the relationship between the project and how the applicant currently is impacted by the development, processing, or energy conversion of mineral fuels. The latter will vary across communities in the State.

Evaluation Criteria—General Requirements and Weighting

The rubric states that there are six specific criteria:

- Demonstration of need (20 percent)—the problem is clearly identified, and a quantifiable need is adequately described and documented.
- Priority, community, goal, and outcome (10 percent)—the project is clearly a priority of the applicant, has been well planned, and has well-defined outcomes.
- Local effort (20 percent)—The amount of local Government cash contribution and/or revenue generated from debt financing is of primary importance in demonstrating the importance of the project to the applicant. Dollar for dollar cash match is encouraged to improve the application's success (and is required for alternative fuel vehicles). For EVSE, 50 percent match is generally the minimum local match requirement unless the applicant can provide documentation to justify its fiscal constraint.
- Readiness (15 percent)—the project can be implemented in a reasonable period of time, i.e., within six months following grant award. This can include possessing other funding sources ready for expenditure, completion of preliminary engineering and design (as applicable), and demonstration of professional and technical capacity to complete projects on schedule.
- Resiliency criteria (10 percent)—Nine criteria within resiliency, including: adaptive capacity, co-benefits, economic benefit/cost, harmonizing with existing activity, high risk and vulnerability, innovation, long-term and lasting impact, social equity, and technical soundness.
- Energy/mineral impact (25 percent)—10 percent based on current energy and mineral impacts as determined by metrics like energy worker residency, permits issues, and mineral production levels, and 15 percent based on whether a project directly addresses or mitigates industry impacts or helps to diversify the local economy in order to prepare for a post-industry future.

Outcomes

No specific outcomes are listed. The program's desired outcomes are stated in the program objectives (see above).

Measurement

Annual reports describing the funding allocations are provided, but no specifics about the projects are noted.

7.9 Colorado CarShare

Summary

Colorado CarShare began as a Colorado nonprofit in 1998. Since 2009, Colorado CarShare has received Congestion Mitigation and Air Quality (CMAQ) funding to help support programming in primarily the Denver and Boulder area.⁵³ As of January 2021, approximately 25 percent of the non-profits fleet was electric.⁵⁴

Objectives

From the project website: ‘Our mission is to empower our community to live a car-free lifestyle and have a positive impact on our health, wealth, and shared environment. We aim to make Colorado a “cooler,” healthier, and more socially equitable place to live.’

The program aims to provide carsharing as a service, not a business. According to the project website, margins are kept low to focus on:

- Low costs (specifically: low hourly rates).
- Super convenient (i.e., book within 15 minutes of when the car is needed).
- Community focused.
- Liability coverage (specifically: \$1,000,000 in coverage).
- Environmental impact (examples include reduction in miles driven and fuel efficiency).

From the Member handbook, the following goals also have been identified:

- Reduce car ownership and use.
- Reduce road congestion, vehicle miles traveled (VMT), vehicle hours traveled (VHT), and single occupancy vehicle (SOV) trips.
- Reduce greenhouse gas emissions and other air pollution.
- Increase use of mass transit, and bike and pedestrian travel.
- Increase transportation cost savings for carsharing participants.
- Increase mobility options, particularly for low-income households.

Program categories
Carshare (EV, HEV, AWD, and light-duty truck)

Locations
*Denver
Boulder*

Administration
Colorado CarShare, a local 501(c)(3) nonprofit (with CMAQ, CARES, and other funding)

Available funding
\$2,495,000

⁵³ Colorado CarShare. <https://carshare.org>.

⁵⁴ Colorado CarShare. Hi Ho, Hi Ho, it's all EV Carsharing we go! (ish). <https://carshare.org/hi-ho-hi-ho-its-all-electric-carsharing-we-go-ish/>.

Minimum Eligibility—Demographic and Place-Based

As of 2021, Colorado CarShare does not charge a monthly membership fee to low-income residents enrolled in a qualified affordable housing program such as Denver Housing Authority or Boulder Housing Partners. The same members receive 25 percent off Colorado CarShare’s cheapest per-hour and per-mile prices.^{55,56}

In 2014, the non-profit offered ‘Multimodal Toolkits’ for residents in affordable housing neighborhoods in Boulder and Denver, which provided select households with subsidized monthly transit passes, free carshare memberships with discount rates, free or discounted bicycle share memberships and/or access to pool bikes, and education about multimodal transportation options.⁵⁷

The program also has offered free car share use for people at higher risk of illness, including 65+ year old adults, front-line workers, and other qualifying members seeking to use the carshare for a COVID-19 vaccine appointment.⁵⁸

Minimum Eligibility—Procedural and Technical

Members must meet the following requirements:

- Have at least 2 years of licensed driving experience and be at least 18 years old.
- Between 18-21 years old: must have a clean driving record.
- Over 21: must have a good driving record (minor incidents/violations will be accepted but no DUIs).
- For permanent Colorado residents, must get a Colorado driver’s license within 30 days of establishing permanent residency.
- For temporary Colorado residents, out-of-State license is acceptable.
- For temporary Colorado residents with a foreign driver’s license, must provide a current, official driving history record (in English).

Data-Sharing Requirements

No data-sharing requirements identified.

⁵⁵ Colorado CarShare. 3 Easy Rate Plans. <https://carshare.org/individual-rates/>.

⁵⁶ 5280 Magazine. 2021. Denver Launches Electric Car-Share Vehicles in Underserved Communities. <https://www.5280.com/2021/02/denver-launches-electric-car-share-vehicles-in-underserved-communities/>.

⁵⁷ Colorado CarShare. Nonprofit Carsharing Offers Unique Benefits. <https://carshare.org/nonprofit-carsharing-offers-unique-benefits/>.

⁵⁸ Colorado CarShare. Free CarShare Use for COVID-19 Vaccinations! <https://carshare.org/free-carshare-use-for-covid-19-vaccinations/>.

Stakeholder Engagement

Colorado CarShare extensively engages with other community groups, including Denver’s Office of Climate Action, Sustainability, and Resiliency (CASR), the Denver Housing Authority (DHA), and the Urban Land Conservancy to provide carshare services to six Denver neighborhoods in the winter.⁵⁹

Evaluation Criteria—Demographic and Place-Based Criteria

Vehicles are located primarily in densely populated areas. However, the non-profit has expanded offerings in affordable housing neighborhoods (such as the Multimodal Toolkits example above) and in six neighborhoods identified through municipal equity indexes.⁶⁰

Evaluation Criteria—General Requirements and Weighting

Not applicable for this program.

Outcomes

Colorado CarShare gathers feedback in the form of member testimonials.⁶¹ The program’s desired outcomes are stated in the program objectives (see above).

Measurement

Colorado CarShare does not quantitatively measure outcomes.

⁵⁹ Colorado CarShare. Colorado CarShare & City of Denver Launch Electric Car Share Program. <https://carshare.org/colorado-carshare-city-of-denver-launch-electric-car-share-program/>.

⁶⁰ Smart Cities Connect. 2021. City of Denver and Colorado CarShare Install 7 Shareable EVs Across City. <https://smartcitiesconnect.org/city-of-denver-and-colorado-carshare-install-7-shareable-evs-across-city/>.

⁶¹ Colorado CarShare YouTube Channel. Member Testimonials Playlist. <https://www.youtube.com/user/egocarshareco/featured>.

7.10 Can Do Colorado eBike Pilot Program

Summary

The Can Do Colorado eBike Pilot Program was developed to pilot a variety of e-bike deployment models in communities across Colorado. The program provided funding for e-bikes, e-bike charging infrastructure, e-bike storage, e-bike accessories (i.e., locks, helmets, lights), equipment insurance, emergency transportation vouchers, membership costs, and administrative costs.

The summary below focuses on guidance given to pilot program applicants (e.g., a non-profit applying for funding from the Colorado Energy Office) on program design.⁶²



Objectives and purposes

The key objective of this program is to develop and implement eBike deployment projects that increase access to electric bikes (eBikes) for low-income essential workers while maximizing air quality benefits.

The solicitation also sought to identify projects that could be scaled up and easily replicated as new sources of funding are identified.

Additionally, the program has clearly stated objectives, namely, to provide funding for the development and implementation of eBike deployment projects in communities across the State. Collectively, projects proposed were selected based on their ability to:

- Increase access to eBikes for low-income essential workers while maximizing air quality benefits and greenhouse gas (GHG) emissions reductions.
- Pilot different deployment models, including, but not limited to, individual ownership or assignment, eBike libraries or eBikeshares, loaner to owner programs.
- Scale up or be replicated in other communities as new funding becomes available.
- Fill a need rather than compete with established programs.
- Represent the geographic diversity of Colorado communities.
- Provide sustainability beyond the term of the project.

Minimum Eligibility—Demographic and Place-Based

Applications are eligible to all public, private, and nonprofit entities.

⁶² Colorado Energy Office. 2021. Can Do Colorado eBike Pilot Program: Request for Applications. https://drive.google.com/file/d/1VRjaoiW_fV0_AneSr5c7i8XgmMU4twPk/view?ts=6009df18.

Minimum Eligibility—Procedural and Technical

Applicants were asked to provide a brief concept paper and then a full project proposal. Applicants with full proposals were eligible to use up to 10 hours of technical support from Bicycle Colorado.

Data-Sharing Requirements

Because the pilot program was seeking a model that would support development of future projects. As such, applicants were expected to accurately track key project metrics and report to CEO (or the City and County of Denver) on a quarterly basis on eBikes and equipment usage. Some flexibility was provided for data and data collection process to vary depending on the model. All applicants were required to document in their application an approach to data collection that is accurate, reliable, and easy to implement. Applicants were required to report on individual eBike riders' use of eBikes Applicants were encouraged to partner with NREL to design and implement the data collection strategy. NREL's e-mission app was made available to program grantees at no cost. The app enables program applicants to continuously collect mobility and survey data.

Minimum data requirements for individual ownership/assignment awarded projects:

- Number of eBikes deployed.
- Participant name.
- Participant age.
- Participant gender.
- Participant income.
- Participant occupation.
- Participant main transportation option(s).
- Frequency of eBike use (days per month).
- Total number of trips (per month).
- Average trip length (per month).
- Total eBike miles (per month).
- Estimated emissions benefits.
- Qualitative data as appropriate.

Minimum data requirements for shared eBikes:

- Number of eBikes deployed.
- Number of unique and repeat users (per month).
- Frequency of eBike use (days per month).
- Total number of trips (per day/month).
- Average trip length (per month).
- Total eBike miles (per month).
- Estimated emissions benefits.
- Qualitative data as appropriate.

Stakeholder Engagement

Project applicants were asked to provide information on how their application complements stakeholder objectives, including program partners and community-based organizations, local governments, local businesses, or others.

Guidance provided by the pilot program to individual applicants directed applicants to engage, communicate, and build trust with participants. Applicants were asked to explain how they would recruit, engage, and communicate, initially and ongoing, with their participants.

