



Alternative Fuels in South Carolina

Tri-Association Conference

March 11, 2024

ENERGY



OFFICE

Our Structure



U.S. DEPARTMENT OF
ENERGY



U. S. Department of Energy

ENERGY OFFICE



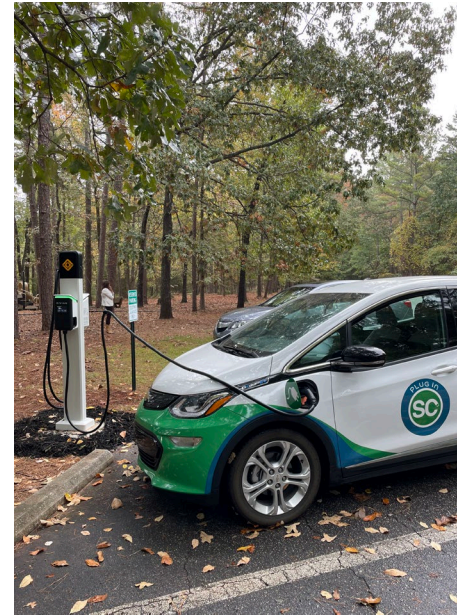
USDOE - Clean Cities Coalitions

National network of local coalitions



Palmetto Clean Fuels

- Initiative of the SC Office of Regulatory Staff – Energy Office
- Funded by the US Department of Energy’s Vehicle Technologies Office
- US DOE-recognized Clean Cities Coalition for SC since 2004
 - Redesignated in May 2021
- Goal to promote alternative fuels and infrastructure. PCF is fuel agnostic
- Cumulative impact since 2009:
 - ~51M GGEs reduced



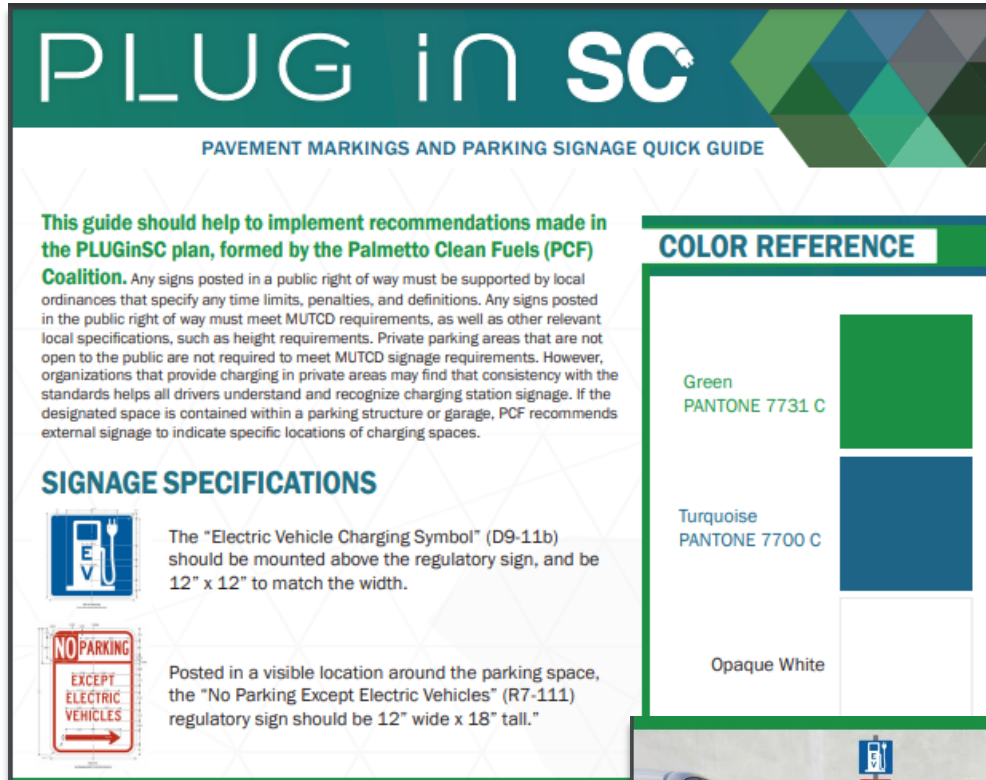
afdc.energy.gov

Alternative Fuels Corridors (AFC)

- USDOT designation in 2016 via FHWA
 - National Network see AFCs by state: [FHWA National AFCs](#)
- Part of the Fixing America's Surface Transportation (FAST) Act
- Signage indicates routes in the national network that support alternative fueling infrastructure
- South Carolina AFCs are the major interstate highways
 - See SC Energy Office website for more details:
[SC Energy Office Alternative Fuel Corridor](#)
- Corridors are designated: "Ready or Pending"




Education and Outreach – PLUGinSC program




PLUG in SC
PAVEMENT MARKINGS AND PARKING SIGNAGE QUICK GUIDE

This guide should help to implement recommendations made in the PLUGinSC plan, formed by the Palmetto Clean Fuels (PCF) Coalition. Any signs posted in a public right of way must be supported by local ordinances that specify any time limits, penalties, and definitions. Any signs posted in the public right of way must meet MUTCD requirements, as well as other relevant local specifications, such as height requirements. Private parking areas that are not open to the public are not required to meet MUTCD signage requirements. However, organizations that provide charging in private areas may find that consistency with the standards helps all drivers understand and recognize charging station signage. If the designated space is contained within a parking structure or garage, PCF recommends external signage to indicate specific locations of charging spaces.

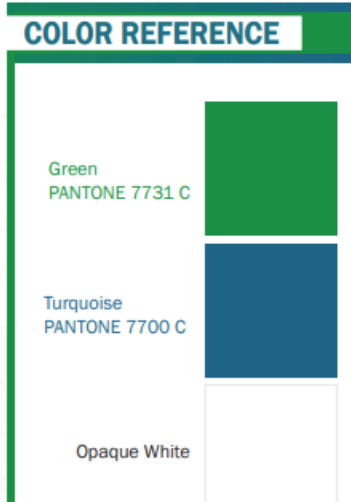
SIGNAGE SPECIFICATIONS

 The "Electric Vehicle Charging Symbol" (D9-11b) should be mounted above the regulatory sign, and be 12" x 12" to match the width.

 Posted in a visible location around the parking space, the "No Parking Except Electric Vehicles" (R7-111) regulatory sign should be 12" wide x 18" tall.

