

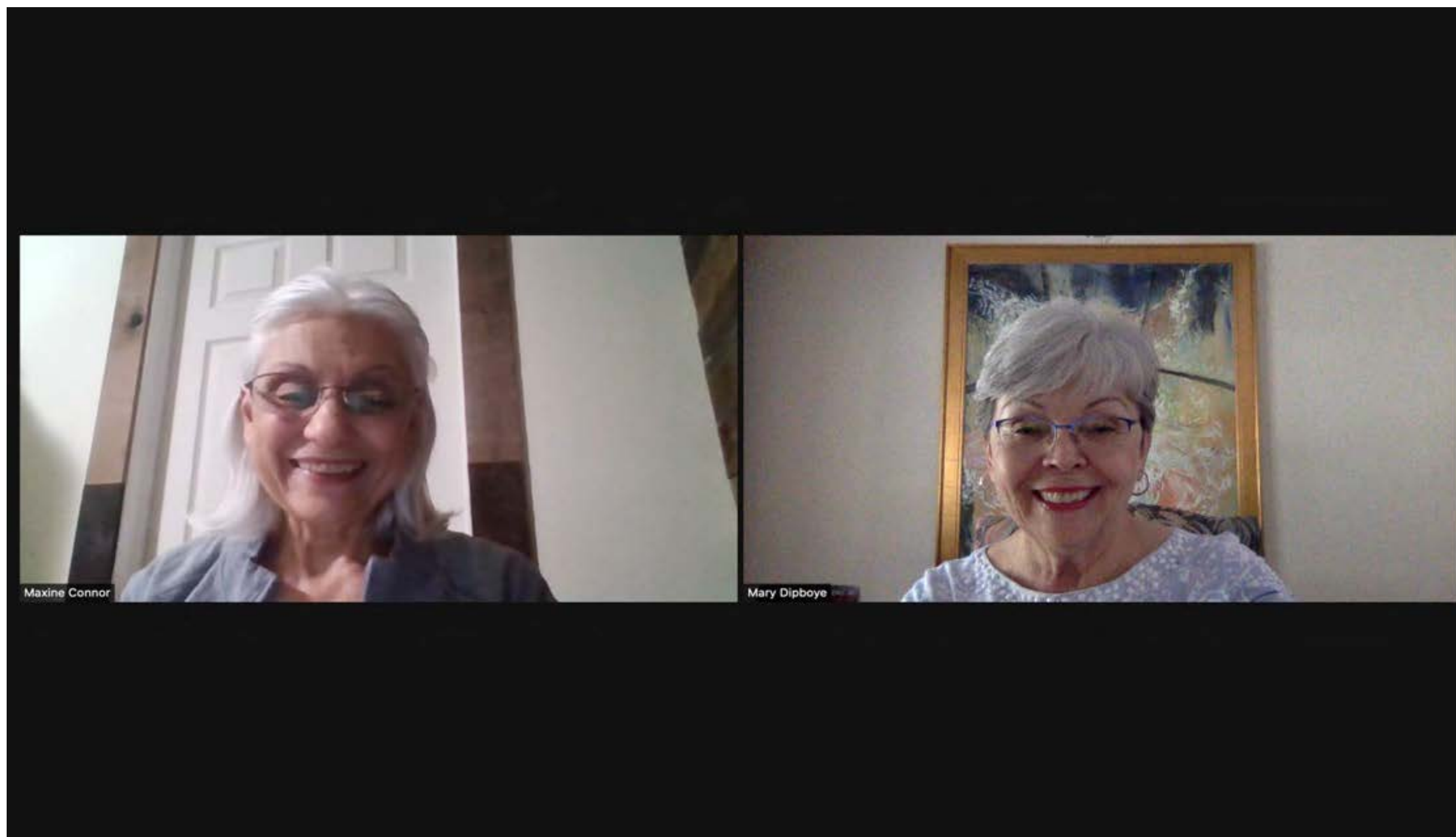
TOWNHALL:
ROADMAP TO
ELECTRIC TRANSPORTATION
TRANSFORMATION



WHO WE ARE: SOUTHERN ALLIANCE FOR CLEAN ENERGY



THE LWVFL CLEAN ENERGY COMMITTEE



Maxine Conner,
Co-chair

Mary Dipboye.
Co-chair

AGENDA

Why is electrification of transportation essential to fighting climate change?

EV 101: The Basics

Resources: Flyer, Electrify the South Policy Toolkit

Call to Action: Develop a plan for your community and outreach to local public officials

WHY ELECTRIC VEHICLES (EVs)?

The transportation sector is now the [largest source](#) of carbon dioxide (CO₂) pollution in the United States.

We can do something about that!



WHAT IS AN EV?

INTERNAL COMBUSTION ENGINE ElectrifyTheSouth.org



HYBRID



PLUG-IN HYBRID ELECTRIC VEHICLE



ELECTRIC VEHICLE

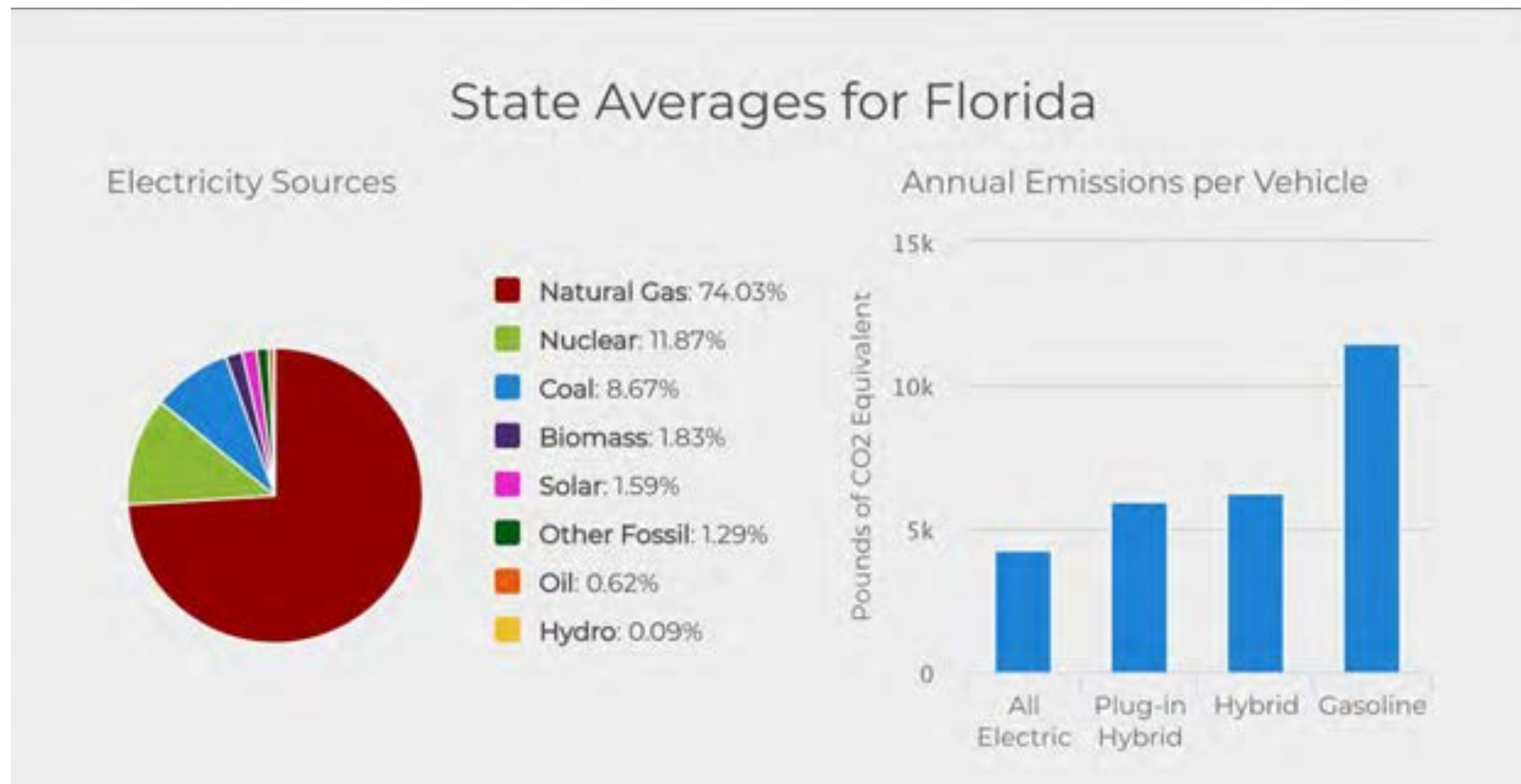


WHY DRIVE ELECTRIC? REDUCED EMISSIONS

EVs emit over 60% less life cycle GHG emissions compared to gasoline vehicles.

