



**EESI**

Environmental and  
Energy Study Institute

**Materials will be available at:**

**[www.eesi.org/060222tech](http://www.eesi.org/060222tech)**

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**CONGRESSIONAL BRIEFING**  
**Building Out Electric Vehicle**  
**Charging Infrastructure**  
**Briefing Series: Scaling Up Innovation to**  
**Drive Down Emissions**

Thursday, June 02, 2022

# About EESI



## **Non-partisan Educational Resources for Policymakers**

A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan information on environmental, energy, and climate policies



## **Direct Assistance for Equitable and Inclusive Financing Program**

In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs



## **Commitment to Diversity, Equity, Inclusion, and Justice**

We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making



## **Sustainable Solutions**

*Our mission is to advance science-based solutions for climate change, energy, and environmental challenges* in order to achieve *our vision of a sustainable, resilient, and equitable world.*

# Polycymaker Education

## Briefings and Webcasts



Live, in-person and online public briefings, archived webcasts, and written summaries

## Climate Change Solutions



Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker

## Fact Sheets and Issue Briefs



Timely, objective coverage of environmental, clean energy, and climate change topics

## Social Media (@EESIOnline)



Active engagement on Twitter, Facebook, LinkedIn, and YouTube



## Upcoming Briefings & Series

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### **Living with Climate Change**

**Polar Vortex – April 13**

**Sea Level Rise – May 18**

**Wildfires – June 13**

**Extreme Heat - TBA**

### **Scaling Up Innovation to Drive Down Emissions**

**Green Hydrogen – April 27**

**Direct Air Capture – May 25**

**Electric Vehicle Charging – June 02**

**Offshore Wind Energy - TBA**

# Scaling Up Innovation to Drive Down Emissions: Building out EV Charging Infrastructure

June 2, 2022



Electrification  
Coalition

Katherine Stainken  
VP, Policy

# EV Adoption Programs Around the U.S.

The **Electrification Coalition** is a nonpartisan, not-for-profit group committed to promoting policies and actions that facilitate the deployment of electric vehicles on a mass scale.



## Technical Lead

Climate Mayors EV Purchasing Collaborative



## State EV Policy Accelerator

NV, MI, PA, VA, NC, GA, FL



## Electrification Advisor

Bloomberg American Cities Climate Challenge



## Lead Electrification Partner

Smart Columbus



## Project Lead

Drive Electric Northern Colorado  
Drive Electric Orlando



## Pilot Program Leader

Freight and Goods Delivery Electrification

# Investment in EV Infrastructure

## 1. Federal level: Bipartisan Infrastructure Law

\*Agency coordination

## 2. State and City Level Landscape

## 3. Utilities

*\*What's on the horizon?*



# Federal Level: Bipartisan Infrastructure Law

## Dedicated EV Funding:

1. \$5 billion for EVSE build-out along highways (NEVI)
2. \$2.5 billion competitive grants; 50% set aside for community grants with priority for rural and underserved communities
3. \$2.5 billion for electric school buses, \$2.5 billion zero emission and low emission buses



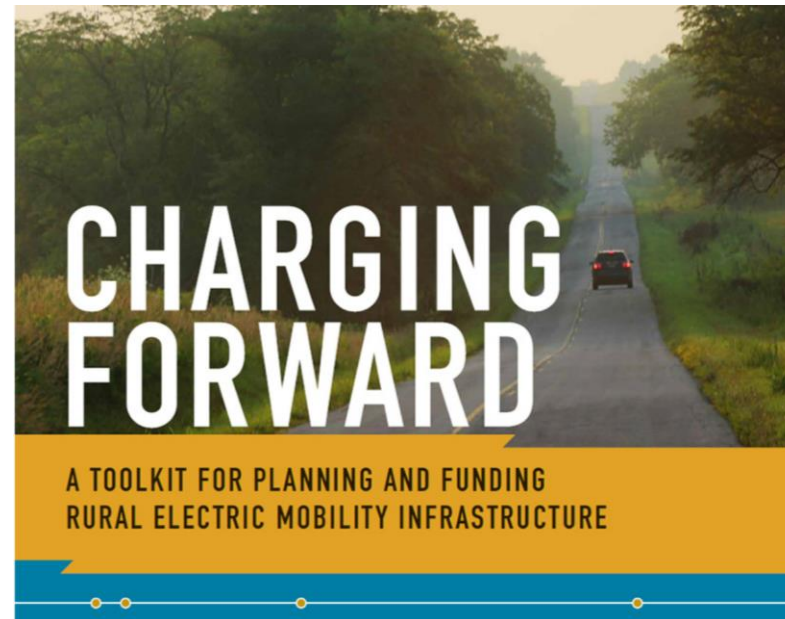
## Additional Programs:

- \*Section 11115: Congestion mitigation and air quality improvement program
- \*Section 11402: Reduction of Truck Emissions at Port Facilities
- \*Section 11403: Carbon Reduction Program
- \*Section 30018: Grants for Buses and Bus Facilities
- \*Section 40107: Deployment of Technologies to Enhance Grid Flexibility
- \*Section 40541: Grants for Energy Efficiency Improvements and Renewable Energy Improvements at Public School Facilities









# Federal Level: Agency Coordination

- New joint office DOE/DOT: [driveelectric.gov](http://driveelectric.gov)
  - \*technical assistance
- DOT Rural EV toolkit (p. 73-83 EVSE programs); EC Rural Guidebook
- EPA Clean School Bus: [epa.gov/cleanschoolbus](http://epa.gov/cleanschoolbus)
  - \*technical assistance
- Deployment principles:
  - Reliable
  - Effective
  - Equitable
  - High Quality
  - Connected
  - Affordable
  - 100%






































































**DOT Funding and Financing Programs with EV Eligibilities\***

**LEGEND**

						
Construction and installation of EV charging infrastructure including parking facilities and utilities.						
Workforce development and training related to EV infrastructure.						
EV acquisitions and engine conversions - cars or trucks.						
Planning for EV charging infrastructure and related projects.						
Construction and installation of EV charging infrastructure to support operational, resiliency, national energy security, environmental, and community goals for freight transportation.						
Installation of EV charging infrastructure as part of transit capital projects eligible under chapter 53 of title 49, United States Code.						