Branding and Consistent Statewide Signage

Help drivers identify places to charge



COLOR REFERENCE

Green
PANTONE 7731 C

Turquoise
PANTONE 7700 C

Opaque White

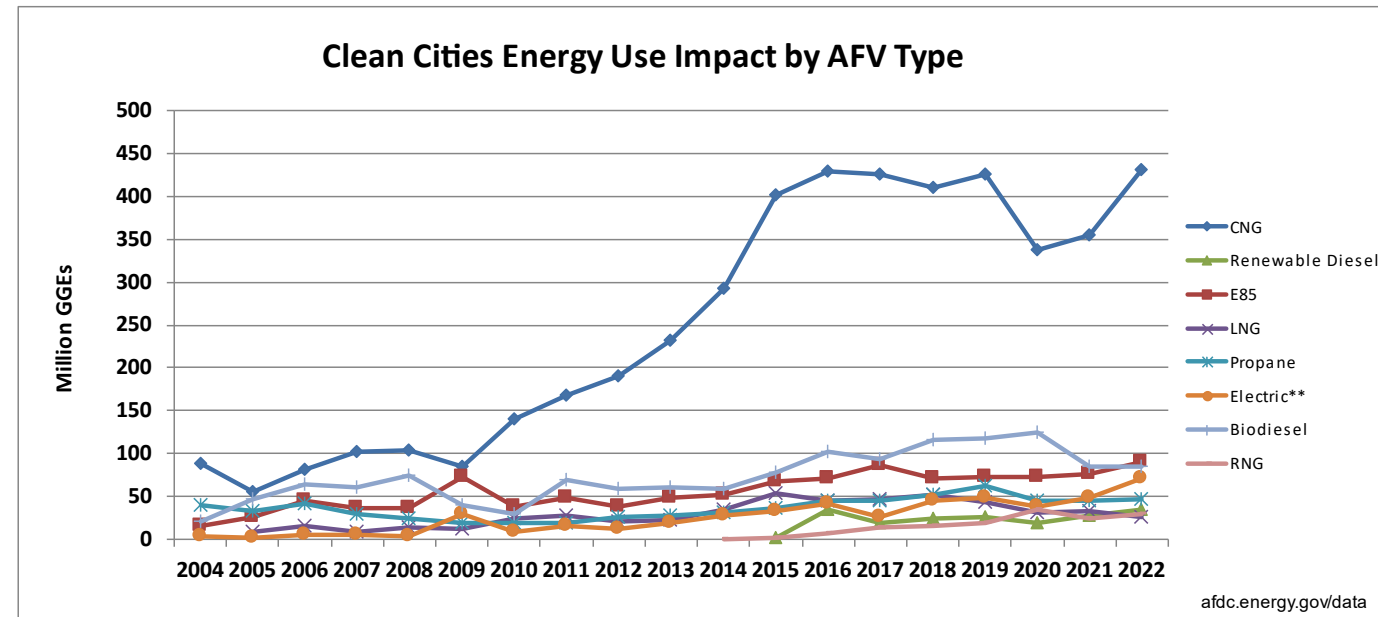


Alternative Fuels

Alternative Fuels

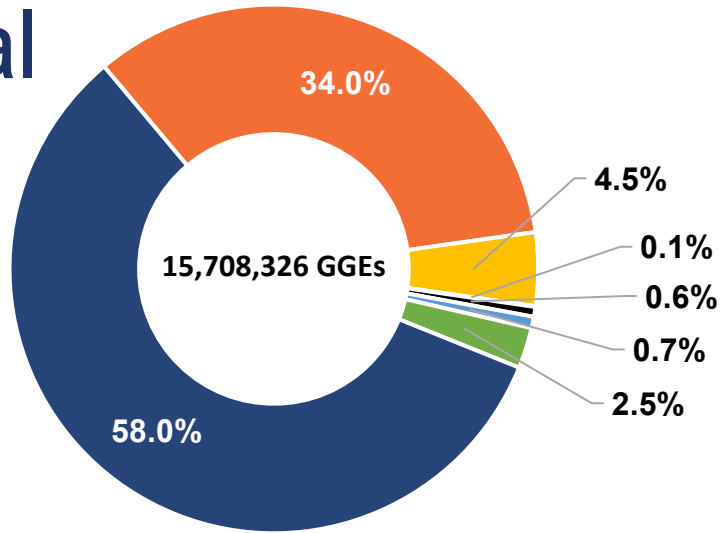


- Federal Funding for clean transportation and alternative fueling infrastructure
- No SC state funding
- Electric vehicles are in the spotlight
- SE did not receive Hydrogen Hub funding
- Increasing outreach and training



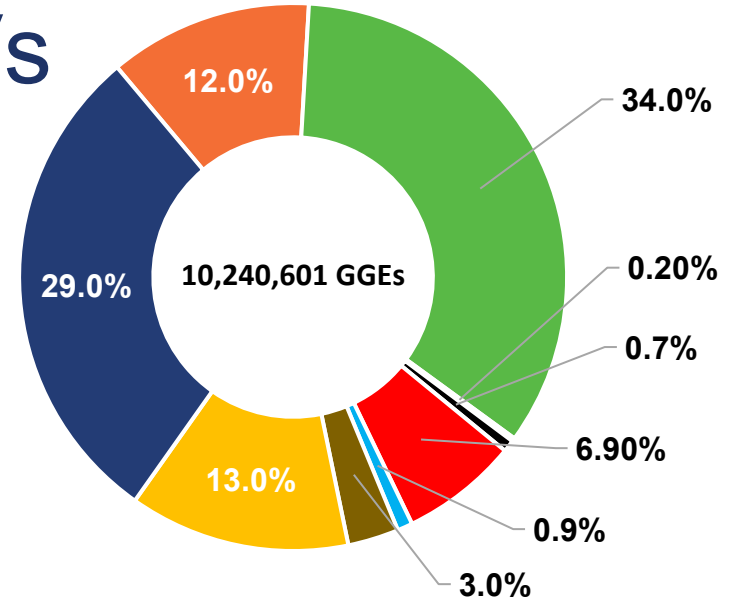
2022 GGEs Reduced in SC

Total



- Vehicle Miles Traveled Reductions
- Off-Road Vehicles
- Idle Reduction
- Hybrid Vehicles
- Fuel Economy Improvements
- Electric & Plug-In Vehicles
- Alternative Fuel Vehicles

By AFVs



- Propane
- Plug-In Hybrid
- Hydrogen
- Electric
- Biodiesel
- Mixed EVs and PHEVs
- Hybrid (conventional)
- E85

Total: 15,708,326 Gallons of Gasoline Equivalent

Natural Gas

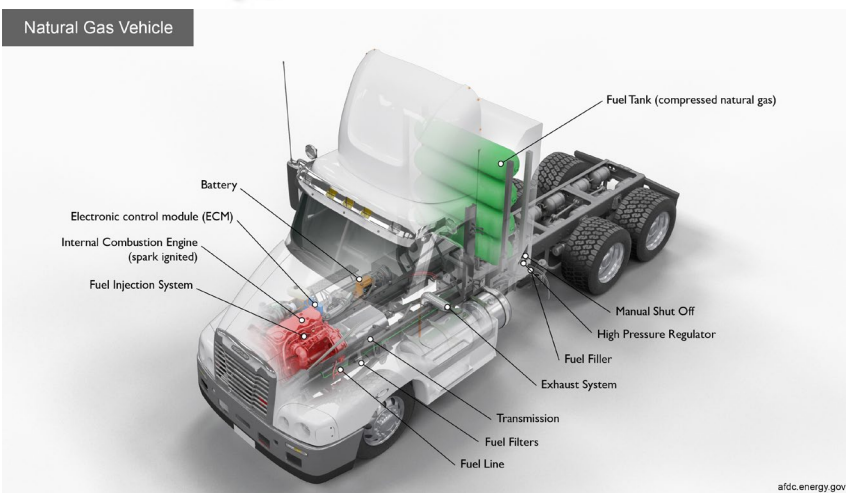


Clean-burning, domestically-produced alternative fuel that must be compressed (CNG) or liquefied (LNG) for use in vehicles

- Produced via conventional and renewable (RNG) methods

South Carolina

- 8 public filling stations (7 CNG, 1 LNG)
- First commercial RNG project began operation in March 2023



