

NV Energy Transportation Electrification Plan

Stakeholder Meeting #2



June 2022



What will we cover today?

1. Existing transportation electrification (TE) support
2. TE Plan scope and approach
3. Results from customer surveys
4. Western Resource Advocates presentation on TE program benchmarking
5. Nevada DOT NEVI Program Update
6. Discussion & next steps

Charging Forward with Electrification

Transportation accounts for the greatest percentage of greenhouse gas emissions in Nevada - meeting our clean air goals will require a cleaner electric supply and accelerating electrification



Investment

- ▶ NV Energy is helping Nevada lead the country in transportation electrification, positioning the state to attract even more EV and clean technology investment



Public Health

- ▶ Transportation powered by fossil fuels like gas and diesel will transition to clean power sources over the coming decades to reduce emissions, improve air quality and support public health



Meeting Demand

- ▶ EV's made up 26% of new sales in the global automotive market in 2021, increasing charging demand
- ▶ This isn't just about cars- freight trucks, boats, bikes, buses and construction equipment are also being electrified

Current TE Support

- ▶ Electric Vehicle Infrastructure Demonstration (EVID)
- ▶ Economic Recovery Transportation Electrification Plan (ERTEP)



Electric Vehicle Infrastructure Demonstration (EVID)

EVID programs launched in 2021-2022 time period and will sunset July 2023:

- ▶ EV charging incentives
- ▶ Nevada Electric Highway chargers
- ▶ Lower-income EV rebate
- ▶ Electric school bus rebates
- ▶ EV rates
- ▶ Technical assistance
- ▶ Education and outreach

New Bilingual Educational Campaign

- ▶ The Power Moves campaign launched in southern and northern Nevada on June 20, 2022
- ▶ English and Spanish
- ▶ Placements: television, radio, out-of-home, print, digital and social media in both languages
- ▶ Plans for EV targeted content



Economic Recovery Transportation Electrification Plan (ERTEP)



Accelerate Transportation Electrification

Plan includes nearly \$100 million total to build **1,500+ EV charging ports** between 2022 and 2024 in Nevada



Support Economic Recovery & Job Creation

Investing in **job training** and expanding charging station availability to **support the tourism industry**








Prioritize Historically Underserved Communities

Dedicating **\$40 million+** of funding to directly benefit **historically underserved communities**

Economic Recovery Transportation Electrification Plan (ERTEP)

We are currently accepting site host interest forms and applications for multiple programs. Learn more at nvenergy.com/ERTEP

	Program	Focus
	Interstate Corridor Charging	Public charging along eligible interstate corridors to facilitate EV travel to and from major metros.
	Urban Charging	Public charging at eligible downtown or commercial locations .
	Public Agency Electric Vehicle Charging	Public charging at eligible community centers , universities/ colleges and capitol complexes .
	Transit, School Bus & Transportation Electrification	Support transit electrification, electric school bus vehicle-to-grid trials , and non-governmental fleet electrification .
	Outdoor Recreation and Tourism	Public charging at eligible tourist and outdoor recreation destinations .

A photograph of a dark-colored electric vehicle (EV) is shown on the left side of the slide. The car is parked at a charging station, and a charging cable is plugged into its port. The background is slightly blurred, showing a brick building and other vehicles in a parking lot.

The Transportation Electrification (TE) Plan Overview

TE Plan Overview

NV Energy is developing a Transportation Electrification (TE) Plan as required by Senate Bill 448 with these objectives:

- ▶ Accelerate transportation electrification with support for all customer classes
- ▶ Design programs to maximize benefits including flexibility and minimize grid impacts

The TE Plan requirement will be part of the triennial resource planning process. The first TE Plan will only cover two years 2022-2024.

TE Plan Considerations

- ▶ Reduce barriers to transportation electrification facing customers within program timeframe
- ▶ Design programs for customers (including distribution-only):
 - ▶ Single-family homes
 - ▶ Multi-unit dwellings
 - ▶ Fleet (e.g. transit, commercial, governmental, school bus)
 - ▶ Workplace
 - ▶ Other use cases as appropriate for other customers
- ▶ Design programs to benefit historically underserved communities
- ▶ Incorporate managed charging/ time-of-use rates
- ▶ Consider pilots and studies to improve learning
- ▶ Refine technical and reporting requirements
- ▶ Provide education and outreach

TE Plan Regulatory Requirements

- ▶ Required by Nevada Senate Bill 448 (2021)
- ▶ Filed with the Public Utilities Commission of Nevada on or before September 1, 2022
- ▶ Included in the Distributed Resource Plan

Commission will evaluate if the Plan is reasonably expected to achieve one or more of the following benefits:

- (1) Improve the efficiency of the electric utility's electrical system, operational flexibility or system utilization during off-peak hours;
- (2) Improve the ability of the electric utility to integrate renewable energy resources which generate electricity on an intermittent basis into the transmission and distribution grid;
- (3) Reduce greenhouse gas emissions and air pollution;
- (4) Improve air quality in communities most affected by air pollution from the transportation sector;
- (5) Support increased consumer choice in electric vehicle charging and related infrastructure and services;
- (6) Increase access to the use of electricity as a transportation fuel by low-income users by including investments, incentives or programs for those users, or for entities operating in communities or at locations that will benefit low-income users;
- (7) Foster the investment of private capital in transportation electrification, as defined in section 14 of this act, and the demand for skilled jobs in related services; and
- (8) Provide information and education on the benefits of transportation electrification to customers.

TE Plan Inputs



**Customer survey
data**



**Stakeholder
feedback**



**Barriers to
transportation
electrification**



**Utility and program
benchmarking**



EV adoption forecast



**Existing program
performance review**

A close-up photograph of a black electric vehicle (EV) parked at a charging station. The car's side mirror and the charging cable plugged into the port are visible. The background is slightly blurred, showing a brick building and another car.

Residential & Fleet Customer Insights

Stakeholder Insight Data Sources



Residential Customer EV Survey

- ▶ Focused on residential electric customers who owned or leased at least one passenger vehicle at the time of the survey
- ▶ Completed in February 2022
- ▶ 807 responses
- ▶ Administered by DNV



Fleet Customer EV Survey

- ▶ Focused on understanding EV adoption barriers for light, medium and heavy-duty fleet vehicles and interest in programs
- ▶ Completed in May 2022
- ▶ 80 responses
- ▶ Administered by DNV



Online TE Survey Open to All

- ▶ Open to the public, data is not normalized
- ▶ Data from February 2022 - May 2022
- ▶ 1,632 responses (English), 5 responses (Spanish)
- ▶ Administered by NV Energy through SurveyMonkey

Residential Customer Insights

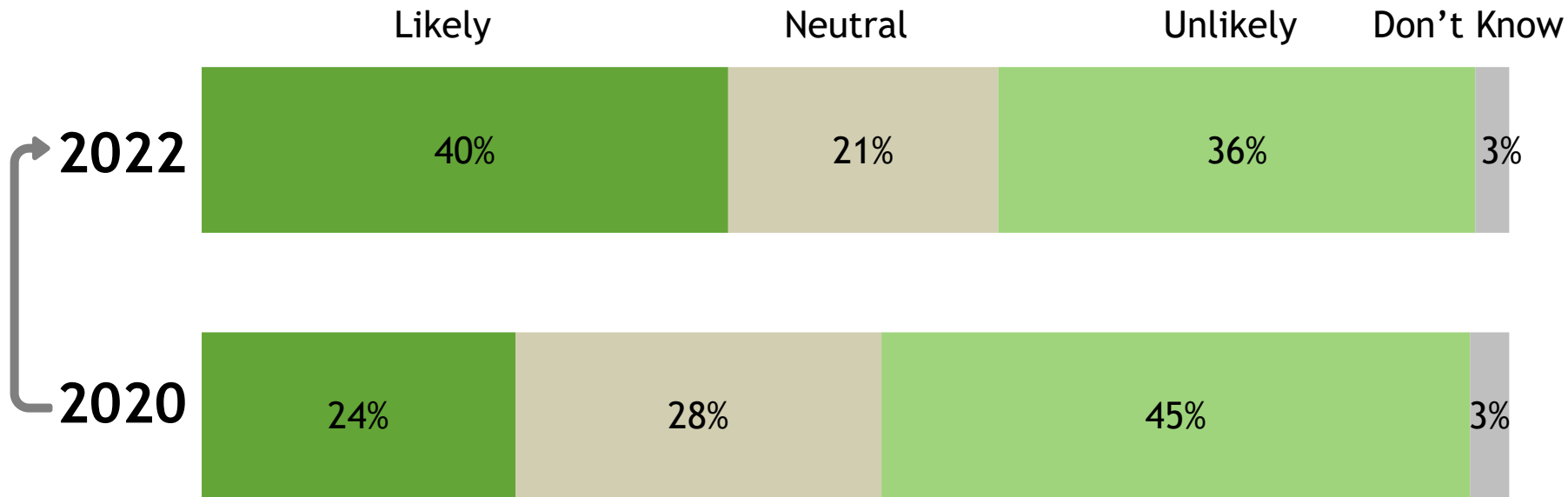
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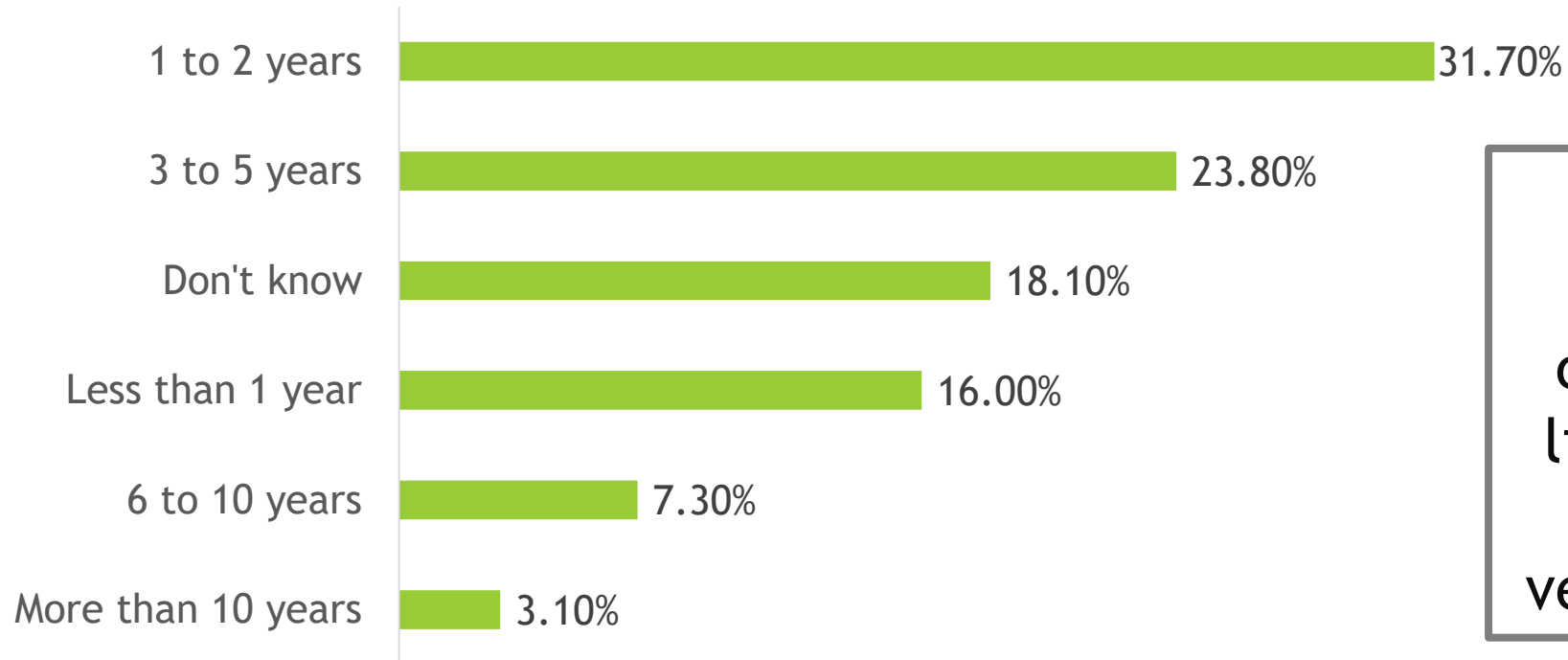
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How likely is it your next vehicle purchase/ lease will be electric?



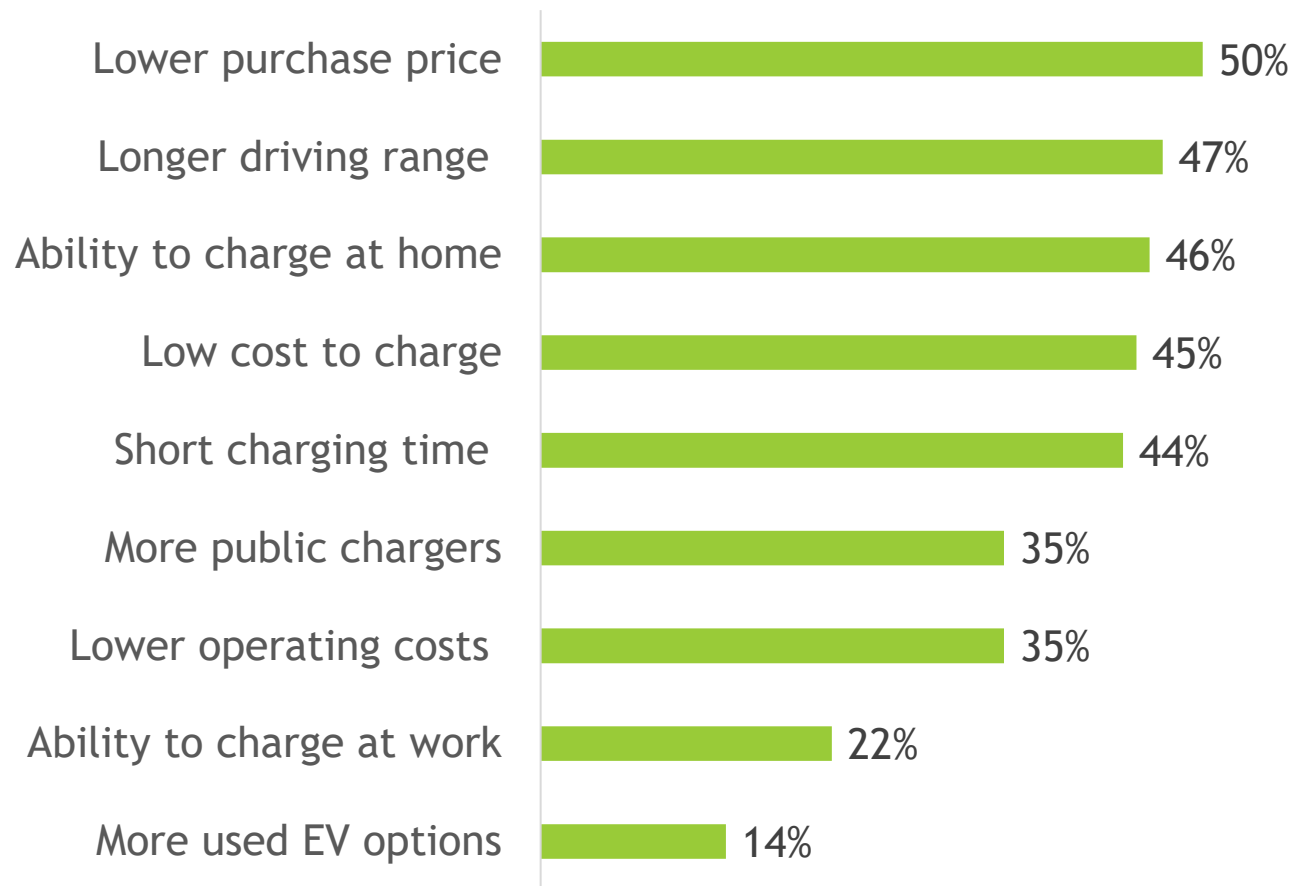
40%
of residential
customers surveyed
likely to go electric
with next vehicle

When do you plan on purchasing or leasing your next vehicle?



