

South Carolina Electric Vehicle Charging Infrastructure Deployment Plan

**In Support of the National Electric Vehicle
Infrastructure Formula Program**

(SC NEVI Plan)

August 1, 2023



South Carolina Department of Transportation

Table of Contents

Introduction	4
Dates of State Plan for Electric Vehicle Infrastructure Deployment Development and Adoption.....	4
State Agency Coordination	5
Public Engagement - Stakeholders	6
Public Outreach.....	9
Plan Vision and Goals	10
Contracting	11
Buy America	11
Existing and Future Conditions Analysis	12
Electric Utility Providers.....	15
State Geography, Terrain, Climate and Land Use Patterns	18
Geography.....	18
Terrain.....	18
Climate	18
Resilience	19
Land Use Patterns	19
State Travel Patterns, Public Transportation Needs, Freight and Other Supply Chain Needs	20
AFC - Corridor Networks	21
Existing Locations of Charging Infrastructure Along AFCs	22
Known Risks and Challenges	23
EV Charging Infrastructure Deployment	24
Funding Sources.....	24
2022 Infrastructure Deployments/Upgrades	24
State, Regional, and Local Policy.....	25
Implementation	26
Strategies for EV Charging Infrastructure Operations & Maintenance	26
Strategies for Identifying Electric Vehicle Charger Service Providers and Station Owners.....	26
Strategies for EV Charging Equipment Data Collection & Sharing	26
Strategies to Address Resilience, Emergency Evacuation, Snow Removal/Seasonal Needs.....	26
Strategies to Promote Strong Labor, Safety, Training, and Installation Standards	26
Civil Rights	27

Equity Considerations	27
Identification and Outreach to Disadvantaged Communities (DACs) in the State	28
Process to Identify, Quantify, and Measure Benefits to DACs	28
Benefits to DACs through this Plan	28
Labor and Workforce Considerations	29
Cybersecurity	29
Program Evaluation	30
Discretionary Exceptions (if any)	30
Appendix A	31
Appendix B	34

Introduction

The South Carolina Department of Transportation (SCDOT) is responsible for adoption and implementation of the National Electric Vehicle Infrastructure (NEVI) Formula Program. This plan was originally created on August 1, 2022 in consultation with the Energy Office of the South Carolina Office of Regulatory Staff (Energy Office) and the South Carolina Division of the Federal Highway Administration (FHWA-SC). The plan will be updated annually on August 1 of each subsequent year to document progress with the implementation of the NEVI Formula Program.

It is important to acknowledge that the initial version of this plan was established with limited input from stakeholders due to the federally-required timeframe for completion. A solicitation for consultant services was advertised on June 7, 2023. This solicitation will close on July 18, 2023. Proposals received will be evaluated and scored by a multi-agency and multi-disciplinary review committee. Negotiations will be initiated with the selected consultant with an anticipated award date for the contract to occur in late summer/fall 2023. A broad stakeholder engagement initiative will be initiated upon procurement of a consultant. The information obtained during stakeholder engagement will be used to revise this plan on an annual basis; therefore, the information in this plan is subject to revision as forthcoming stakeholder engagement occurs.

South Carolina's plan will prioritize placement of passenger car electric vehicle (EV) charging equipment along the interstate highway system to complement completion of the national network. Initial emphasis will be placed on rural sections of interstate where the lack of urban facilities make it less feasible for investments from the private sector. Public outreach and stakeholder engagement will occur to identify fair, equitable, and contextually appropriate locations for the equipment.

Dates of State Plan for Electric Vehicle Infrastructure Deployment Development and Adoption

Initial development of this plan began in early 2022. The following preliminary milestone dates will be adjusted as needed during the annual updates to the plan.