	FY 2021 AMOUNT						
<b>FORMULA PROGRAMS</b>							
National Highway Performance Program (NHPP)	\$23.1 B						
Surface Transportation Block Grant Program (STBG)	\$10.2 B						
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	\$2.4 B						
National Highway Freight Program (NHFP)	\$1.5 B						
State Planning and Research (SPR)	\$641.5 M						
Metropolitan Planning (PL)	\$357.9 M						
<b>DISCRETIONARY PROGRAMS</b>							
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly known as BUILD)	\$1.0 B						
Infrastructure for Rebuilding America (INFRA) Grant Program	\$889.0 M						
Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD)	\$53.3 M						
<b>OTHER ALLOCATED PROGRAMS</b>							
Federal Lands and Tribal Transportation Program (FLTTP)	\$1.0 B						
Highway Infrastructure Program (HIP) (other than for bridges)	\$644.0 M						
Puerto Rico Highway Program (PRHP)	\$74.9 M						
Territorial Highway Program (THP)	\$37.3 M						
<b>INNOVATIVE FINANCE PROGRAMS</b>							
State Infrastructure Banks (SIBs)	Varies						
Transportation Infrastructure Financing and Innovation Act (TIFIA)	Varies						

Disclaimer: Many of these programs are oversubscribed, and EV charging infrastructure competes with many other types of eligible projects. \* All eligibility determinations are fact specific. Limitations may apply. Additional low and zero-emission fuel types also may be eligible under these programs. Note: Total (in millions and billions, rounded to one decimal place)

# State and City Level Landscape

- Corridor programs
- Rebate programs
- Deployment goals
- VW Settlement funds
- EV-Ready Wiring, Codes, Ordinances
- Right-of-way charging programs
- Multi-unit dwellings
- Clean fuels standard
- *And more!*

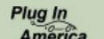
## AchiEVe:

Model Policies to Accelerate  
Electric Vehicle Adoption

Presented by the Sierra Club, Plug In America, FORTH,  
and the Electrification Coalition



Version 4.0, August 2020

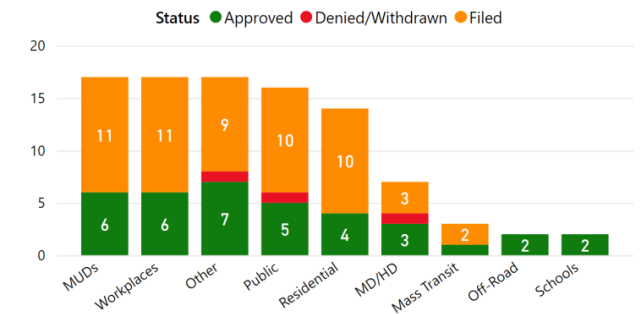


# Utilities

Figure 4: Electric Utility Filings by Status Between 2012 and June 2021

Approved	Pending/Filed	Denied/Withdrawn
32 States	22 States	21 States
111 Filings	56 Filings	38 Filings
51 Utilities	33 Utilities	26 Utilities
\$3,076,300,118 Investment	\$2,093,601,953 Investment	\$537,866,476 Investment
6,257 DC Fast Charging Stations	2,558 DC Fast Charging Stations	504 DC Fast Charging Stations
223,858 Level 2 Charging Stations	212,148 Level 2 Charging Stations	86,143 Level 2 Charging Stations

Figure 7: Filings by Status and Type During H1 2021



This figure shows the number of program elements<sup>9</sup> targeting each type of charging use, by status during H1 2021.

This chart summarizes approved, pending, and denied filings through June 2021.

Credit: Atlas Public Policy, Electric Utility Filing Bi-Annual Update

# What's on the horizon?

Look to the federal level to continue to have the right scale and scope:

- 30C Alt fuel refueling property tax credit
- Additional reconciliation policies for EVSE deployment
- Appropriations
- Guidance from DOT/DOE on standards
- Allow for EVSE at rest stops
- EVs for All Act – grant program for EVSE at public housing (H.R. 6662)
- EVs in Underserved Communities Act (H.R. 1221 / S.507)
- Allow REAP funding to be used for installing EVSE on American farms (H.R. 6390)
- Renewable Fuel Standard policy– credit for generating electricity



# Thank you!

**Katherine Stainken**

**VP, Policy**

[kstainken@electrificationcoalition.org](mailto:kstainken@electrificationcoalition.org)

[ElectrificationCoalition.org](http://ElectrificationCoalition.org)



**Electrification  
Coalition**

1111 19TH STREET NW  
SUITE 406  
WASHINGTON, DC 20036

TEL: 202-461-2360  
FAX: 202-318-8934  
[ELECTRIFICATIONCOALITION.ORG](http://ELECTRIFICATIONCOALITION.ORG)