32%
of residential
customers surveyed
likely to purchase or
lease their next
vehicle within 2 years

What factors would increase your likelihood of acquiring an EV?



Top residential EV adoption barriers:

- Vehicle cost
- Charger availability & cost to charge
- Vehicle technical capabilities

What barriers related to housing are you facing for going electric?

		Single-Family (SF) n=549	Multi-Family (MF) n=258
Housing Type	% renting their homes	25%	84%
At-Home Parking	% with unassigned parking	3%	32%
	Lot or garage, no assigned space	2%	29%
	Street	1%	3%
	% more than 25 ft from electrical outlet	11%	35%
Barriers to At-Home Charging	% with 1 or more barrier to at-home charger installation	35%	94%

MF Charging Barriers

- **Renters:** Need permission from property owner to install chargers
- **Unassigned Parking:** Parking in a lot, garage, or on the street without dedicated spot
- **Distance from Outlet:** Parking a considerable distance from the nearest electrical outlet (Level 1 charging)

Highlights need for charging access near multi-family properties

What are your charging arrangement preferences?



Multi-Family

- Home charging that “only members of my household can use”
- Faster chargers available at **public places near home**



Multi-Family & Single-Family

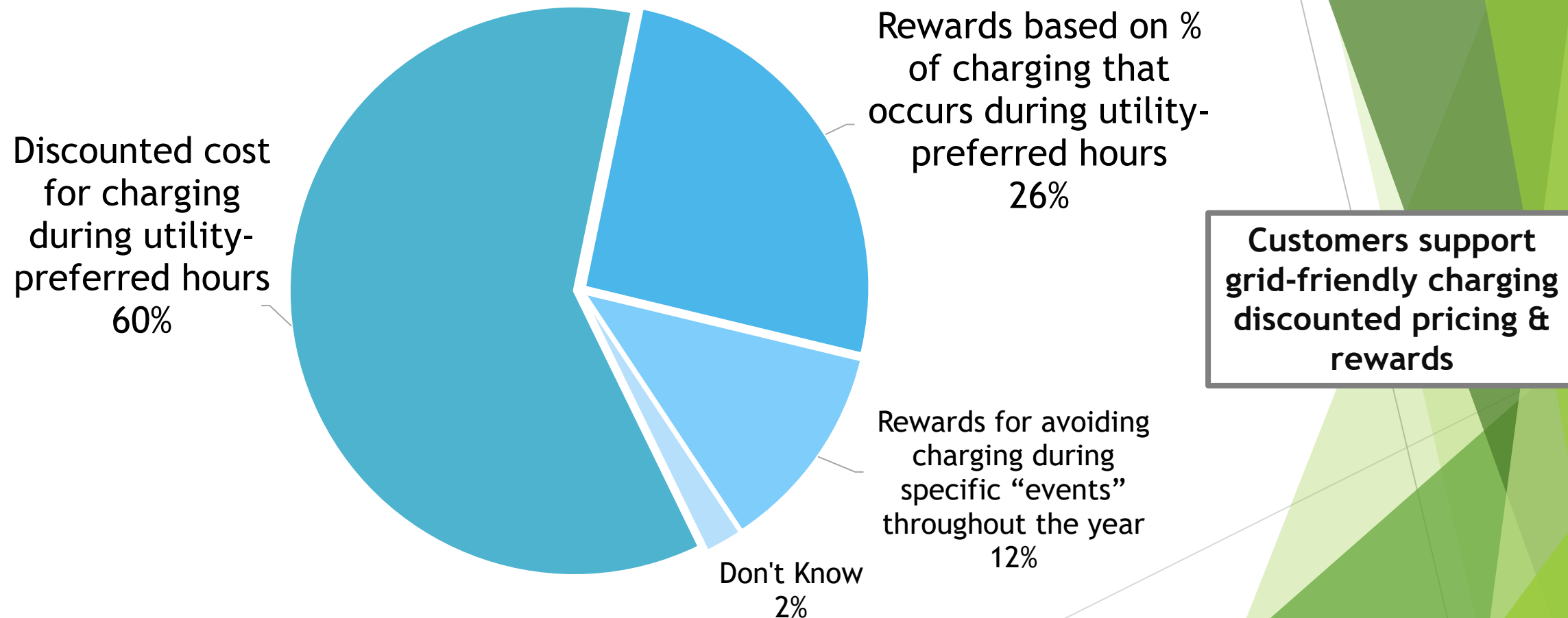
- Preference for fast chargers available at “public places near me” versus “my workplace”
- Preference for a **flat monthly fee for unlimited charging** “at my home” versus “at my workplace”



Single-Family

- Interest in home charger installed by **utility and owned by homeowner or utility**
- No preference between receiving a utility rebate to purchase a home charger or utility installing/owning

What are your preferences for residential EV charging pricing & rewards?



Residential Customer Insights Summary



Research shows enthusiasm among NV Energy customers for EVs increased – *40% of respondents (24% in 2020) said they are “likely” to get an EV as their next vehicle*



EV charging availability is limited – *64% of respondents perceive charging as somewhat or not available at all*



Customers support utility installing and owning EV charging – *Only marginal (0.5 points) preference for customer ownership over utility ownership.*

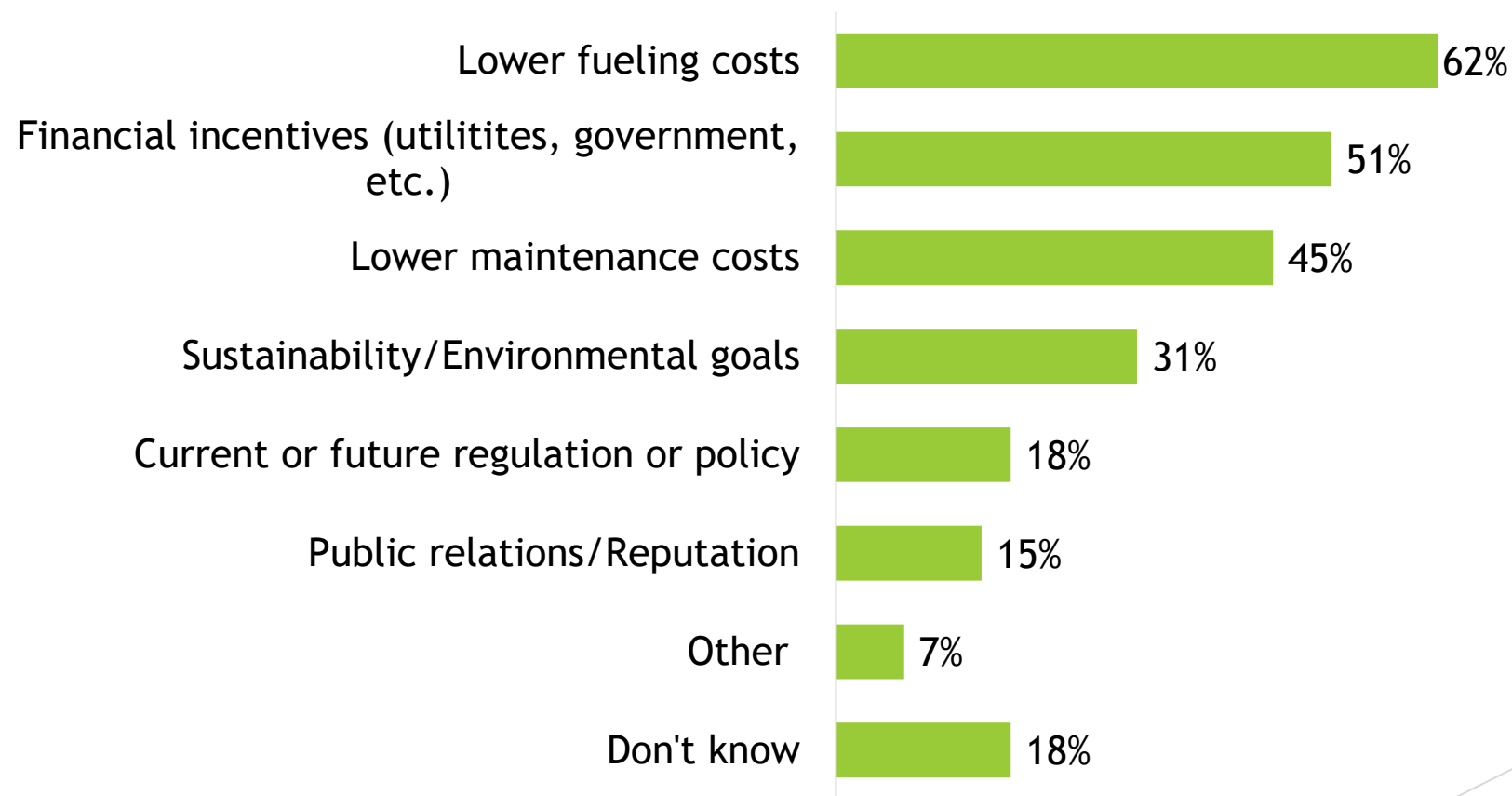


Customers support discounting pricing and rewards encouraging grid-friendly charging – *98% of respondents support and 2% ‘don’t know’*

Fleet Customer Insights

- ▶ Focused on understanding EV adoption barriers for light, medium and heavy-duty fleet vehicles and interest in programs
- ▶ Completed in May 2022
- ▶ 80 responses
- ▶ Administered by DNV

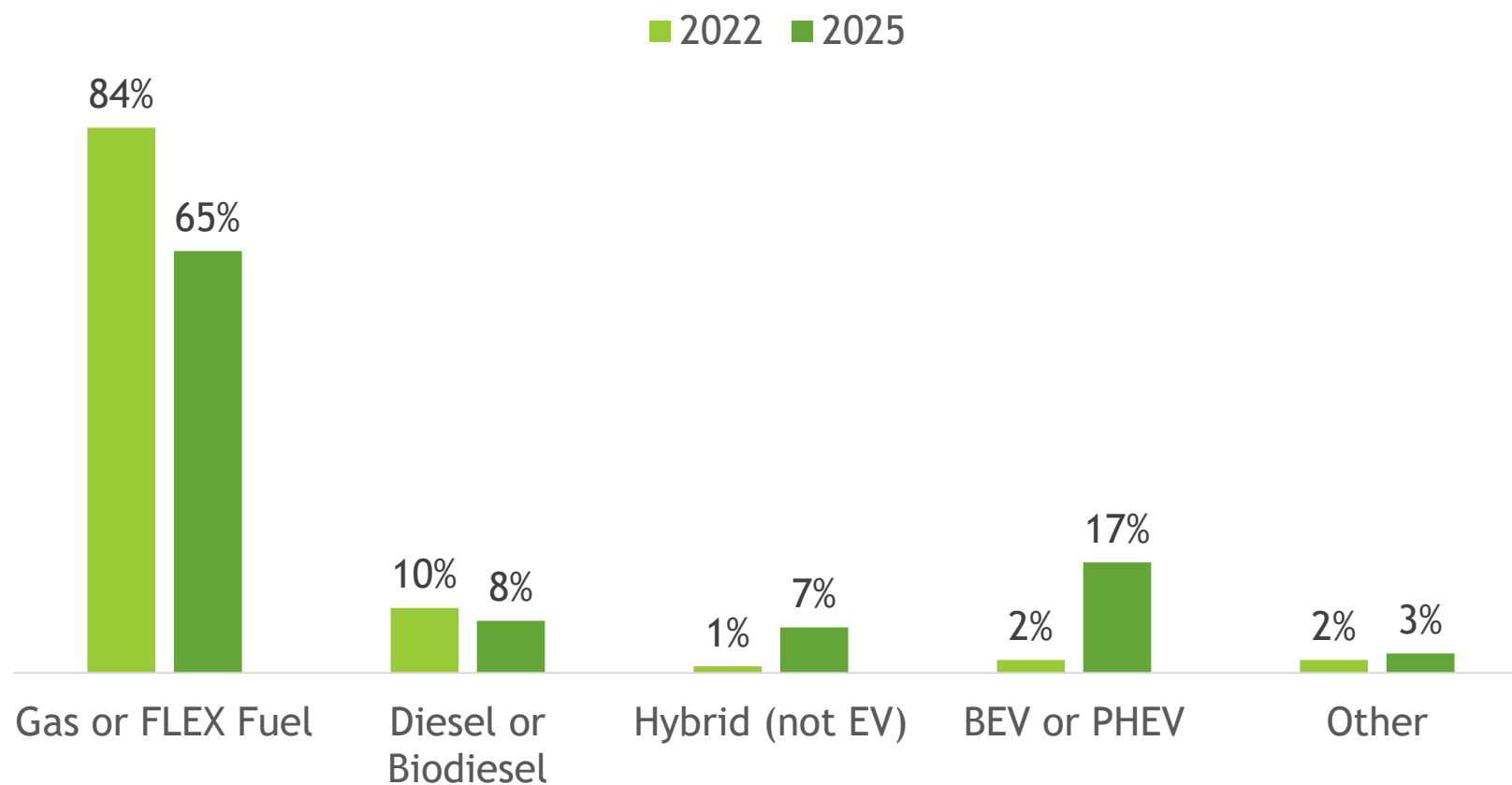
What are the motivating factors to purchase or lease EVs for your fleet?