Applicants were asked to demonstrate through their project plan an understanding of participant backgrounds and explain how they planned to address barriers participants may experience to riding an eBike or navigating eBike ownership in order to develop a more accessible program.

Evaluation Criteria—Demographic and Place-Based Criteria

The CEO selected applicants that represented the geographic diversity of Colorado communities.

Evaluation Criteria—General Requirements and Weighting

Applicants for pilot program funding were evaluated on six categories (Table 27).

Table 27 eBike Pilot Program Category Weight

Category	Weight
Project design and deployment	15%
Scalability, replicability, and sustainability	15%
Project benefits and alignment with program objectives	10%
eBikes and equipment	15%
Project workplan	20%
Budget and narrative	15%
Organization and staff experience	10%

Outcomes

As of December 2021, the pilot project was ongoing, and no reported outcomes had been published. The program’s desired outcomes are stated in the program objectives (see above).

Measurement

As of December 2021, the pilot project was ongoing, and no measurement had been made.

7.11 Clean Air Champions

Summary

RAQC created the Clean Air Champions Recognition Program to recognize entities, including public, private and nonprofit organizations, local governments and municipalities, that demonstrate a commitment to improving the region's air quality.⁶³

Two rounds of applications have been reviewed, for both the summer of 2021 and the winter of 2020. Four awardees have been recognized.

Program categories
Recognition

Locations
Metro Denver

Administration
RAQC

Available funding
N/A

Objectives

Champions can be recognized for performance in the following categories:

- Diesel: Entities that are working towards reducing emissions from medium and heavy-duty diesel engines—both on and off road.
- Electrification: Recognizing entities that are working towards reducing emissions through supporting electrification efforts.
- Transit and Outreach Options: Recognizing entities that are promoting programs and projects that encourage low/no emission transit options.

Minimum Eligibility—Demographic and Place-Based

No demographic eligibility identified.

Minimum Eligibility—Procedural and Technical

Not explicitly identified.

Data-Sharing Requirements

Not explicitly identified.

Stakeholder Engagement

Not explicitly identified.

Evaluation Criteria—Demographic and Place-Based Criteria

Not explicitly identified.

⁶³ [Regional Air Quality Council. RAQC Clean Air Champions. https://raqc.org/program/regional-air-quality-councils-clean-air-champions/.](https://raqc.org/program/regional-air-quality-councils-clean-air-champions/)

Evaluation Criteria—General Requirements and Weighting

Not explicitly identified.

Outcomes

The website highlights the following accomplishments by awardees:

- Via has committed to investing in an equitable energy future (i.e., transitioning diesel buses to zero-emission).
- Via launched the first electric bus in the nonprofit’s service territory in Loveland by converting an old diesel bus.
- Via shared their vision to become a zero-emission transit provider.
- Town of Erie deployed a network of 25 publicly available charging stations.
- Town of Erie continues to incrementally electrify their light-duty fleet vehicles.
- Town of Erie has deployed 10 air quality monitoring stations.
- City of Fort Collins has electrified commercial grade lawn and garden equipment used by the City’s parks department.
- City of Fort Collins continues to electrify the City’s municipal fleet (aiming to make 100 percent of light duty vehicle purchases plug-in electric by 2025).
- Regional Transportation District (RTD) has placed into operation 36 battery electric buses for the Free MallRide on Denver’s 16th Street Mall.
- RTD also is a member of the Colorado Electric Vehicle Coalition (CEVC) and has taken a leadership role in forming the CEVC Transit Subgroup.

Measurement

Not explicitly identified.

7.12 ReCharge Colorado

Summary

ReCharge Colorado is an educational program that provides coaching services for EVs and their associated infrastructure development in all Colorado counties. The program helps private individuals, workplaces, housing developments, and municipal governments identify opportunities and advantages related to EV deployment and infrastructure.⁶⁴ The coaches support EV infrastructure and deployment through outreach events and one-on-one guidance on savings and grant opportunities.

Program categories	Education
Locations	Statewide
Administration	Colorado Energy Office
Available funding	N/A

The State is divided up into regions containing several counties with specific coaches for each region. Drive Clean Colorado coaches act as a ReCharge Colorado Coach in the Denver Metro and South-Central regions.

Objectives

The key objectives of this program are to advance EV adoption and the installation of EVSE in Colorado through the help of Recharge coaches.

Minimum Eligibility—Demographic and Place-Based

No applicant criteria identified. Education is available to all.

Minimum Eligibility—Procedural and Technical

No procedural or technical criteria. The program is meant to support procedural and technical barriers to other programs.

Data-Sharing Requirements

Program participants are not asked to provide data.

Stakeholder Engagement

ReCharge coaches are locally distributed to certain counties throughout the State to create stakeholder support for EV adoption in their local districts. The coaches hold outreach events to connect to members of their regions and provide educational support and guidance of EV deployment and infrastructure. There is no information about how this outreach and support may be targeted, however.

⁶⁴ Colorado Energy Office. ReCharge Colorado. <https://energyoffice.colorado.gov/zero-emission-vehicles/recharge-colorado>.

Evaluation Criteria—Demographic and Place-Based Criteria

No demographic and place-based criteria. The program is statewide.

Evaluation Criteria—General Requirements and Weighting

Not applicable for this program type.

Outcomes

Some outcomes according to their flyer include:⁶⁵

- 370 outreach events have been hosted with more than 14,500 attendees.
- 150+ organizations have received coaching on grant applications.
- More than 700 EVs have been purchased thanks to coaching.
- More than 180 EV chargers have been installed.

Measurement

No measurement is reported for this program by its users.

⁶⁵ Colorado Energy Office. ReCharge Colorado: An Electric Vehicle Coaching Program for Colorado Communities. https://energyoffice.colorado.gov/sites/energyoffice/files/2020-08/recharge_flyer_8.25.20_final.pdf.

7.13 Drive Electric Colorado

Summary

Drive Electric Colorado provides education to consumers with information and facts about electric vehicles in order to increase electric vehicle adoption in Colorado.⁶⁶ The program is supported by a team of coaches who provide home charger workshops, access to vehicles from partner dealerships and EV clubs for ride-and-drive events, tailored EV workshops for workplaces and community groups, ‘shout packs’ and social media campaign material.

Drive Electric Colorado is a part of the 14-State initiative Drive Electric. Drive Electric Colorado is a collaboration between the Colorado Energy Office and Colorado Energy Office’s ReCharge coaches from Clean Energy Economy for the Region (CLEER), 4CORE, and Northern Colorado Clean Cities.

Program categories
Education

Locations
Statewide

Administration
Colorado Energy Office,
ReCharge, CLEER,
4CORE, Northern
Colorado Clean Cities

Available funding
N/A

Objectives

The program objectives are to support the State goal of 940,000 EVs on the road by 2030.

Minimum Eligibility—Demographic and Place-Based

No applicant criteria identified. Education is available to all.

Minimum Eligibility—Procedural and Technical

No procedural or technical criteria. The program is meant to address procedural and technical barriers to other programs.

Data-Sharing Requirements

Program participants are not asked to provide data.

Stakeholder Engagement

The program is designed to support stakeholder engagement.

Evaluation Criteria—Demographic and Place-Based Criteria

No demographic and place-based criteria. The program is statewide.

⁶⁶ Drive Electric Colorado. About Us. <https://driveelectriccolorado.org/about-us>.

Evaluation Criteria—General Requirements and Weighting

Not applicable for this program type.

Outcomes

Drive Electric Colorado showcases testimonials to identify program success.⁶⁷ Videos are available on YouTube.⁶⁸

Measurement

No measurement is reported for this program.

⁶⁷ Drive Electric Northern Colorado. Featured Testimonials <http://driveelectricnoco.org/featured-testimonials/>.

⁶⁸ [Drive Electric Colorado YouTube Channle. All Uploads.](https://www.youtube.com/channel/UCzEBuFnAELxZHZdaaMmyBew)
[https://www.youtube.com/channel/UCzEBuFnAELxZHZdaaMmyBew.](https://www.youtube.com/channel/UCzEBuFnAELxZHZdaaMmyBew)

7.14 Consolidated Call for Capital Projects/Volkswagen Settlement Transit Program

Summary

The Consolidated Call for Capital Projects/VW Settlement Transit Program is a CDOT program that consolidates funding for capital transit projects from several Federal and State sources. One of these programs, the Volkswagen Settlement program, provides funding for the direct replacement of passenger revenue vehicles that are diesel-fueled for zero emission vehicles, electric battery, hydrogen fuel cell, or compressed natural gas vehicles.⁶⁹ The Settlement program is available to public agencies, nonprofit organizations, and Tribal governments for the replacement of Class 4-8 diesel-powered vehicles and supporting infrastructure and resources (including transit stations, signage, bus lanes, bike racks, trails, and environmental studies). The funds can be used towards charging equipment required for the replacement vehicle in addition to the purchase of new vehicle(s).

Program categories
ZEB

Locations
Statewide

Administration
*CDOT, Division of
Transit and Rail*

Available funding
*\$16,000,000 for zero-
emission transit vehicles*

Objectives

The objective of the Settlement funding is to reduce air pollution from transportation. The specific objective of Settlement funding as it applies to the capital transit program is to reduce air pollution from transit vehicles in particular through the replacement of diesel-powered vehicles with zero emission ones.

Minimum Eligibility—Demographic and Place-Based

Not identified.

Minimum Eligibility—Procedural and Technical

Applicants are expected to have the technical capacity to manage the award and project, ensure compliance with applicable regulations and guidelines, follow project schedules and budgets, and obtain any necessary approvals before taking action. The Settlement Program Supplemental Application has several questions pertaining to how the acquisition of electric or alternative fuel vehicles fits into their fuel transition planning.⁷⁰ So, there is an expectation that applicants have been able to develop a fuel transition plan for their vehicles.

⁶⁹ Colorado Department of Transportation, Division of Transit and Rail. 2019. Notice of Funding Availability: 2020 CDOT Consolidated Call for Capital Projects. <https://www.codot.gov/programs/transitandrail/assets/2020-cdot-cccp-nofa-final-9-30-2019>.

⁷⁰ Colorado Department of Transportation. Settlement Program Supplemental Application: CDOT 2020 Consolidated Call for Capital Projects. <https://www.codot.gov/programs/transitandrail/assets/2020-cccp-settlement-program-supplemental-questions>.

Data-Sharing Requirements

Not explicitly identified.

Stakeholder Engagement

The application asks what kind of buy-in has been established for the fleet transition among agency leadership and staff and members of the public, implying an expectation that some stakeholder engagement has been conducted.⁷¹ Applicants also must explain how they plan to maintain support for the project over time and if there are any public or institutional champions for the effort.

Evaluation Criteria—Demographic and Place-Based Criteria

Not explicitly identified.

Evaluation Criteria—General Requirements and Weighting

Applicants must fund at least 20 percent of projects; Federal and State funds from the program may only fund up to 80 percent of project costs.

Vehicles will be evaluated based on the extent to which they have reached their minimum useful life according to guidelines established by the FTA and CDOT.⁷² The closer vehicles are to having reached their minimum useful life, the more likely that applicant will be in receiving funds for replacement vehicles.