In FL, the average EV produces only ~~4,261~~ 4,132 lbs. of CO₂e per year, compared to 11,435 lbs. by gasoline powered vehicles.

An average EV on the road in the U.S. has the same greenhouse-gas emissions as a car getting 88 miles per gallon (MPG).



Source: [Department of Energy: AFDC](#), [Union of Concerned Scientists](#)

WHY DRIVE ELECTRIC? LOWER LIFETIME OWNERSHIP COSTS

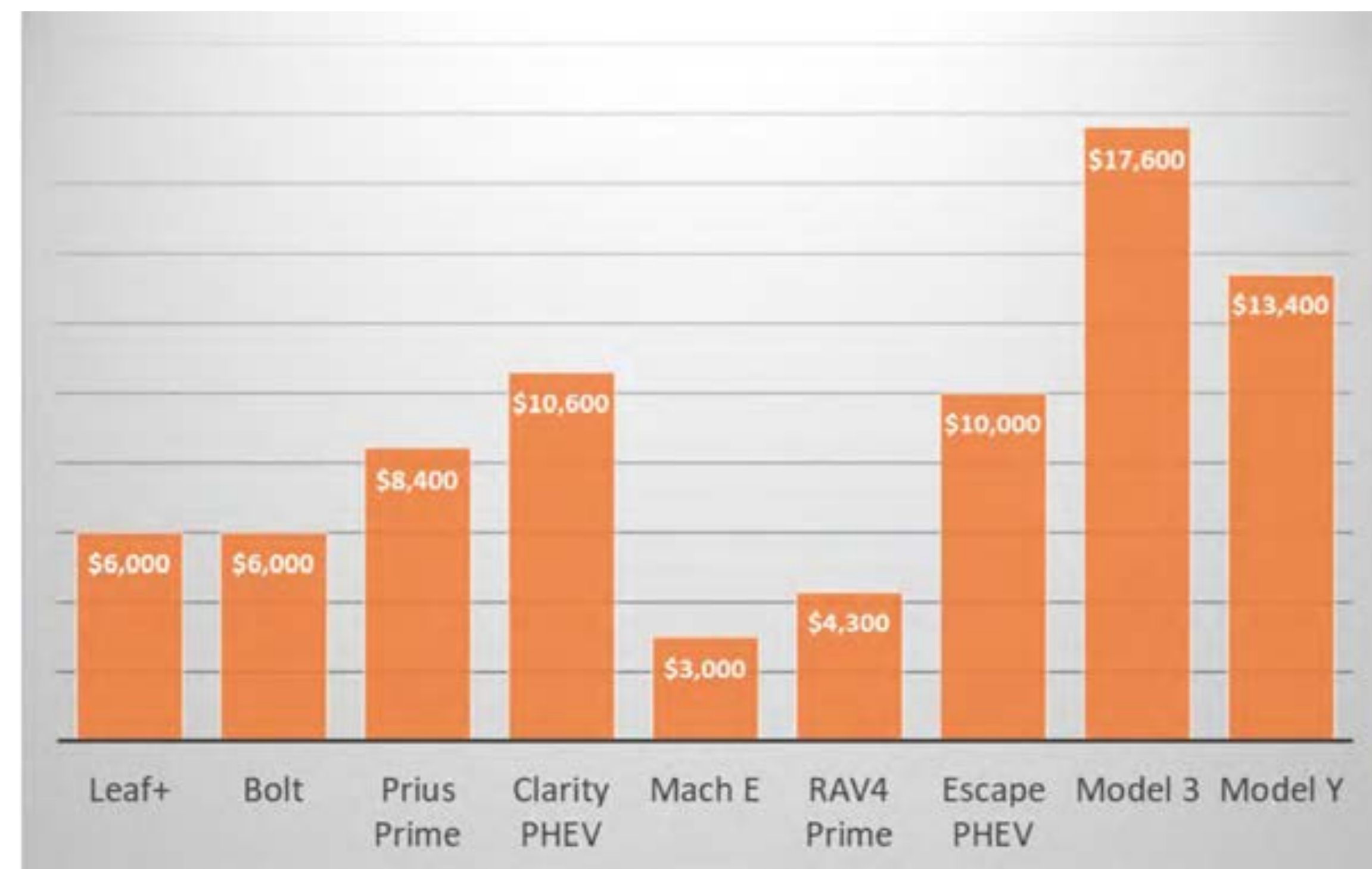
Lifetime Savings From EVs vs.
Best-Selling Gasoline Powered
Vehicles in Class

Typical driver saves **\$6,000 to \$10,000** over the life of the vehicle,

vs.

owning a comparable
gas-powered vehicle.

Source: [Consumer Reports](#)



WHY DRIVE ELECTRIC? LOWER FUEL COSTS HOME CHARGING

MODEL	COST PER MILE (CENTS)	1,000 MILES COST (DOLLARS)
Gasoline	16.5	\$165
Electric	3.1	\$31
Electric from Solar	1	\$10

Assuming \$4.25 cost per gallon of gasoline and 25.7 mpg
 33.7kW/h= 1 gallon
 Assuming \$.11/kWh and 120 mpge

Driving electric may add about \$30-40 per month to your utility/power bill.

Driving electric will cut your fuel costs significantly.

UC Davis Electric Vehicle Explorer tool for calculating annual vehicle energy costs: gis.its.ucdavis.edu/evexplorer/#!/locations/start



ELECTRIFY
THE SOUTH

cleanenergy.org
Southern Alliance for
Clean Energy



WHY DRIVE ELECTRIC? LOWER FUEL COSTS ON THE ROAD

MODEL	COST PER MILE (CENTS)	1,000 MILES COST (DOLLARS)
Gasoline	16.5	\$165
Electric	9.8	\$98
Electric from Solar	1	\$10

Assuming \$4.25 cost per gallon of gasoline and 25.7 mpg
 33.7kW/h= 1 gallon
 Assuming \$.11/kWh and 120 mpge



ELECTRIFY
THE SOUTH

cleanenergy.org
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Clean Energy



WHY DRIVE ELECTRIC? CONVENIENCE AND TIME SAVINGS

No trips to gas station

No oil changes

Very low maintenance






Charging at home is convenient

Drop the pump!