Fleet electrification drivers:

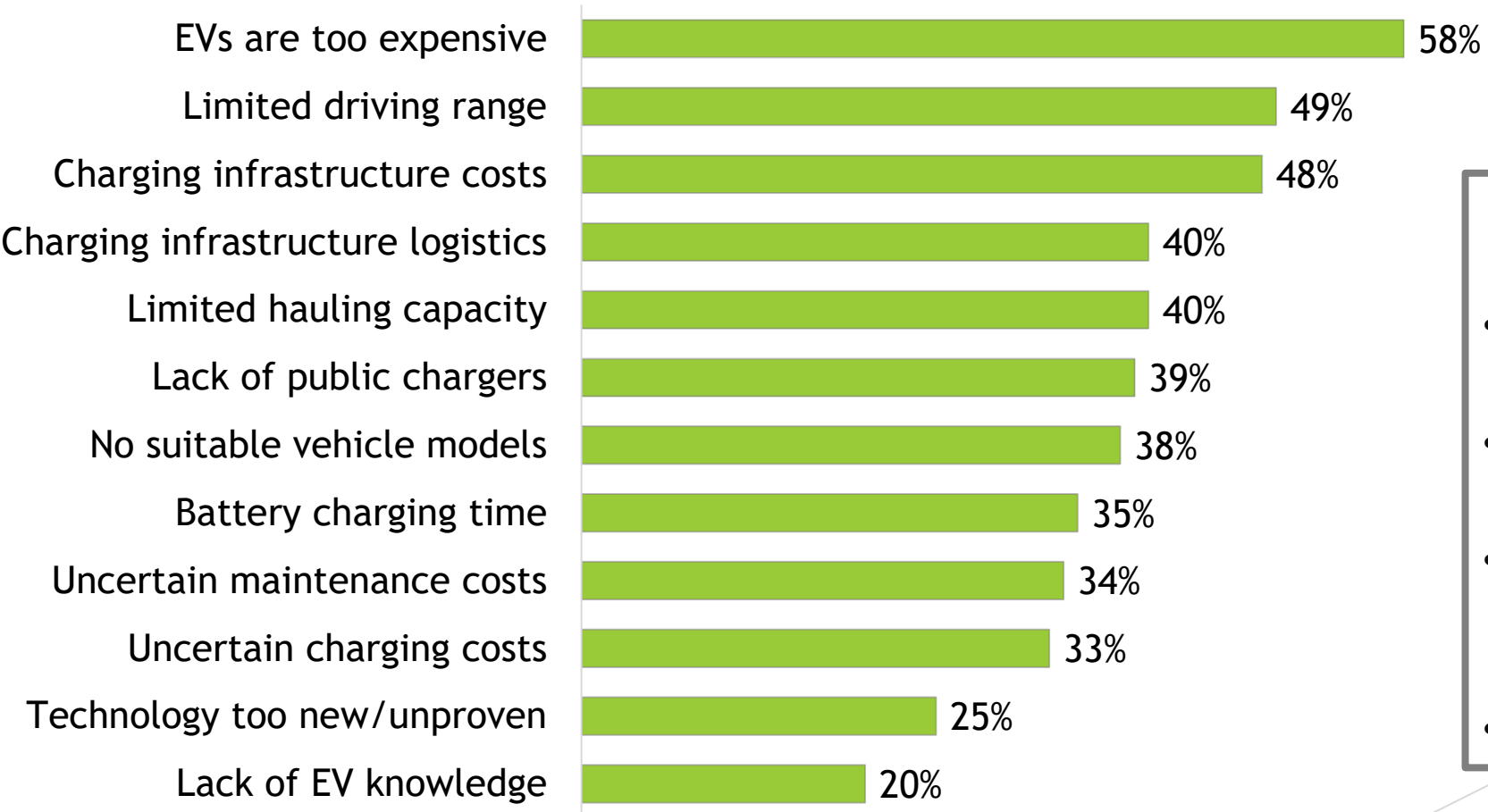
- Lower fuel & maintenance costs
- Financial incentives

What are your light duty fleet vehicle purchase plans in 2022 and 2025?



Respondent pool increasingly likely to go electric by 2025

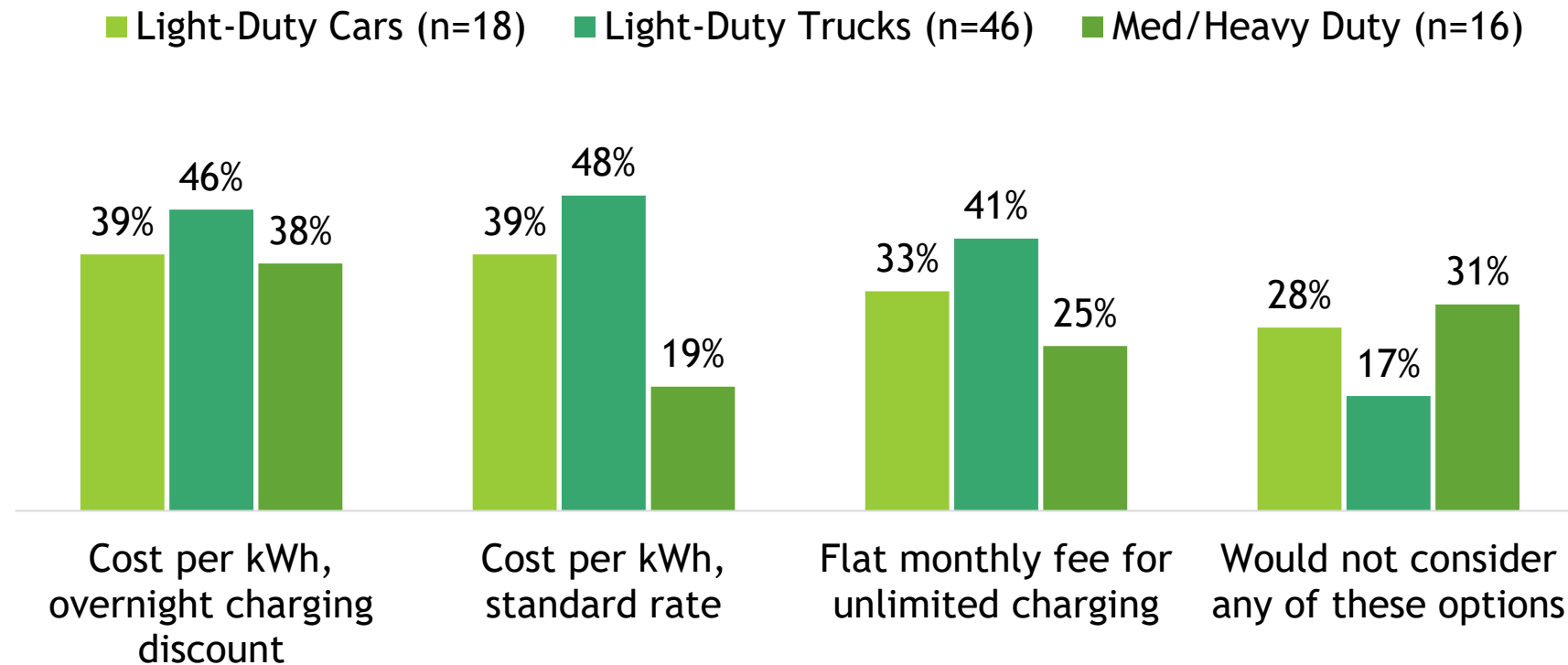
What are your barriers to fleet EV adoption?



Top fleet EV adoption barriers:

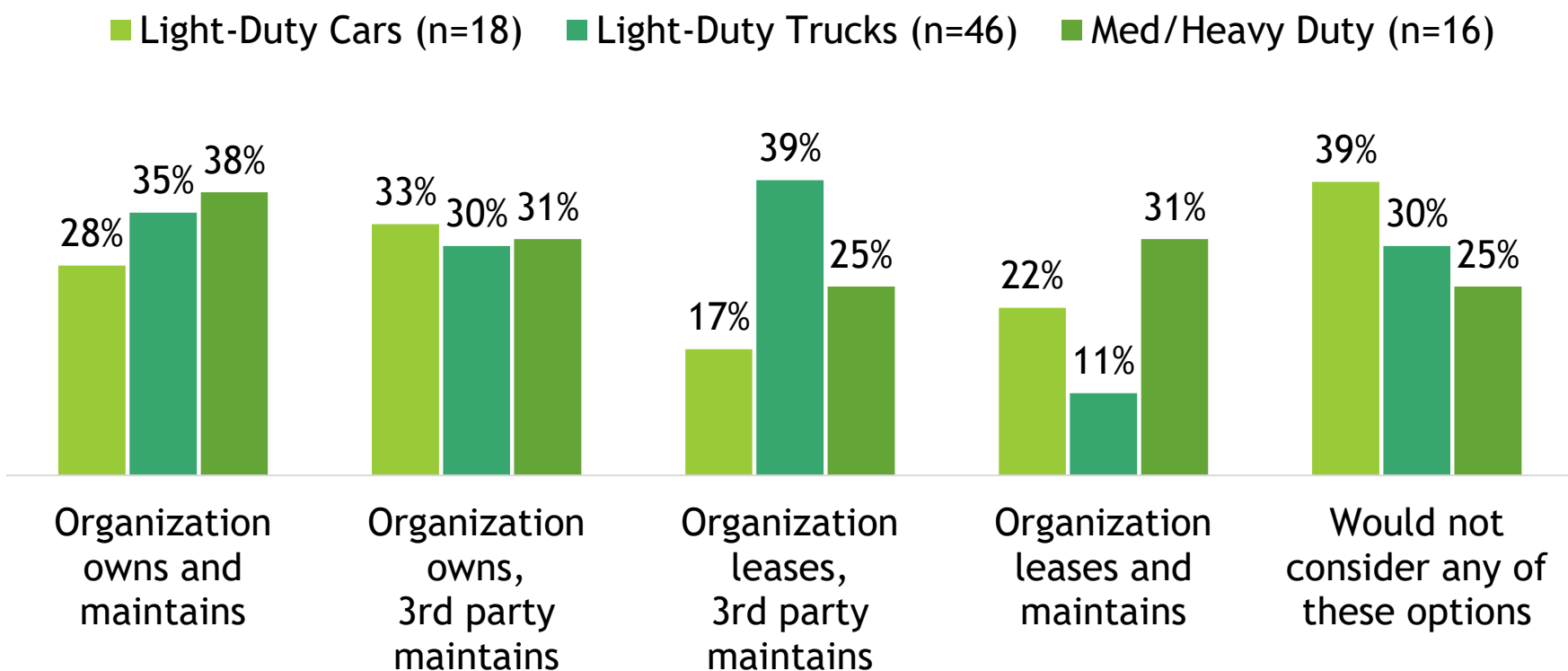
- Vehicle & charging infrastructure costs
- Vehicle technical capabilities
- Uncertainty about maintenance & charging costs
- Charger availability

What is your preferred electricity payment structure for fleet EVs?



Preference to pay for charging on a per-kWh basis, with largest portion of customers also preferring overnight charging discounts

What are your ownership model preferences for fleet chargers at facility?



Interest in third-party charger maintenance across vehicle types

Fleet Customer Insights Summary



Continued financial and technical support for fleet charging at facilities may encourage electrification - *e.g. currently only 17% of light-duty fleets expect to have EVs by 2025*



There is a significant opportunity for NV Energy to influence EV adoption and charging behavior - *e.g. nearly one-quarter of respondents' fleet vehicles might be replaced by 2025*



An assortment of offerings is necessary to attract and engage this diverse customer group - *e.g. 70% of respondents said they would not consider fleet EVs without charging at facility and had varied preferences related to charger ownership and O&M responsibilities*



Increased promotion of current offerings and educational messaging may reduce customer barriers- *e.g. most respondents were unaware of EV charging station incentive program for fleets*

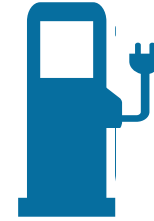
Barriers to Adoption Across Customers



Vehicle Cost

Vehicle Technology

Vehicle Availability



Charging Technology / Logistics

Home Charging Availability / Cost

Public Charging Availability / Cost

A photograph of a dark-colored electric vehicle (EV) is shown on the left side of the slide. The car is parked at a charging station, and a charging cable is plugged into its port. The background is slightly blurred, showing a brick building and other vehicles in a parking lot.

Western Resource Advocates Presentation: TE Program Benchmarking



**WESTERN
RESOURCE
ADVOCATES**

BEST PRACTICES IN UTILITY TRANSPORTATION ELECTRIFICATION PLANS

June 22, 2022 | Deborah Kapiloff

Contact: deborah.kapiloff@westernresources.org

WesternResourceAdvocates.org

WHO IS WRA?



Western Resource Advocates

- We are a conservation organization with more than 30 years experience in the Interior West.
- WRA fights climate change to sustain the environment, economy, and people of the West.
- Our team of policy experts, scientists, economists, and attorneys has a 30-year history of working where decisions are made, sweating the details, creating evidence-based solutions, and holding decision makers accountable.

OUR MISSION: WESTERN RESOURCE ADVOCATES IS DEDICATED TO PROTECTING THE WEST'S LAND, AIR, AND WATER TO ENSURE THAT VIBRANT COMMUNITIES EXIST IN BALANCE WITH NATURE.



Overview of Utility Transportation Electrification Plans: Best Practices and Good Examples from Across the Country

- Looks at the program types/categories included in TEPs and catalogs great programs
- Recommends best practices for each program type
- Addresses topics that span multiple programs, such as equity, outreach/education, managing new EV load, and more!
- Intended to be a resource for regulators, utilities, and stakeholders engaged in TEPs
- Available on WRA's website at: [Overview of Utility Transportation Electrification Plans: Best Practices and Good Examples from Across the Country - Western Resource Advocates](#)

Mass Transit Charging Infrastructure

Description: Programs which electrify existing public transit vehicles or establish new electric mobility options available to the public.

Why it's important: Many municipalities and transit agencies offer important mobility options for those who do not own cars or are seeking alternatives to driving. Supporting electrification of mass transit provides tremendous climate and equity benefits, as it helps to reduce travel in single-occupancy vehicles and reduces air and noise pollution in neighborhoods which have often faced a disproportionate share of pollution. Replacing diesel buses with electric ones therefore has significant climate, equity, and public health benefits, and utilities can help to advance this transition by helping reduce the costs of charging infrastructure to transit providers.