# EV Charging Industry Overview



**SemaConnect**

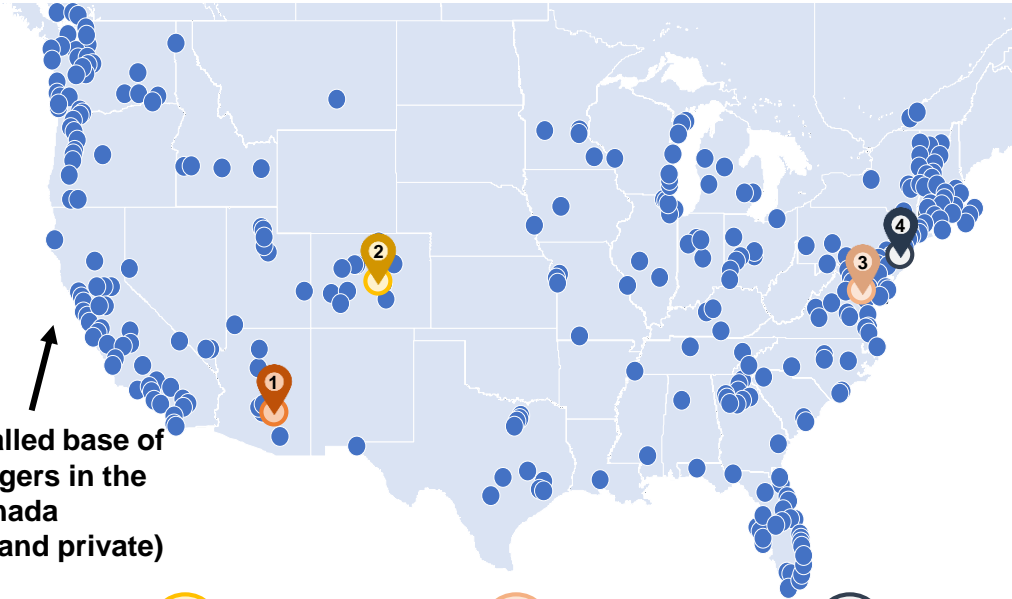
**Joe Inglis**  
Vice President, Business Development  
SemaConnect

# SemaConnect Overview: Leading Provider of EV Charging Solutions in North America

Our proven technology, integrated solutions, and intimate blue-chip customer relationships have created a strong foundation to provide the charging solutions required for the expected rapid EV adoption and charging industry growth.

<b>Proven Technology</b>	<ul style="list-style-type: none"> <li>Comprehensive smart hardware and software solutions</li> <li>Large portfolio of intellectual property with successful defense of patents</li> </ul>
<b>Vertically-Integrated</b>	<ul style="list-style-type: none"> <li>End-to-end solution provider</li> <li>Final product assembly at our company headquarters in Bowie, Maryland</li> </ul>
<b>Robust Customer and User Base</b>	<ul style="list-style-type: none"> <li>1,550+ marquee accounts across key end markets</li> <li>Managed over five million charging sessions to date and counting</li> </ul>
<b>Project Management</b>	<ul style="list-style-type: none"> <li>Completed most demanding multi-family and workplace program in industry (Electrify America)</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>Strong partnerships with leading commercial real estate firms, network providers, fleet management companies, and owner/operator customers</li> </ul>

## Top-2 Market Share in the U.S.



Current installed base of 16,000+ chargers in the USA and Canada (both public and private)

1



**CBRE**  
Phoenix, AZ

2



**JLL**  
Denver, CO

3



**bxp** Boston Properties  
Reston, VA

4



**WYNDHAM**  
WORLDWIDE  
Parsippany, NJ

# EV Charging Levels



	Power	MPH	Availability	Application
<b>Level I L1</b>	120 V, 12 amps	4 mph.	All EVs	Occasional Use
<b>Level II L2</b>	240 V, 48 amps	45 mph	All EVs	Everyday
<b>DC Fast Charging DCFC</b>	480 V, 100+ amps	15-60 min	Select EVs	Road Trips



# Cost and Societal Shifts are Fueling Adoption of EVs

EV adoption is expected to reach an inflection point in the coming years driven by rapidly declining battery costs, lower total cost of ownership, friendly regulatory environment, corporate action and shifts in consumer preference

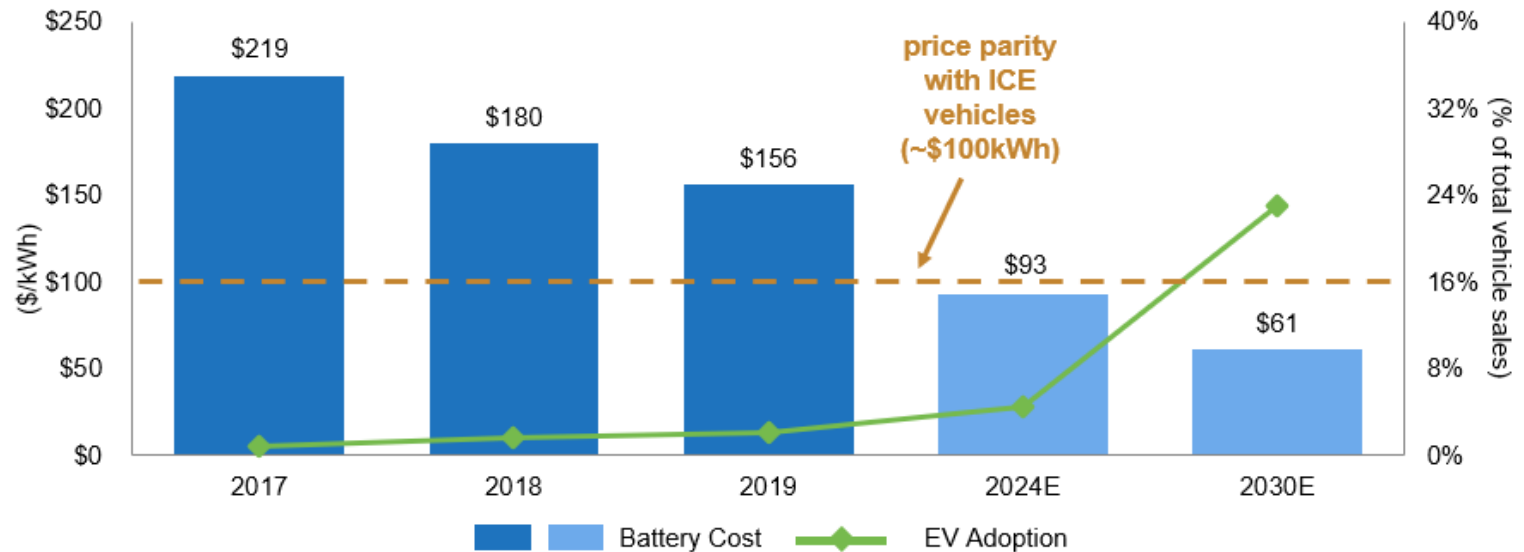
- Battery costs are expected to decline due to increased scale and new designs coming to market
- Automotive OEMs released 143 new electric vehicles in 2019. Automakers are expected to launch 450 additional models by 2022
- OEMs are furthering electrification through pledges and R&D investment such as GM's pledge to end gasoline powered vehicle sales by 2035 along with \$27bn in capital investment