SAVE MONEY
SAVE TIME

WHY DRIVE ELECTRIC? SUPERIOR EFFICIENCY

Vehicle	EPA Fuel Economy ↓	Driver MPG	Annual Fuel Cost
<input type="checkbox"/> 2020 Tesla Model 3 Standard Range Plus Automatic (A1), Electricity	 141 MPGe combined city/hwy 24 kWh/100 mi	NA	\$450
<input type="checkbox"/> 2019 Hyundai Ioniq Electric Automatic (A1), Electricity	 136 MPGe combined city/hwy 25 kWh/100 mi	NA	\$500
<input type="checkbox"/> 2020 Hyundai Ioniq Electric Automatic (A1), Electricity	 133 MPGe combined city/hwy 25 kWh/100 mi	NA	\$500
<input type="checkbox"/> 2019 Tesla Model 3 Standard Range Plus Automatic (A1), Electricity	 133 MPGe combined city/hwy 25 kWh/100 mi	NA	\$500
<input type="checkbox"/> 2020 Tesla Model 3 Standard Range Automatic (A1), Electricity	 131 MPGe combined city/hwy 26 kWh/100 mi	NA	\$500
<input type="checkbox"/> 2019 Tesla Model 3 Standard Range Automatic (A1), Electricity			

The average fuel efficiency in the US is 25.1 miles per gallon

The fuel efficiency for most electric cars is over 100 MPGe

Source: [EPA](#), [DOE](#)