Stakeholder : **Natural Gas Vehicles for America**

RNG made up 69% of fuel used in natural gas vehicles in 2022

NGVAMERICA
Natural Gas Vehicles for America

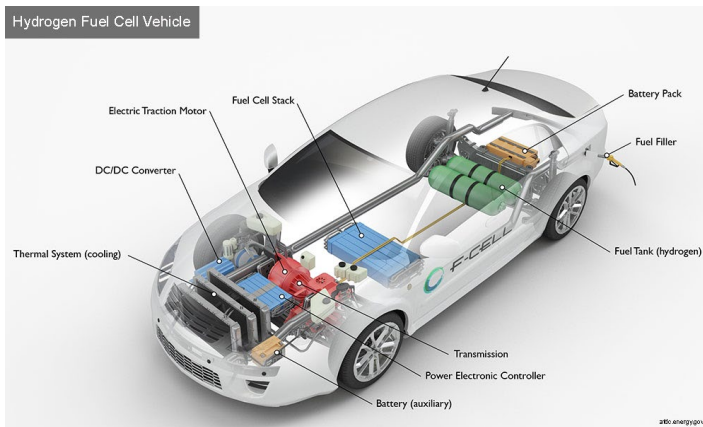
Hydrogen



Clean and efficient energy source from diverse domestic resources

Hydrogen (H₂) used in fuel cell technology for electricity generation

South Carolina – 0 filling stations, 0 vehicles



Stakeholder: **SE Hydrogen Energy Alliance (SHEA)**

Developing a H₂ ecosystem

Focused on creating a SE H₂ Energy Economy.

New launch in April 2024

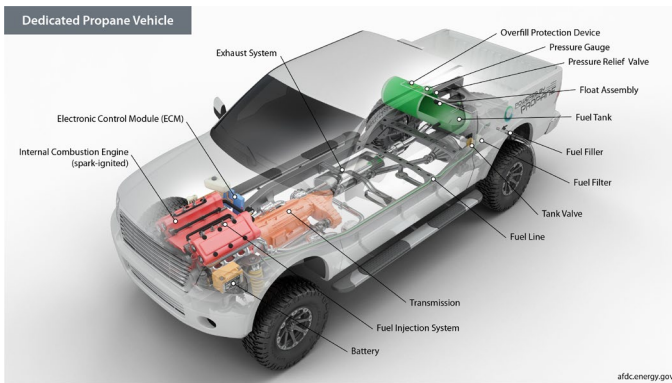
Propane



Light, Medium, and Heavy-Duty fleets and industrial applications

Domestically produced, well-established fuel

South Carolina - 34 public filling stations



Stakeholder: Alliance Auto Gas – Blossman Gas (2009)

Partnership with Rousch Dedicated systems

Local Blossman Gas public station located in North Myrtle Beach

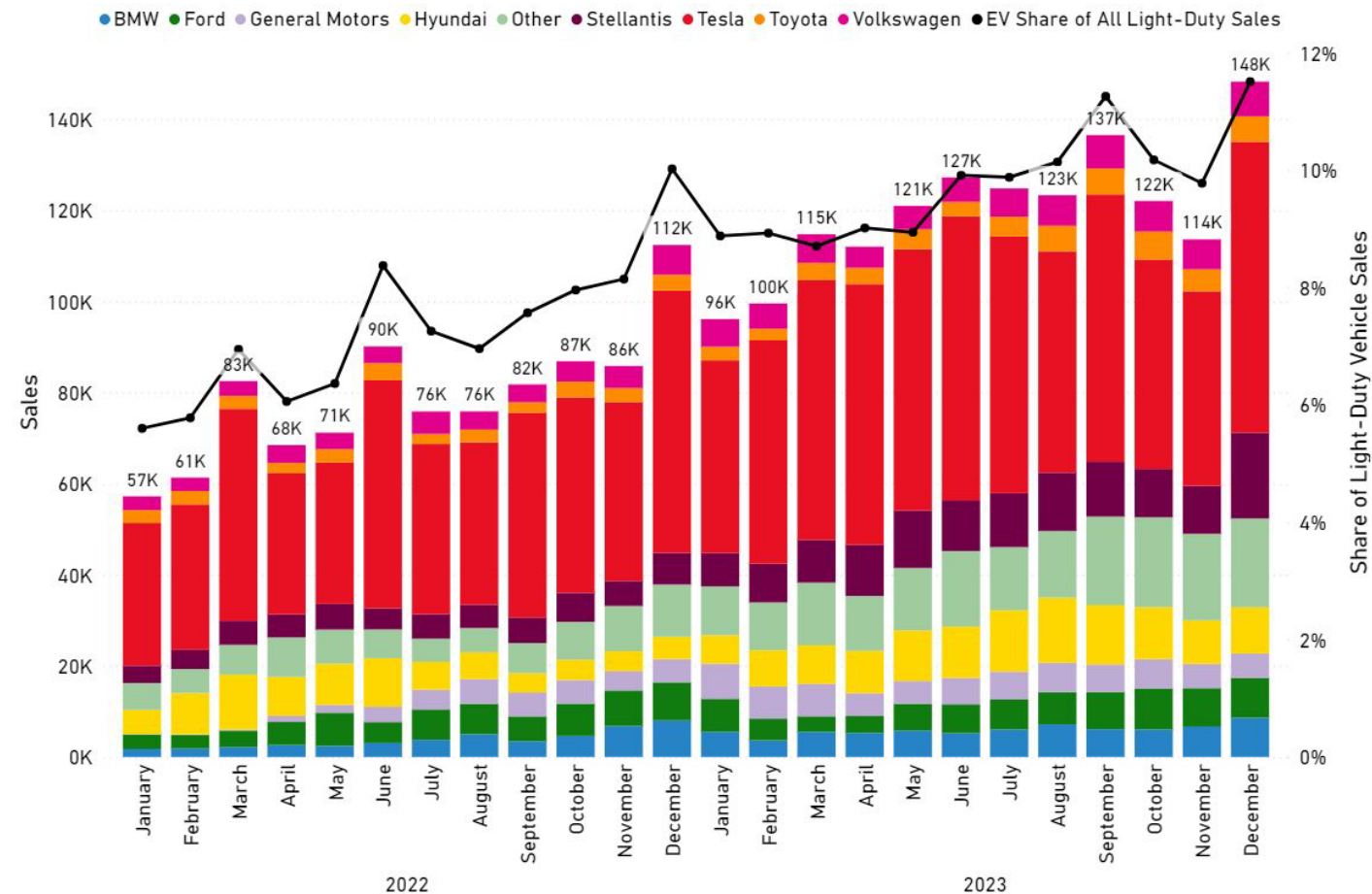
Electricity - US



- EVs represent **12% market share** of Light Duty vehicle market
- **Tesla** continues to be industry leader
- PHEVs (Plug-in Hybrid) gaining popularity
- Electric batteries are the ‘bottleneck’
- Drivers suffer **Range Anxiety** looking for charging stations

Nearly 12% EV Sales Market Share in December 2023, a New Peak

U.S. New Light-Duty BEV and PHEV Sales and Share of Light-Duty Sales from January 2022 to December 2023