Milestone	Date
Implementation of Interagency Working Group	January 4, 2023
Submittal of Initial Plan to the Joint Office	August 1, 2022
Advertise for Consultant to Assist with Plan Updates	June 7, 2023
Procurement of Consultant to Assist with Plan Updates	Summer/Fall 2023
Implementation of Public Engagement	Fall/Winter 2023
Annual Update to the Plan	August 1, 2023
Anticipated Completion of Public Engagement	Mid 2024
Annual Update to the Plan	August 1, 2024
Implementation of Deployment/Upgrades	Late 2024
Annual Update to the Plan	August 1, 2025

State Agency Coordination

The South Carolina Department of Transportation (SCDOT) was established as the lead agency to oversee the implementation of the NEVI Formula Program. Consultation with the Energy Office was established due to their role as the principal energy planning entity for South Carolina. SCDOT and the Energy Office maintained regular communication throughout the development of this plan.

South Carolina Governor Henry McMaster signed Executive Order 2022-31 on October 12, 2022 to support the electric vehicle industry in South Carolina. The Executive Order established the following items:

- An electric vehicle economic initiative;
- Enhancements to the electric vehicle workforce; and
- Created an Interagency Electric Vehicle Working Group (Working Group).

The Working Group is tasked with developing a comprehensive plan regarding the strategic deployment of EV-related resources and infrastructure in South Carolina. The Working Group will serve a significant role with establishing the implementation plan for the NEVI Formula Program by ensuring all state agencies are unified in a strategic and well-coordinated manner prior to implementation of EV charging equipment. The Working Group had an initial meeting in January 4, 2023 and will meet monthly until our assignments in the Executive Order are complete, which is anticipated to coincide with implementation of deployment/upgrades identified in the introduction section of this report. Periodic follow-up meetings will be subsequently scheduled to ensure the Working Group maintains visibility into the implementation phase. The meetings are live-streamed to ensure full transparency and access for the public.

The members of the Working Group were established to ensure representation by all key state agencies that will play a role in EV charging. The Working Group also has the ability to add other state agencies as determined appropriate. The current members of the Working Group are:

- Office of the South Carolina Governor;
- South Carolina Department of Commerce;
- South Carolina Department of Transportation;
- South Carolina Department of Health and Environmental Control;
- South Carolina Office of Regulatory Staff;
- South Carolina State Fiscal Accountability Authority;
- South Carolina Department of Employment and Workforce;
- South Carolina Technical College System;
- South Carolina Department of Motor Vehicles; and
- State Fiscal Accountability Authority.

The agendas for the Working Group meetings focus on hosting industry stakeholders to educate the Working Group about perspectives, challenges, and opportunities related to EV charging. Additional details about the Working Group are identified in the Public Engagement-Stakeholders section of this report.

Public Engagement - Stakeholders

SCDOT will identify stakeholders to be involved in the development of the NEVI plan by building upon previous stakeholder efforts in the state. One such effort is the South Carolina Electric Vehicle Stakeholder Initiative conducted by the Energy Office. The South Carolina Electric Vehicle Stakeholder Initiative (EV Stakeholder Initiative) launched in November of 2020 and was conducted throughout 2021, involving over 300 stakeholders. The Energy Office contracted the services of the Duke University Nicholas Institute for Environmental Policy Solutions to support the planning and facilitation of the stakeholder process. An Advisory Committee was formed and met regularly to provide guidance to the Energy Office. The purpose of the EV Stakeholder Initiative was to facilitate a collaborative statewide discussion to explore the opportunities to advance EV deployment in South Carolina, with the goal of developing a list of policy and programmatic recommendations to further EV deployment. The findings of this initiative are available online at <https://www.energy.sc.gov/>. Information obtained through the EV Stakeholder Initiative will be incorporated into the annual update of this plan.