WHY DRIVE ELECTRIC? SUPERIOR TECHNOLOGY

Smoother ride

Quiet

Fun to drive

Computer on wheels

EVs have instant torque. The [quickest car in the world](#) is a Tesla Model S



MODELS AND TRENDS

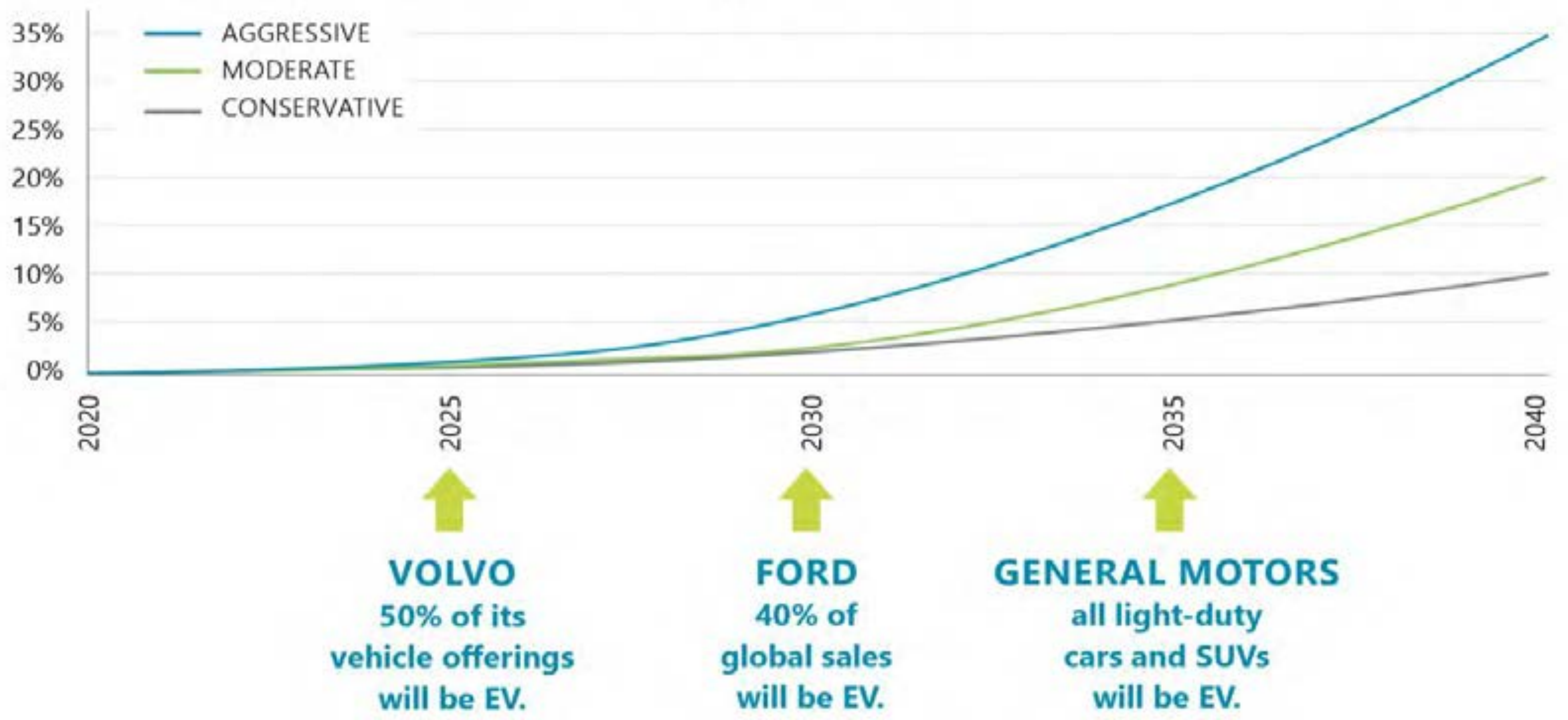
59 models sold today

91 new models on the way

234 average mile range

\$460B in global investment

EV Market Adoption



Source: Atlas Public Policy

Source: FLDOT EVMP

HOW TO BROWSE EV MODELS? PLUGSTAR WEBSITE

<https://plugstar.com/>

PlugStar
by Plug In America

Shopping Assistant **Cars** ▾ Incentives ▾ Charging ▾ Events Dealers ▾ Login ▾

Browse Electric Cars

Vehicle Tiles Range vs. Cost

Sort by: Make ▾ | Price ▾ | Electric Range ▾ | Popularity ▾

Clear filters - See all cars

42 vehicles displayed

Cash Loan **Lease**


Budget after incentives, in zip **34688**

< \$1,400/mo. ▾

Vehicle type ▾

Sedan Hatchback
 Coupe Crossover
 Minivan SUV
 Van Truck

MINI Cooper S E Hardtop 2 Door Electric




\$3,325 Due at Signing

est. **\$227** /month Lease Payment

110 miles electric

Nissan LEAF




\$3,133 Due at Signing

est. **\$246** /month Lease Payment

149 miles electric

Honda Clarity Plug-In Hybrid



\$3,280 Due at Signing

est. **\$267** /month Lease Payment

48 miles electric 340 miles total

Click heart icons to select cars

ELECTRIC SCHOOL BUSES, TRANSIT BUSES AND MEDIUM-DUTY TRUCKS ¹⁶

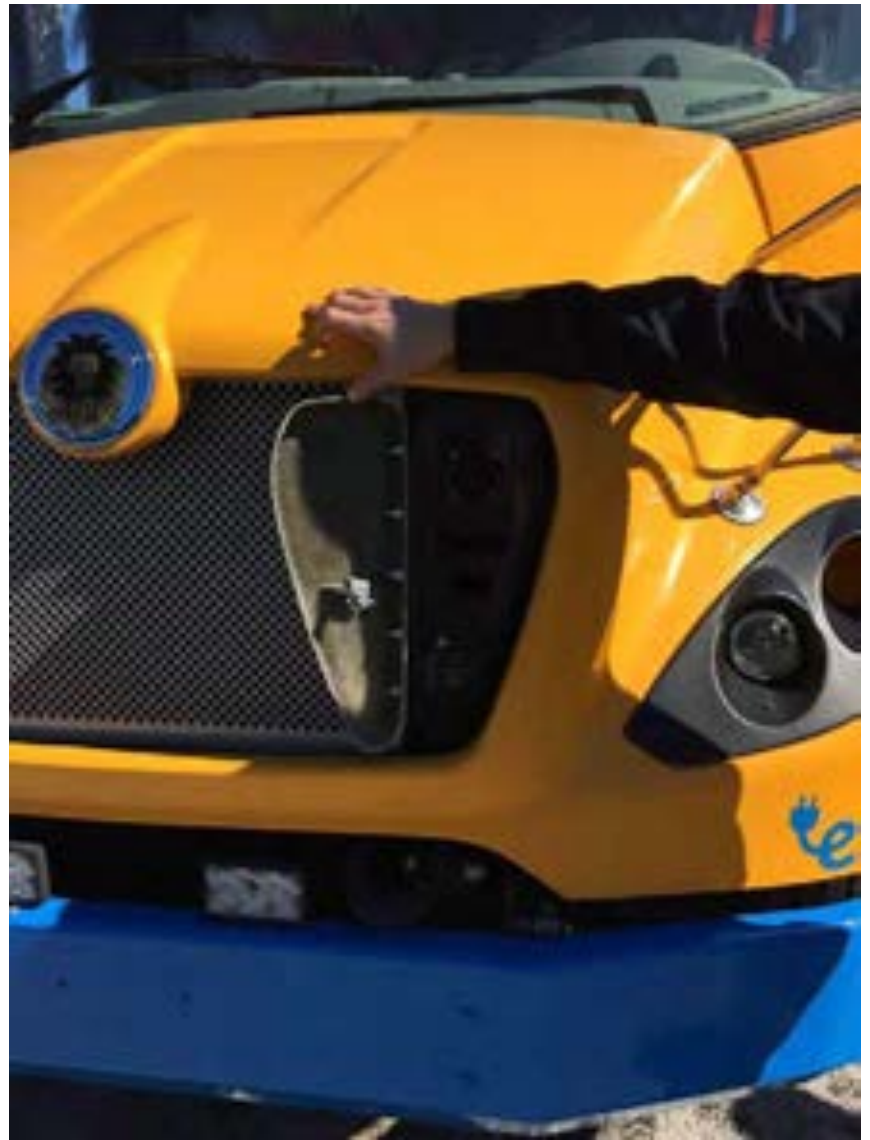
TYPES OF VEHICLES BY WEIGHT CLASS

Class One: 6,000 lbs. or less					
Full Size Pickup	Mini Pickup	Minivan	SUV	Utility Van	
Class Two: 6,001 to 10,000 lbs.					
Crew Size Pickup	Full Size Pickup	Mini Bus	Minivan	Step Van	Utility Van
Class Three: 10,001 to 14,000 lbs.					
City Delivery	Mini Bus	Walk In			
Class Four: 14,001 to 16,000 lbs.					
City Delivery	Conventional Van	Landscape Utility	Large Walk In		
Class Five: 16,001 to 19,500 lbs.					
Bucket	City Delivery	Large Walk In			
Class Six: 19,501 to 26,000 lbs.					
Beverage	Rack	School Bus	Single Axle Van	Stake Body	
Class Seven: 26,001 to 33,000 lbs.					
City Transit Bus	Furniture	High Profile Semi	Home Fuel		
Medium Semi Tractor	Refuse	Tow			
Class Eight: 33,001 lbs. & over					
Cement Mixer	Dump	Fire Truck	Fuel		
Heavy Semi Tractor	Refrigerated Van	Semi Sleeper	Tour Bus		

Source: <https://afdc.energy.gov/data/10381>



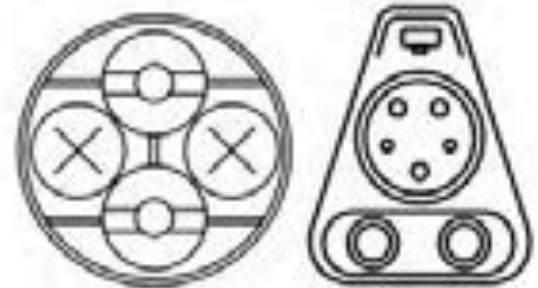


Mack's battery-powered LR joins a growing list of electric-powered trash haulers. (Photo: Mack)



CHARGING AN EV

Existing EVSE Types and Use Cases

EVSE Type	Supply Voltage	Charger Examples	Power Level	Charge Rate (miles / hr)	Install Cost	Charging Use Cases	KEY POINTS
Level 1	120V (Toaster)	 J1772 Connector	1 - 1.8 kW	3 - 7	\$	Home / Overnight	Obsolete for commercial purposes
			3.3 - 19.2 kW	10 - 60			
Level 2	208-240V (Clothes Dryer)	 J1772 Connector	7.7 kW typical	26	\$\$	Home-work / Destination / Community	
			50 kW	175			
DCFC	480V (Small office building)	 CHAdeMO / SAE Combo (CCS)	150 kW	500	\$\$\$	Travel along State Highways	Most applicable for long-range travel and evacuations
			350 kW	1,200			



Obsolete for commercial purposes

Currently dominant for commercial purposes

Most applicable for long-range travel and evacuations

RESOURCES: FLYER TO LEAVE BEHIND

Policies for Local Governments in Florida to Accelerate Electric Vehicles

LOCAL GOVERNMENTS ARE TRANSITIONING TO ELECTRIC TRANSPORTATION TO:

Keep pace with technology: By 2040 nearly 70% of new passenger vehicle sales will be electric.

Achieve lower fuel and maintenance costs: A *Consumer Report* study shows total ownership cost savings can more than make up for an electric vehicle's typically higher purchase price.



Reduce emissions: The transportation sector is now the largest source of carbon dioxide (CO₂) pollution in the United States.

Improve public health: EVs have no tailpipes and produce zero ground level emissions that are harmful to human health.

Project positive community image: Floridians overwhelmingly support clean energy initiatives and have a positive view of electric vehicles (EVs).

HOW CAN LOCAL GOVERNMENTS SUPPORT THE SHIFT TO ELECTRIC TRANSPORTATION?

- ✓ Establish fleet goals
- ✓ Adopt policies to increase infrastructure (EV-ready policy)
- ✓ Develop education and outreach programs

Decide the South is a program of the Southern Alliance for Clean Energy that leverages research, advocacy, and outreach to accelerate the equitable transition to clean energy-powered electric transportation throughout the Southeast.

ESTABLISH FLEET GOALS

Municipalities in Florida with EVs in their fleet:

- **Light-duty Fleet:** Broward County, Cape Canaveral, Coral Gables, Dunedin, Gainesville, Largo, Leon County, Miami-Dade County, New Port Richey, Orange County, Orlando, Sarasota, Sarasota County, Sunrise, Tallahassee, West Palm Beach, and Winter Park.
- **Transit Authorities:** Broward, Gainesville, HART (Hillsborough), Jacksonville, LYNX (Orange, Osceola, Seminole), Miami-Dade, Palm Tran, Pinellas Suncoast, StarMetro (Tallahassee), and USF (University of South Florida).

ADOPT POLICIES TO INCREASE EV INFRASTRUCTURE (EV-READY)

An EV-ready policy requires a percentage of parking spaces built to include electrical infrastructure that enables future EV charging.



Why Implement EV-Readiness Policies?

- Pre-construction costs to make parking EV-ready are significantly lower than updating post-construction.
- As a percentage of total new construction costs, costs are typically very low – an estimated 0.13%-0.27% of project costs in one study of multi-family and commercial projects.
- Increased access to charging access.

Municipalities that have implemented or are pursuing EV-ready policies: Boca Raton, Coral Gables, Hollywood, Miami-Dade County, Orlando, Orange County, St. Petersburg, Surfside, Winter Park.

DEVELOP EDUCATION AND OUTREACH PROGRAMS

- Host Ride and Drive events.
- Post information on the municipality's website about EVs and charging.
- Wrap municipal vehicles.
- Events in locations across the community.