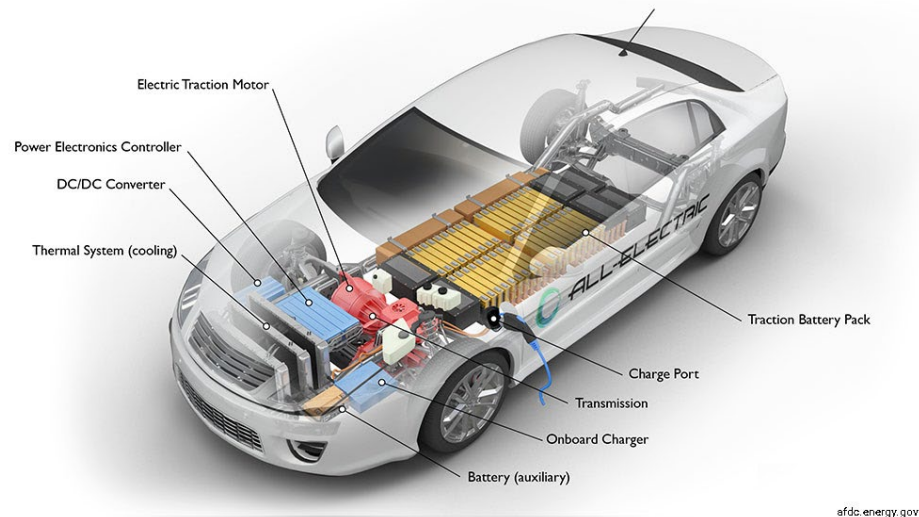
Electricity

Still work to be done... *in the Southeast*

In South Carolina –

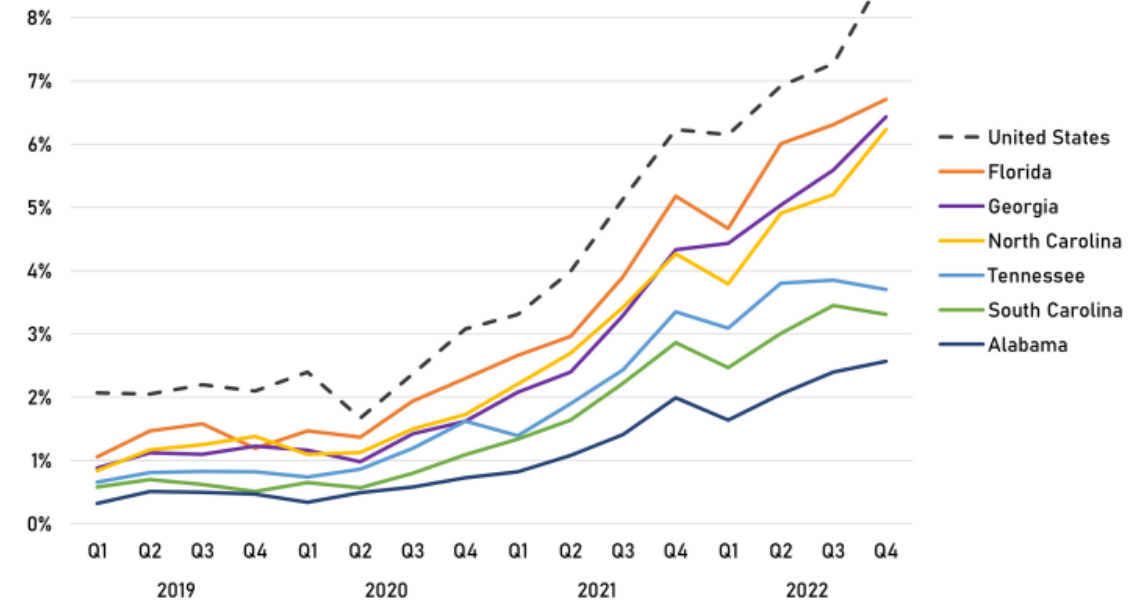
- 520 Stations, 1332 Ports
- 847 Level 2 charging stations
- 484 Level 3 (DC Fast Chargers)

All-Electric Vehicle



afdc.energy.gov

EV Light-Duty Sales Market Share



Source: Atlas EV Hub

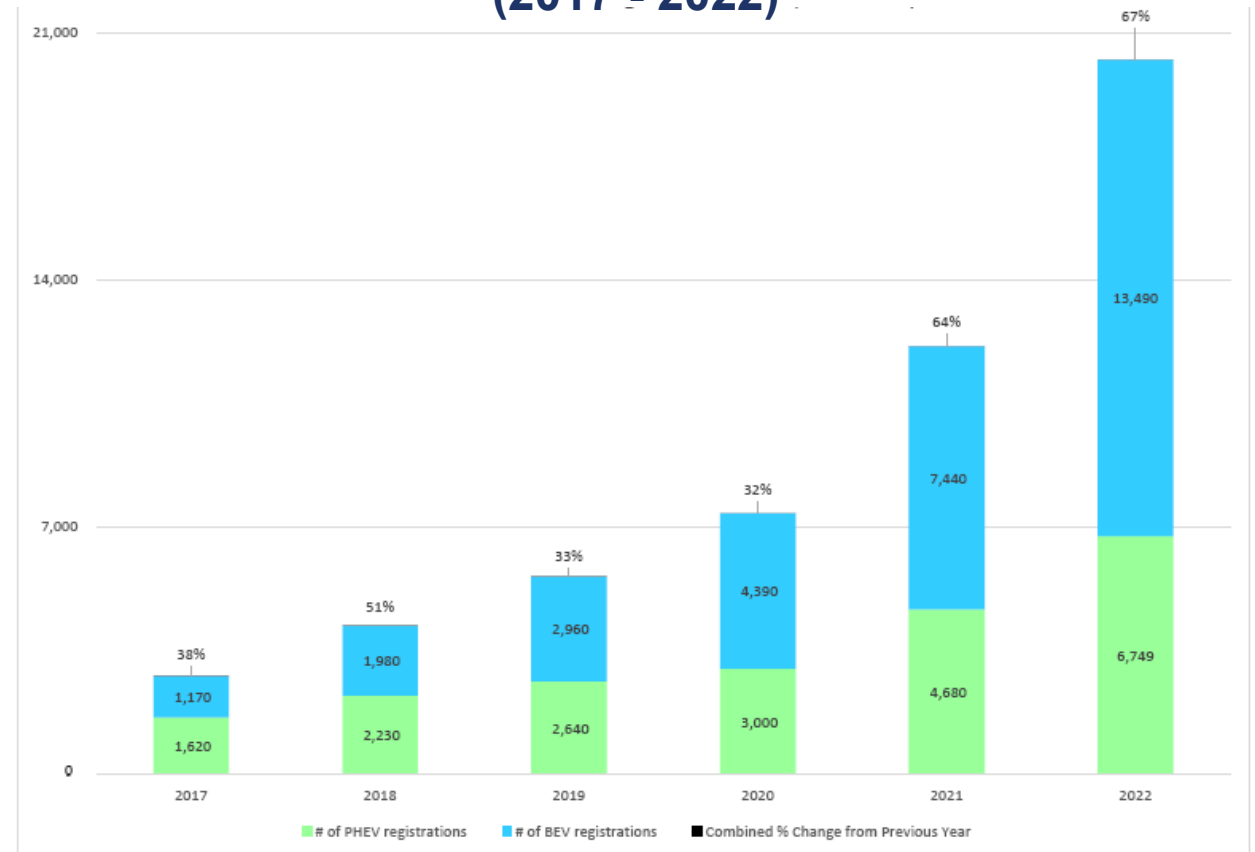
Stakeholder: **Conservation Voters of SC (CVSC)**
SC Electric Transportation Network

[To register for SC e-Transportation Network monthly meeting](#)

Why the emphasis on Electric Vehicles (EV)?