Sources: BloombergNEF, Consumer Reports, McKinsey

Note:

1 Denotes lithium-ion battery pack cost; data has been adjusted to be in real 2019 dollars

Lithium-ion Battery Costs (\$/kWh)<sup>1</sup> vs EV Adoption (% of total vehicle sales)



Key Drivers of EV Adoption





# Change in Vehicle “Fueling” Paradigm

EV charging stations are a **NECESSITY** wherever vehicles are parked for a significant duration of time.



# Shift to Electric Vehicles is Altering the Fueling Paradigm

- ~90% of all household vehicle trips in the U.S. cover less than 100 miles
- Cars are not in use 90% of the time
- L2 chargers requires much lower up front costs vs DCFC
- No grid upgrades required for L2
- No routine maintenance required for L2
- L2 significantly less to purchase vs DCFC
- L2 is well suited for fleets who can benefit from over night charging
  - 220kWh school bus can be charged in under 12 hours
  - 68kWh Ford E Transit Van can be charged in under 4 hours

# Industry Game Changers & Policy Issues

- **Support EV charging in building codes for new construction:**
  - “Make-ready” charging to accelerate EV adoption is more cost-effective.
  - States are shifting to kilowatt hour pricing from time/duration pricing.
- **Federal and state EV incentives are essential:**
  - Renew and expand EV tax credits for consumers to support EV adoption
    - Federal tax credit expired in December 2021.
  - Strengthen incentives/rebates for EV charging infrastructure
    - Maryland is a leader among the states with its 40% rebate & EVSE grant programs.
- **Equitable access is vital for transportation electrification:**
  - Increase the availability of EV charging in rural and underserved areas
  - Offer reasonable rates for charging in low-income communities

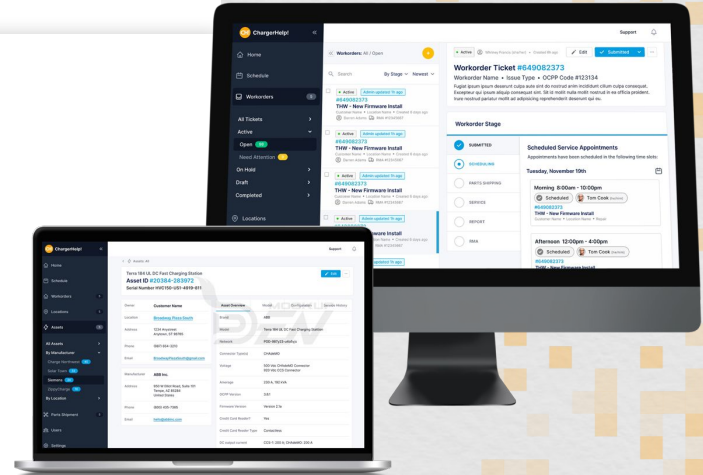
Thank You



**SemaConnect**



# Technology solutions for EV charging maintenance & workforce enablement



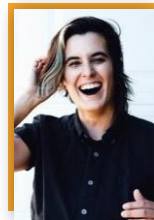


# Team



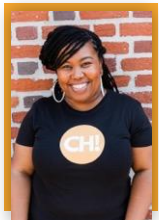
**Kameale C. Terry**  
Co Founder & CEO

- Director of Programs and Head of Customer Experience at EVConnect
- Extensive relationships with EVSE Networks
- Small Business Banking



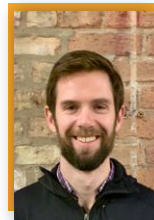
**Jaime Duyck**  
Chief Revenue Officer

- 7+ Years in EV Industry
- 4 Years as Director of Sales at EV Connect
- \$12M+ in EVSE deployments since 2015
- 15 + years of sales experience



**Evette Ellis**  
Co Founder & Chief Workforce Officer

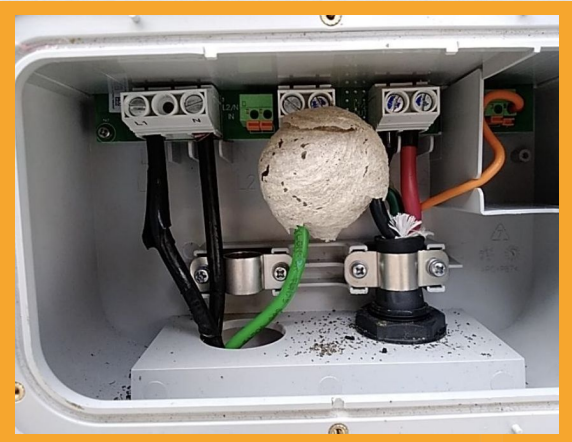
- Workforce Development / Outreach at Job Corps - Long Beach
- Technician recruiting and development



**Walter Thorn**  
Head of Product

- Product development leader and startup advisor at Prota Ventures
- 5 years tech and auto strategy at McKinsey
- R&D at Honda Motors

Car OEMs  
**\$500B+**  
investment in  
EVs that rely on  
the current EV  
Charging  
Infrastructure.