Signed by South Carolina Governor Henry McMaster in May 2021, Act 46 (available online at https://www.scstatehouse.gov/sess124_2021-2022/bills/304.htm) references the EV Stakeholder Initiative, and provides for the creation of a Joint Legislative Committee on the Electrification of Transportation (Joint Committee), whose purpose is to “study the challenges and opportunities associated with the electrification of the transportation sector and make recommendations to the General Assembly to enable a fair, efficient, and cost-effective transition to electric transportation.”. The Joint Committee’s recommendations are to be informed by reports received from the SC Office of Regulatory Staff (ORS), the SC Public Service Commission (PSC), and the SC Department of Revenue (DOR). The PSC is required to open a docket, no earlier than April 1, 2023, for the purpose of identifying the regulatory challenges and opportunities associated with the electrification of the transportation sector through the study of listed issues. While the Act does not set a deadline for the PSC’s initial report to the Joint Committee, the PSC is required to open a docket to study these issues every three years after submitting the initial report. Finally, Act 46 requires the DOR, by September first of each year, to provide the Joint Committee an annual report that “details the prior fiscal year’s revenue collections, from whatever source derived, designated for the repair, maintenance, or improvements of the South Carolina transportation system.”. The findings of this initiative will also be evaluated for incorporation into annual updates of this plan.

Palmetto Clean Fuels Coalition (PCF) is a US Department of Energy (US DOE) recognized Clean Fuels coalition and an initiative of the Energy Office. PCF is a grassroots, locally based, voluntary public/private partnership with the goal of promoting energy use in the transportation sector that is clean, safe, less dependent upon foreign sources, and sustainable. It is part of a network of more than 75 active Clean Cities Coalitions throughout the country to help local decision makers and fleets, enabling local coalitions to leverage the resources of the US DOE Vehicle Technologies Office and the National Labs. PCF works with a wide spectrum of stakeholders, fleet managers, fuel providers, vehicle and technology providers, governmental entities, community leaders, and others. SCDOT will coordinate with PCF’s network of stakeholders to obtain feedback for annual updates to this plan.

PCF works with a broad spectrum of stakeholders to assist with alternative fuel infrastructure planning, general outreach and awareness, technical assistance and fleet coaching, and technical training and education. Notable examples of PCF projects include work on the Alternative Fuel Corridor nomination process, fleet assessments and technical support to municipalities and other fleets considering transitioning to alternative fuels, producing informational materials on EVs, and collaborating on EV bus

maintenance training. Of particular note is the Plug in SC Incentive Program. In September 2020, PCF launched the Plug in SC program to support the adoption of standardized EV charging station signage and branding throughout the state. Through this program, qualifying participants receive EV signage free of charge, so that their charging stations are easily identifiable and provide a uniform user experience across the state. The program continues to garner success, with a total of 87 signs having been installed at various EV charging stations across the state to date. All of South Carolina's publicly accessible EV charging stations are eligible to participate in the program.

In addition, the following Clean Cities projects will be utilized as guidance to assist with annual updates to this plan:

- Carolina Alternative Fuel Infrastructure for Storm Resilience (see discussion on "Resilience" in the section of this plan titled, "State Geography, Terrain, Climate and Land Use Patterns"):
https://cleancities.energy.gov/partnerships/search?project_search=2019+Advanced+Vehicle+Technologies+Research#carolina-resilience
- Southeast Alternative Fuel Deployment Partnership
https://cleancities.energy.gov/partnerships/search?project_search=2017+Community-Based+Advanced+Transportation+Projects#CTE
- Southeast Regional Readiness
https://cleancities.energy.gov/partnerships/search?project_search=Electric+Vehicle+Community+Readiness#EVCR-southeast

SCDOT and/or the Working Group has met with the following industry stakeholders to educate them about the NEVI Formula Program, the Working Group, and to share perspectives about EV charging in South Carolina.

- Palmetto Clean Fuels Coalition;
- South Carolina Department of Employment and Workforce;
- Electric Cooperatives of South Carolina;
- South Carolina Association of Municipal Power Systems;
 - City of Rock Hill;
 - City of Orangeburg.
- Dominion Energy;
- Duke Energy;
- Santee Cooper;
- Lockhart Power Company;
- South Carolina Convenience and Petroleum Marketers Association;
- South Carolina Lodging and Restaurant Association;
- Clemson University International Center for Automotive Research (CU-ICAR);
- South Carolina Department of Education (bus electrification initiatives);
- South Carolina Trucking Association;
- South Carolina Ports Authority;
- South Carolina Council on Competitiveness;
- Greenville Professional Women's Forum;
- American Council of Engineering Companies;
- Allied Partners of the South Carolina Department of Commerce;
- South Carolina Manufacturers Alliance;
- South Carolina Automotive Council;
- South Carolina Public Service Commission;

- Metropolitan Planning Organizations (MPOs) and Councils of Governments (COGs);
- Carolina Parking and Mobility Association;
- Minority Electrical Contractors;
- South Carolina Maritime Association;
- Upstate Forever and Sustaining Way (EV Equity Roundtable);
- Conservation Voters of South Carolina; and
- Sustain SC;

In addition, the following stakeholders are identified for meetings of the Working Group in August and September of 2023.