For a comprehensive suite of policy actions that can be taken by local governments please visit: <https://www.decide.south.fl.gov/evtoolkit>. The EV toolkit is a catalog of local policies that can be enacted to facilitate the transition to electric vehicles in an effective, sustainable, and equitable way. These specific recommendations are based on effective EV policies from around the country with links to real-world examples.

For questions regarding the toolkit please contact Dory Larsen, EV Program Manager with the Southern Alliance for Clean Energy at 2022@scleanenergy.org.

<https://bit.ly/3EQtk4M>

HOW CAN LEAGUES GET INVOLVED? DELIVER THREE “ASKS” TO LOCAL PUBLIC OFFICIALS

Familiarize yourself with the benefits of electric transportation

Familiarize yourself the top 3 asks to local public officials

Work with SACE to prepare a customized approach to engage with your local public officials

HOW CAN LEAGUES GET INVOLVED? BENEFITS OF TRANSITIONING TO ELECTRIC FOR LOCAL GOVERNMENTS



Keep pace with technology

Achieve lower fuel and maintenance costs

Reduce emissions

Improve public health

Project positive community image

LOCAL GOVERNMENTS ARE KEY TO EV ADOPTION: POLICY TOOLKIT PROVIDES ROADMAP



<https://www.electrifythesouth.org/toolkit>

HOW CAN LEAGUES GET INVOLVED? DELIVER THREE “ASKS” TO LOCAL PUBLIC OFFICIALS

1. Establish Fleet Goals
2. Adopt Policies to Increase EV Infrastructure
3. Develop Education and Outreach Programs

HOW CAN LOCAL GOVERNMENTS INCREASE ADOPTION? SET FLEET GOALS



How Can Local Governments Increase Adoption? EV-READINESS POLICIES

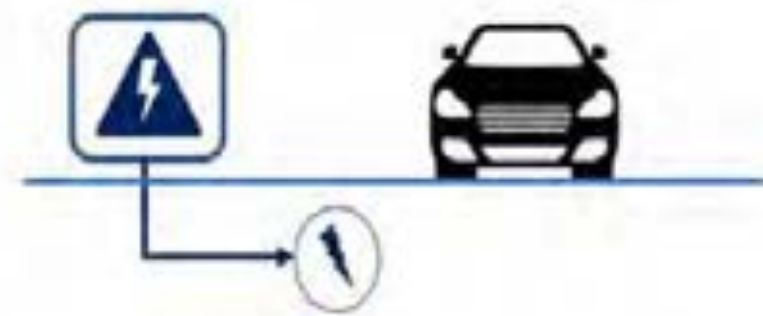


WHAT IS EV READINESS?

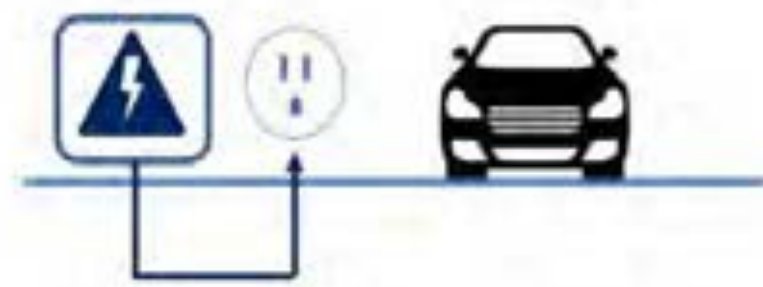
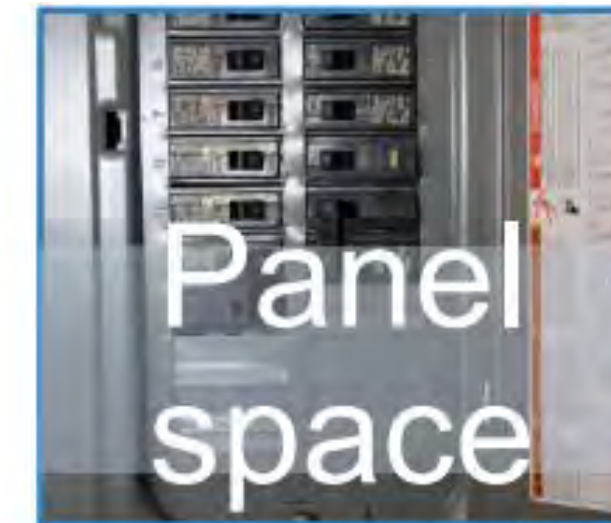
An EV-readiness policy requires a percentage of parking spaces built to include electrical infrastructure that enables future EV charging.



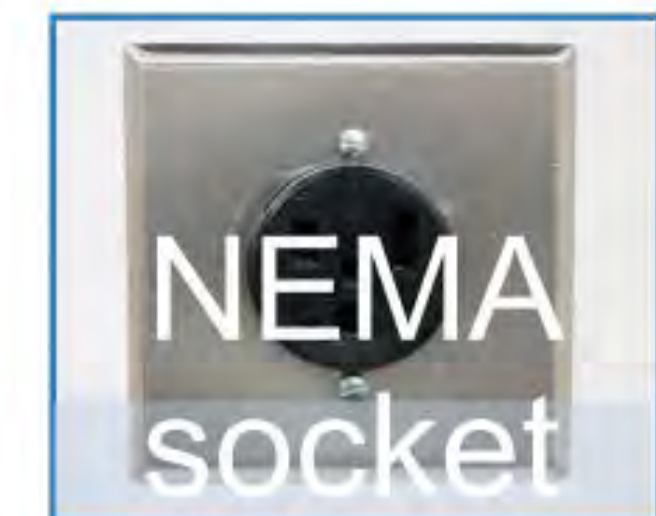
THREE TIERS OF EV READINESS



EV Capable Parking Spot: Electrical Panel Capacity & Conduit
Install electrical panel capacity and conduit (raceway) to accommodate the future buildout of EV charging with 208/240V, 40-amp circuits.



EV-Ready Parking Space: Install Full Circuit
Full circuit installations include 208/240V, 40-amp panel capacity, raceway, wiring, receptacle and overprotection devices similar to a dryer circuit.



EVSE (electric vehicle service equipment) Installed
Install a minimum number of Level 2 EV charging stations.