- Transportation is
 - 75% US petroleum usage
 - #2 expense for families
- EVs' potential to reshape the transportation sector.
 - zero-emission vehicles
 - lower total cost of ownership

EV Registrations in SC
(2017 - 2022)



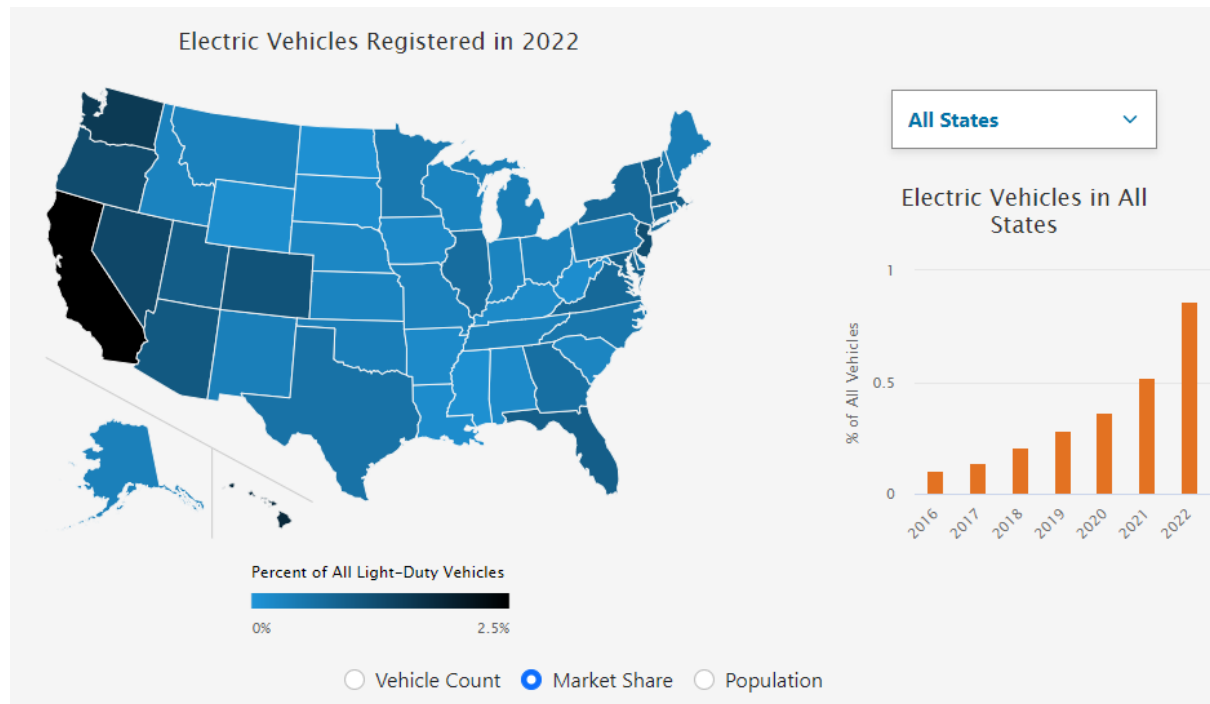
Derived registration counts by the National Renewable Energy Laboratory, Experian Information Solutions

Growth Trending Across the US

% EV Registrations per State

National Average: 0.9%

South Carolina: 0.3%

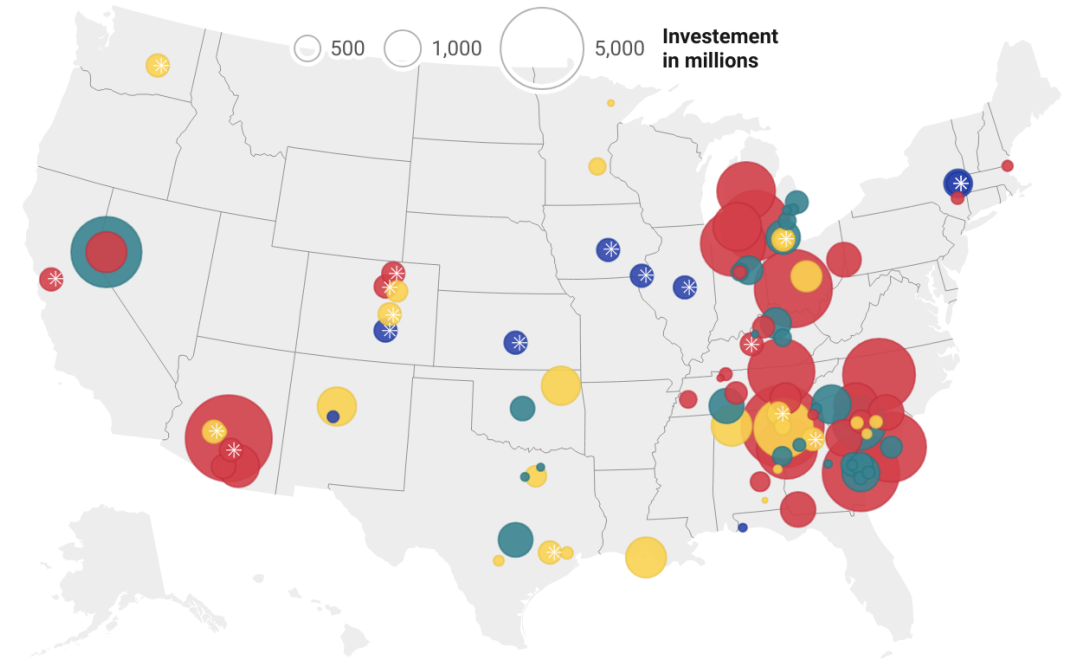


Source: Alternative Fuels Data Center

Clean energy manufacturing projects announced since Inflation Reduction Act passage

New planned factories or expansions unveiled from August 2022 to August 2023

■ Batteries ■ Electric vehicles ■ Solar ■ Wind



* Starred projects have not announced investment amounts. Job numbers are for permanent positions estimated by companies.

Map: Canary Media • Source: Jack Connors, American Clean Power, Canary Media analysis of public announcements

<https://climatepower.us/wp-content/uploads/sites/23/2023/07/Clean-Energy-Boom-Anniversary-Report-1.pdf>

Investments in South Carolina



August 2022 to 2023

- 20 new clean energy projects
- \$11.17 billion in total investment
- 13,543 jobs created