- South Carolina Technical College System to address capabilities to train workforce;
- South Carolina Manufacturers Alliance; and
- South Carolina Automotive Council representing:
 - Automobile manufacturers;
 - Tire manufacturers; and
 - EV automobile parts suppliers.

Additional stakeholders will be involved through our public engagement efforts utilizing the consultant. The stakeholders will include, but are not limited to:

- Metropolitan Planning Organizations and Regional Transportation Planning Organizations;
- Counties and cities, including coordination with existing EV charging programs;
- Regional and local public transit agencies;
- State logistics industry partnerships;
- State economic development entities;
- Responsible emergency/disaster preparedness functions in the State;
- Federally Recognized Tribes;
- Community-based organizations, small business associations, Chambers of Commerce;
- Private sector EV charging station owners and network operators;
- Investors in EV charging infrastructure;
- Minority and women-based organizations;
- Environmental justice, equity, and community organizations with an interest in EV charging; and
- EV industry organizations and EV advocacy groups.

Another relevant stakeholder initiative is the South Carolina Electric Transportation Network organized by the Conservation Voters of South Carolina, which is intended for networking, collaboration, technical assistance, and updates. Coordination with this group has been initiated and will continue as stakeholder initiatives move forward.

Public Outreach

South Carolina will utilize public engagement to ensure that decisions are made in consideration of and for the benefit of public needs and preferences. Public outreach will occur through a combination of in-person meetings, online meetings, online surveys, and workshops.

Upon awarding a contract with our consultant, which is anticipated for summer/fall 2023, SCDOT will utilize the consultant to assist with creation and implementation of the public engagement initiative. The public engagement efforts will include the use of online engagement. SCDOT has successfully utilized online engagement for extensive and diverse public engagement for a number of planning initiatives recently, including the current update to the South Carolina Multimodal Transportation Plan.

SCDOT created a website to educate the public about South Carolina's activities with the NEVI Formula Program and to share information about the Working Group. The website hosts a subscription service that allows the public to subscribe for updates to South Carolina's implementation of the NEVI Formula Program. Currently, there are 248 subscribers that receive information. The website hosts the South Carolina NEVI Plan, current and historical content of the Working Group, numerous helpful links, and a link to the live-streamed meetings for the Working Group. Visit www.scdot.org/nevi to learn more.

Plan Vision and Goals

This plan provides a multi-year approach to support a convenient, affordable, reliable, and equitable statewide and national EV network that is compliant with the NEVI Formula Program standards and requirements, which are currently in draft form as part of the Notice of Proposed Rulemaking process.

South Carolina's vision is to prioritize placement of NEVI compliant passenger car EV charging equipment along the interstate highway system to compliment completion of the national network. Initial emphasis will be placed on rural sections of interstate where the lack of urban facilities make it less feasible for investments from the private sector.

The goals are as follows:

- Update this plan annually by August 1 for each year of the NEVI Formula Program;
- Conduct a robust stakeholder engagement initiative to guide annual updates to this plan;
- Implement EV charging infrastructure only upon completion and evaluation of stakeholder input;
- Work closely with electricity providers to ensure selected EV charging sites can be provided with electricity in a cost-effective and reasonable manner;
- Provide a minimum of four (4) – 150kW Direct Current Fast Chargers (DCFCs) per site that can simultaneously charge four (4) EVs with 150kW available per EV;
- Ensure EV charging infrastructure sites are located at a maximum spacing of 50 miles along the interstate system and a maximum of one (1) travel mile from the interstate; and
- Ensure the sites comply with the pending NEVI Formula Program standards and requirements.