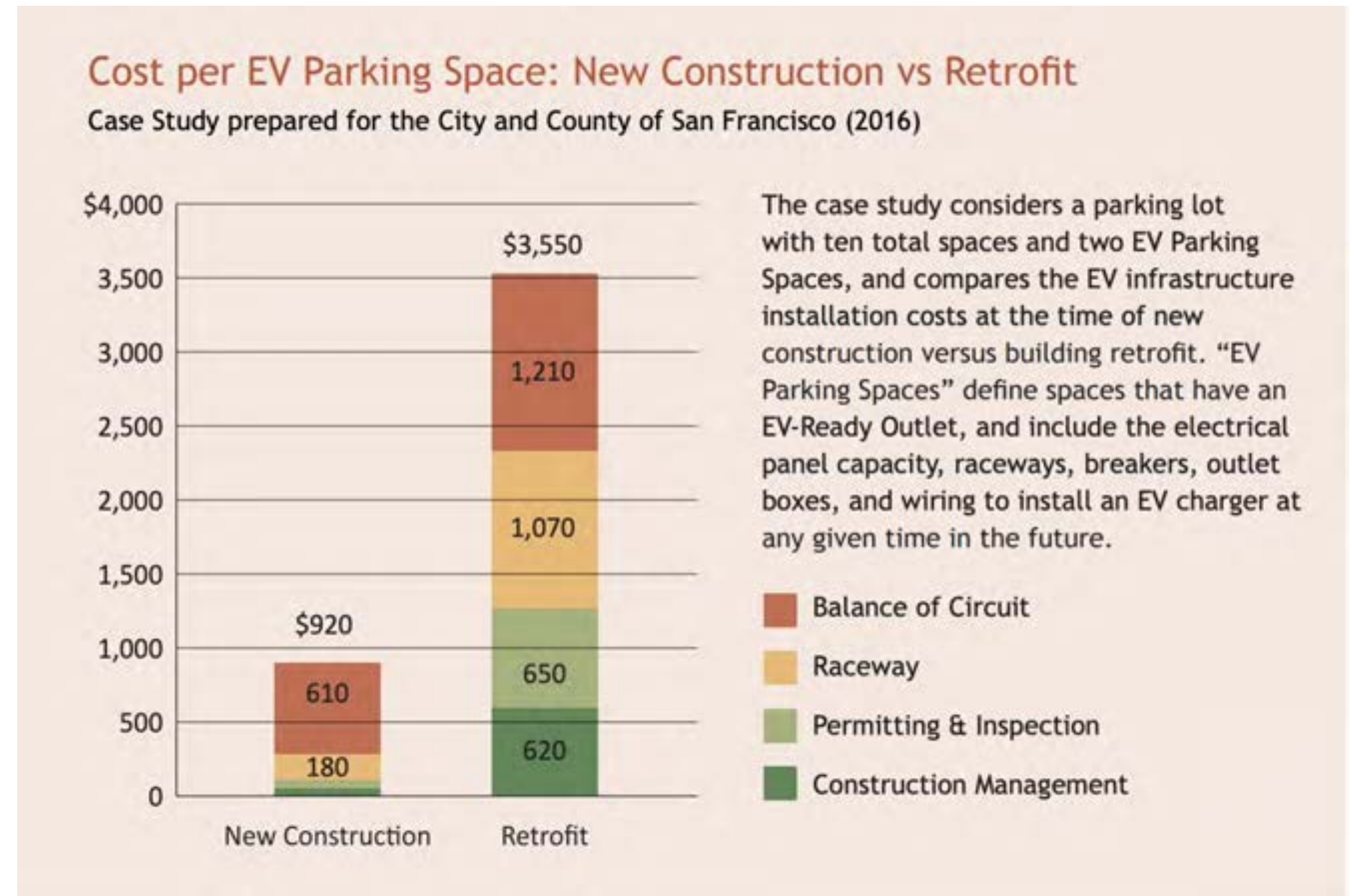
Source: SWEEP

Image: City of Orlando

WHY IMPLEMENT EV READINESS POLICIES?

COST SAVINGS

- EV-ready during construction are typically low
- Estimated 0.13%-0.17% of project costs
- Post-construction can be 4 times higher



Graphic: Southwest Energy Efficiency Program

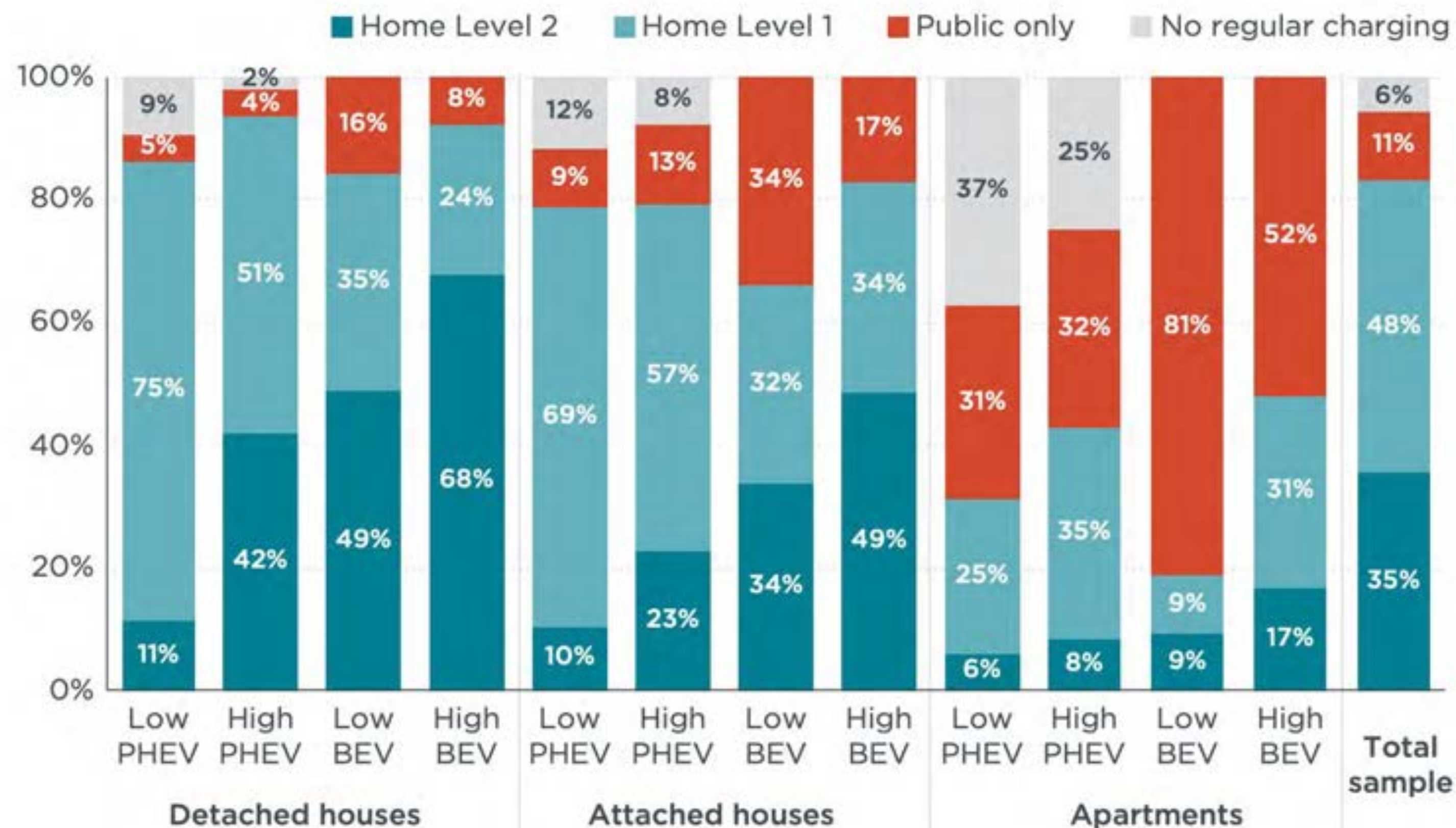
Source: Plug In Electric Vehicle Infrastructure

WHY EV READY IS SO IMPORTANT? ACCESS TO CHARGING

80% of charging happens at home.