A sample evaluator scorebook was provided on request (Table 28).

Table 28 Summary Evaluator Scorebook for the Consolidated Call for Capital Projects/VW Settlement Transit Program

Consideration	Criteria	Range
Application Quality	Overall quality, clarity, and effort reflected in the application and supporting materials.	1-5
Fleet Transition Planning	Should address: <ul style="list-style-type: none"> Long-term fleet goals (number, percentage, other). Identified timelines for transition. Internal and external buy-in, commitment to project. Definition and metrics of success. 	1-10
Operational Planning	Should address: <ul style="list-style-type: none"> Route and schedule assessments. Necessary or anticipated operational changes. Training needs for drivers and maintenance staff. Availability of maintenance and other technical support. 	1-10

⁷¹ Colorado Department of Transportation. Settlement Program Supplemental Application: CDOT 2020 Consolidated Call for Capital Projects. <https://www.codot.gov/programs/transitandrail/assets/2020-cccp-settlement-program-supplemental-questions>.

⁷² Colorado Department of Transportation, Division of Transit and Rail. 2019. Notice of Funding Availability: 2020 CDOT Consolidated Call for Capital Projects. <https://www.codot.gov/programs/transitandrail/assets/2020-cdot-cccp-nofa-final-9-30-2019>.

Consideration	Criteria	Range
Power Delivery Planning	Should address: <ul style="list-style-type: none"> • Coordination with electrical utility. • Rate structure and demand charge considerations. • Cost estimates and minimization strategies. • Infrastructure and facility modifications and costs. 	1-10
Financial Plan	Should address: <ul style="list-style-type: none"> • Financial impact assessments. • Potential financial risks and mitigation. • Budgetary plans, long and short-term. • Anticipated lifecycle costs and savings. 	1-10
Feasibility and Implementation	The extent to which the project's implementation plan demonstrates readiness and the agency's understanding of the risks and challenges to reliably complete within a reasonable and stated time period.	1-5

Outcomes

An estimate of the program's geographic distribution of spending is available on the Colorado EV Equity Dashboard.

Measurement

The application asks how the agency will determine whether or not the project is successful and what metrics, outputs, or other data will be used to measure success.⁷³

⁷³ Colorado Department of Transportation. Settlement Program Supplemental Application: CDOT 2020 Consolidated Call for Capital Projects. <https://www.codot.gov/programs/transitandrail/assets/2020-cccp-settlement-program-supplemental-questions>.

7.15 Ready EV (Black Hills Energy Commission TEP)

Summary

Black Hills Energy launched their Transportation Electrification Plan (also known as “Ready EV”) through approval by the Colorado Public Utilities Commission. The Ready EV program provides EVSE rebates to residential and commercial customers.^{74,75}

The plan offers one income-qualified program: a \$1,300 rebate for income-qualified customers who install a Level 2 charger in their home.⁷⁶

Black Hills also has made \$100,000 available for income-qualified customers to purchase new or used electric vehicles.⁷⁷

Program categories
EVSE (L2), EV

Locations
Within Black Hills Energy service areas

Administration
Black Hills Energy

Available funding
\$1.3 million over the course of three years

Objectives

The purpose of the plan is to help improve air quality.

Minimum Eligibility—Demographic and Place-Based

Applicants must be located in the Black Hills Energy service area.

Minimum Eligibility—Procedural and Technical

Applicants are expected to be current on payments, comply with all applicable laws, regulations, and codes for the installation of EVSE, including obtaining any necessary permits.

Applicants also must be able to operate and maintain the new charging equipment at their own expense for at least five years after the installation date.⁷⁸

Data-Sharing Requirements

Customers that apply for the rebate must agree to participate in surveys, on-site audits, and review of electric vehicle charger usage data.

⁷⁴ Black Hills Energy. Electric vehicle charging rebate for your home. <https://www.blackhillsenergy.com/efficiency-and-savings/ready-ev/electric-vehicle-charging-rebate-your-home>.

⁷⁵ Black Hills Energy. Commercial electric vehicle charging rebate. <https://www.blackhillsenergy.com/commercial-electric-vehicle-charging-rebate>.

⁷⁶ Vote Solar. 2021. Colorado Regulators Approve Black Hills’ Transportation Electrification Plan. <https://votesolar.org/colorado-regulators-approve-black-hills-transportation-electrification-plan/>.

⁷⁷ Vote Solar. 2021. Colorado Regulators Approve Black Hills’ Transportation Electrification Plan. <https://votesolar.org/colorado-regulators-approve-black-hills-transportation-electrification-plan/>.

⁷⁸ Black Hills Energy. 2021. Residential Electric Vehicle Charging Rebate Program. https://www.blackhillsenergy.com/sites/blackhillsenergy.com/files/2021_EV_Residential_Rebate_Form.pdf.

Stakeholder Engagement

An environmental justice coalition of four organizations intervened in the proceedings for the plan before the Public Utilities Commission to express their disappointment with plan.⁷⁹ These groups, which include Vote Solar, GRID Alternatives, Colorado Latino Forum, and GreenLatinos, urged Black Hills Energy to expand the definition of income-qualified customers and allocate at least 30 percent of the plan’s budget to income-qualified programs. While these requests (and several others) were not included in the final version of the plan, Black Hills Energy did provide a \$1,300 rebate of EVSE to income-qualified customers as requested by the coalition.

Evaluation Criteria—Demographic and Place-Based Criteria

Outside of being located within Black Hills Energy’s service area, applicants do not need to meet demographic or place-based criteria.

Evaluation Criteria—General Requirements and Weighting

Income-qualified applicants will receive a \$1,300 rebate for installation of an at-home Level 2 charger (as opposed to a \$500 rebate for all other applicants). Income-qualified customers also can receive funds toward the purchase of new or used EVs up to \$100,000.⁸⁰ More detail was not published on the Black Hills website as of January 2022.

Outcomes

No outcomes have been reported yet.

Measurement

No measurement of the program could be found as of January 2022.

⁷⁹ Vote Solar. 2021. Coloradans Need Equitable Access to the Electric Vehicle Transition. <https://votesolar.org/wp-content/uploads/2021/03/Black-Hills-2021-2023-Ready-EV-1.pdf>.

⁸⁰ Vote Solar. 2021. Colorado Regulators Approve Black Hills’ Transportation Electrification Plan. <https://votesolar.org/colorado-regulators-approve-black-hills-transportation-electrification-plan/>.

7.16 Renewable and Clean Energy Initiative

Summary

The Renewable and Clean Energy Initiative is meant to support the development and construction of renewable and clean energy infrastructure in all areas of the State, especially in communities in which renewable and clean energy infrastructure is sparse.⁸¹ Awards have supported the development of EV plans, EVSE pilots, ZEB facilities, and others.⁸²

Objectives

The program supports local governments in their pursuit of implementing projects that will help Colorado towards 100 percent renewable energy by 2040.

Minimum Eligibility—Demographic and Place-Based

No additional demographic and place-based eligibility requirements.

Minimum Eligibility—Procedural and Technical

Applicants are required to work with their respective DOLA regional manager during the application process.

The application materials include a written questionnaire, project budget spreadsheet, and applicant financials spreadsheet.

“Readiness” is listed as a criteria, which includes:⁸³

- The project can be implemented in a reasonable amount of time following the award.
- Other funding sources are available and ready for expenditure beyond this award.
- Preliminary engineering already has been completed and plans and permits are approved.
- A project contractor has been selected (if applicable).

Program categories
All EV/EVSE project types,
including other renewable
and clean energy projects

Locations
Statewide

Administration
DOLA

Available funding
\$5,000,000

⁸¹ Colorado Department of Local Affairs. Renewable and Clean Energy Initiative. <https://cdola.colorado.gov/funding-programs/energy/mineral-impact-assistance-fund-grant/renewable-and-clean-energy-initiative>.

⁸² Colorado Department of Local Affairs. Renewable & Clean Energy Projects by Category—January 8, 2021. <https://drive.google.com/file/d/1fUHjlY9NUf2lRPos8-qHb3-xndgWWG7S/view>

⁸³ Colorado Department of Local Affairs. Renewable and Clean Energy Initiative (NB21—1253) Grant Program Rating Criteria. https://drive.google.com/file/d/12lfqaA8F8_ajl_39eR3hfDac5f-qQmeB/view.

Data-Sharing Requirements

Not explicitly identified.

Stakeholder Engagement

Not explicitly identified.

Evaluation Criteria—Demographic and Place-Based Criteria

The program will prioritize projects in areas that have not been provided renewable and clean energy funds or simply do not have a high density of renewable and clean energy infrastructure. Consideration is given to the geographic distribution of project awardees.

Evaluation Criteria—General Requirements and Weighting

Applicants must be able match 25 percent of their requested funds, though applicants in extreme financial hardship may be able to request a lower level of matching funds.

Applicants for program funding were evaluated on seven categories (Table 29).

Table 29 Renewable and Clean Energy Initiative Application Scoring Criteria

Category	Weight
Demonstration of need	20%
Status of renewable infrastructure	20%
Geographical diversity	20%
Readiness	15%
Priority, community goal, and outcome	10%
Resiliency criteria	10%
Local match	5%

Outcomes

Projects funded by this initiative are expected to have several possible outcomes, including:⁸⁴

- Reduce reliance on fossil fuels for electricity generation, heating and cooling, and powering motor vehicles.
- Reduce emissions of air pollutants and greenhouse gases with adverse health and environmental impacts, especially in communities near industrial areas or heavy motor vehicle traffic.
- Reduce energy costs and total costs of ownership of EVs.

⁸⁴ Colorado Department of Local Affairs. Renewable and Clean Energy Initiative. (HB21–1253): Grants, Eligibility, Process. <https://drive.google.com/file/d/1HKiWoPRA0Eud6argqmgX3IZbfH6w9lQ/view>.

- Stimulate in-State job creation and economic activity.
- Achieve renewable energy, energy efficiency, and energy conservation efforts.
- Support innovation in renewable energy.
- Achieve multiple objectives and/or serve those with the greatest need.

Measurement

Not explicitly identified.

7.17 School Bus Electrification (Xcel Energy TEP)

Summary

Xcel Energy’s School Bus Electrification initiative aims to decrease the cost of purchasing electric school buses and provide educational support to school districts to increase the number of electric school buses operating in Colorado. Funds will cover 75 percent of eligible costs or \$275,000 per bus, whichever value is lower. Xcel Energy’s Electric School Bus Rebate will provide up to a maximum \$275,000 per bus for the costs incurred to procure the bus and the charging equipment necessary for operations.⁸⁵

Objectives

The program’s objectives are to: increase the number of electric school buses operating in Colorado and help school districts experiment and test the use cases of electric school buses, to potentially support higher demand for electric school buses in the future.