✓ BMW

- \$1.7 billion investment for EV and EV battery production

✓ Volvo

- Added 1,300 jobs to build electric SUVs

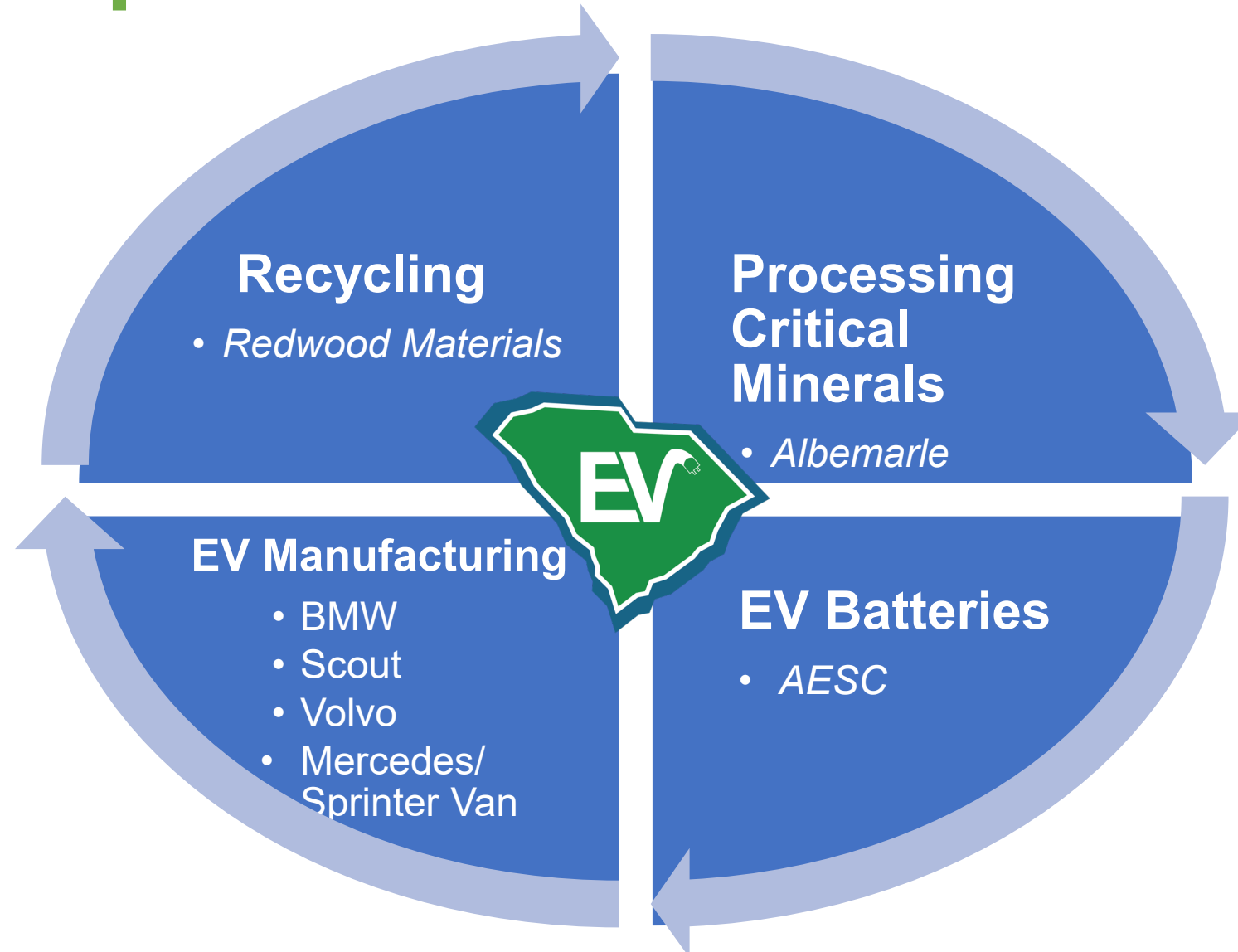
✓ Redwood Materials

- \$3.5 billion investment in a battery recycling facility, creating 1,500 jobs

✓ Scout Motors

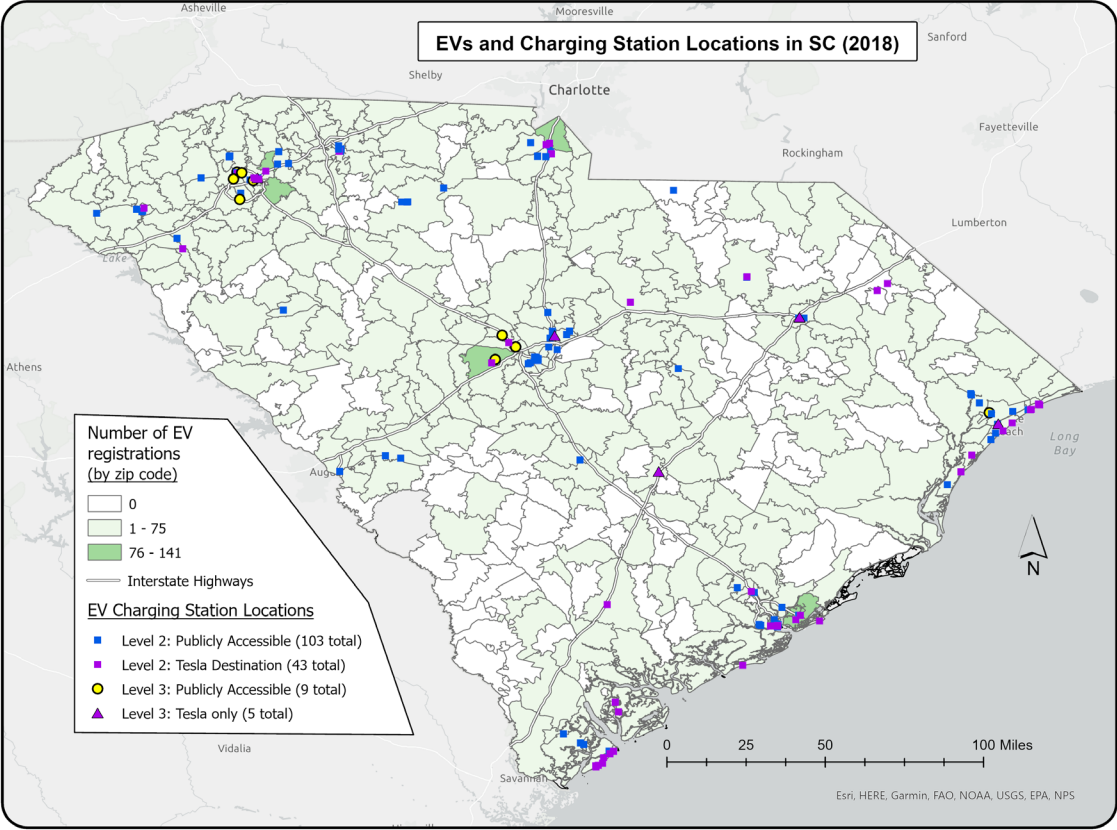
- \$2 billion investment in EV manufacturing, creating 4,000 jobs