Annual updates to this plan may modify the vision and goals based upon stakeholder input.

Contracting

South Carolina will utilize a competitive advertisement for consultant services to procure expertise to revise this plan on an annual basis. Revisions to this plan will include criteria for designing, maintaining, constructing, monitoring, and operating EV charging equipment. Annual updates to this plan will incorporate feedback from all stakeholders.

A competitive advertisement will be pursued when the plan is ready for implementation. The contracting method is yet to be determined; however, the initial assumption will be to establish a contract for design, construction, maintenance, and operations of EV charging equipment. The contract will include the following requirements:

- Design and construct the sites in accordance with NEVI Formula Program requirements;
- Maintain and operate the EV charging sites; and
- Report on metrics as required by the NEVI Formula Program standards and requirements, including additional metrics as deemed appropriate to ensure effective implementation.

Buy America

The program will achieve compliance with Buy America as specified in the April 18, 2022 memorandum from the Office of Management and Budget, available online at <https://www.whitehouse.gov/wp-content/uploads/2022/04/M-22-11.pdf>. Close coordination will occur with FHWA-SC to determine if flexibility is allowed if a determination is made that domestic availability of EV charging equipment is delaying the implementation of the NEVI Formula Program. SCDOT will work within FHWA guidelines to ensure considerations are given to waivers for Buy America, such as the February 21, 2023 waiver, available online at <https://www.federalregister.gov/documents/2023/02/21/2023-03498/waiver-of-buy-america-requirements-for-electric-vehicle-chargers>.

The stakeholder initiative will serve as a resource to ensure the latest developments in domestic EV charging equipment are being considered. In addition, SCDOT has established monthly coordination calls with our neighboring states (Georgia and North Carolina) to ensure NEVI plans are well coordinated. These monthly coordination calls facilitate a discussion forum for domestic availability of EV charging equipment. SCDOT has also joined the EV Practitioners Working Group of the American Association of State Highway and Transportation Officials (AASHTO) to ensure engagement on a national level with developments for EV charging infrastructure.

Existing and Future Conditions Analysis

South Carolina registration of EVs, to include battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), are depicted in Figure 1. BEVs are defined as battery powered electric vehicles that operate without an internal combustion engine. PHEVs are defined as vehicles that have both an internal combustion engine and a battery powered electric motor.