Best Practices:

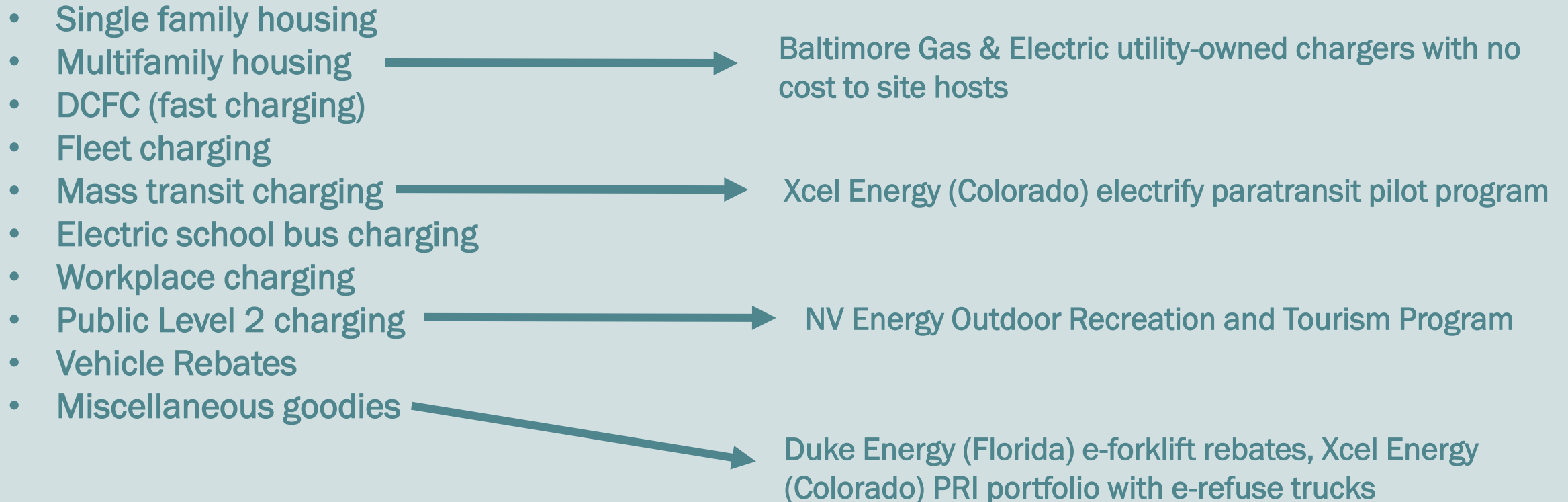
1. *Offer incentives which recognize the greater costs of charging infrastructure needs for electric buses:* In order to reduce upfront barriers for public transit agencies, utilities should offer incentives which can significantly reduce these greater upfront costs for higher-capacity charging.
2. *Work directly with transit agencies to develop solutions tailored to their needs:* In order to ensure programs are useful for and used by their intended audiences, utilities should seek input from these agencies before rolling out programs, as transit agencies already have a good sense of what is needed from their bus fleets.

Model Programs:

Public Service of New Mexico, New Mexico, "Mass Transit Infrastructure Program"

- **Program Type:** Tiered incentives to support depot and en route charging stations for electrified mass transit serving low- to moderate-income customers.
- **Program Description:** PNM's program offers incentives for the installation of EV charging infrastructure for school districts or transit agencies serving low- to moderate-income communities. The incentives are tiered depending on the capacity of the charger, but designed to support both 450 kW en route chargers for buses to charge up during their cycles, and 100 kW depot chargers to support overnight charging.
- **Link to Program:** [Public Service Company of New Mexico Mass Transit \(downloaded March 2022\).pdf](#)

Program Categories



Think outside the box on transportation electrification!

- Transportation options outside of personal vehicle ownership – e-bikes, e-carshares, electrifying transit and school buses.
- What existing transportation can be electrified?
- How can a utility TEP best optimize fuel switching that is already happen, accelerate transportation electrification in all communities, and open up the possibility of switching to e-mobility for those with the greatest barriers to accessing it?



Full Portfolio Considerations

- Load management – you've added EVs to the system, now what?
 - Managed charging, but make it easy
 - Customer education
 - Rebate requirements
 - Opt-out programs with managed charging as the default
- Outreach and education
 - Making materials accessible and meeting customers where they're at
 - Do the utility programs have help for customers to apply for them?
- Equity
 - Recognizing barriers faced by different groups and tailoring programs to overcoming those barriers
 - Enhanced rebate amounts (including vehicle purchase rebates), full utility infrastructure ownership, innovative programs not centered around passenger car ownership

Full Filing Deep Dive

- Program flexibility
 - To what extent can the TEP be adapted to meet customer needs?
 - Consistent program delivery can depend on program flexibility!
- Ownership models
 - Where does it make the most sense for the utility to own infrastructure vs. Provide the initial investment in infrastructure?
- Tie-ins with other utility policies
 - Line extension policy
 - Especially for DCFC stations
 - Rate design
 - DCFC, but also think about other customer segments

Questions?

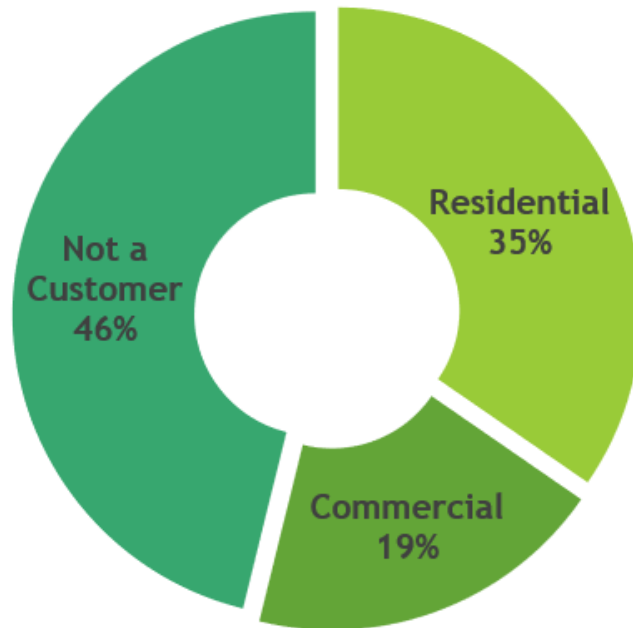
- Reach out to us, we'd love to talk to you!
 - Deborah.kapiloff@westernresources.org and aaron.kressig@westernresources.org

A close-up photograph of an electric vehicle's charging port, showing a black charging cable plugged into the car. The car is dark-colored, and the background is a blurred outdoor parking lot with other vehicles and buildings.

Initial Findings from Stakeholder Input Survey on TE Programs

Initial TE Plan Suggestion Survey Findings

Survey Respondent Categories
n = 21



- ▶ Provide charging support for all customer types
 - ▶ Multi-family charging support with a focus on underserved communities
 - ▶ Residential make-ready support
 - ▶ Financial incentives and technical assistance for fleets
- ▶ Support e-mobility for all
 - ▶ Public transportation, paratransit, micro-mobility, car sharing, ride sharing, and school bus electrification support
 - ▶ Low-income EV incentive
- ▶ Enhance flexible pricing options and managed charging programs
 - ▶ Multiple rate options per customer type
 - ▶ Subscription pricing for charging
 - ▶ Third-party adaptative load management solutions
- ▶ Increase outreach and education
 - ▶ EV test drives and online tools to help customers go electric
 - ▶ NV Energy program and EV benefit marketing
 - ▶ Offer support for off-road vehicle/equipment electrification

A close-up photograph of a black electric vehicle's charging port, with a grey charging cable plugged in. The car is parked outdoors, and a blurred background shows a brick building and another vehicle.

Nevada DOT NEVI Program Update

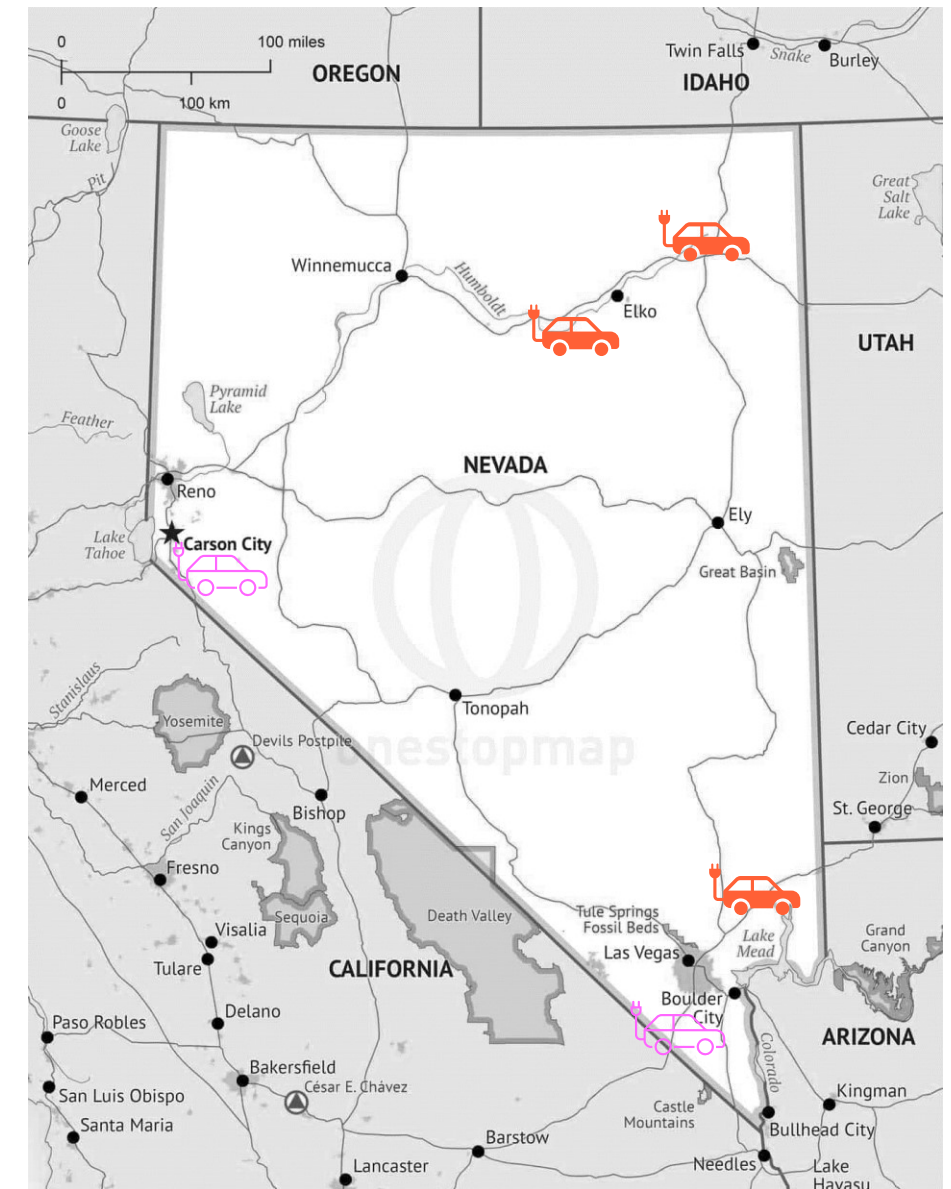
National Electric Vehicle Infrastructure (NEVI) Program

- Directs \$7.5B toward EV charging nationally
 - \$5 B Formula Funds, \$2.5 B Discretionary Grants
 - Nevada Formula Amount: \$5.6M in FY22
 - Federal share is 80%
- Program is new; guidance is evolving
- Requires a plan from NDOT by August 1 documenting strategy for use of funding
- Funding can be used for development, operating assistance, acquisition or installation of traffic control, mapping and analysis, data sharing
- Program focuses on creating a national network of charging stations
- Optimize Nevada's EV funding through collaboration with other stakeholders (SB 448)

EV Corridor Criteria
1 mile from highway
50 miles between stations
DC fast charging
4 EVSE ports with CCS connectors
Output of at least 150kW per port

Existing and Future Conditions

- Proposed improvements on interstates to reach Corridor Ready
 - I-80: 2 upgrades in rural areas
 - I-580: 1 new station in Carson City
 - I-15: 1 upgrade in Moapa, 1 new station in Primm/Jean
 - All other interstates are corridor ready (I-515, I-215, I-11)



New station

Station upgrade



Discussion

- ▶ What tools or services would help alleviate barriers to EV adoption for the community or your organization?
- ▶ What programs from other utilities or entities would you recommend NV Energy benchmark?
- ▶ What are some key considerations you'd like NV Energy to address in the TE Plan?



Next Steps

1. **Online Survey: TE Plan Suggestions**
 - Complete the survey
 - Share with your network
2. **3rd TE Plan Stakeholder Meeting will be scheduled for August**

Thank you for your time and commitment to helping accelerate transportation electrification in Nevada.

A photograph of a dark-colored electric vehicle (EV) parked at a charging station. The car's charging port is open, and a grey charging cable is plugged into it. The background is slightly blurred, showing a brick building and other parked cars.