These stations are online & listed  
as Available



# The right workforce for the problem.

- **EVSE Technician received U.S. DOL recognition under 49-2095.00 - Electrical and Electronics Repairers, Powerhouse, Substation, and Relay**
- **Information Technology technicians with all relevant safety certifications.**
- **Larger pipeline to workforce and an easier transition to work.**



# Equitable jobs for all people.

## Local Diverse Workforce

Scalable affordable on demand repair services offered anywhere.

## Equitable wages

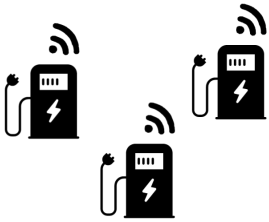
High quality workforce improves customer service levels. Minimum \$30/hr.

## Certified EVSE Maintenance Technicians

Nationally recognized. U.S. Department of Labor O-Net Code Approval.



# A workforce for jobs of the future powered by partnership.



## We **secure** the **work**.

We secure service contracts with Open Charge Point Protocol (OCCP) network providers to receive service tickets in real time.



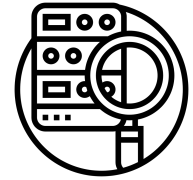
## We **train** and **hire** local talent.

We partner with local workforce development centers where those stations are located.



## We offer a **stackable certification**.

We provide access to our EVSE maintenance training program as a stackable certification.



## We **utilize technology** to keep our technicians up to date.

The ChargerHelp! app and platform ensures that technicians can easily troubleshoot any network or EVSE manufacturer.

# Our EVSE technician pipeline **improves equity and is highly scalable**

## Creating a pool of diverse, qualified applicants...

### Foundational training - private

- Intensive 3 week in-person training for foundation EVSE technician skills
- Training program sold to private organizations looking to build a EVSE technician pipeline for their company / product
- Currently working with LACI, BlocPower, and Southern Company (~\$15k per course)

### Community colleges - public

- Open enrollment online resource available to community colleges
- 6 month training program resulting in EVSE Technician certification
- Engaged 36 community colleges to date, targeting ~60 total for national coverage
- \$5k - \$10k per Community College

## ...results in a scalable, high quality recruiting process

For 20 EVSE technician positions,

**1,600** applicants

Technician hired identified as:

**60%** BIPOC

**15%** female or non-binary

**35%** veteran

ChargerHelp! is leading the industry to reliable EV charging infrastructure.

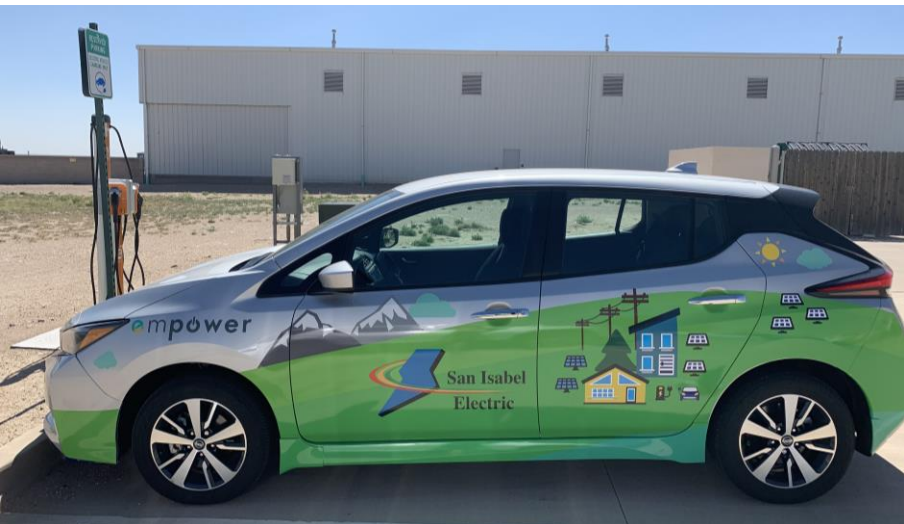
Good business,  
good service &  
good people.

Evette Ellis  
Co Founder & Chief Workforce Officer  
[evette@chargerhelp.com](mailto:evette@chargerhelp.com)