Additionally, as part of the Partnership, Research, and Innovation Portfolio, Xcel Energy states a number of specific objectives:

1. Make EV charging easy:
 - Make it easier for customers to access electricity as a transportation fuel.
 - Increase and broaden access to clean, affordable energy.
2. Lower system costs and increase EV charging benefits:
 - Minimize system costs.
 - Increase the benefits of EV charging.
 - Bring those benefits to customers, the environment, and the system.
3. Gain new insights and stimulate innovation:
 - Gain insights to inform future TEPs.
 - Capture key data points to inform other PRI objectives.
4. Promote, Accelerate, Deploy:
 - Promote, accelerate, and deploy real solutions to real problems, challenges, and gaps.
5. Promote Equity:
 - PRI projects should consider ways to promote equity for socially and culturally diverse system users, EV drivers, and communities.

⁸⁵ Xcel Energy. 2021. Summary of 60-Day Notice: School Bus Electrification. <https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/Revised%2060-Day%20Notice%20Electric%20School%20Bus%20Program.pdf>.

Minimum Eligibility—Demographic and Place-Based

Applicants requesting funds must be a public K-12 school district within Xcel Energy’s service territory or a bus operator serving one of these districts.

Minimum Eligibility—Procedural and Technical

Applicants also must intend to charge the school bus more than 50 percent of the time at a valid address within the Company’s service territory.

Data-Sharing Requirements

Program participants will be asked to provide data used to track overall program performance (see Measurement below).

Stakeholder Engagement

During program development, Xcel Energy also engaged the Colorado FleetPros Association, the Regional Air Quality Council (RAQC), the Colorado Energy Office, the Transportation Electrification Plan Stakeholder Group, Energy Outreach Colorado, GRID Alternatives, the City of Denver, and public school districts in Colorado (including Boulder Valley School District, Denver Public Schools, and Adams County School District 12).

Evaluation Criteria—Demographic and Place-Based Criteria

Applications will be evaluated on three place-based criteria that focus on equity, including 1) Whether the charging and operation of the bus(es) will take place in Higher Emissions Communities, 2) Whether the school district has a higher percentage of students receiving Colorado Nutrition Assistance than the statewide average, and 3) The estimated number of students served annually (see criteria evaluation).

Evaluation Criteria—General Requirements and Weighting

The project will be evaluated based on the following criteria:

- Project scope of work and readiness:
 - Documentation of project workplans and budgets.
 - Documentation of research conducted and experience with electric vehicles.
 - Demonstration that the bus(es) and charger(s) that are being applied for can meet the needs of the route identified.
 - Documentation of any fleet electrification plans outlined in.
 - Broader plans for fleet electrification beyond the bus(es) procured through this program.

- Impacts (in descending order of scoring weight), including:
 - Whether the charging and operation of the bus(es) will take place in Higher Emissions Communities.
 - Whether the school district has a higher percentage of students receiving Colorado Nutrition Assistance than the statewide average.
 - The estimated number of students served annually.
 - The expected annual vehicle miles traveled of service.
 - The expected kilowatt-hour (“kWh”) of charging annually.
- Project budget and a description of expected funding sources.
- Willingness to consider additional partnerships, funding opportunities and research initiatives, including:
 - Interest in pursuing research opportunities and participating in future pilots offered by the Company.
 - Willingness to seek additional funding opportunities.

Outcomes

Outcomes have not yet been reported.

Measurement

The following metrics will be tracked:

- Project costs and impacts of grant funding.
- Vehicle miles traveled.
- Estimated consumption of electricity (kWh) resulting from electric bus charging.
- Estimated level of demand (kilowatts) resulting from electric bus charging.
- Estimates for the amount of energy sold to program participants during on-peak and off-peak time periods.
- Geographic distribution of program participants.
- Emissions reductions of both carbon dioxide and nitrogen oxides resulting from the Program.
- Customer survey data.

7.18 EV Accelerate at Home- Home Charging Service (Xcel Energy TEP)

Summary

The EV Accelerate at Home Program offers residential electric customers a Level 2 charger with no installation fee through a ‘make-ready’ arrangement that allows customers to gradually repay the cost of the charger, installation, and set-up fees through monthly energy bills.^{86,87}

Objectives

The Residential portfolio focuses on increasing adoption of Level 2 charging equipment to enhance the customer’s charging experience, while managing that charging to benefit the grid. The specific objectives mentioned for this program include:

- Reducing upfront costs for home charging.
- Providing charging station product choice.
- Ensuring a hassle-free experience.
- Simplify charging management to help the grid.
- Reward customers with ongoing fuel savings.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy’s service area.

Minimum Eligibility—Procedural and Technical

Non-income qualified participants also must be enrolled in Xcel Energy’s Optimize Your Charge program, an off-peak charging incentive program for at least one year. Income-qualified customers receiving the enhanced \$1,300 Home Wiring Rebate are able to opt out of participating in Optimize Your Charge.

Data-Sharing Requirements

No demographic or place-based criteria.

Program categories
EVSE

Locations
Within Xcel service areas

Administration
Xcel TEP

Available funding
\$18,198,000 over three years (2021-2023) for Home Charging Service, Home Wiring Rebate, Optimization Program, and Advisory Services and Outreach

⁸⁶ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

⁸⁷ Xcel Energy. Easy Electric Vehicle Charging at Home. <https://ev.xcelenergy.com/ev-accelerate-at-home-co>.

Applicants must:

- Own or lease an electric vehicle (all-electric or plug-in hybrid).
- Have an active Colorado Xcel Energy account that receives electric service.
- Have a charging location that has access to Wi-Fi.
- Agree to charge using Company-provided Level 2 charging equipment.
- For non-income qualified customers, agree to participate in one of the EV Optimization programs for at least one year.
- Own or rent a detached single-family home, townhome/row house, or duplex (if a renter, permission from the homeowner to participate is required).

Stakeholder Engagement

Xcel Energy includes stakeholder engagement in the development of TEP plans. For this program no explicit engagement was identified.

Evaluation Criteria—Demographic and Place-Based Criteria

No additional place-based criteria.

Evaluation Criteria—General Requirements and Weighting

Projects must meet minimum eligibility requirements. No further evaluation is conducted.

Outcomes

The program reports the number of participants and applicants in the queue. Xcel Energy reported that as of September 1, 2021, there were 11 active participants in the program and 121 applicants in the queue waiting for a Level 2 charger to be installed.

Measurement

The program currently measures effectiveness based on the number of participants and applicants. According to the 2021-2023 Transportation Electrification Plan, Xcel Energy anticipates a total of 10,100 participants through 2023.

7.19 Home Wiring Rebate Program (Xcel Energy TEP)

Summary

Xcel Energy’s Home Wiring Rebate program provides residential electric customers with a rebate of up to \$500 to offset the cost of upgrading their wiring to accommodate an eligible Level 2 charger at their home. Income-qualified customers can receive an enhanced rebate of \$1,300.⁸⁸

Objectives

Aims to reduce one of the largest upfront costs to installing a Level 2 charging station: the dedicated 240-volt circuit.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy’s service area.

For rebates greater than up to \$1,300, applicants must meet one of the following criteria:

- Enrollment in Supplementary Nutrition Assistance Program (SNAP—also known as ‘food stamps’).
- Enrollment in Temporary Aid to Needy Families (TANF).
- Enrollment in the State of Colorado’s Low-income Energy Assistance Program (LEAP).
- Enrollment in the State of Colorado’s Weatherization Assistance Program (WAP).
- Enrollment in Xcel Energy’s Demand-Side Management program (DSM) income qualified participation.
- Enrollment in Xcel Energy’s Community Solar Gardens program.
- Enrollment in Energy Outreach Colorado’s Affordable Residential Energy Program (CARE).
- Have an income below 60 percent of the State median, below 200 percent of Federal poverty guidelines, or below 80 percent of the area median.

Demographic or place-based criteria

No additional demographic or place-based criteria.

Program categories
EVSE

Locations
Within Xcel service areas

Administration
Xcel TEP2

Available funding
\$18,198,000 over three years (2021-2023) for Home Charging Service, Home Wiring Rebate, Optimization Program, and Advisory Services and Outreach

⁸⁸ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

Minimum Eligibility—Procedural and Technical

Non-income qualified participants also must be enrolled in Xcel Energy’s Optimize Your Charge program, an off-peak charging incentive program for at least one year. Income-qualified customers receiving the enhanced \$1,300 Home Wiring Rebate are able to opt out of participating in Optimize Your Charge.

Applicants must:

- Demonstrate that a licensed master electrician performed the work to install the 240v circuit.
- Demonstrate and provide invoices that are dated on or after the launch of the program for labor and materials to install a 240v circuit.
- Install charging equipment that is on a Company pre-qualified list that meets technical, safety, smart charging, and other standards.
- Own or rent a single-family home as defined above (if a renter, permission from the homeowner to participate is required).
- Own or lease an electric vehicle.
- Have an active Colorado Xcel Energy account that receives electric service.
- For non-income qualified customers, participate in one of the Charging Optimization programs for at least one year.
- Demonstrate the charging equipment that relies on the 240v circuit for which the customer seeks the rebate draws 50 amps or less.

Data-Sharing Requirements

No data-sharing requirements identified.

Stakeholder Engagement

Stakeholder engagement focuses on outreach to raise awareness of the program. See Advisory services.

Evaluation Criteria—Demographic and Place-Based Criteria

No additional place-based criteria.

Evaluation Criteria—General Requirements and Weighting

Projects must meet minimum eligibility requirements. No further evaluation is conducted.

Outcomes

The program reports the number of participants and applicants in the queue. Xcel Energy reported that as of September 1, 2021, there were 121 participants scheduled to have chargers installed through the Home Wiring Program. There was one Income-Qualified Home Wiring Rebate application pending at the time.

Measurement

The program currently measures effectiveness based on the number of participants and applicants. According to the 2021-2023 Transportation Electrification Plan, Xcel Energy anticipates a total of 15,100 participants in the Standard Home Wiring Rebate program through 2023, and 300 participants in the income-qualified rebate program.

7.20 Advisory Services Portfolio (Xcel Energy TEP)

Summary

Advisory services include educational campaigns and direct customer engagement to provide information about the benefits of electric vehicles, support planning, and increase awareness of Xcel Energy's EV-related offerings. Offerings are segmented into three markets, including residential, fleets, and community planning.⁸⁹

Objectives

Aims to persuade, provide technical support, and guidance with respect to Xcel Energy's programs.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy's service area.

No applicant equity-centered eligibility.

Minimum Eligibility—Procedural and Technical

For fleet advisory and assessments, additional criteria are required to be eligible for programs:

- Be an electric customer of Xcel Energy.
- Operate a fleet (defined as five or more vehicles that are used to provide or distribute services or products).
- Be willing to share aggregate data collected, recommendations, key decisions, and procurement documentation.

Data-Sharing Requirements

Fleets must share aggregate data, recommendations, key decisions, and procurement documentation (see above).

Program categories

Education

Locations

Within Xcel service areas

Administration

Xcel TEP

Available funding

\$18,198,000 over three years (2021-2023) for Home Charging Service, Home Wiring Rebate, Optimization Program, and Advisory Services and Outreach

⁸⁹ Xcel Energy. 2021. Transportation Electrification Plan: Public Service Company of Colorado 2021-2023. https://www.xcelenergy.com/staticfiles/xcelresponsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/20A-0204E-2021-2023_TEP_Updated.pdf.