Appendix: Additional Customer Data

Additional Customer Data Sources



Light Duty BEV Adoption Forecast

- ▶ Residential battery electric vehicle (BEV) forecast for NV Energy's electric service territory
- ▶ Completed in April 2022
- ▶ Administered by DNV



Fleet Customer EV Survey

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Residential Customer EV Survey

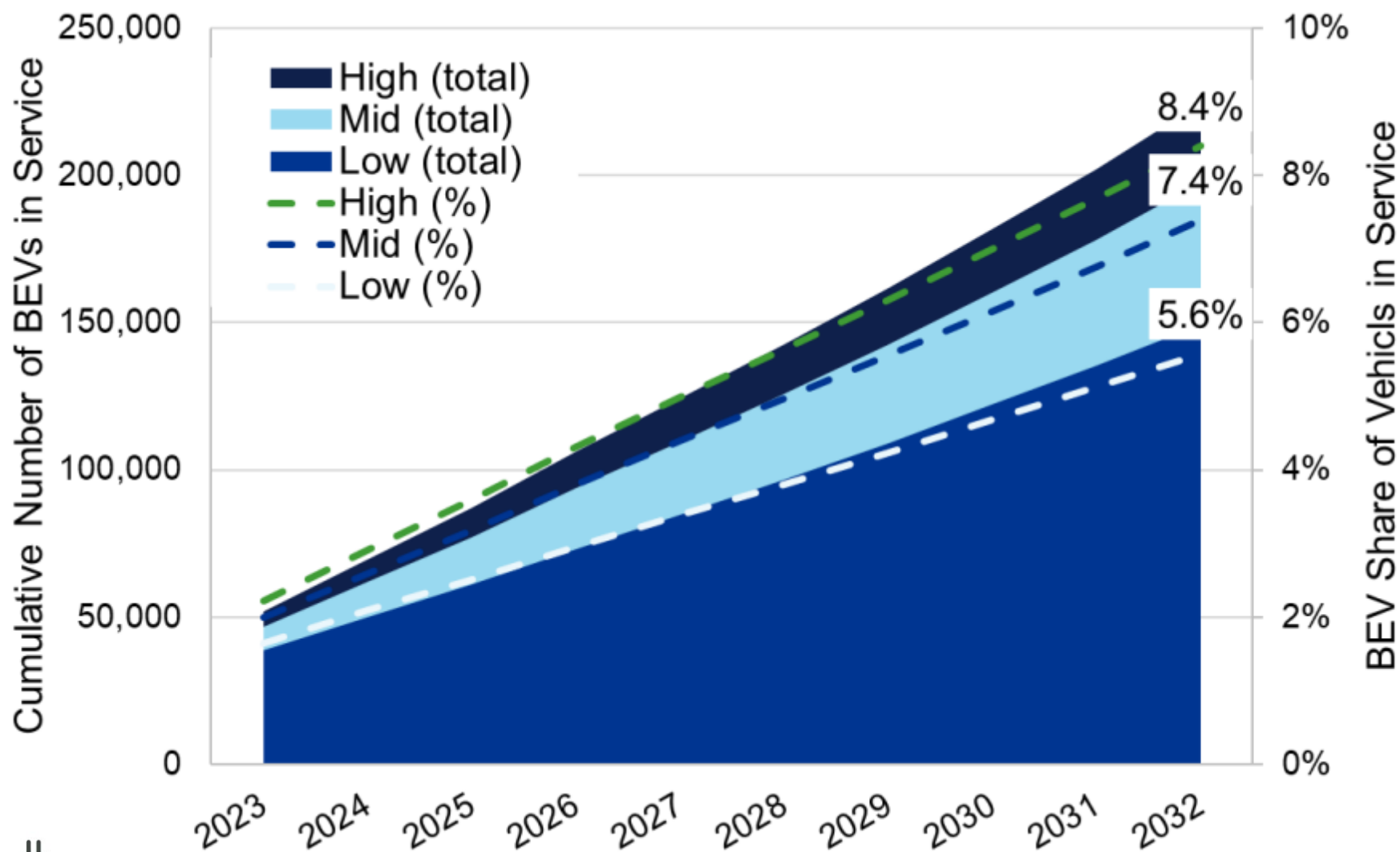
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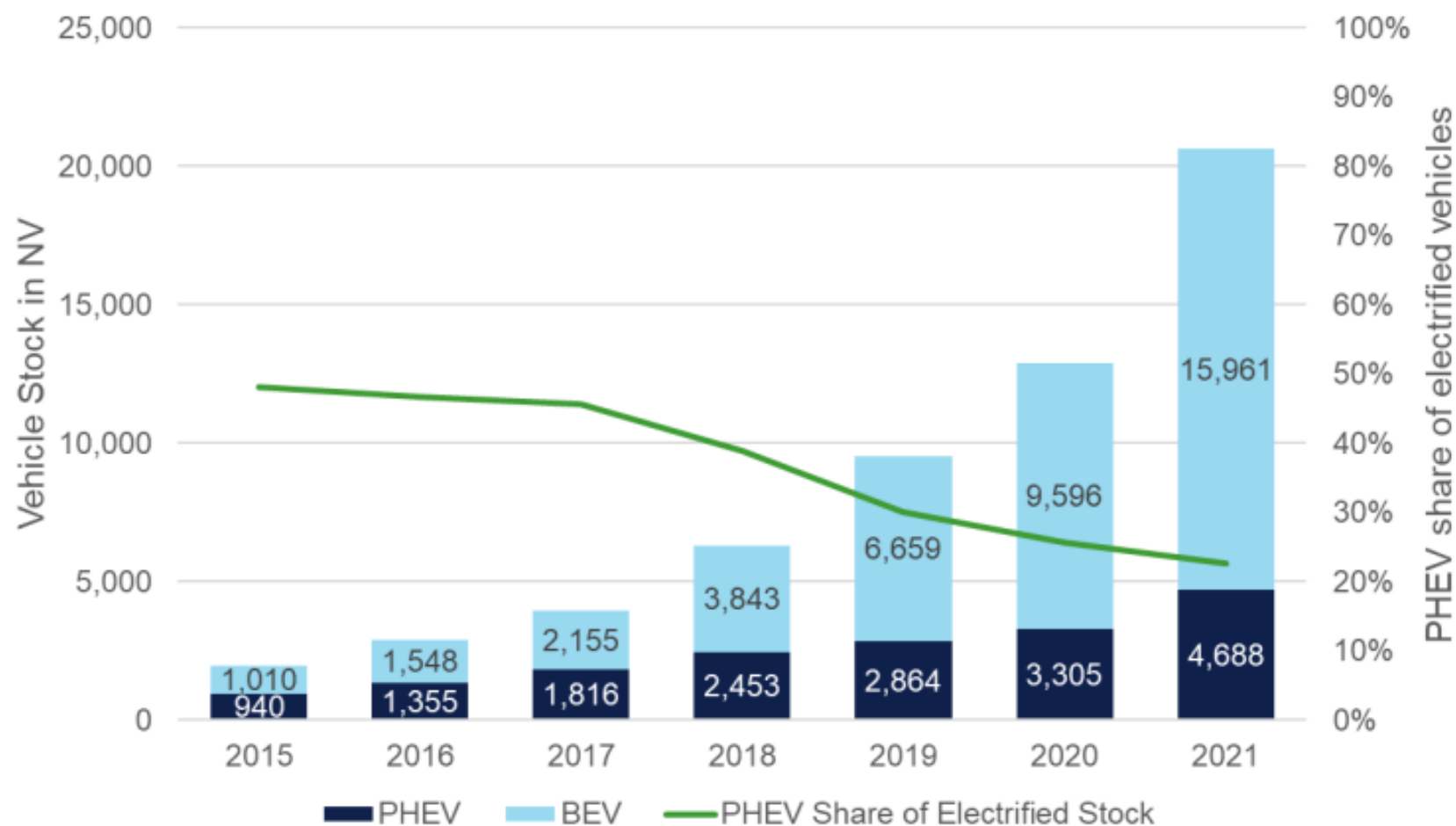
EV Adoption in Nevada Projected to Increase



Current & projected BEV adoption focused in major urban pockets - particularly urban higher-income census tracts

Note, projections only include BEVs, not PHEVs

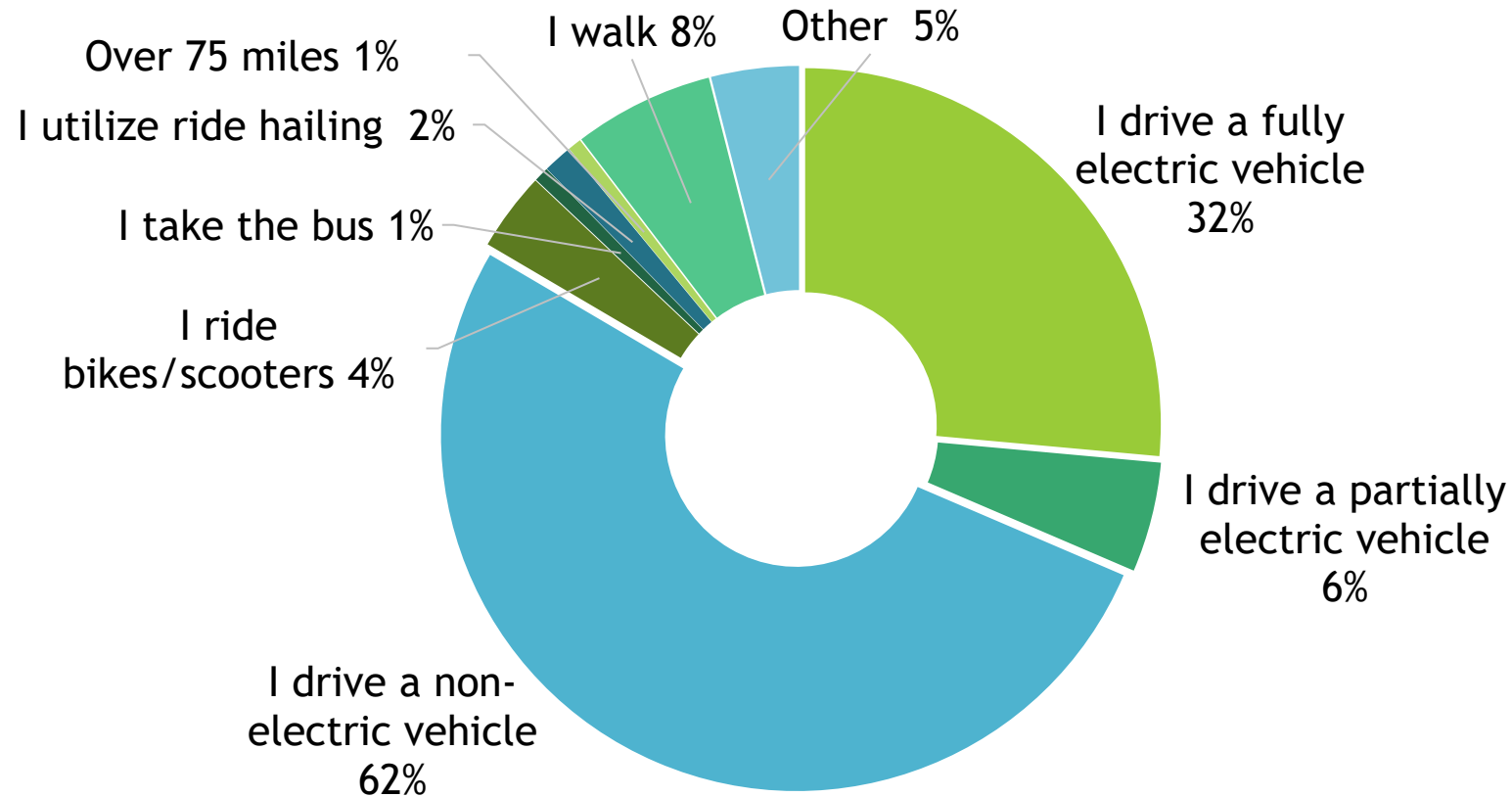
EV Adoption in Nevada is Increasing



The share of Plug-in Hybrid Electric Vehicles (PHEVs) is decreasing primarily due to the popularity of fully electric Battery Electric Vehicles (BEVs)

How Respondents Get Around

“On an average day, how do you get around? Select up to three options.”

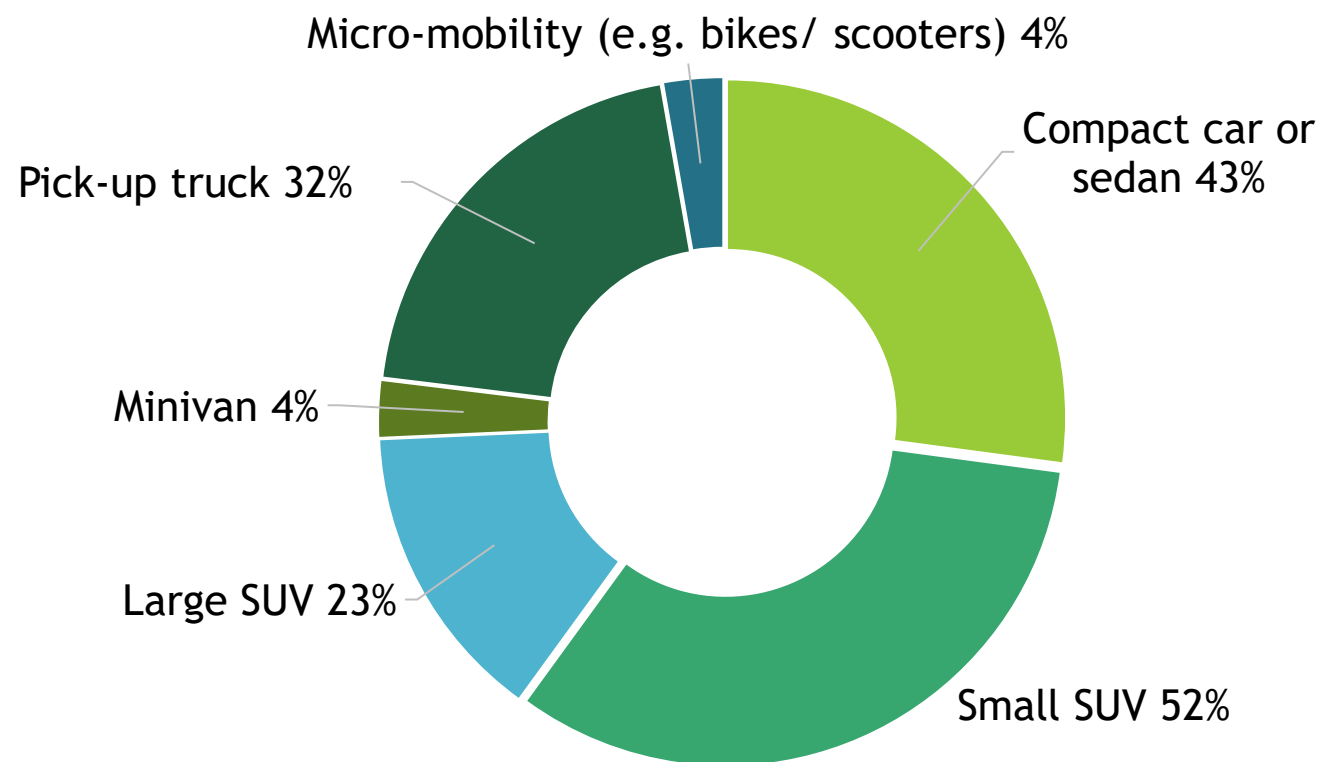


38% Drive Electric

62% Drive non-Electric

Vehicle Type Preferences

“Which vehicle type(s) do you prefer? Select up to three options.”



How do these preferences stack up to EV options?