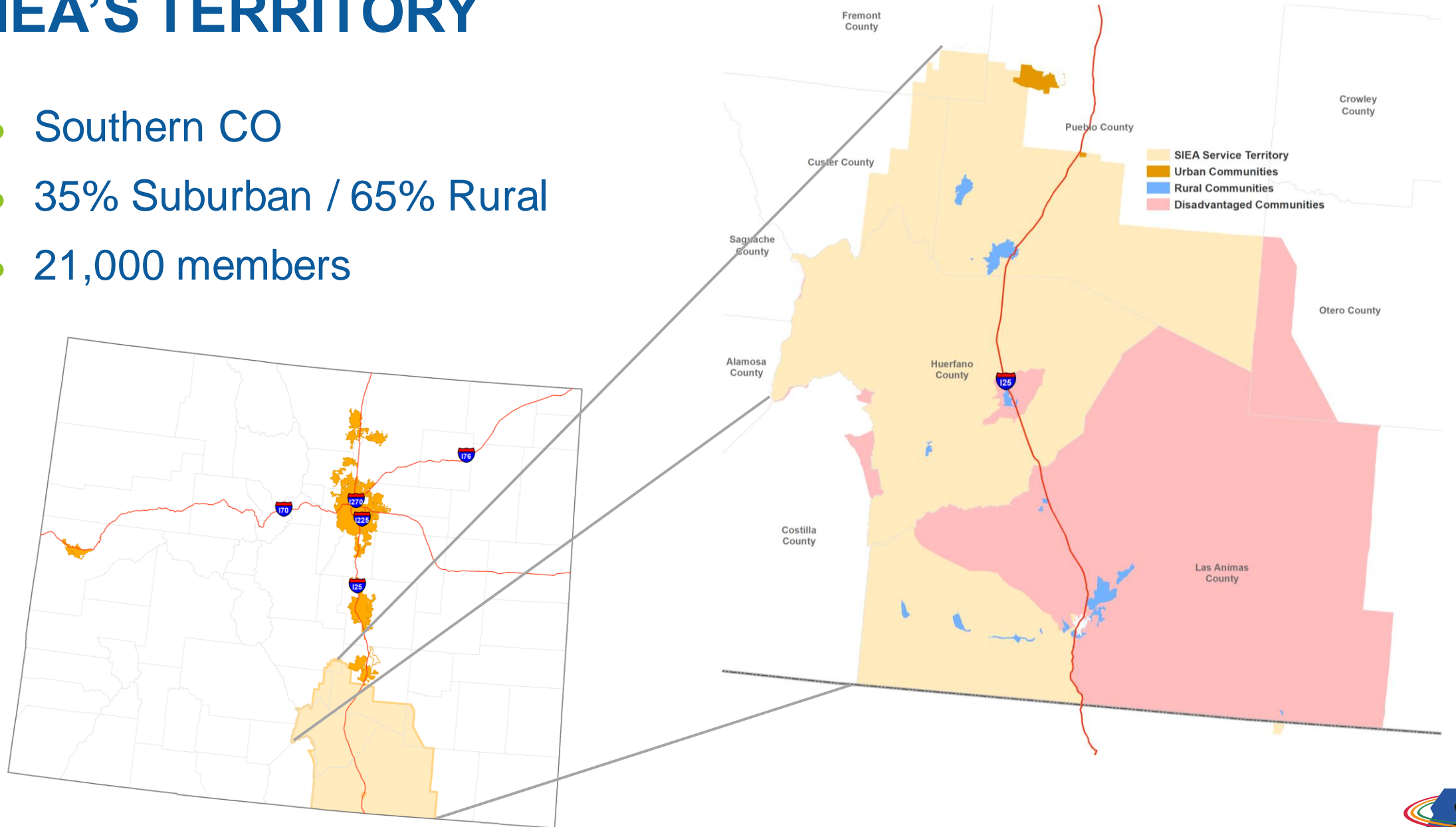


# RURAL ELECTRIC COOPERATIVES & EV INFRASTRUCTURE



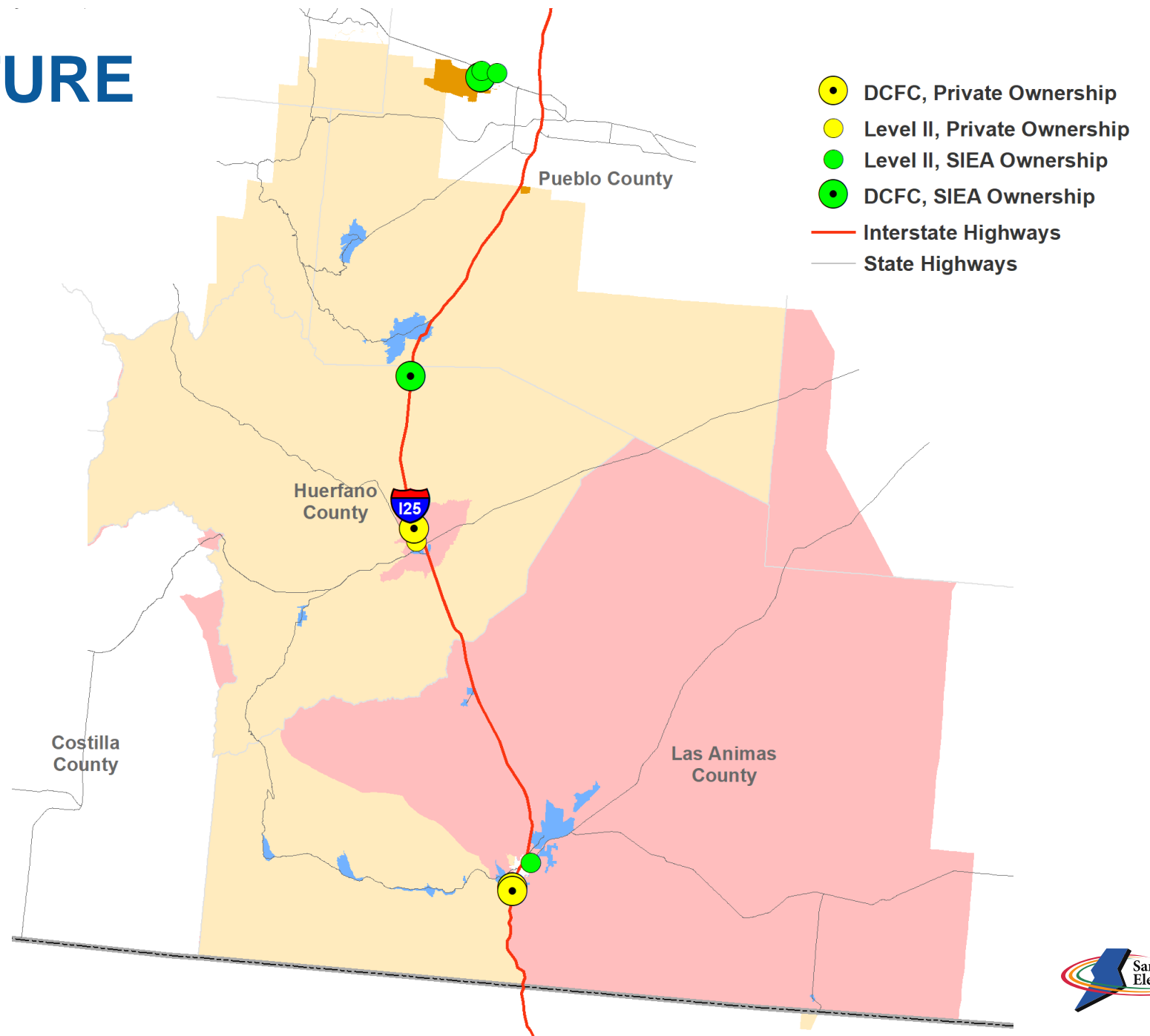
# SIEA'S TERRITORY

- Southern CO
- 35% Suburban / 65% Rural
- 21,000 members