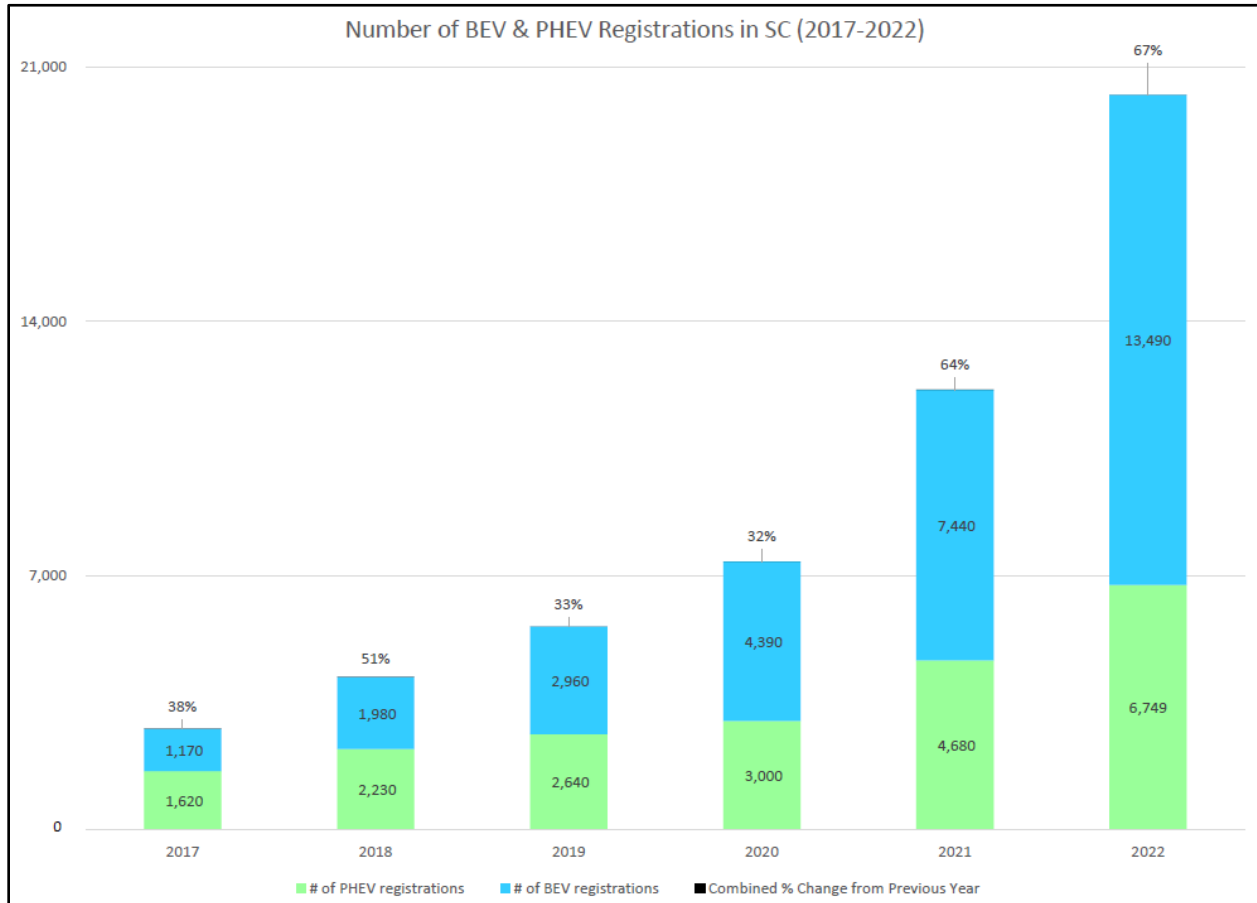


Figure 1 – Number of BEV and PHEV Registrations in South Carolina

Derived Registration Counts by the National Renewable Energy Laboratory, Experian Information Solutions

Figure 2 depicts EV registrations and Charging Stations located in South Carolina during 2018. For comparison purposes, Figure 3 depicts the same data for 2022.