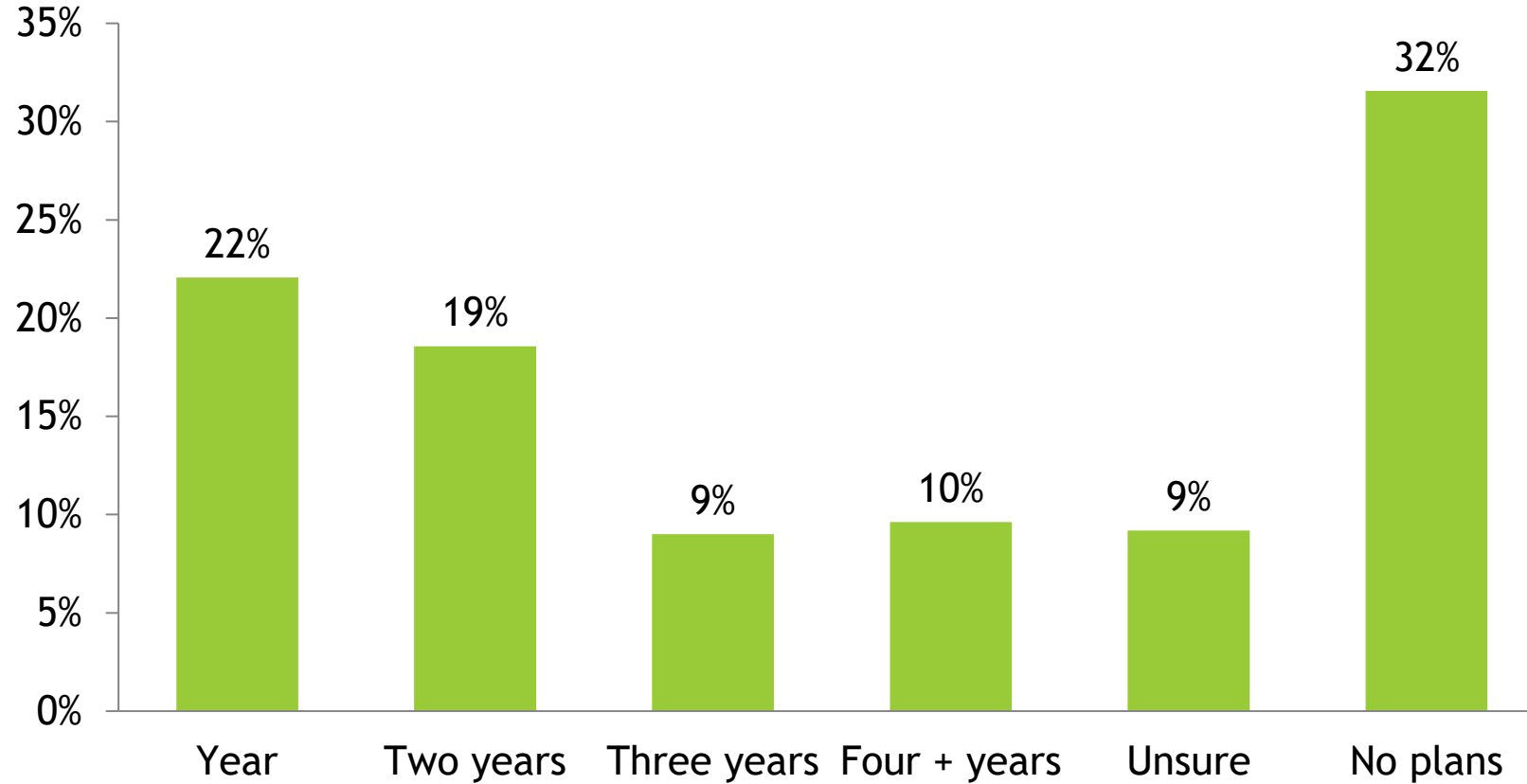
Multiple EV models are readily available for all vehicle types.

Supply chain issues may limit on-lot dealership options for electric and non-electric models.

Affordability of EV models is limited.

Next Vehicle Purchase/ Lease Plans

“When do you plan to purchase or lease a vehicle? In the next...”

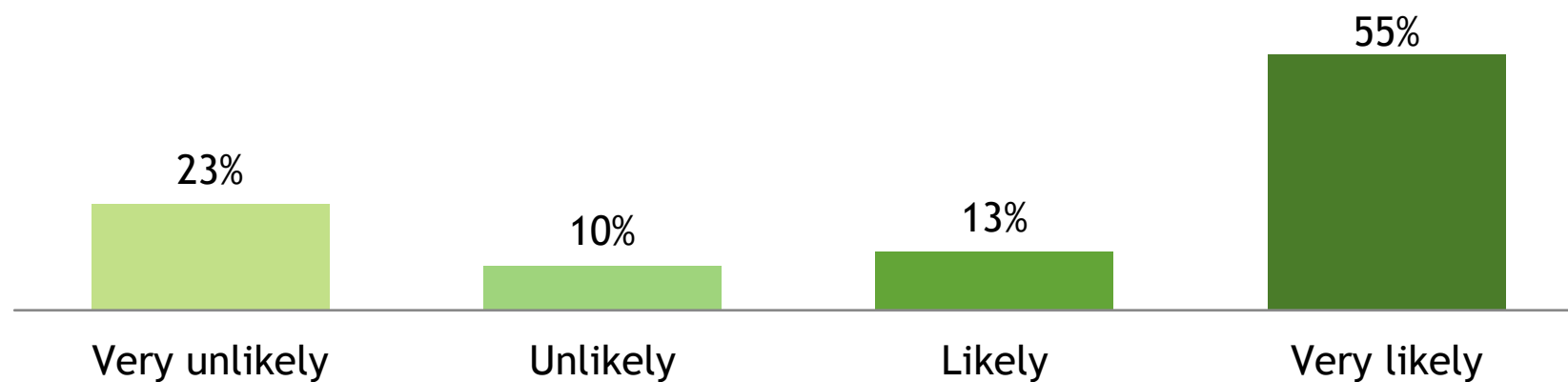


50%

Plan to purchase a vehicle in the next three years

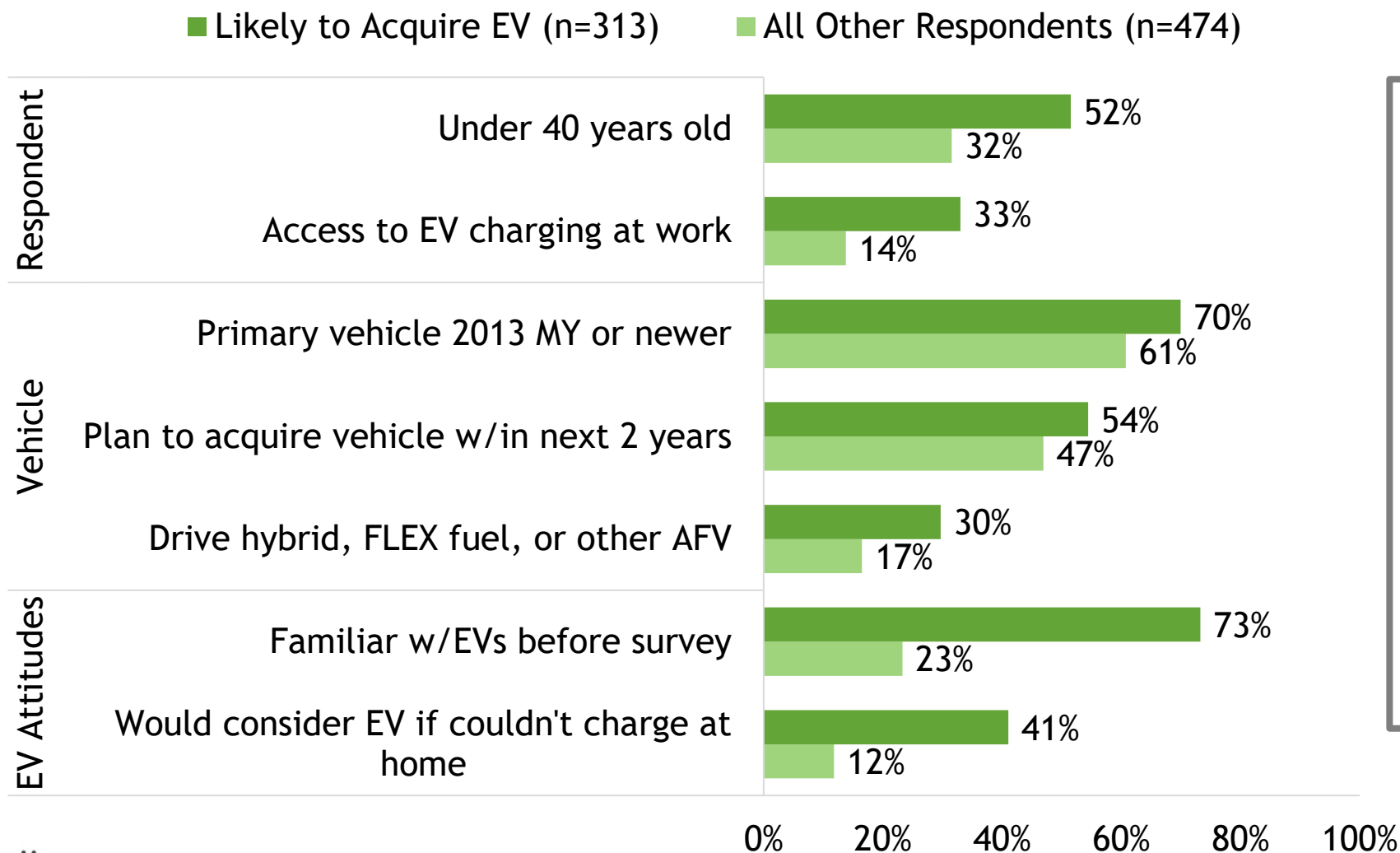
Odds for Next Vehicle to be Electric

“How likely are you to consider purchasing or leasing an electric vehicle (EV) for your next car?”



68%
Likely or Very Likely
to go electric with
next vehicle

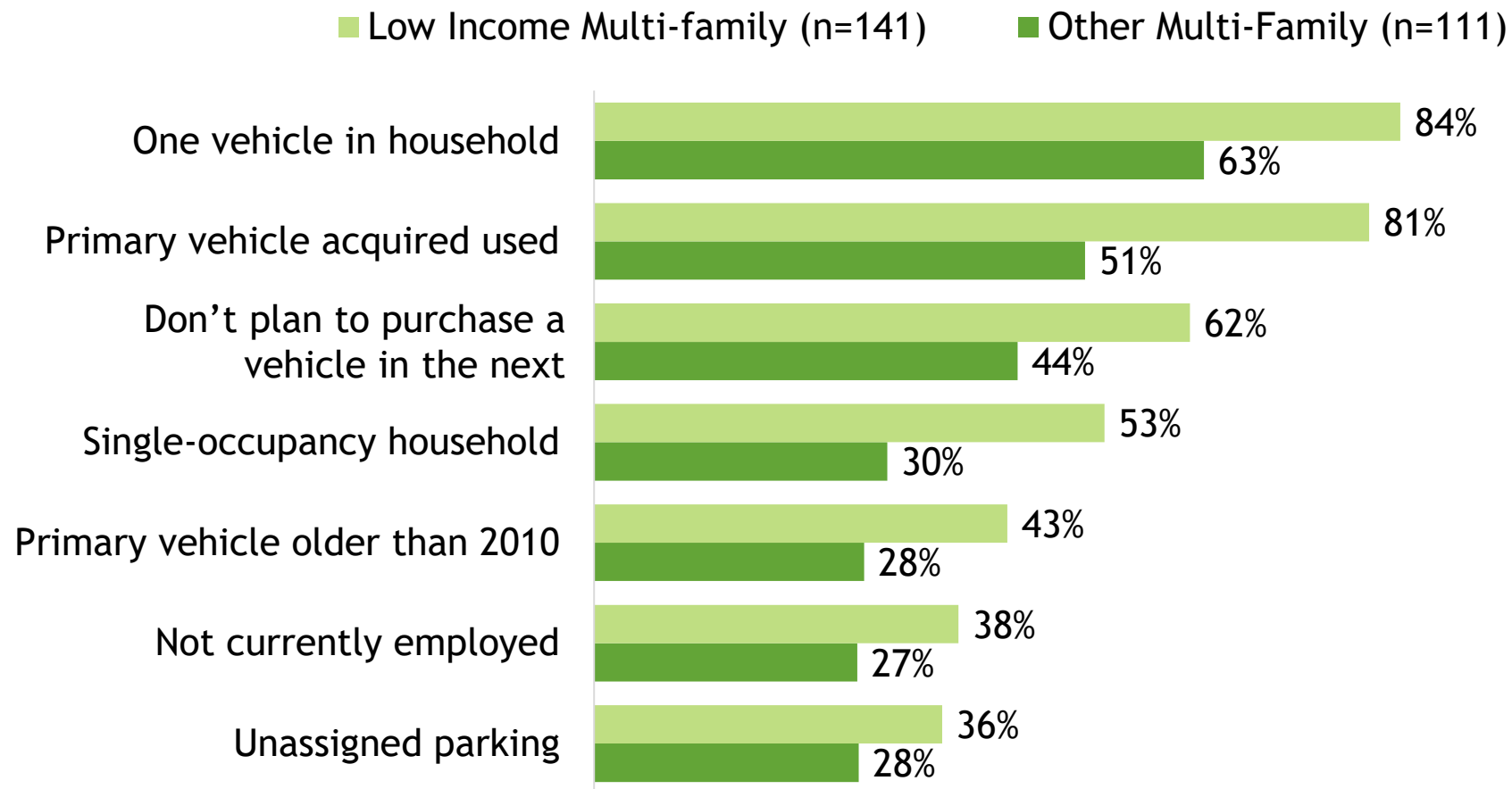
Who is Likely to Go Electric?