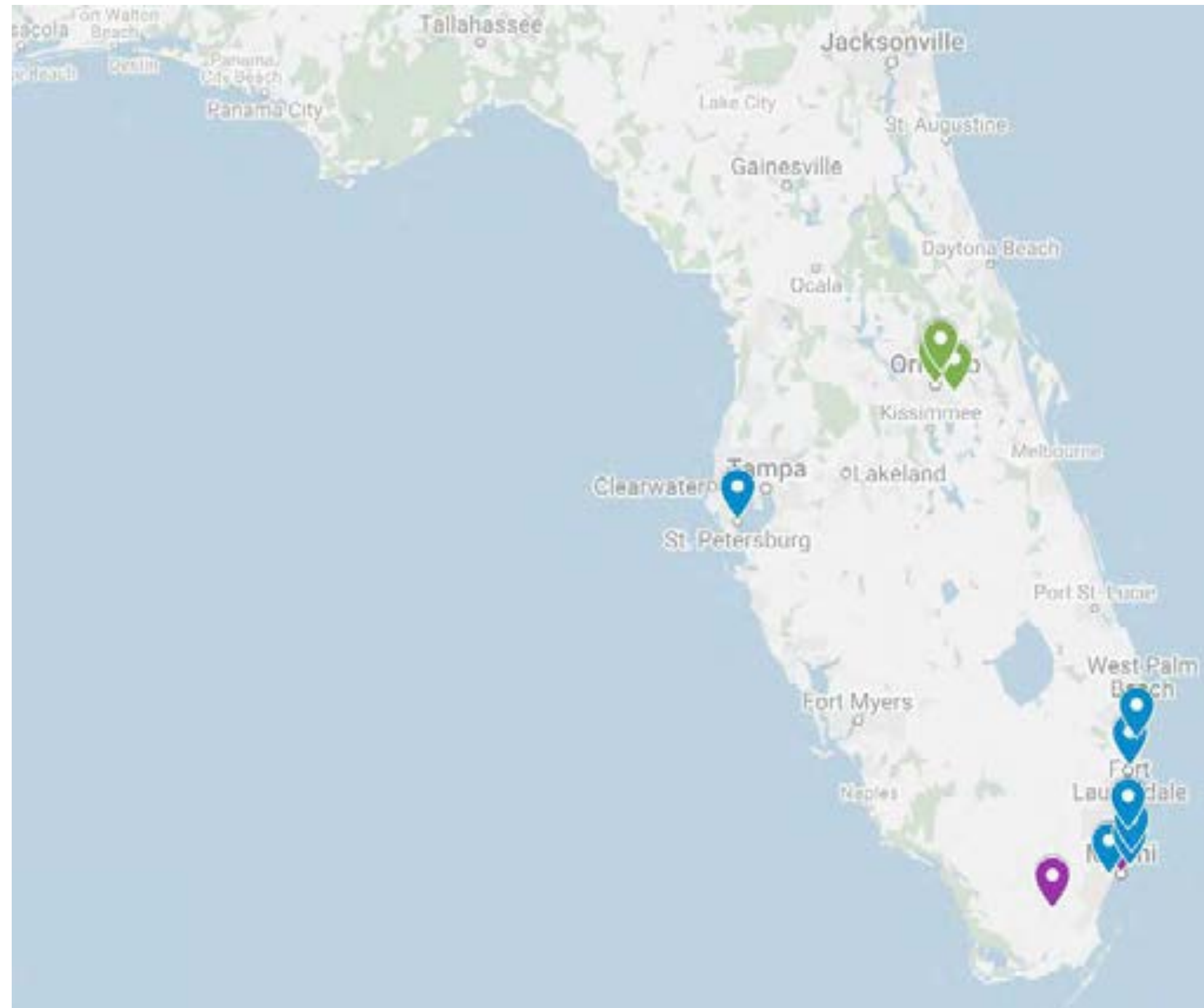
Low or no **access** to home charging is a well established barrier to EV adoption.

Increasing access to home charging addresses **energy justice**.



Source: ICCT Report

LOCAL GOVERNMENTS WITH EV READY POLICIES



EV ready

- [Miami-Dade County, FL](#)
- [Surfside, FL](#)

EV capable, ready and EVSE installed

- [Boca Raton, FL](#)
- [Boynton Beach, FL](#)
- [Coral Gables, FL](#)
- [Hollywood, FL](#)
- [Miami, FL](#)
- [Miami Beach, FL](#)
- [St Petersburg, FL](#)
- [Winter Park, FL](#)
- [Orlando, FL](#)

In consideration:

- Orange County

FLORIDA DEPARTMENT OF TRANSPORTATION



- **Develop minimum EV-ready parking requirements:**

Work with state and local government partners to establish minimum EV-ready parking requirements for planning future EVSE or requirements for installing EVSE based on different land uses or building types. This needs to acknowledge the crossover between EV charging spaces and ADA required spaces.

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/fto/fdotevmp.pdf?sfvrsn=2bf9e672_4

HOW CAN LOCAL GOVERNMENTS INCREASE ADOPTION? EDUCATION AND EVENTS

Anatomy of an Amazing EV Website:

[What the local government is doing to promote EVs](#)

[Education](#)

[Links to trusted partners](#)

[Link to Federal tax credits for vehicles](#)

[Link to Federal incentives](#)

[Link for Florida Incentives](#)

[Information for developers](#)

Drive Electric Chicago
Welcome to the City of Chicago's one stop shop for information on plug-in electric vehicles!

What are plug-in electric vehicles?
Plug-in electric vehicles (PEVs) are motor vehicles that are powered either entirely or partially by rechargeable batteries. These batteries are recharged when connected to the electric grid, meaning you can charge your car from the comfort of your own home! Depending on the charging station, a full charge can take anywhere from 18 hours to only 30 minutes. When fully charged, a PEV is more than capable of making the average Chicagoan's 22 mile daily commute.

How to install EV charging stations at home:

For single family homes (installations under 400 amps), a licensed electrician can file for the permit online through the Department of Buildings Easy Permit Process and get approved in just one day.

Installations at multi-unit dwellings may have additional considerations. For multi-unit building owners, managers, or tenants, the City has developed an easy-to-understand guide.

The City also has 2 page quick reference guides specifically for building managers and residents. Click the links below:

1. [Your property](#) (building manager)
2. [Your apartment or condo](#) (tenant)

How to prepare for charging electric medium- and heavy-duty vehicles:

Click on the image to download

Supporting Information Facts

Programs & Initiatives:
Environment and Sustainability

Additional Information

DRIVE ELECTRIC CHICAGO
Follow SustainChicago on Twitter

I Want To

- Apply For +
- Check Status Of +
- Find / Get +

Anatomy of an Amazing Ride and Drive or Presentation:

32

HOW CAN LOCAL
GOVERNMENTS
INCREASE ADOPTION?
EDUCATION AND
EVENTS



How “normal” it is

[Instant torque](#)

Smooth performance

Superior technology (show all the features)

Superior efficiency of an EV ([over 100 MGPe](#) vs [25 MPG](#))

[Lower cost to fuel](#)

[Lower maintenance costs](#)

[Total cost to own \(often lower\)](#)