Stakeholder Engagement

Strategies for engagement focus on:

- Drive electric experience at community events.
- Advertising and media.
- Trade ally support for auto dealers and electricians.
- Online tools.

Evaluation Criteria—Demographic and Place-Based Criteria

No residential or place-base eligibility.

Evaluation Criteria—General Requirements and Weighting

Not applicable.

Outcomes

Outcomes reported in the October 2021 TEP Semi-Annual report include activities in the following venues:⁹⁰

- Public events (including Denver Auto Show, Concerts at Levitt Pavilion, Colorado Electric).
- Vehicle Coalition meeting, the Clean Cars Coalition meeting).
- Ride and Drive experiences (Denver Auto Show, Summit County EV Ride and Drive).
- Digital Outreach, Website and Digital Tools.
- Traditional Media (i.e., television).
- EV Dealer Network (including staff training, customer education, co-marketing support, signing up for programs in the dealer's showroom).

Measurement

The program report highlights that more than 20 dealers participate in Xcel Energy's EV Dealer Network.

⁹⁰ Xcel Energy. 2021. Transportation Electrification Plan: Semi-Annual Report. <https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/TEP%20Semi-Annual%20Report%20October%202021.pdf>.

7.21 Multifamily Housing Portfolio (Xcel Energy TEP)

Summary

Xcel Energy’s Multifamily Housing Portfolio (MFH Portfolio) allows residents and guests to work with an EV Concierge to participate in one of four multifamily infrastructure programs, with additional incentives for income-qualified applicants and applicants who meet geographic criteria. These programs have similar characteristics and are described in this section together, and include:⁹¹



Option 1: Shared Parking—Site Host-Provided Equipment: Xcel Energy will install, own, and maintain, EV Supply Infrastructure (EVSI) and the site host will acquire, install, own, and maintain their own eligible charging equipment. Xcel Energy provides a meter dedicated to the shared EV parking and will serve the load through an approved commercial rate. The site host is responsible for the monthly cost of charging but can set access policies and billing arrangements. Income-qualified applicants or applicants located in HEC communities may receive up to a \$2,200 additional rebate.

Option 2: Shared Parking—Full-Service: Xcel Energy will install, own, and maintains EVSI and charging equipment that the site host selects from an approved list. Xcel Energy will provide a new meter dedicated to the shared EV parking and charges an approved commercial rate, plus a fixed monthly charge that is designed to recover the cost of the charging equipment and ongoing data services. The site host may set access policies and billing arrangements. Income-qualified applicants or applicants located in HEC communities may receive up to a \$2,200 additional rebate.

Option 3: Assigned Parking—Full-Service: Xcel Energy will install, own, and maintain EVSI and charging equipment that the site host selects from an approved list. Usage charges associated with that charger are assigned to the individual EV driver at their applicable Residential rate, plus a bundled customer charge to recover the cost of the charging equipment, installation, and ongoing data services. Income-qualified applicants or applicants located in HEC communities may receive up to a \$800 additional rebate.

Option 4: New Construction Rebate: Xcel Energy will provide a rebate up to \$2,000 per port (not more than 100 percent of the total cost of installation) to pay the cost of infrastructure in excess of the most stringent mandatory code in order to add additional EVSE.⁹²

⁹¹ Xcel Energy. 2021. Summary of 60-Day Notice: School Bus Electrification. <https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/Revised%2060-Day%20Notice%20Electric%20School%20Bus%20Program.pdf>.

⁹² Xcel Energy. EV Charging for My Residents. <https://co.my.xcelenergy.com/s/business/ev/multifamily-charging>.

Objectives

According to the 2021-2023 Transportation Electrification Program, the MFH Portfolio is designed to address barriers to installing EVSE at MFH locations by providing investment, a path to ownership, and options for site hosts with respect to ownership of the charging equipment.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy’s service area. Applicants to the Income Qualified and Higher Emissions Community (HEC) Rebate program must meet one of the following criteria:

- Participate in affordable housing weatherization, multifamily weatherization, affordable house rebate program in last five years or currently meet income qualification requirements for those programs.
- Be located in a HEC.

Minimum Eligibility—Procedural and Technical

Applicants must complete a short intake form linked on every commercial webpage on the Xcel Energy website. On receiving this form, applicants are provided access to advisory services to support customers in applying for Multifamily Housing Programs.

Technical eligibility requirements are used to funnel participants to relevant programs. For example, under the assigned parking full-service program, all residents must receive an electric bill, and site hosts and property owners must agree to be billed.

Data-Sharing Requirements

Multifamily site host provides for annual usage reports, including site-specific quarterly data requested by Xcel Energy’s EV advisor staff and data on load-shifting, energy sales during on-peak, shoulder, and off-peak periods, and aggregated customer energy usage profile data.⁹³

Stakeholder Engagement

Stakeholder engagement is not required in the application.

Evaluation Criteria—Demographic and Place-Based Criteria

See applicant equity-centered criteria above.

Evaluation Criteria—General Requirements and Weighting

Applicants for the EVSI programs are scored competitively. Projects must meet minimum eligibility requirements. No further evaluation is conducted.

⁹³ Xcel Energy. Multifamily EV Solutions. <https://www.xcelenergy.com/staticfiles/xe-responsive/Marketing/CO-Multifamily-EV-summary-table.pdf>.

Outcomes

As a new program, the program did not have reported outcomes as of September 2021.

Measurement

The program currently measures program performance based on the number of participants and applicants. According to the 2021-2023 Transportation Electrification Plan, Xcel Energy anticipates that participation will be between 96 and 476 for each of the programs included in the multifamily housing programs. For Shared Parking—Site Host Provided Equipment: 230; Shared Parking Charging Service: 230; Assigned Parking Charging Service: 250; New Construction Rebate: 475; Income-Qualified Rebate: 96.

7.22 Fleet EV Solutions (Xcel Energy TEP)

Summary

Fleet EV Solutions includes both advisory services and charging equipment and is available to both fleets and workplaces. Advisory services are available to eligible customers through Xcel Energy's Solutions include:^{94,95}

- Fleet Electrification Advisory Program (FEAP), which provides a free suitability assessment, data analysis, and advisory services using the fleet's own operation data and business goals.
- EV Supply Infrastructure: to be provided at no cost. The infrastructure will be owned, installed, and maintained by Xcel Energy.
- Customers also may receive equipment rebates up to \$2,200 for a Level 2 charger and up to \$45,000 for a DCFC charger.

The Fleet EV Solutions is part of Xcel Energy's Commercial portfolio.

Objectives

The objective of the FEAP program is to provide information, data and technical assistance to help inform fleet electrification and, in some cases, workplace charging decisions and assist customers in building a robust and actionable electrification plan.⁹⁶

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy's service area.

Applicants to the fleet-income qualified rebate must meet one of the following criteria:

- Be a non-profit or public organization eligible to participate in Xcel Energy non-profit efficiency programs.
- Be located in a Higher Emissions Community.

Program categories
LDEV, Education

Locations
Statewide

Administration
Within Xcel service areas

Available funding
\$50,110,000 over three years (2021-2023) for all commercial portfolio programs (includes Fleet EV Solutions, Workplace EV Solutions, and Public and Community Charging Hubs, Small Commercial, and Electric School Bus Rebate)

⁹⁴ Xcel Energy. 2021. Transportation Electrification Plan: Current Notices, Past Notices, Filing Materials, TEP Rider. https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan.

⁹⁵ Xcel Energy. 2021. Driving EV Adoption for All. <https://co.my.xcelenergy.com/s/business/ev/equity>.

⁹⁶ Xcel Energy. 2021. Transportation Electrification Plan: Public Service Company of Colorado 2021-2023. https://www.xcelenergy.com/staticfiles/xcelresponsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/20A-0204E-2021-2023_TEP_Updated.pdf.

Evaluation Criteria—Demographic and Place-Based Criteria

No additional demographic and place-based evaluation.

Minimum Eligibility—Procedural and Technical

FEAP:

- Potential charging stations are located within Xcel’s service territory.
- Fleet must meet requirements for number of vehicles.
- Participants have plans to procure EVs and install EVSE.
- Agree to install telematics equipment and share assessment data.

EV Supply infrastructure:

- In Xcel Energy’s Colorado territory.
- Receive electric service at secondary voltage rather than primary.
- Obtain consent from the property owner (if not the owner).
- At least four ports per site or at least 50 kW of charging capacity.
- Provide Xcel Energy required land rights to install, own, and maintain EVSE.
- Agree to separately metered service.
- Provide proof of purchase of charging stations.

Critical Peak Pricing Program:

- In Xcel Energy’s service territory.
- EVSE is on secondary voltage service.
- Not participating in Interruptible Service Option Credit.

Data-Sharing Requirements

FEAP requires participants to share information, data and technical assistance to help inform fleet electrification plans.

Data collected will be aggregated through a third-party provider to avoid competitive advantage or access to sensitive charging data, including:

- Start and stop times of charges.
- Fees charged to the EV driver.
- Peak kW per charging session.
- Operating costs, including non-energy related.
- Number of charging sessions daily.
- Technologies being used to manage demand.
- Amount of time each vehicle is actually charged per session.

Stakeholder Engagement

No stakeholder engagement identified for program participants.

Evaluation Criteria—General Requirements and Weighting

No additional criteria identified beyond minimum eligibility requirements.

Outcomes

The program reports the number of participants and applicants in the queue. Xcel Energy reported that as of September 1, 2021, six fleets had submitted intake forms and four fleets had completed assessments.

Measurement

The program currently measures effectiveness based on the number of participants and applicants. According to the 2021-2023 Transportation Electrification Plan, Xcel Energy anticipates a total of 100 fleet assessments through 2023.

7.23 Small Business Program (Xcel Energy TEP)

Summary

Xcel Energy’s Small Business Program (referred to as the Small Business Commercial Program in regulatory documents, but the Small Business Program in marketing documents) offers rebates that cover a portion of eligible EVSE costs for customers seeking to install for up to three charging ports. The rebate is equal to up to \$2,500 per port (approximately 50 percent of average port costs). Income qualified customers and customers that meet certain geographic criteria may receive an additional \$2,000 per Level 2 charger.⁹⁷

The program is supported by Xcel Energy’s Advisory Services portfolio.

Objectives

The program’s objective is support affordable access to EVs for income-qualified customers.

The program is intended to, in conjunction with the TEP’s Advisory Services Program for fleets and workplaces, to decrease the cost barrier and provide educational support to increase the number of smaller commercial sites installing EV charging ports.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy’s service area and must be an electric business Xcel Energy customer.⁹⁸ The customer must have a peak load up to 50 kW on meter in the last 12 months. The customer also must have proof that a licensed master electrician performed the electrical work for the infrastructure installation and that the charging equipment is within the Xcel Energy prequalified list.