# EV INFRASTRUCTURE

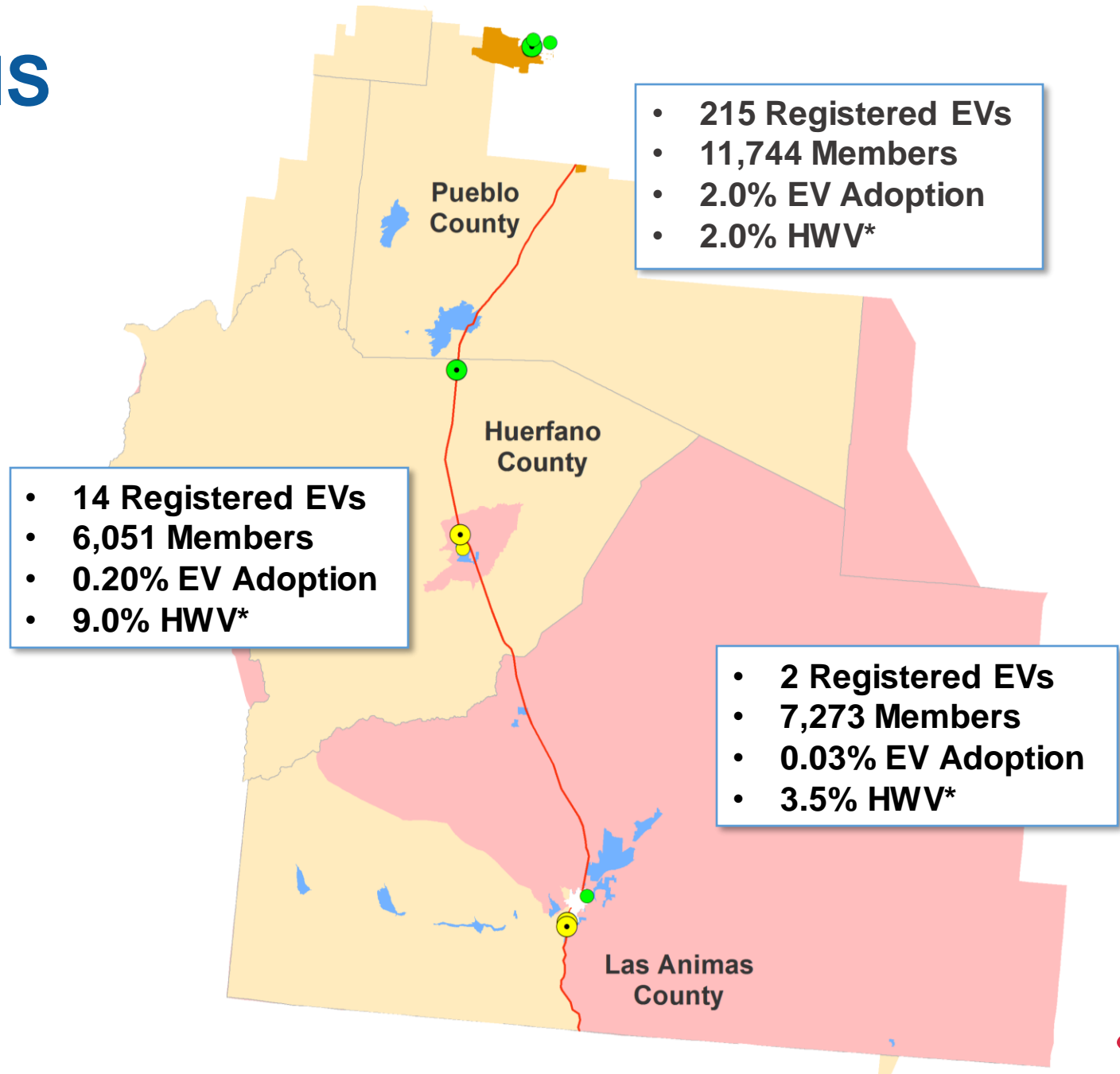
- 4 privately owned
  - 3 DCFC
  - 1 Level II
- 7 SIEA-owned
  - 2 DCFC
  - 5 Level II
- Future
  - State Parks
  - Scenic Highways
  - Local government
  - Transit agencies