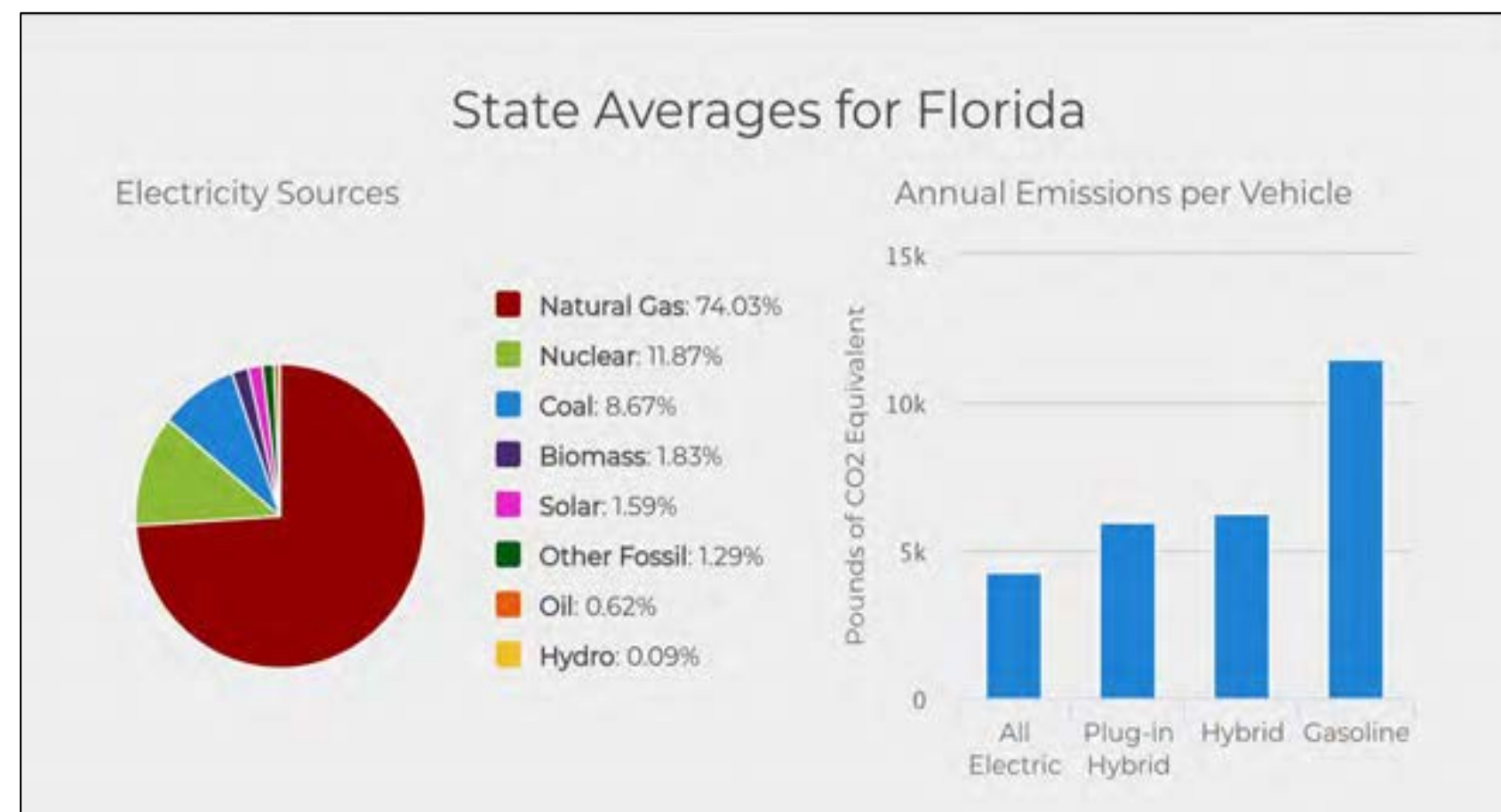
[Vehicle Cost Calculator](#)

[Range \(median 2021 = 234\)](#)

[MSRP range](#)

Buying a used EV

HOW CAN LOCAL GOVERNMENTS INCREASE ADOPTION? EDUCATION AND EVENTS



Anatomy of an Amazing Ride and Drive or Presentation:

Emissions reduction benefits/Zero tailpipe emissions

1. [Greenhouse gas emissions](#) reduction benefits (climate, environment)
2. [Criteria pollutant emissions](#) reduction benefits (public health, environment)

The lifetime emissions of [EVs are less than 50% traditional car, even when emissions from manufacturing are considered.](#)

HOW CAN LOCAL
GOVERNMENTS
INCREASE ADOPTION?
EDUCATION AND
EVENTS

How to Charge Demonstrations

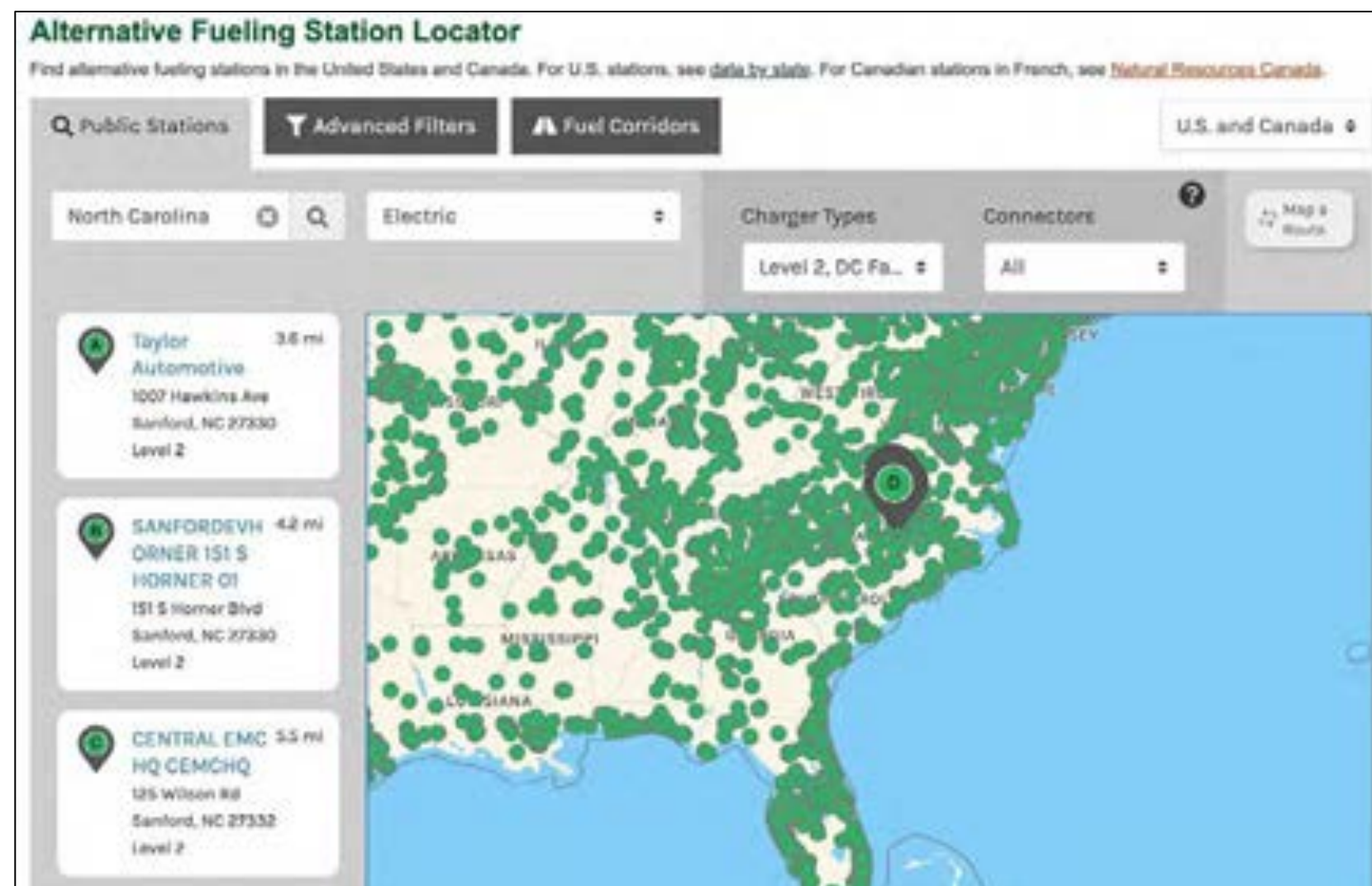
Level 1 Charging

Level 2 Charging (show locations-[Plugshare](#), [AFDC website](#))

Charging at a supercharger/EA site

How to install a 240 line for a home charger

Powering with renewables



CALL TO ACTION: How YOU CAN ENGAGE?

Schedule a one on one call with me.



NEXT STEP: CONTACT DORY

Dory Larsen

Email: dory@cleanenergy.org



QUESTIONS + STAY CONNECTED

ElectrifyTheSouth.org

Monthly newsletters, electric vehicle actions, EV blogs for new and established drivers, and more!

@ElectrifyTheSouth

