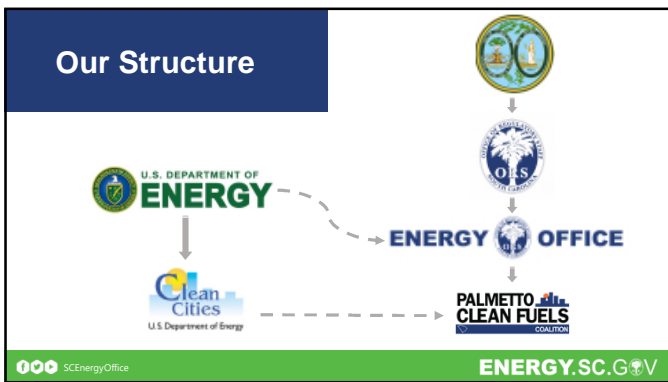


The information provided here is for informational and educational purposes and current as of the date of publication. The information is not a substitute for legal advice and does not necessarily reflect the opinion or policy position of the Municipal Association of South Carolina. Consult your attorney for advice concerning specific situations.

PALMETTO CLEAN FUELS COALITION

Electric Vehicle Charging Infrastructure in SC
SC Community Development Association –
Fall Meeting
October 5, 2023

ENERGY OFFICE



Clean Cities Coalitions

National network of local coalitions

U.S. DEPARTMENT OF ENERGY
Clean Cities

PALMETTO CLEAN FUELS COALITION

SCEnergyOffice ENERGY.SC.GOV

Alternative Fuels

U.S. DEPARTMENT OF **ENERGY**
Energy Efficiency & Renewable Energy

afdc.energy.gov

SCEnergyOffice ENERGY.SC.GOV

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)

Year	BEV	PHEV	Total
2017	~1,000	~1,000	~2,000
2018	~1,500	~1,500	~3,000
2019	~2,000	~2,000	~4,000
2020	~3,000	~3,000	~6,000
2021	~5,000	~5,000	~10,000
2022	~8,000	~8,000	~16,000

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

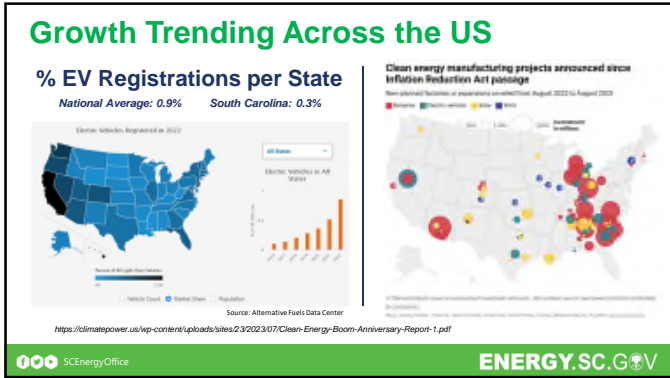
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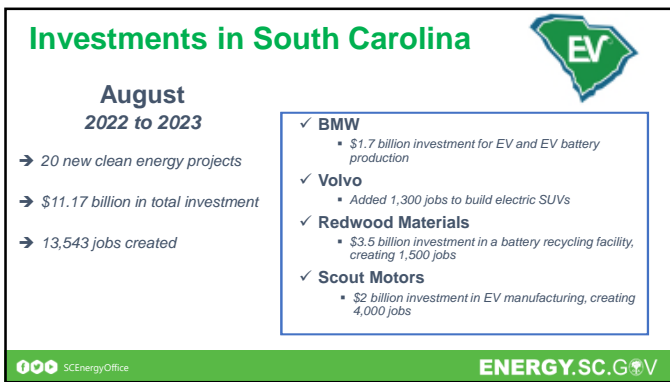
Still work to be done... Southeast

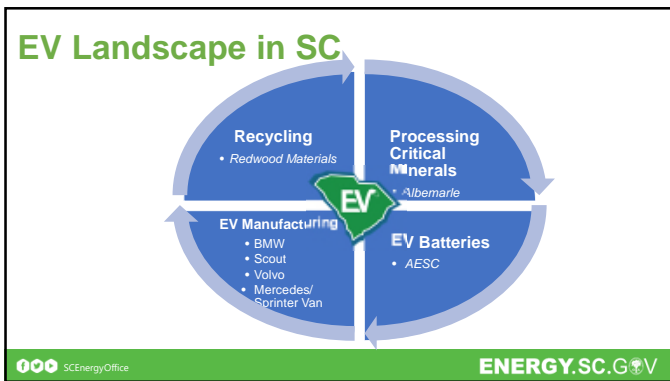
EV Light-Duty Sales Market Share

Source: IHS EV/Plug

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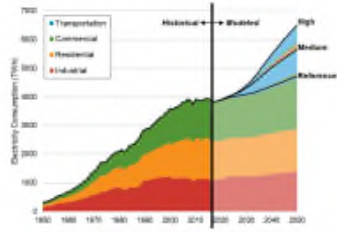


BASICS: Electricity as a Fuel Source






EVs draw from electrical power sources to charge their batteries

What's Happening

- Influx of federal funding
- Rapid deployment of EVs
- Increasing consumer demand



Charging your vehicle? You have options...