Eligibility for the Enhanced Equity Rebate is limited to customers who have one of:

- Demonstrate that your organization is non-profit or public organization eligible to participate in Xcel Energy non-profit efficiency programs.
- Be located within a Higher Emissions Community.

Program categories
EVSE

Locations
Statewide

Administration
Xcel TEP

Available funding
\$50,110,000 over three years (2021-2023) for all commercial portfolio programs (includes Fleet EV Solutions, Workplace EV Solutions, and Public and Community Charging Hubs, Small Commercial, and Electric School Bus Rebate)

⁹⁷ Xcel Energy. 2021. Summary of 60-Day Notice: Small Commercial Program.

https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/past%2060-Day%20Notice_Small%20Commercial%20Program.pdf.

⁹⁸ Xcel Energy. Small Business EV Solutions. <https://www.xcelenergy.com/staticfiles/xcel-responsive/Marketing/co-small-business-ev-rebate-info-sheet.pdf>.

Evaluation Criteria—Demographic and Place-Based Criteria

Customers located in a HEC are eligible for an additional Enhanced Equity Rebate up to \$2,000 per Level 2 charger.

Minimum Eligibility—Procedural and Technical

To be eligible for Xcel Energy’s Commercial portfolio programs, participants must:

- Qualify as a non-residential customer.
- Take secondary voltage service (unless seeking to participate in the Primary General Pilot).
- Own, lease, or operate a site that provides EV or shared electric mobility (eBikes/scooters) charging.
- Obtain express written consent from the property owner (if not the owner).
- Commit to installing a minimum four ports per site or a minimum of 50 kW of charging capacity (in cases where fewer than four ports are provided).
- Required license agreements, permits, or easements to install, own, and maintain the EVSE.
- Agree that all charging-station load will be separately metered from any other load served at the premises.
- Provide proof that they have purchased charging stations as well as dates for expected arrival of charging stations prior to the Company beginning deployment of EVSE.

Applicants may take advantage of the TEP’s Advisory Services Program for support with technical requirements.

Data-Sharing Requirements

No data-sharing requirement from project applicants was identified.

Stakeholder Engagement

Stakeholder engagement supported development of the program and included the following organizations:

- The Colorado Energy Office (CEO).
- The Regional Air Quality Council (RAQC).
- Energy Outreach Colorado (EOC).
- The City and County of Denver (Denver).
- The City of Boulder (Boulder).

- The Environmental Organizations (including Western Resource Advocates, Sierra Club, and the Natural Resources Defense Council).
- The Environmental Justice Coalition (including the Colorado Latino Forum, GreenLatinos, GRID Alternatives, and Vote Solar).
- The Joint EV Charging Providers (including Enel X, EVBox, and Greenlots).
- The Southwest Energy Efficiency Project (SWEET).

Evaluation Criteria—General Requirements and Weighting

No additional evaluation criteria were identified beyond eligibility requirements.

Outcomes

No outcomes had yet been released for the program (planned launch in October of 2021).

Measurement

Expected charging stations have not yet been identified.

7.24 Electric Vehicle Purchase/Lease Rebates Portfolio (Xcel Energy TEP)

Summary

Xcel Energy’s Electric Vehicle Purchase/Lease program supports access to EVs for income-qualified buyers. Income-qualified customers can receive up to \$3,000 toward the purchase or lease of a pre-owned EV or \$5,500 toward the purchase of a new EV or lease.^{99,100}

Objectives

The main objective of this program is to ensure affordable access to EV options for income-qualified Xcel Energy customers.

Minimum Eligibility—Demographic and Place-Based

Applicant must be located in Xcel Energy’s service area.

Customers seeking rebates must meet one of the following income-related criteria:

- Enrollment in Supplementary Nutrition Assistance Program (SNAP—also known as ‘food stamps’).
- Enrollment in Temporary Aid to Needy Families (TANF).
- Enrollment in the State of Colorado’s Low-income Energy Assistance Program (LEAP).
- Enrollment in the State of Colorado’s Weatherization Assistance Program (WAP).
- Enrollment in Xcel Energy’s Demand-Side Management program (DSM) income qualified participation.
- Enrollment in Xcel Energy’s Community Solar Gardens program.
- Enrollment in Energy Outreach Colorado’s Affordable Residential Energy Program (CARE).
- Have an income below 60 percent of the State median, below 200 percent of Federal poverty guideline, or below 80 percent of the area median income.



Program categories
LDEV

Locations
Within Xcel service areas

Administration
Xcel TEP

Available funding
\$4,985,000

⁹⁹ Xcel Energy. 2021. Transportation Electrification Plan: Public Service Company of Colorado 2021-2023. https://www.xcelenergy.com/staticfiles/xcel-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/20A-0204E-2021-2023_TEP_Updated.pdf.

¹⁰⁰ Xcel Energy. Save up to \$5,500 on an Electric Vehicle (EV). <https://ev.xcelenergy.com/ev-rebate-co>.

Minimum Eligibility—Procedural and Technical

Customers must meet basic procedural and technical requirements, including:

- Have an active Colorado Xcel Energy account that receives electric service.
- Purchase or lease an EV from a registered Colorado dealership (may be used or new).
- Purchase or lease an EV for no more than \$50,000 (or a manufacturer’s suggested retail price of \$50,000 for new vehicles).
- Use only one rebate per vehicle over its lifetime.
- Forego claiming the State tax credit for EVs.

Data-Sharing Requirements

No data-sharing requirements identified.

Stakeholder Engagement

Stakeholder engagement focuses on outreach to raise awareness of the program. See Advisory services.

Evaluation Criteria—Demographic and Place-Based Criteria

Customers must meet minimum eligibility requirements. GRID Alternative Colorado reaches out to confirm the information applicants provide.¹⁰¹ This process can take up to two weeks. After that, no further evaluation is conducted.

Evaluation Criteria—General Requirements and Weighting

Customers must meet minimum eligibility requirements. No further evaluation is conducted.

Outcomes

Outcomes are reported in terms of the number of applicants and number of awardees. Xcel Energy reports that, as of September 2021, there were two EV Purchase/Lease Rebate applications pending. The program launched August 5, 2021.

Measurement

The program currently measures effectiveness based on the number of participants and applicants. According to the 2021-2023 Transportation Electrification Plan, Xcel Energy anticipates a total of 375 participants through 2023 for new purchase/leases, and 700 participants through 2023 for used EV purchase/leases.

The program also will report aggregated data provided by participants (see data sharing above).

¹⁰¹ Xcel Energy. Save Up to \$5,500 on an Electric Vehicle (EV). <https://ev.xcelenergy.com/ev-rebate-co>.

8.0 Organizational Resources to Support Equitable Access to Transportation Electrification and the Benefits of Transportation Electrification

Table 30 Organizational Resources

Organization	Resources	Description	Location
American Association of Retired Persons (AARP)	Engagement, advocacy	Member organization for older adults over the age of fifty, including seniors who no longer drive. Resources for members on purchasing an EV.	Washington, DC
American Council for an Energy Efficient Economy (ACEE)	Research, advocacy	Nonprofit research organization developing policies to reduce energy waste and combat climate change.	Washington, DC
Auraria Higher Education Center (AHEC)	Education	State entity whose role is to provide and manage shared services, facilities, and property to the 150-acre campus shared by: Community College of Denver, Metropolitan State University of Denver, and University of Colorado Denver. Charging stations are available.	Denver, CO
Beneficial Electrification League of Colorado (BEL-CO)	Education	Member organization that aims to advance beneficial electrification by bringing together different groups in an open forum for knowledge sharing, relationship building and fact-based education.	Westminster, CO
Black Hills Energy	Utility	Utility located in Pueblo to south of Colorado Springs. Offers support to residential and non-residential customers toward the purchase of EV charging infrastructure and EVs.	Pueblo, CO
Blink Charging	EV charging infrastructure provider	Firm that owns, operates, and provides EV charging infrastructure and services in the United States.	Statewide
Boulder County	Local Government	County Government located in Boulder County. Recognized as a GoEV County. Includes Mobility for All (M4A).	Boulder, CO
ChargePoint	EV charging infrastructure provider	Maintains network of EV charging infrastructure in North America and Europe.	Campbell, CA
City and County of Denver	Local Government	Municipal Government located in the City and County of Denver. Includes the Office of Climate Action, Sustainability, and Resiliency (CASR) works to enable a sustainable, resilient, climate-safe future for all of Denver in collaboration with fellow departments, other units of Government, and community partners. Recognized as a GoEV City.	Denver, CO
City of Boulder	Local Government	Municipal Government located in Boulder County. Recognized as a GoEV City.	Boulder County, CO

Organization	Resources	Description	Location
City of Fort Collins	Local Government	Municipal Government located in Larimer County. Recognized as a GoEV City.	Fort Collins, CO
City of Golden	Local Government	Municipal Government located in Jefferson County. Recognized as a GoEV City.	Golden, CO
City of Longmont	Local Government	Municipal Government located in Boulder and Weld counties. Website with resources for EV charging and EV FAQ.	Longmont, CO
Clean Cities Coalition Network	Pilot projects, coalitions, educational events, others	Part of the U.S. Department of Energy's (DOE) Vehicle Technologies Office (VTO). Aims to support the Nation's economic, environmental, and energy security by working locally to advance affordable, domestic transportation fuels, energy efficient mobility systems, and other fuel-saving technologies and practices.	National
Clean Energy Credit Union	Financing, education	Financial institution focused solely on providing loans that help people afford clean energy products and services such as solar electric systems, electric vehicles, home energy efficiency retrofits, electric-assist bicycles, and net-zero energy homes	Englewood, CO
Clean Energy Economy for the Region (CLEER)	Advocacy, education, engagement	Nonprofit energy consulting team that works directly with community leaders, schools, businesses and households to help speed the implementation of clean energy upgrades. Works to accelerate the transition to a clean energy economy, increase energy independence and reduce contributions to climate change.	Carbondale, CO
Climate Mayors	Networking	Cross-country collaborative of mayors. Procurement portal providing local governments access to competitively bid EVs and charging infrastructure, innovative financing options, and other forms of expertise.	National
Colorado Association of State Transit Agencies (CASTA)	Engagement, advocacy	Member organization representing transit interests and providing professional development to the transit community. Membership includes Colorado transit providers, transit-related businesses and governmental entities.	Denver, CO
Colorado Carshare	Rideshare	Nonprofit carshare services in Boulder County and Denver County. Aims to support the community to live a car-free lifestyle and have a positive impact on health, wealth, and the shared environment.	Denver, CO; Boulder, CO
Colorado Communities for Climate Action (CC4CA)	Local Government	Coalition of 40 local governments advocating for stronger State and Federal climate policy.	Statewide
Colorado Counties, Inc.	Engagement, advocacy	Nonprofit membership association whose purpose is to offer assistance to county commissioners, mayors and council members and to encourage counties to work together on common issues.	Denver, CO