EV Landscape in SC

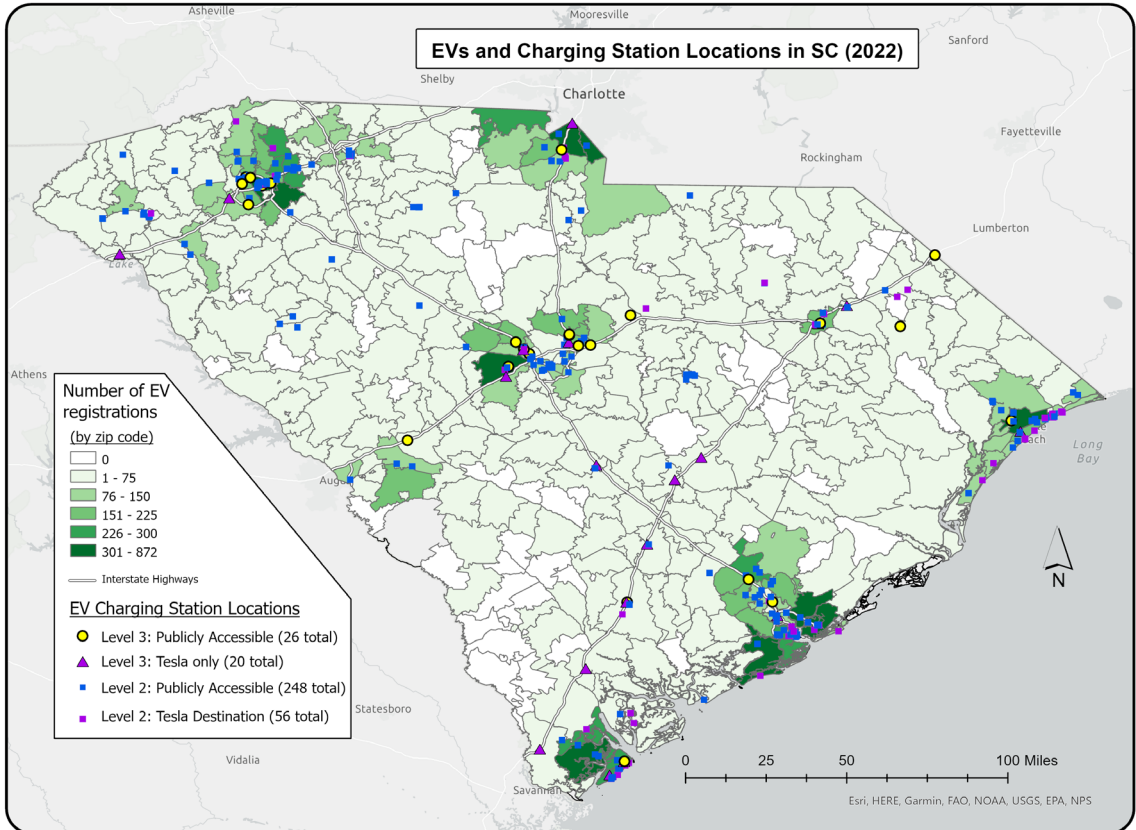


EVs and Charging Station Locations – Growing...

2018



2022



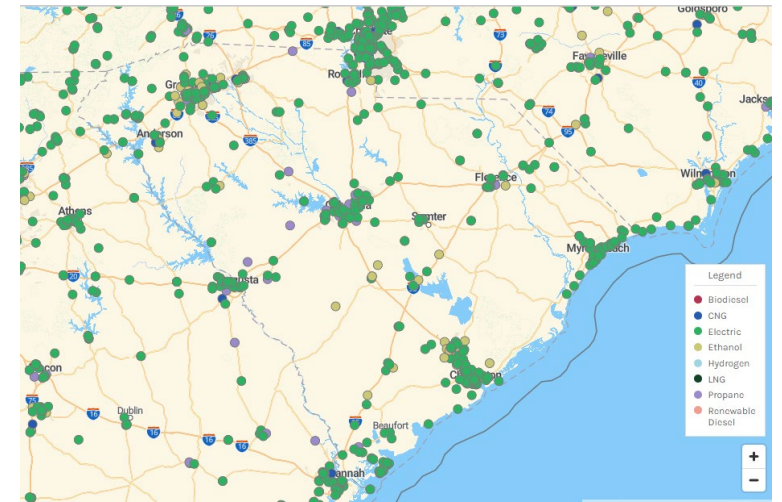
Registration counts derived by the National Renewable Energy Laboratory, Experian Information Solutions
 EV charging locations derived from the Alternative Fuels Data Center's station locator map and associated data table

Finding Charging Stations

View and map stations along your route!

Alternative Fuels Data Center Station Locator

- [AFDC - Station Locator](#)
- *Populated by PCF and Clean Cities Network*



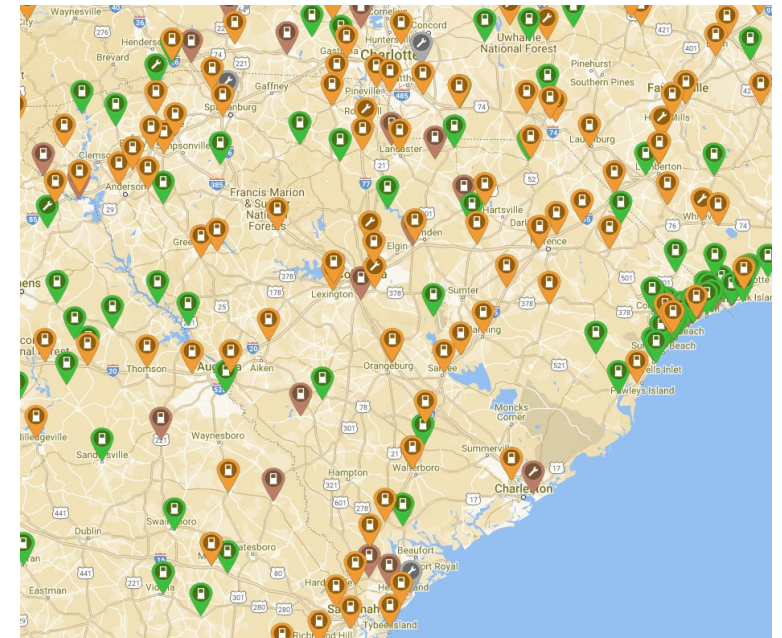
AFDC Station Locator

Plugshare

- [Plugshare Link](#)
- *Crowd-sourced app*

There are apps for that!

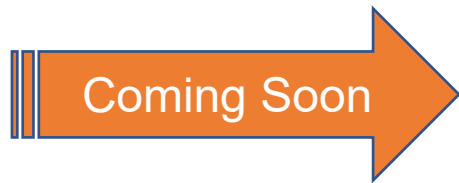
- Navigation apps
- Manufacturer apps
 - ChargePoint, Tesla, and Electrify America



Plugshare

The EV Stakeholder Initiative (EVSI)

a collaborative and diverse statewide discussion to explore opportunities to advance EV deployment in South Carolina, developing 27 policy and programmatic recommendations.



Funding Opportunities

National EV Infrastructure (NEVI) Program – *State DOTs*

Federal Funding Opportunity **\$5 Billion**

Program to establish a nationwide network of 500,000 EV charging stations by 2030.

- ✓ EV charging infrastructure
 - Charger maintenance
 - Interconnected network for data collection
 - Public access and reliability
- ✓ Designated for *Alternative Fuel Corridors*
- ✓ Emphasis on rural locations
- ✓ Equity in disadvantaged communities – Justice 40

[Drive Electric](#) link

SC received \$70 Million for 5 years

Requires 20% cost share from private and state funds

SCDOT Timeline

(all dates subject to change)

- ✓ Submitted initial NEVI Plan – 8/2022
- ✓ Plan approved – 9/2022
- ✓ Advertised for consultant services – 5/2023
- ✓ Procured Consultant – 11/2023
- ✓ Public Engagement Implementation- 1/2024
 - Completion of Public Engagement – Mid 2024
 - EV Charger Deployment – Late 2024

More information on NEVI: www.scdot.org/nevi

Charging & Fueling Infrastructure (CFI)

\$2.5 Billion for Federal Competitive CFI Grant Programs (over 5 years)

- **Publicly accessible** EV charging and alternative (alt) fueling infrastructure
- Must be accessible and useable by individuals with disabilities (NEVI standards & requirements)
- Environmental Justice focus on rural & LMI communities impacted by air pollutants

\$622 Mil
awarded in 2023
No SC recipients
April 2024 webinar
planned

Start Planning NOW!