“Likely” EV Adopters

- Tend to be younger
- Drive newer vehicles and plan to purchase a new vehicle sooner
- Report considerably greater familiarity with EVs
- Are much more likely to consider acquiring an EV even if they could not charge it at home

Differences Between Multi-Family Customers by Household Income

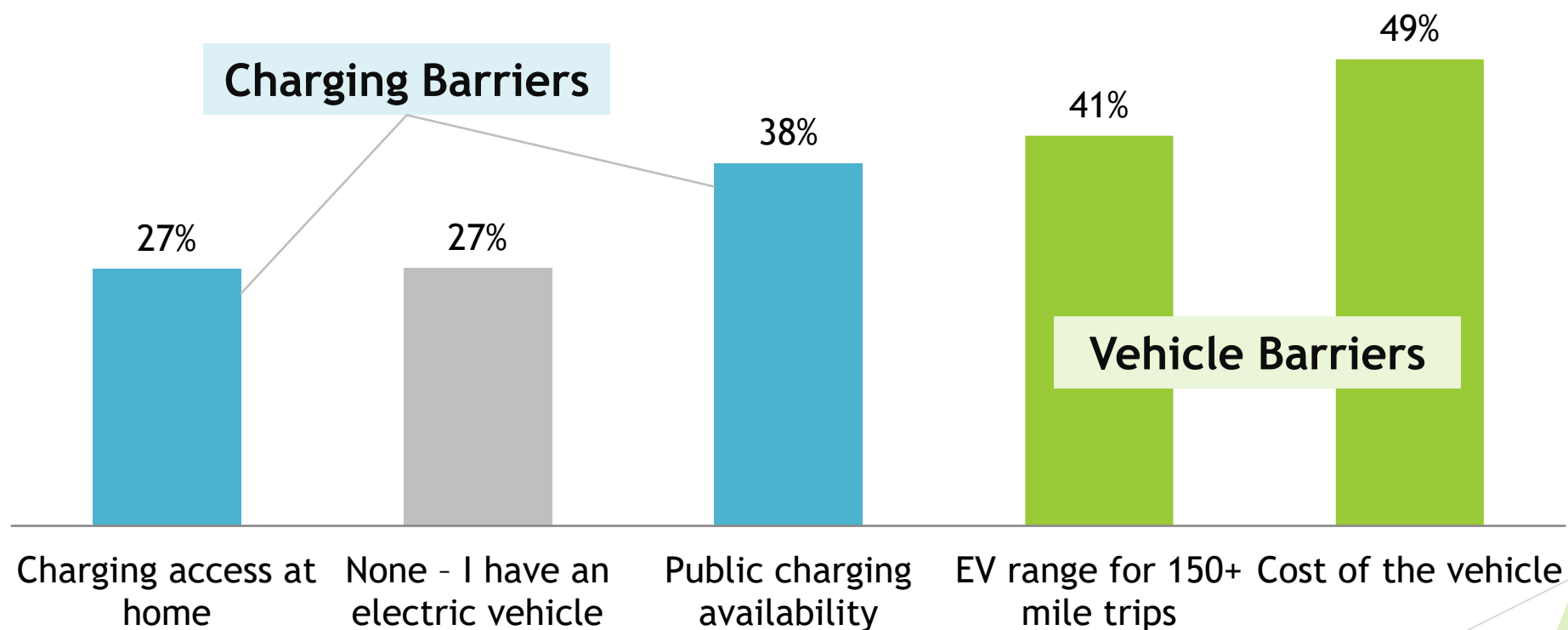


Low-Income MF More Likely to...

- Have a single vehicle in the household
- Not acquire a vehicle in the next 2 years
- Parking in unassigned places

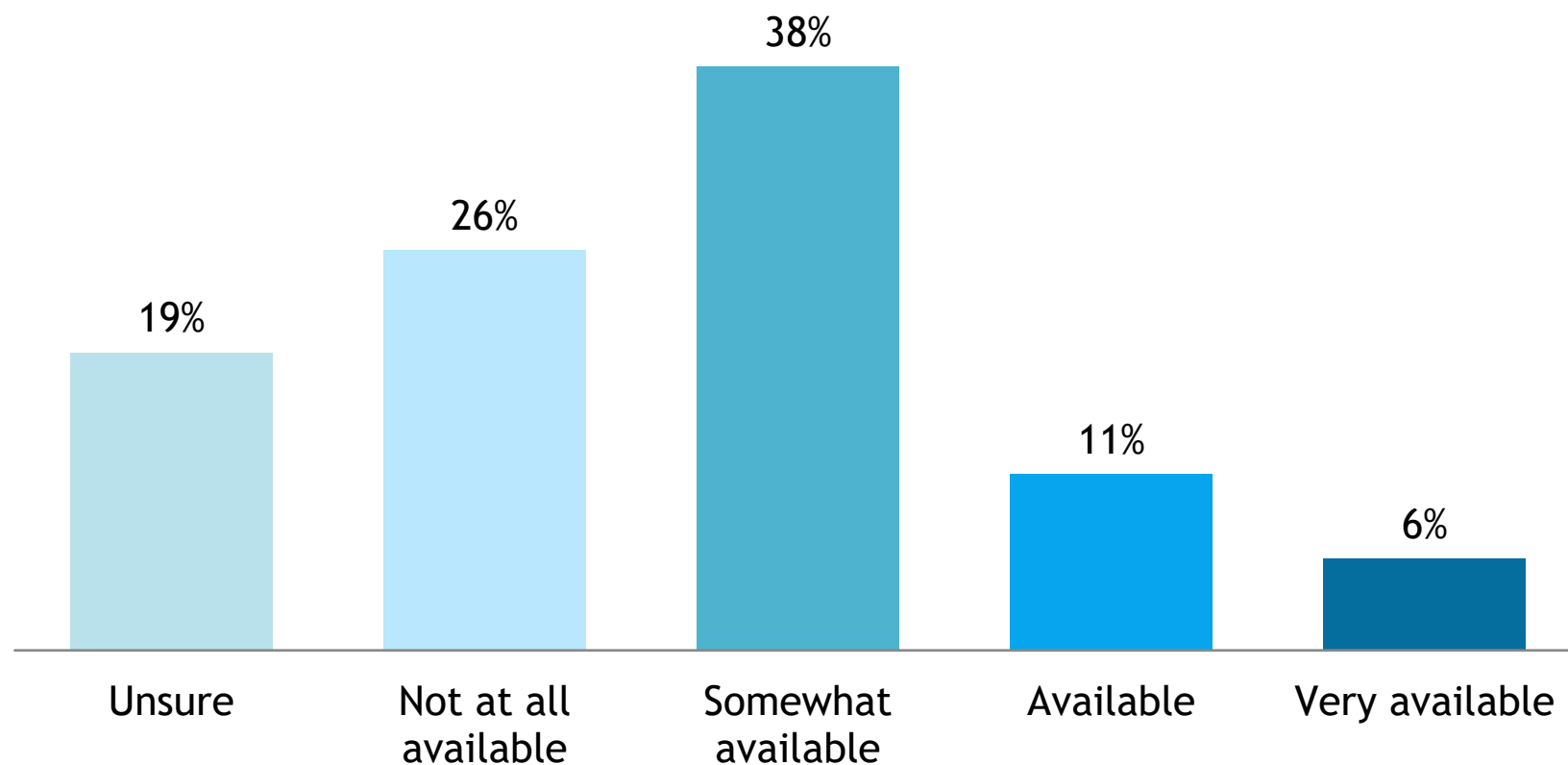
Top 5 Barriers to EV Adoption

“What barriers are preventing you from getting an electric vehicle (EV)?
Select all that apply.”



EV Charging Availability Perception

“How would you describe electric vehicle (EV) charging availability near you?”



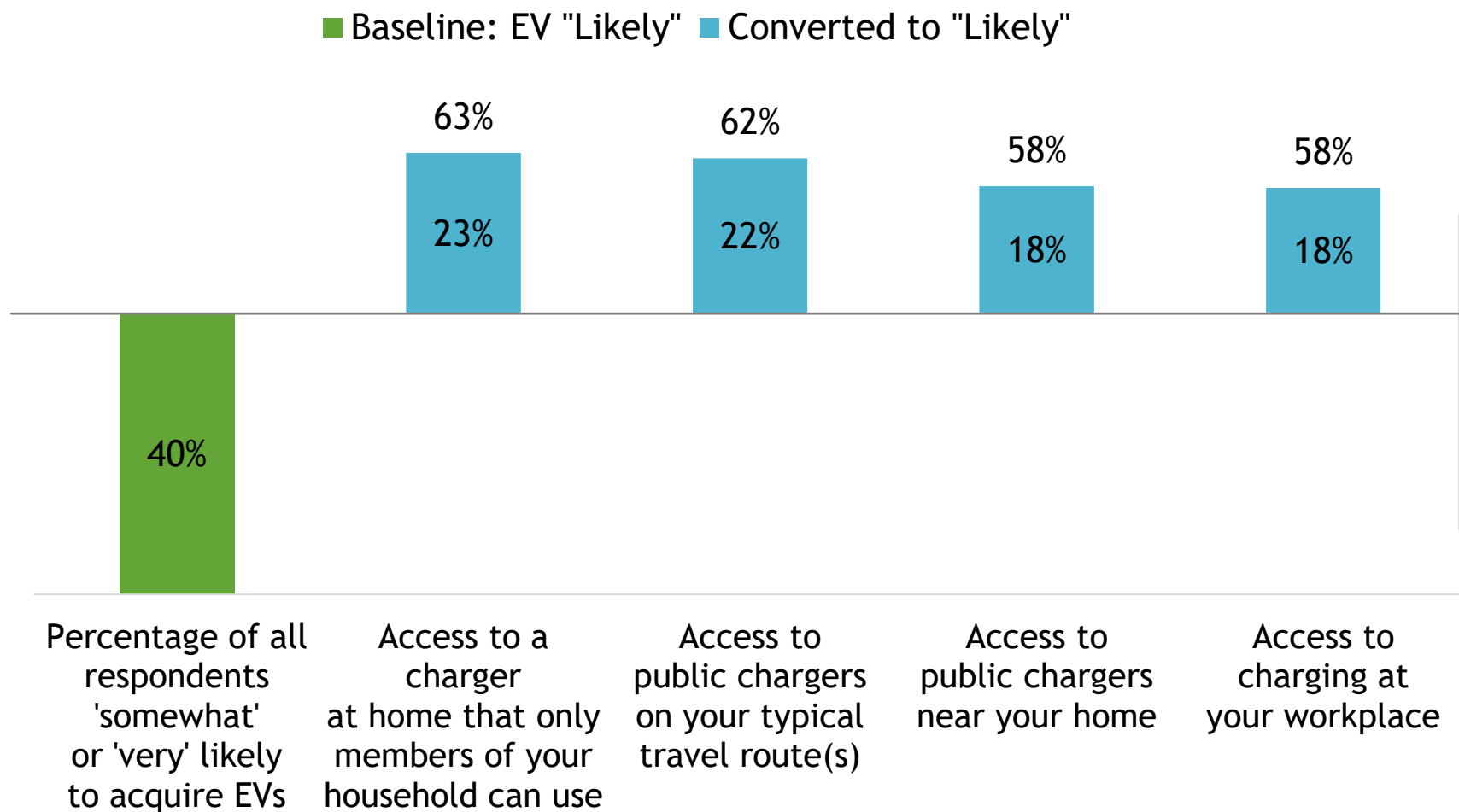
64%

Respondents perceive charging as somewhat or not available at all

Opportunity

Increased EV charging infrastructure and education on how to find charging may be beneficial

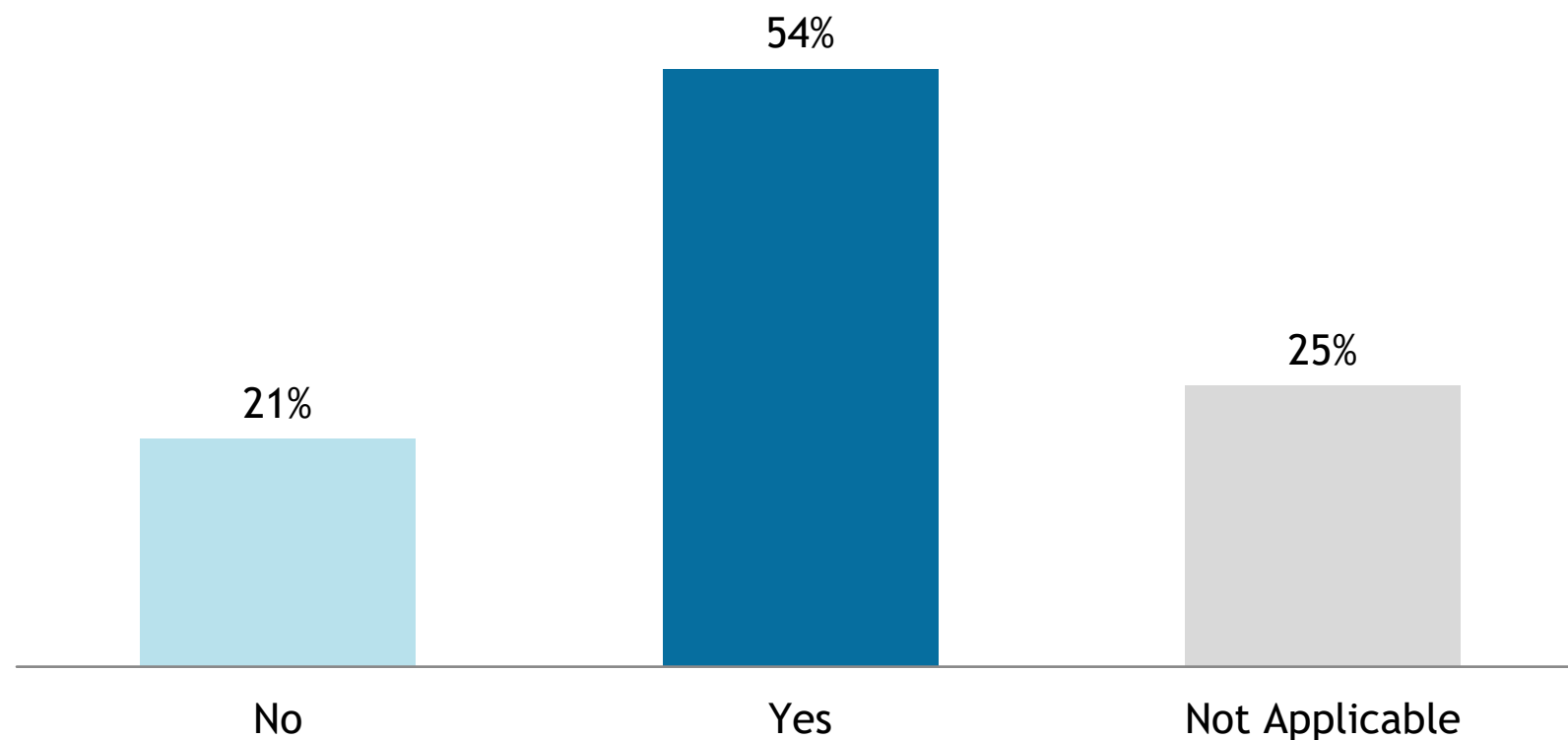
Potential to Increase Residential EV Adoption through Charging Availability



With more home, public and workplace charging availability, some 'unlikely' EV adopters are converted to 'likely'

Increased Odds of Going Electric with Workplace Charging

“If you were able to charge your car at work, would you be more likely to consider an electric vehicle (EV)?”