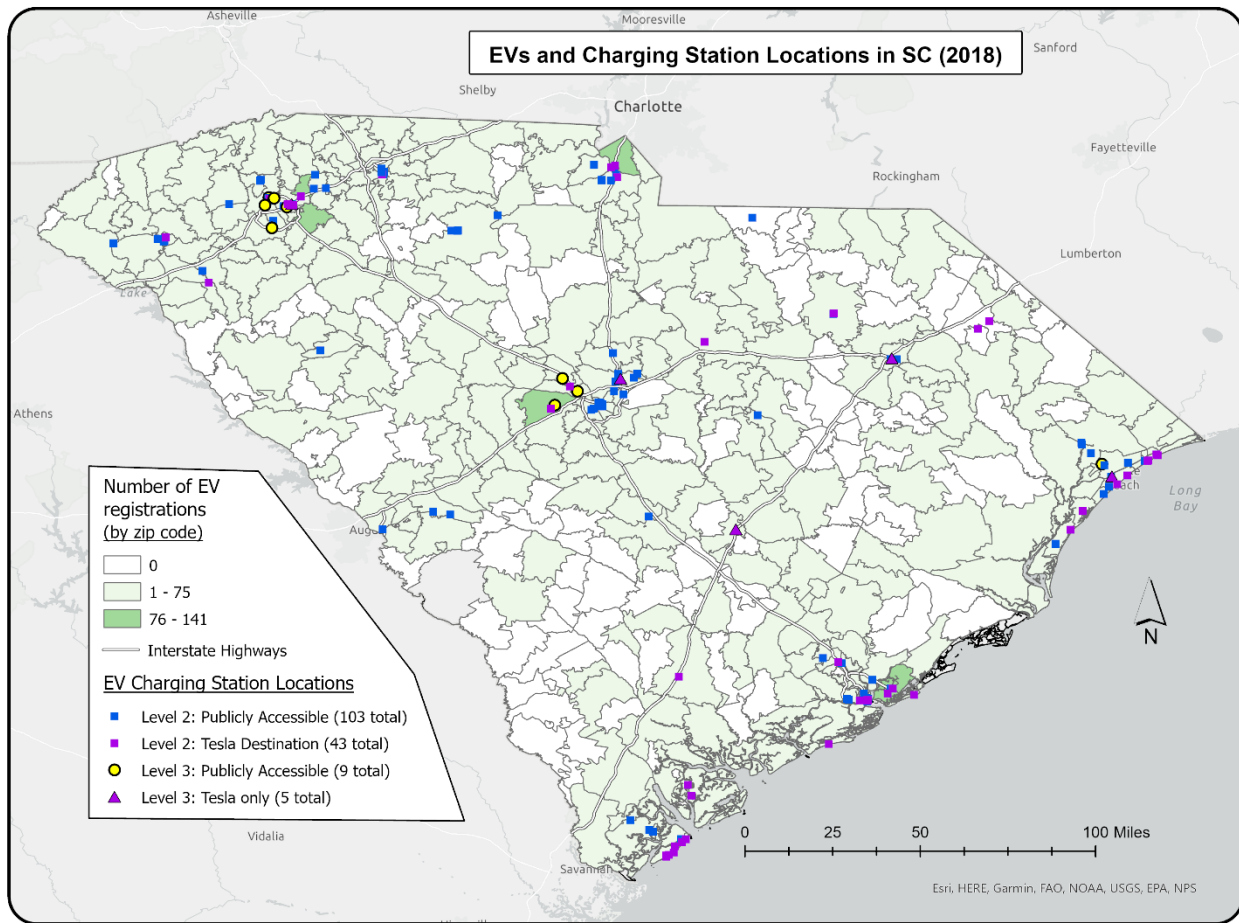


Figure 2 – South Carolina EV Registrations and Charging Stations in 2018

Information obtained from the National Renewable Energy Laboratory, Experian Information Solutions and the United States Department of Energy Alternative Fuels Data Center.