# EV REGISTRATIONS

- Low adoption in rural areas
  - 1% territory-wide
- Growth potential of
- High AADT along interstate and some state highways



\*Households Without Vehicle

# EV INFRASTRUCTURE FUNDING

- State grants
- G&T grants
- Community partnerships



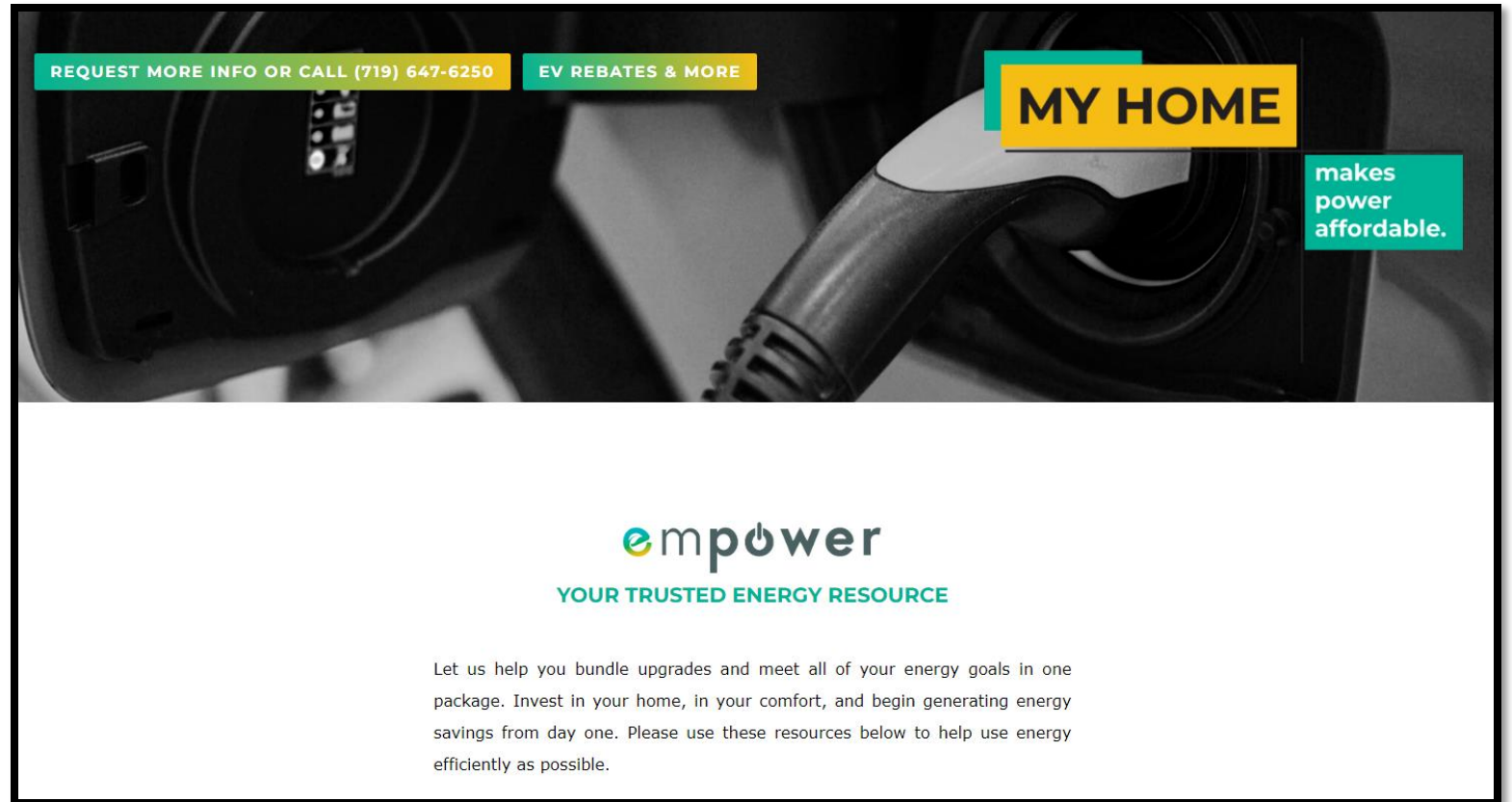
# RESIDENTIAL CHARGING



- Free with EV ownership and TOU
- Co-op payback of ~2 years
- RESP on-bill financing

# RESIDENTIAL CHARGING

- Empower as one-stop shop
  - Assessment
  - Project Management
  - Financing
- EV charging and solar as EE gateway
- \$3.8 million in affordable on-bill financing



REQUEST MORE INFO OR CALL (719) 647-6250

EV REBATES & MORE

**MY HOME**

makes power affordable.

**empower**  
YOUR TRUSTED ENERGY RESOURCE

Let us help you bundle upgrades and meet all of your energy goals in one package. Invest in your home, in your comfort, and begin generating energy savings from day one. Please use these resources below to help use energy efficiently as possible.

# REC OPPORTUNITIES



- Load growth
- Load management
- Economic development
- Member engagement

# REC CONSIDERATIONS

- Affordable connection & grid capacity
- Peak contribution
- Payback
- “Charging deserts”
- Coordination
- Equity
- Maintenance
- Software subscriptions





Laura Getts  
Business Development Manager  
San Isabel Electric Association  
[Laura.Getts@siea.com](mailto:Laura.Getts@siea.com)



# What did you think of the briefing?

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***Materials will be available at:***  
[www.eesi.org/060222tech](http://www.eesi.org/060222tech)

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