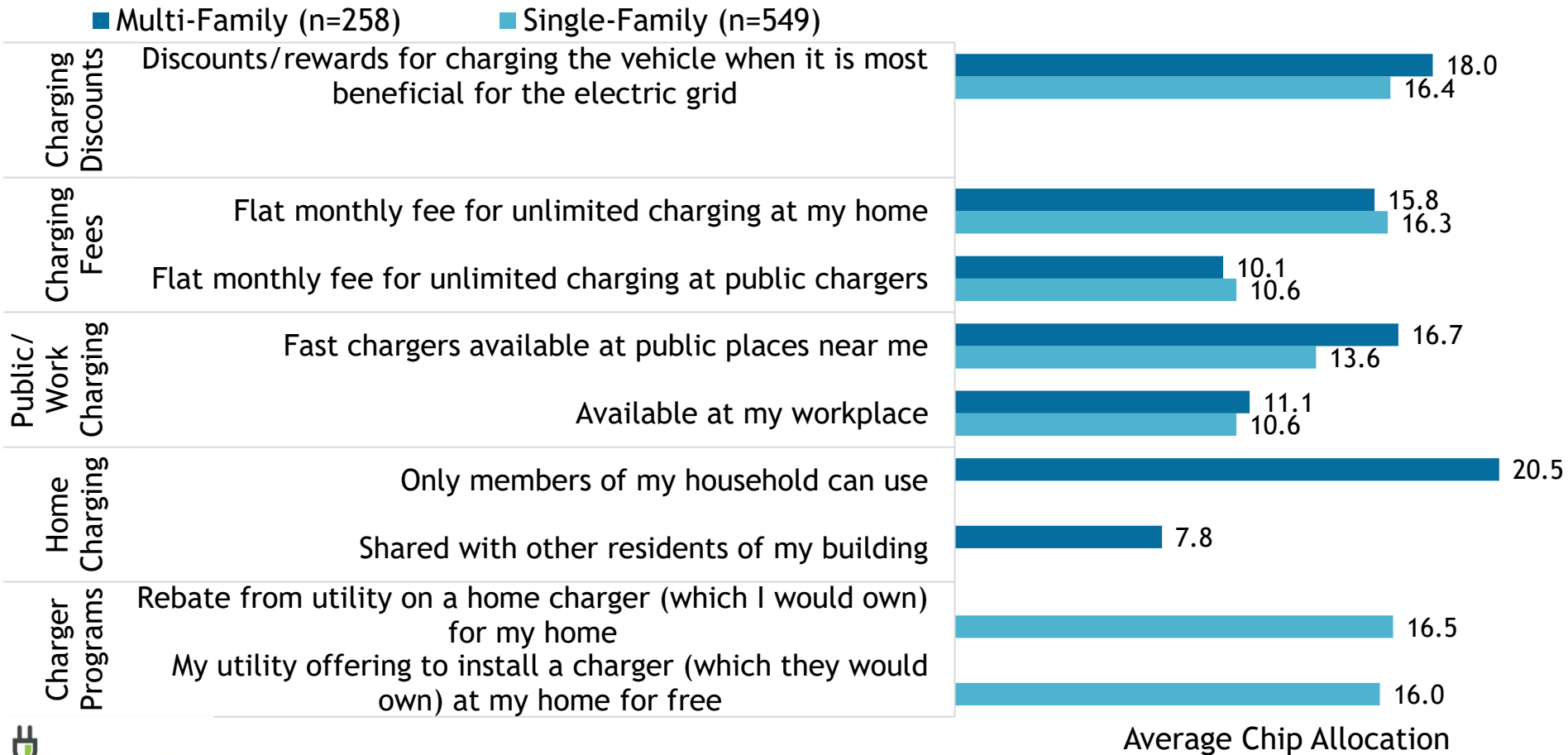


54%

Respondents more likely to go electric with workplace charging

Charging Program Preferences per Housing Type

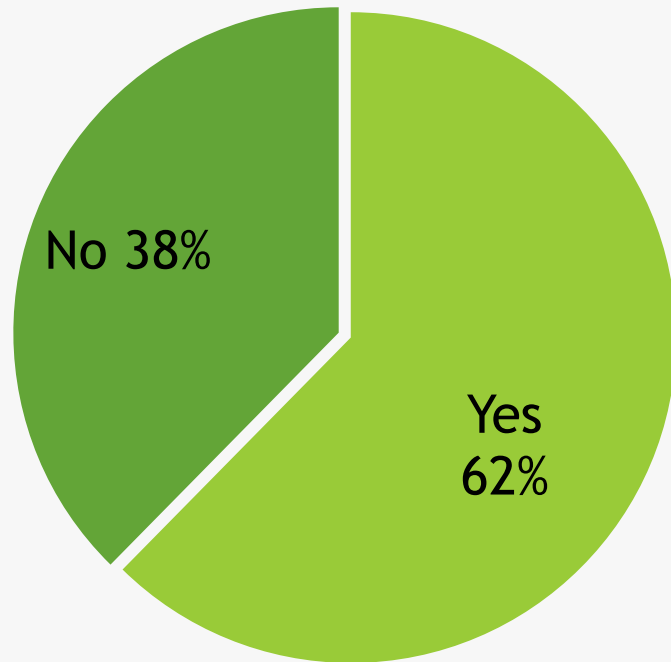
Table shows the average number of chips allocated to each offering when survey participants received 100 chips to allocate.



Strong interest in home charger installed by utility and owned by homeowner or utility

EV Driving Experience

“Have you ever driven an electric vehicle (EV)?”

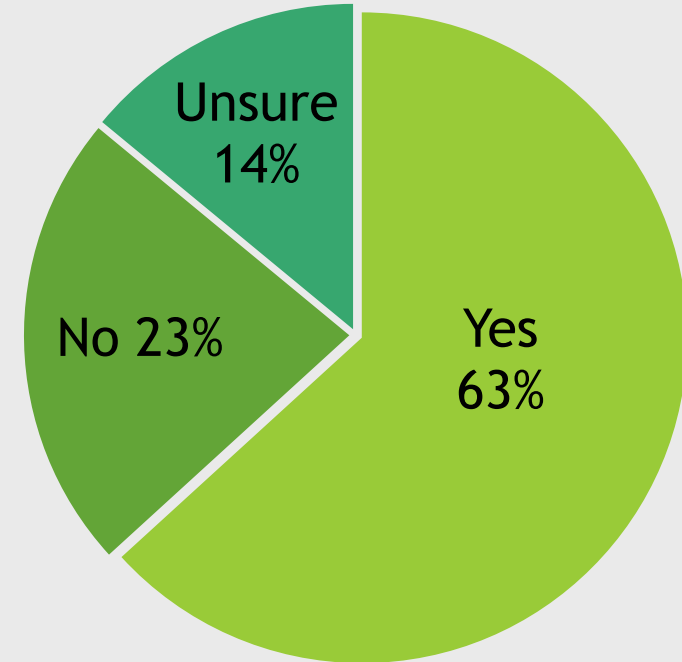


63%

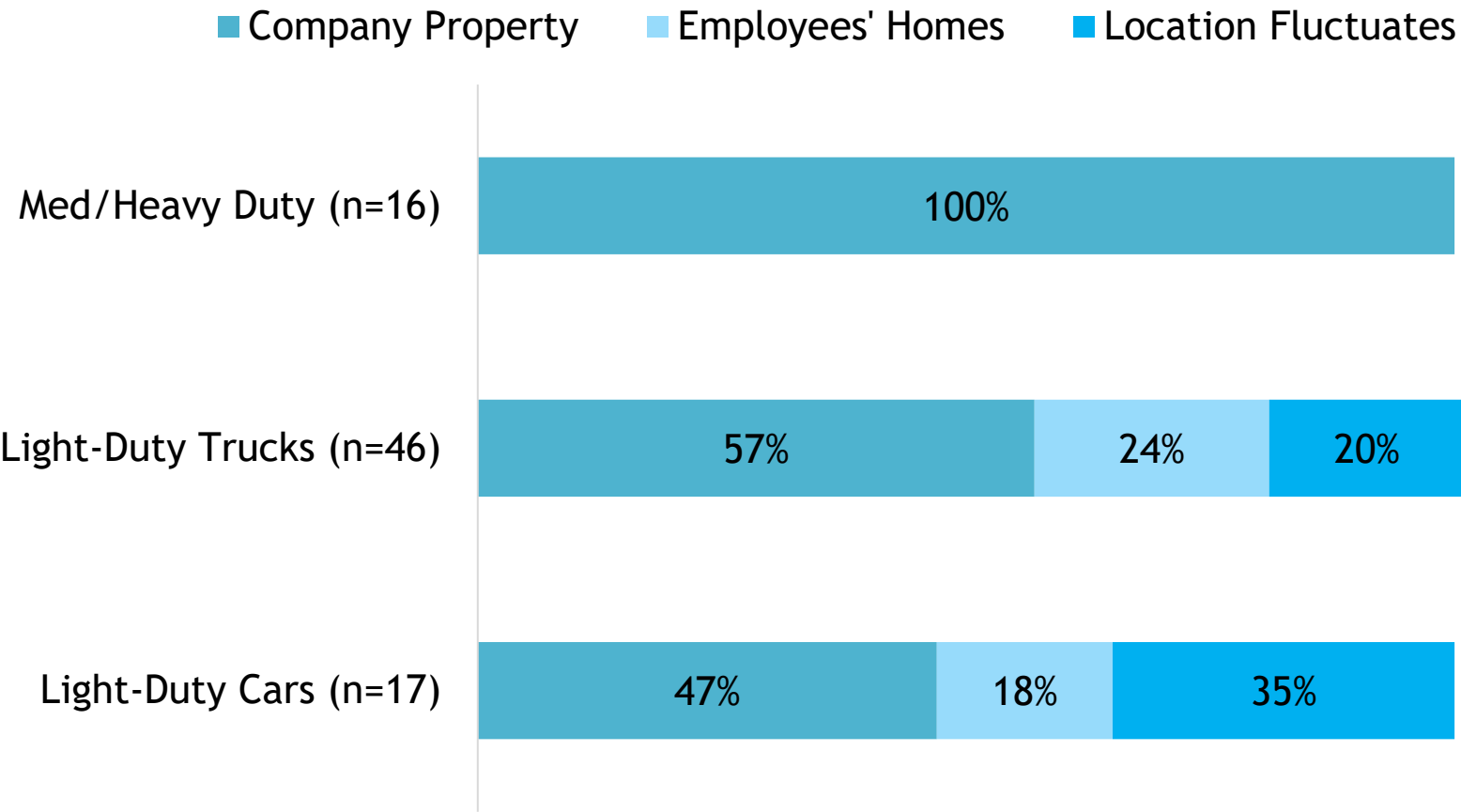
Respondents would participate in free test drive opportunity

EV Driving Interest

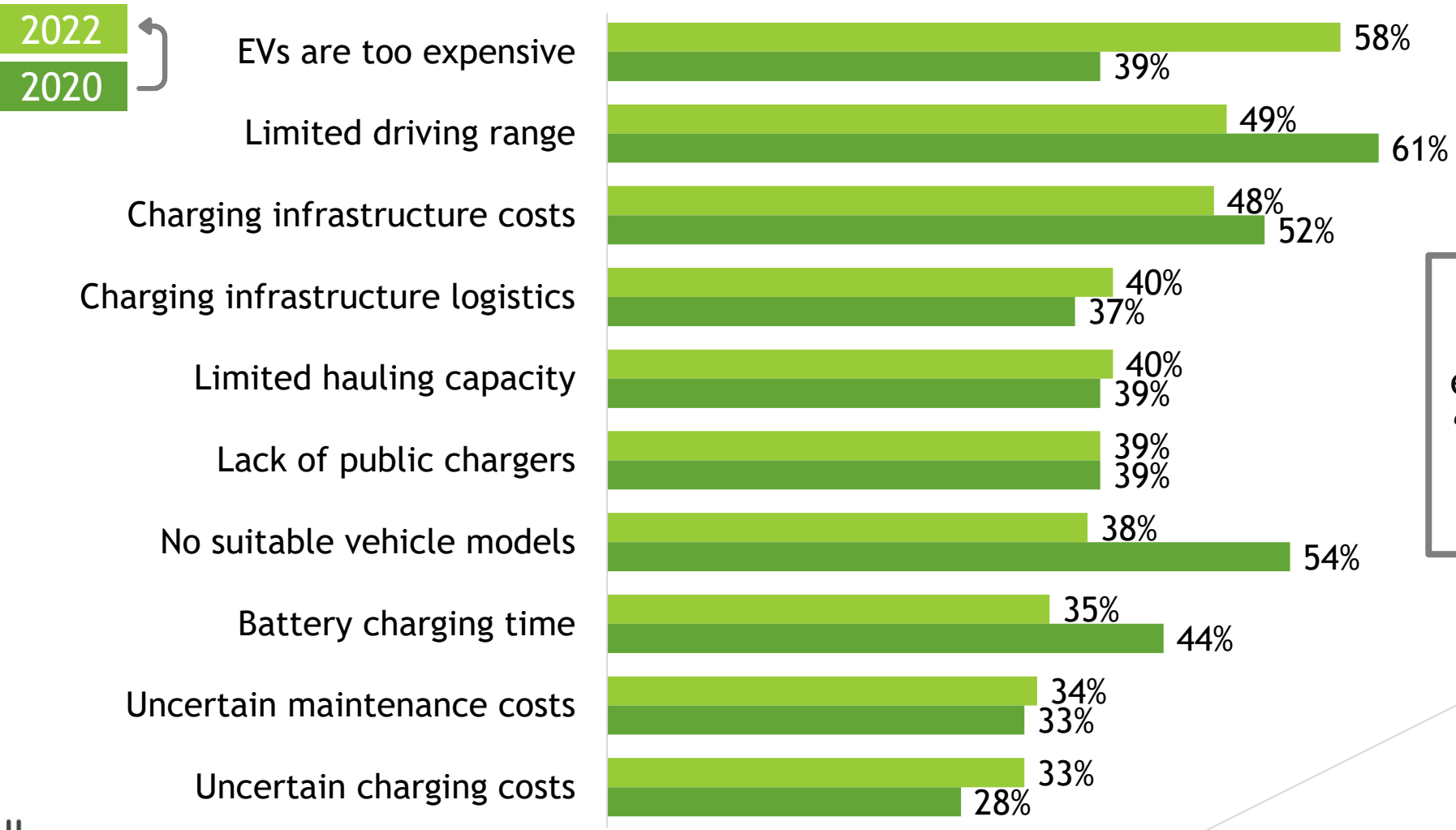
“If you were able to test drive an electric vehicle (EV) for free at a location near you, would you participate?”



Where do you currently fuel your fleet vehicles?



Key Barriers to EV Fleet Adoption



2022 Changes:
‘EVs are too expensive’ up 19% and
‘limited driving range’ down 12% from 2020 survey

Barriers to EV Adoption Overview

Barriers	Customer Type				
	Residential single-family	Residential multi-family	Commercial Fleet light duty	Commercial Fleet M/H duty	Commercial workplace charging
Vehicle Technology	✓	✓	✓	✓	✗
Vehicle Availability	✓	✓	✓	✓	✗
Vehicle Cost	✓	✓	✓	✓	✗
Charging Technology	✓	✓	✓	✓	✓
Public/ Depot Charging Availability	✓	✓	✓	✓	✓
Home Charging Availability	✓	✓	Sometimes	✗	Sometimes