Organization	Resources	Description	Location
		Governed by a board of directors consisting of eight commissioners from across the State.	
Colorado Cross Disability Coalition	Engagement, advocacy	Nonprofit membership association that advocates for disability rights and social justice for people with all types of disabilities.	Denver, CO
Colorado Department of Human Services (CDHS)	State Government	Principal department of the Colorado State Government that operates the State's social services.	Denver, CO
Colorado Department of Local Affairs (DOLA)	State Government	Responsible for local Government assistance, property taxation, property assessment appeals, affordable housing, and housing construction regulation. Administers the Energy/Mineral Impact Assistance Fund.	Denver, CO
Colorado Department of Public Health and Environment (CDPHE)	State Government	Provides public health and environmental protection services that promote healthy people in healthy places. Developer of the Colorado Climate Equity Framework.	Denver, CO
Colorado Department of Revenue (DOR)	State Government	Responsible for the collection of taxes, enforcement of laws pertaining to gaming, liquor, tobacco, auto dealers. Administers the Innovative Motor Vehicle Tax Credit.	Denver, CO
Colorado Department of Transportation (CDOT)	State Government	Primary provider of transportation infrastructure in Colorado.	Denver, CO
Colorado East Community Action Agency (CECAA)	Engagement, advocacy, education	Organization serving low-income, disabled and senior residents of Cheyenne, Elbert, Kit Carson, and Lincoln counties in rural eastern Colorado with a holistic approach to self sufficiency.	Limon, CO
Colorado Electric Vehicle Coalition (CEVC)	Advocacy, information	Stakeholder group consisting of communities, utilities, industry, auto manufacturers and dealers, trade groups, Government, non-profits, academia, research and other electric vehicle advocates. This umbrella coalition meets every two months and has six subgroups (of which equity is one).	Denver, CO
Colorado Energy Office (CEO)	State Government	Responsible for helping deliver cost effective energy services and advancing innovative energy solutions for Coloradans. Administers the CanDo Colorado eBike Pilot Program, Charge Ahead Colorado EV charging infrastructure grants, the DCFC Plazas Program, ReCharge Colorado, and the EV Fast-Charging Corridors program.	Denver, CO
Colorado General Assembly	State legislative body	Colorado's legislative body.	Denver, CO
Colorado Health Foundation	Advocacy, education	Foundation working with individuals and organizations to advocate for health equity.	Statewide

Organization	Resources	Description	Location
Colorado Latino Forum	Advocacy	Works to increase the political, social, educational and economic strength of Latinas and Latinos. Current initiatives include supporting climate justice.	Denver, CO
Colorado Rural Electric Association (CREA)	Trade association	Trade association for Colorado's 22 electric cooperatives and its one generation and transmission cooperative. It provides legislative services, education classes, communications resources including Colorado Country Life magazine and safety and loss control assistance.	Denver, CO
Colorado Springs e-Bike Meetup	Networking; organizing	Meetup providing networking opportunities to e-Bike enthusiasts.	Colorado Springs, CO
Colorado Springs Electric Vehicle Club	Networking; organizing	Club for EV enthusiasts aiming to promote ownership and advocacy of electric vehicles in the Pikes Peak Region.	Colorado Springs, CO
Colorado Youth Congress	Advocacy, engagement, education	Community organization of high school students to address issues like racial justice and mental health.	Statewide
Community Foundation of Northern Colorado	Advocacy, funding	Foundation that manages and administers over 500 charitable funds and more than \$185 million in assets (June 2021). Serves Berthoud, Estes Valley, Loveland, Eastern Colorado, Fort Collins.	Fort Collins, CO
Conservation Colorado	Engagement, advocacy	Nonprofit organization advocating for conservation, outdoor recreation, and wildlife management. Runs the Protége Program (meaning 'protect yourself') to support development of national climate policy. Events include "Latino Advocacy Day" and other environmental lobby days at the State Capitol.	Denver, CO
Defiende Nuestra Tierra	Engagement, advocacy	Works to increase the baseline knowledge of public lands and their management, expand Latinx participation in public lands management processes, and focus on specific concerns of local Latinx communities. Aims to provide opportunities for members of the Latinx Community to access and enjoy public lands through hikes and restoration projects.	Carbondale, CO
Denver City Council	Local legislative body	Legislative branch of Government for the City and County of Denver.	Denver, CO
Denver Electric Vehicle Council (DEVC)	Networking; organizing; education; advocacy	Member organization created in Boulder Colorado after the first gas shortage crisis in 1973. Now includes more than 100 members interested in Renewable Energy, Battery Electric Vehicles, and Hybrid technologies. The DEVC represents the Colorado Chapter of the Electric Auto Association (EAA).	Denver, CO
Denver Public Library (DPL)	Community centers, education, information	Public library system of the City and County of Denver.	Denver, CO
Denver Public Schools (DPS)	Education	Public school system in the City and County of Denver.	Denver, CO

Organization	Resources	Description	Location
Denver Regional Council of Governments (DRCOG)	Regional planning	The Metropolitan Planning Organization (MPO) for the Denver region.	Denver, CO
Denver Regional Mobility Access Council (DRMAC)	Education, advocacy, networking, organizing	Educational workshops and training to ensure various groups have access to mobility options. Workshops and trainings target disability etiquette for transportation providers, transportation options for human services providers, ADA coordinator training, transit advocacy, and others.	Denver, CO
Drive Clean Colorado (formerly: Denver Metro Clean Cities Coalition)	Education, advocacy, networking, organizing	Nonprofit coalition of active stakeholders working together to advance clean transportation and mobility to improve air quality and reduce petroleum use in our community.	Denver, CO
Drive Electric Northern Colorado	Networking; organizing	Community-wide initiative designed to achieve widespread deployment of plug-in electric vehicles in the Northern Colorado region	Denver, CO
Earthjustice	Advocacy	Nonprofit public interest organization based in the United States dedicated to litigating environmental issues.	San Francisco, CA
Electric Vehicles Four Corners	Networking; organizing; education	Public interest group that has hosted local information meetings and events (on how to use regenerative braking, types of chargers, installing residential EV charging infrastructure, extending car battery life, engaging with businesses to install EV charging infrastructure, and others)	La Plata County, CO
Electrification Coalition	Networking; organizing	Regular meeting of industry, advocates, non-profits, and others to discuss electrification initiatives in the State.	Washington, DC
Energy Efficiency Business Coalition (EEBC)	Trade association	Trade association of non-utility companies that provide energy efficiency, demand response, and data analytics products and services in Colorado.	Golden, CO
Energy Outreach Colorado	Financial aid, education	Nonprofit provides bill payment assistance, heating system repair/replacement, energy education, weatherization, and other services. Partners with the State of Colorado on the Low-Income Energy Assistance Program and others.	Denver, CO
EV Noire	Engagement, education, consulting services	Private organization that supports organizational growth with regard to e-mobility best practices and e-mobility diversity, equity, and inclusion.	Washington, DC; Atlanta, GA; Los Angeles, CA
EV Shared Mobility	Research, engagement, programming	Project led by City of Seattle and Atlas Public Policy. Brings together U.S. Department of Energy's Energy Efficient Mobility Systems and major stakeholders to make the business case for EVs use in shared mobility.	Washington, DC

Organization	Resources	Description	Location
EVgo	EV charging infrastructure provider	Fast charging network provider.	National
Federal Transit Administration	Federal Government	Transit arm of the U.S. Department of Transportation	Washington, DC
First Nations Development Institute	Financial aid, education, advocacy, policy	First Nations Development Institute improves economic conditions for Native Americans through direct financial grants, technical assistance & training, and advocacy & policy.	Longmont, CO
Four Corners Office for Resource Efficiency (4CORE)	Networking; organizing	Non-profit with a goal of providing programs and projects that ensure immediate energy and cost savings, especially for our lower income residents. Provide beneficial electrification and renewable energy installations, encourages the adoption of clean transportation with electric vehicles and provides water conservation education and best practices. Administers the CEO's ReCharge program in Southern Colorado, including promoting the adoption of electric vehicles and supporting the development of EV infrastructure. Organizes 'group buy' for electric cars in Durango.	Durango, CO
FreeWireTech	EV charging infrastructure provider	Firm specializing in DCFC solutions for retail, utilities, fleet, automotive, and corporate.	Statewide
Freight Advisory Council	Advocacy	Autonomous group of freight stakeholders that advise CDOT and other organizations on the needs of the transportation system in Colorado pertaining to freight and commercial transportation. The FAC provides guidance on policy and planning level activities and identifies strategies and tactics to address the operational needs of the system. FAC members represent a cross-section of freight industry stakeholders.	Denver, CO
Globeville, Elyria-Swansea Coalition for Health & Housing Justice	Advocacy, engagement	Group of neighborhood leaders and community organizations working to advocate for resident-driven leadership, protect historically marginalized neighborhoods, preserve affordability in housing, and promote neighborhood culture.	Denver, CO
GoEV Cities & Counties	Networking, advocacy, education	Coalition led with support from CLEER, Conservation Colorado, CoPIRG, Sierra Club, and SWEEP. Resources include a policy toolkit and the GoEV Resolution (pledge to develop an EV Action Plan with the goals and implementation strategies required to transition the local transportation sector to zero-emission vehicles).	Statewide
Grand Valley Metropolitan Planning Organization	Regional planning	Transportation policy-making organization in urban areas including parts of Grand Junction, Fruita, Palisade, and the urban portions of unincorporated Mesa County.	Mesa County, CO

Organization	Resources	Description	Location
Green Latinos Colorado	Engagement, advocacy	Non-profit organization that convenes a broad coalition of Latino leaders committed to addressing national, regional and local environmental, natural resources and conservation issues that significantly affect the health and welfare of the Latino community in the United States.	Boulder, CO
Greenlining Institute	Research, engagement, education, consulting services	Public policy, research, and advocacy non-profit organization. Focuses on advocacy, community and coalition building, research, and leadership development.	Oakland, CA
GRID Alternatives	Education, advocacy, program management	Installs solar for income qualified families and multiple affordable housing providers. Note that, in California, Grid Alternatives has several electric vehicle initiatives. Offers single-family, multifamily and community solar installation services, project development and technical assistance, and multiple levels of workforce development and service-learning opportunities, from volunteerism to in-depth solar training and paid internships.	Oakland, CA
Groundwork Denver	Advocacy, education	Provides energy efficiency services, weatherization upgrades, and resident education for residential units.	Denver, CO
Gunnison County Electric Association	Energy co-op	Provides rebates to residential customers toward the purchase of Level 2 EV charging infrastructure. Eligible customers who purchase and install EV charging infrastructure can receive a rebate of 70% of the cost of the EV charging infrastructure, up to \$500. GCEA members have the opportunity to borrow an EV for one week without any cost or mileage restrictions.	Gunnison, CO
Holy Cross Energy	Energy co-op	Nonprofit member-owned electric co-op in Eagle, Pitkin, Garfield, Mesa, and Gunnison Counties. Offers free or discounted EV charging infrastructure for residential and commercial customers.	Glenwood Springs, CO; Avon, CO; Gypsum, CO
Housing Colorado	Engagement, advocacy, professional development	Statewide membership organization committed to providing advocacy, professional development and issue expertise for the affordable housing community.	Denver, CO
Integrated Community	Advocacy, engagement, education	Community organization advocating for immigrant rights.	Steamboat Springs, CO
Internal Revenue Service	Federal Government	Provides support for the Fuel Cell Motor Vehicle Tax Credit, Qualified Plug-In Electric Vehicle (PEV) Tax Credit, Qualified Two-Wheeled Plug-In Electric Drive Motor Vehicle Tax Credit. A tax credit of up to \$8,000 is available for the purchase of qualified light-duty fuel cell vehicles, depending on the vehicle's fuel economy.	Washington, DC
Keystone Policy Center	Advocacy, education	Nonprofit whose mission is to empower leaders to overcome national and local policy conflicts. Focuses on identifying solutions in energy,	Keystone, CO