2024 Deadline TBD (Est. June 2024)

[Charging & Fueling Infrastructure - FHWA link](#)

Who Can Apply?
States, Indian Tribes,
& local governments
(MPOs, special purpose
districts, port authority)

Community Program **\$350 Million**

Community Charging and Fueling Grants

- Alt fueling & EV charging stations
- Awards:* **\$500K to \$15Mil**
- **May use funds to contract with a private entity**

Corridor Program **\$350 Million**

Alternative Fueling Corridor Grants

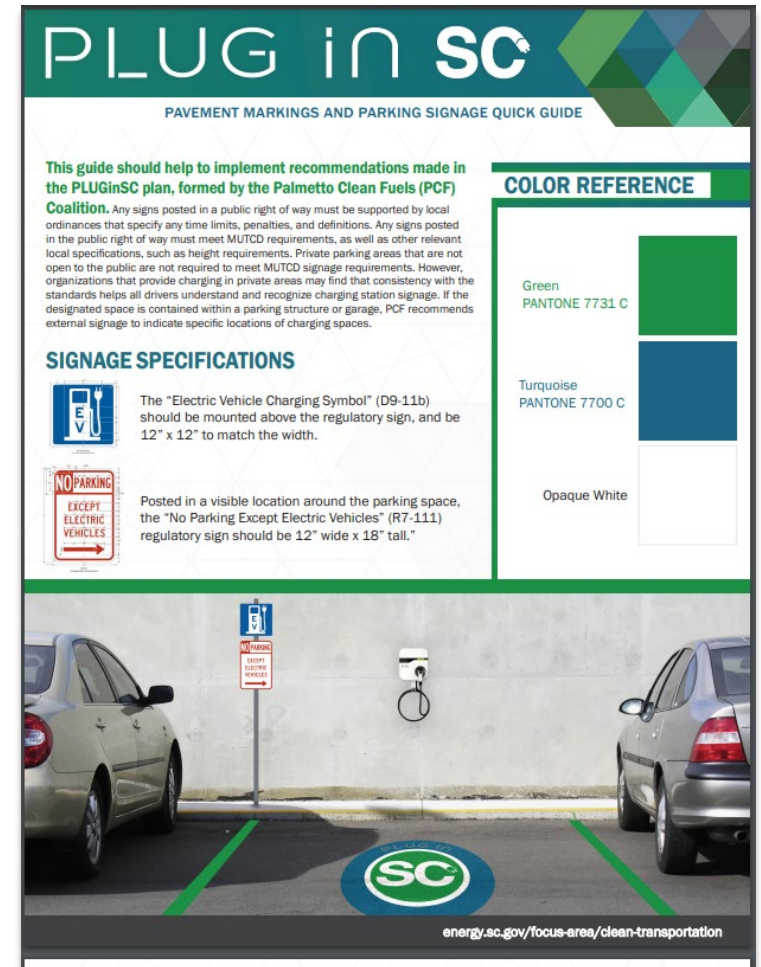
- Alt fueling & charging stations w/in 1 mile of AFC
- Awards:* **\$1Mil+**
- **Must use funds to contract with a private entity**

*Awards require a 20% Cost Share

EV Charger Reliability and Accessibility Accelerator Funding*

- Up to \$100 million in federal funding awards to repair and/or replace existing, non-operational/ broken EV charging infrastructure
 - *Entities shall have 12 months after getting award to render infrastructure operational*
- Eligible EV chargers listed on the AFDC as “temporary unavailable” by October 11th
 - **South Carolina has over 70 chargers eligible for this funding (as of 9/11/23)**
 - 63 Level II
 - 9 Level III (DCFC)
- 2024 Application Deadline: TBD

Over **\$148 Mil**
awarded in 2023
No SC recipients



*10% of \$500 Million NEVI funding set aside for grants to states and localities that require additional assistance.

Funding Opportunities – SC Energy Office

Energy Office Mini-Grants

- Project types: energy efficiency, renewable energy, & clean transportation projects
- Funding amount: up to \$10,000 for high impact, high visibility projects
- Timeframe: applications open in July; projects must be completed within fiscal year
- Eligibility: public entities & non-profits

Energy Office ConserFund Loan

- Project types: energy efficiency, renewable energy &, clean transportation projects
- Loan amount: \$25,000-\$500,000 loan per fiscal year at 1.5% rate or lower
- Terms: Payment not due until one year after project completion; use project ROI to pay for loan over payback term
- Timeframe: applications accepted year-round
- Eligibility: public entities & non-profits

Energy Efficiency Revolving Loan (EERL) Loan

- Funding through Energy Office; administered by SC Business Development Corporation
- Project types: energy efficiency, renewable energy, & clean transportation projects
- Loan amount: from \$50,000 up to \$1,000,000
- Terms: variable interest rate with terms of up to 10 years
- Timeframe: applications accepted year-round
- Eligibility: commercial/private sector only

Federal Funding Requirements

- **Buy American/ Build American**
Federal funding to use American made products
- **Davis-Bacon**
All contractors are paid prevailing wage for geographical location
- **Historic Preservation**
Buildings over 50 years old and in historical districts
- **National Environmental Policy Act (NEPA)**
Bounded categories identified; review required if not included in bounded category
- **Justice 40/ Rural focus**
40% of overall benefits flow to disadvantaged communities



Thank you



Rene Kelly

Clean Transportation Coordinator – SC Energy Office

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ENERGY.SC.GOV



Palmetto Clean Fuels – Promoting clean fuels

Events -

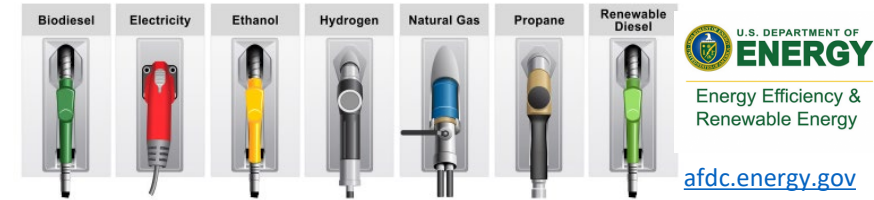
- Clean Cities
 - 30th Anniversary Meeting
 - Sustainable Fleet Technology
 - PCF Advisory Board (quarterly)
 - PCF Internship
 - SE Regional meetings
- Nat'l EV Charging Infrastructure Conf
- Drive Electric Events
 - Earth Day Columbia (April)
 - Columbia & Charleston (Sept)
- Upstate Outreach
 - EV Workforce Dev. Lunch & Learn
 - (3) Proterra Trainings (Sept)
- Biofuels
 - CAAFI meetings on SAF
 - Biofuels production in SC
 - Bengal Biodiesel @ Blythewood HS

Technologies:

- AFLEET TCO Analysis
- GIS Mapping
- US DOE & AFDC apps

Funding:

- NEVI Funding (\$5Bil)
- CFI Funding (\$2.5Bil)
- EV Charger Reliability and Accessibility Accelerator
- National DERA
- FAA's Fueling Aviation's Sustainable Transition (FAST) Grant



What else?

- PLUGinSC – EV Signage program
- Palmetto Railways awarded CRISI grant to retrofit (Electric) Switchers
- PCF Strategic Plan and Stakeholder Survey
- Alternative Fuels Workforce Development

Common Concerns

- Safety

- EVs undergo rigorous safety testing and adhere to strict standards like ICE vehicles
- Lower fire risk than ICE vehicles

- Range anxiety

- Rapidly expanding charging infrastructure
- Charging station apps
- Ideal for commuter applications

- Battery longevity

- Designed to last
- Most warranties cover 8-10 years

- Expense

- Lower total cost of ownership
- Tax incentives