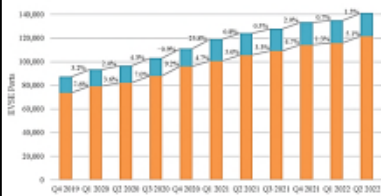
	Level 1 (AC)	Level 2 (AC)	Level 3 (DC Fast)
Connector Type	J1772 connector 	J1772 connector 	CCS connector  CHAdeMO connector  Tesla (NACS) connector 
Voltage/Power Specifications	120V outlet with dedicated circuit (standard wall outlet)	208-240V outlet with dedicated circuit (dryer plug)	480V direct current, requires dedicated electrical service
Power Output	Up to 2.4 kW	3 kW to 19 kW	20 kW to 400+ kW
Estimated BEV Charge Time	40 to 50 hours	4 to 10 hours	15 to 60 minutes
Estimated Range Per Hour Charge	2 to 5 miles	10 to 30 miles	180 to 240 miles
Typical Locations	Residential	Residential, workplace, public (stores, restaurants, etc.)	Public (fueling stations, quick stops)

Information derived from the US Department of Transportation

Vehicle Charging



EVSE Ports Growth from Q3 2021-Q2 2022



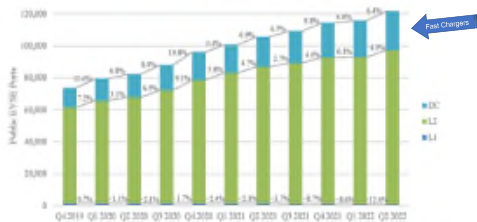
- 19% increase in EV charging stations from Q3 2021 through Q2 2022
- Surpassed 120,000 public EVSE by Q2 2022
- EVSE port percentages by end of Q2 2022:
 - 86.3% public
 - 13.7% private

Source: Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator, Second Quarter 2022. Data from AFDC Station Locator.



Public EVSE Port Growth Through Q2 2022

By Charging Levels

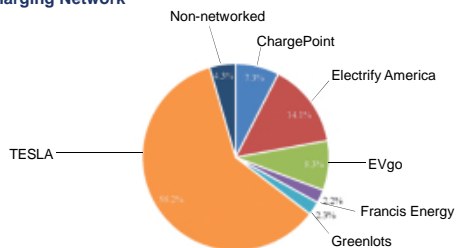


Source: Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator, Second Quarter 2022. Data from AFDC Station Locator.



Public DCFC Ports through Q2 2022

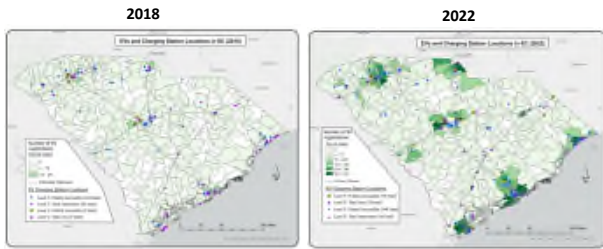
By Charging Network



Source: Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator, Second Quarter 2022. Data from AFDC Station Locator.



EVs and Charging Station Locations – Growing...



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

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Finding Charging Stations

View and map stations along your route!

Alternative Fuels Data Center Station Locator

- <https://afdc.energy.gov/stations/#/find/nearest>
- Populated by PCF and Clean Cities Network



AFDC Station Locator

Plugshare

- <https://www.plugshare.com/>
- Crowd-sourced apps



Plugshare

There are apps for that!

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

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The EV Stakeholder Initiative (EVS)

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

Coming Soon




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• Education and Outreach – PLUG in SC



- Branding and Consistent Statewide Signage
- Help drivers identify places to charge

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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

<https://driveelectric.gov>

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
- Procure Consultant – Mid 2023
- Public Engagement Implementation- Late 2023
- Completion of Public Engagement – Mid 2024
- Deployment – Late 2024

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

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NEVI Program – 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

APPLY NOW!
 Deadline May – June 2024
<https://www.fhwa.dot.gov/environment/cfi/>

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

<p>Community Program \$350 Million Community Charging and Fueling Grants</p> <ul style="list-style-type: none"> • Alt fueling & EV charging stations • Awards: * \$500K to \$15Mil • May use funds to contract with a private entity 	<p>Corridor Program \$350 Million Alternative Fueling Corridor Grants</p> <ul style="list-style-type: none"> • Alt fueling & charging stations w/in 1 mile of AFC • Awards: * \$1Mil+ • Must use funds to contract with a private entity
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*Awards require a 20% Cost Share

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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)
- Application Deadline: 11/13/2023



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



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Alternative Fuel Data Center– EV Charger Locator

South Carolina Transportation Data for Alternative Fuels and Vehicles

<https://afdc.energy.gov/states/sc>
<https://afdc.energy.gov/stations/#/find/nearst>

Station and Inventory: 39 stations, 1,294 charging ports

Alternative Fuel Station Locator: Map showing 507 stations

Vehicle Registrations in 2022: 1,100 registrations



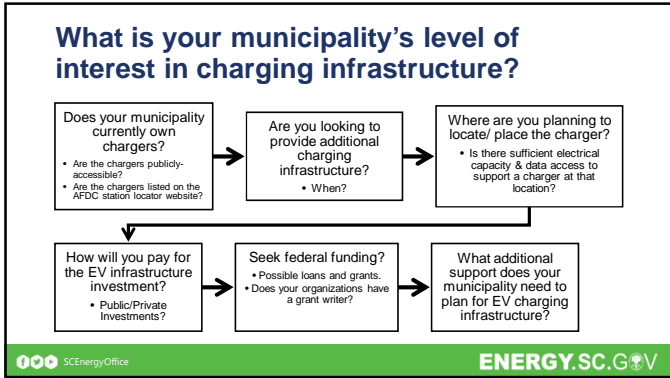
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NEXT STEPS...

Planning is needed NOW.



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Thank you



Sara Bazemore
Director, Energy Office
Office of Regulatory Staff
sbazemore@ors.sc.gov
803.737.0989



Rene Kelly
Clean Transportation Coordinator – SC Energy Office
Palmetto Clean Fuels Director – Clean Cities
rkelly@ors.sc.gov
(803) 737-0989



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)
 - Shaw Air Force Base (Oct)
- 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