Organization	Resources	Description	Location
		environment, education, health, agriculture, emerging genetic technologies, land management, and Tribal communities.	
Latino Community Foundation of Colorado	Advocacy, engagement, education	State-based philanthropic organization led by Latinos and for Latinos. Pursues civic, economic, and cultural opportunities.	Denver, CO
Lyft	Rideshare	Transportation network company.	National
Mile High Connects	Advocacy	Partnership of organizations from the private, public and nonprofit sectors that are committed to increasing access to housing choices, good jobs, quality schools and essential services via public transit.	Denver, CO
Moms Clean Air Force	Advocacy, education	Nationwide organization to protect children from air pollution and climate change.	Statewide
National Association of Credit Union Service Organization	Trade association	Membership organization for credit unions in the United States, including Colorado. Reports that there are 78 credit unions in the State. Summarizes membership information (including rural, low-income).	Grand Rapids, MI
National Car Charging	EV charging infrastructure provider	Vendor of EV charging products and services.	Denver, CO
National Conference of State Legislatures (NCSL)	Research, advocacy	Organization serving State legislators and their staff. Aims to advance the effectiveness, independence and integrity of legislatures and to foster interstate cooperation and facilitate the exchange of information among legislatures. Provides legislative tracking and research on transportation electrification and EV policies.	Washington, DC
National Renewable Energy Laboratory (NREL)	Federally-funded research and development	Laboratory for renewable energy and energy efficiency research and development (R&D). NREL develops renewable energy and energy efficiency technologies and practices, advances related science and engineering, and transfers knowledge and innovations to address the Nation's energy and environmental goals.	Golden, CO
National Resources Defense Council (NRDC)	Advocacy	National environmental nonprofit membership organization focused on air quality, water, and other environmental issues.	New York, NY
Native American Rights Fund	Legal aid, advocacy	Legal assistance to Indian tribes, organizations, and individuals nationwide who might otherwise have gone without adequate representation.	Boulder, CO
Nissan LEAF Owners Colorado	Networking; organizing	Group for Nissan LEAF owners in Colorado to share their experiences of driving the exciting Nissan LEAF in the challenges of the Colorado environment.	Statewide

Organization	Resources	Description	Location
North Front Range Metropolitan Planning Organization	Regional planning	Planning organization responsible for long-range and short-range planning and project prioritization. Planning areas include Berthoud, Eaton, Evans, Fort Collins, Garden City, Greeley, Johnstown, Larimer County, LaSalle, Loveland, Milliken, Severance, Timnath, Weld County, and Windsor.	Fort Collins, CO
Northeast Transportation Connections (NETC)	Advocacy, education	Nonprofit focusing on transportation demand management (including advocacy and providing mobility options). Focuses on building sustainability at a neighborhood level. Highlights opportunities to reduce the number of single-occupant cars and trucks on the road.	Denver, CO
Northern Colorado Clean Cities Coalition	Advocacy, education	Organization working with vehicle fleets, fuel providers, community leaders, and other stakeholders to save energy and promote the use of domestic fuels and advanced vehicle technologies in transportation.	Fort Collins, CO
Pikes Peak Area Council of Governments (PPACG)	Regional planning	The Metropolitan Planning Organization (MPO) for Colorado Springs and surrounding communities. Programs include: the Area Agency on Aging, Transportation Planning, Military Impact Planning, Environmental Planning, and the Sustainability Program.	Colorado Springs, CO
Pueblo Area Council of Governments (PACG)	Regional planning	The Metropolitan Planning Organization (MPO) for the Pueblo area.	Pueblo, CO
Qualified Listeners	Community center	Veteran & Family Resource hub, providing a variety of services and connections to Veterans and their families. Volunteer-led organization focusing on helping Veterans and their families.	Statewide
Regional Air Quality Council (RAQC)	Regional planning, programming, policy-making	Non-profit organization implementing programs to decrease air pollution. Administers Clean Air Champion program, ALT Fuels Colorado (formerly), Charge Ahead Colorado (in the Denver metro region), Simple Steps Better Air, and Mow Down Pollution.	Denver, CO
Regional Transportation District (RTD)	Transit agency	Transit agency serving eight of the 12 counties in the Denver-Aurora-Boulder Combined Statistical Area in Colorado.	Denver, CO
San Isabel Electric Association (SIEA)	Energy co-op	Member-owned utility providing electricity to Southern Colorado communities. Provides an Electric Vehicle Supply Equipment (EVSE) Rebate and Electric Vehicle (EV) Rebate.	Pueblo West, CO
Scale Microgrid Solutions	EV charging infrastructure provider	Firm that focuses on financing and feasibility for microgrid and fleet electrification.	Statewide
Sierra Club Colorado	Advocacy, education	Environmental organization dedicated to climate solutions, conservation, and movement building. Sierra Club—Denver participated in Denver EV Action Plan.	Statewide

Organization	Resources	Description	Location
Southern Colorado Council of Governments (SCCOG)	Engagement, education, services	Community organization providing services to Huerfano and Las Animas Counties.	Trinidad, CO
Southern Colorado Economic Development District (SCEDD)	Advocacy, engagement, education	Non-profit organization funded to support the economic development efforts of thirteen counties in southern Colorado including Baca, Bent, Chaffee, Crowley, Custer, Fremont, Huerfano, Kiowa, Lake, Las Animas, Otero, Pueblo, and Prowers Counties.	Pueblo, CO
Southern Ute Tribe	Tribal Government	Tribal council responsible for cultural preservation, transportation, education, natural resource protection, health, housing, planning, services, and others for the Southern Ute Indian Tribe. Located in La Plata County, Archuleta County, and Montezuma Counties in Colorado.	La Plata County, CO; Archuleta County, CO; Montezuma County, CO
Southwest Energy Efficiency Project (SWEET)	Advocacy, education	Public-interest organization promoting greater energy efficiency and clean transportation in Arizona, Nevada, New Mexico, Utah, and Wyoming.	Boulder, CO
Spirit of the Sun	Advocacy, education	An Indigenous womxn-led nonprofit located on Očhéthi Šakówinj, Núu-ágha-təvə-pų (Ute), Tsésthó'e (Cheyenne), & hinono'eino' biito'owu' (Arapaho) land, working to empower Native communities.	Denver, CO
Summit County, Colorado	Local Government	County Government located in Summit County. Recognized as a GoEV County.	Summit County, CO
Sustainable Real Estate Solutions, Inc. (SRS)	EV charging infrastructure financing	Administers the Colorado C-PACE program, which allows property owners to borrow funds to pay for energy improvements, including purchasing and installing EV charging infrastructure.	Statewide
The Alliance Center	Advocacy, networking	Main program is a shared space operated as a demonstration site to showcase green building principles. Coworking and event space. Measures building performance using United States Green Building Council's Arc Platform.	Denver, CO
The Northeastern Colorado Association of Local Governments (NECALG)	Regional planning	Voluntary association of county and municipal governments from Logan, Morgan, Phillips, Sedgwick, Washington, and Yuma Counties.	Fort Morgan, CO
Town of Avon	Local Government	Municipal Government located in Eagle County. Recognized as a GoEV City.	Avon, CO
Transportation Electrification Workgroup	Engagement, advocacy	Transportation electrification workgroup to develop, coordinate, and implement State programs and strategies to support widespread transportation electrification across the State. Led by the CDPHE.	Denver, CO
Transportation Equity Caucus	Advocacy, networking, research	Diverse coalition of organizations promoting policies that ensure access, mobility, and opportunity for all. Moving forward together,	Washington, DC

Organization	Resources	Description	Location
		we're charting a new course for our Nation through transportation investments that ensure that everyone can participate and prosper.	
Tri-State Generation and Transmission Association, Inc.	Electric co-op	Not-for-profit electric co-op providing electric service throughout the State (primarily rural locations). Provides EV support through education, experience, and direct incentives.	Westminster, CO
Uber	Rideshare	Transportation network company.	National
U.S. Department of Energy	Federal Government	Cabinet-level department of the United States Government concerned with the Nation's nuclear weapons program, nuclear reactor production for the United States Navy, energy conservation, energy-related research, radioactive waste disposal, and domestic energy production.	Washington, DC
U.S. Department of Transportation (U.S. DOT)	Federal Government	Cabinet department of the U.S. Government concerned with transportation.	Washington, DC
U.S. Environmental Protection Agency (U.S. EPA)	Federal Government	Independent executive agency tasked with environmental protection.	Washington, DC
Ute Mountain Ute Tribe	Tribal Government	Tribal council responsible for Government services that include cultural preservation, transportation, education, natural resource protection, health, housing, planning, and other services for the Weminuche band of the Ute Nation of Indians. Located in the Four Corners region of the United States in Montezuma County (CO), La Plata County (CO), and San Juan County (NM).	Towaoc, CO
Western Colorado Alliance for Community Action	Advocacy, engagement, education	Organization dedicated to community action focused on Colorado's Western Slope.	Grand Junction, CO
Western Colorado EV Club	Networking; organizing	Fan club and advocacy group for electric vehicles and their owners in Western Colorado.	Grand Junction, CO
Wilderness Workshop	Engagement, advocacy	Nonprofit working to keep the White River National Forest and nearby Bureau of Land Management (BLM) lands 'as is'.	Carbondale, CO
Women Who Charge	Networking; organizing	Networking events for women in Colorado who are interested in exploring and sharing knowledge about electric vehicles, charging stations, and batteries.	Denver, CO
Xcel Energy	Utility	Investor-owned utility providing electric service within the Denver metropolitan region, Northern Colorado, the Central Mountain region (along the I-70 corridor), Southern Colorado (in the San Luis Valley region), and elsewhere throughout the State. Numerous electrification programs being deployed under a \$110 million plan (including support for EV charging infrastructure, EVs, advisory services, and others). Heavy emphasis on equity, with a minimum of	Denver, CO

Organization	Resources	Description	Location
Zero Emission Transportation Association (ZETA)	Advocacy	<p>\$20 million to be invested towards promoting EV adoption in low-income households and communities most heavily impacted by air pollution.</p> <p>Non-partisan group to coordinate public education efforts and Federal policy development to promote EV adoption with the goal of creating American electric vehicle manufacturing jobs, better serving consumers, improving air quality and public health, and significantly reducing carbon pollution.</p>	National



COLORADO

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