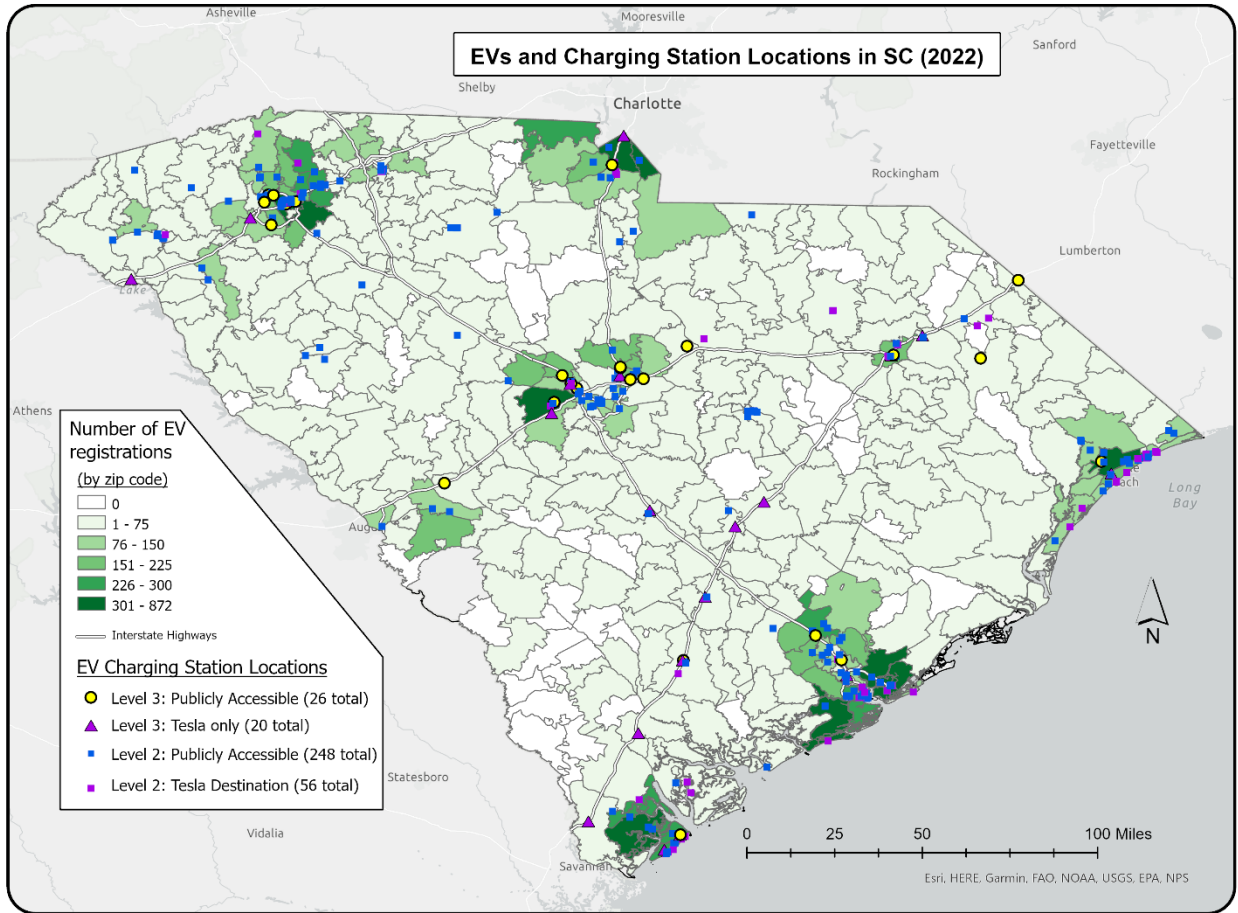


Figure 3 – South Carolina EV Registrations and Charging Stations in 2022

Information obtained from the National Renewable Energy Laboratory, Experian Information Solutions and the United States Department of Energy Alternative Fuels Data Center.

Electric Utility Providers

Electric utility providers in South Carolina are comprised of the following service providers:

State-Owned Utility

- Santee Cooper

Investor-Owned Utilities

- Dominion Energy South Carolina
- Duke Energy Carolinas
- Duke Energy Progress
- Lockhart Power Company

Electric Cooperatives

- Twenty-three (23) electric cooperatives located throughout the state

Municipal Utilities

- Twenty (21) municipal utilities located throughout the state

Electric utility providers in South Carolina have displayed interest in supporting EV charging by way of the sharing information with the public as shown at websites below:

Santee Cooper

<https://www.santeecooper.com/news/2022/012422-Santee-Cooper-approves-500000-grant-program.aspx>

Dominion Energy

<https://www.dominionenergy.com/south-carolina/save-energy/electric-vehicles>

Duke Energy

<https://www.duke-energy.com/energy-education/electric-vehicles>

Electric Cooperatives

<https://energysmartsc.org/electric-vehicles/>

Municipal Utilities

<https://www.masc.sc/Pages/newsroom/uptown/May%202022/Cities-Drive-Charge-for-Vehicle-Electrification.aspx>

A map of the electric utility service areas can be found online at:

<https://energy.sc.gov/newsletters/ec?st=3339>

The demand for electricity depends on numerous variables, one of which is weather, with peaks resulting from air conditioning use in the summer and heating use in the winter. Most of South Carolina's utilities tend to reach their peak demand in the summer, although recently they have experienced peaks in both summer and winter. Utilities need sufficient capacity to meet this demand, which is defined as the maximum electric output a generator can produce under specific conditions and is measured in megawatts (MWs).

South Carolina has two multi-state utilities (Duke Energy Carolinas and Duke Energy Progress) that share the electricity generated in both South Carolina and North Carolina among their customers in the Carolinas. The pro rata share data in Figure 4 represents the portion of electricity generation capacity allocated in South Carolina.

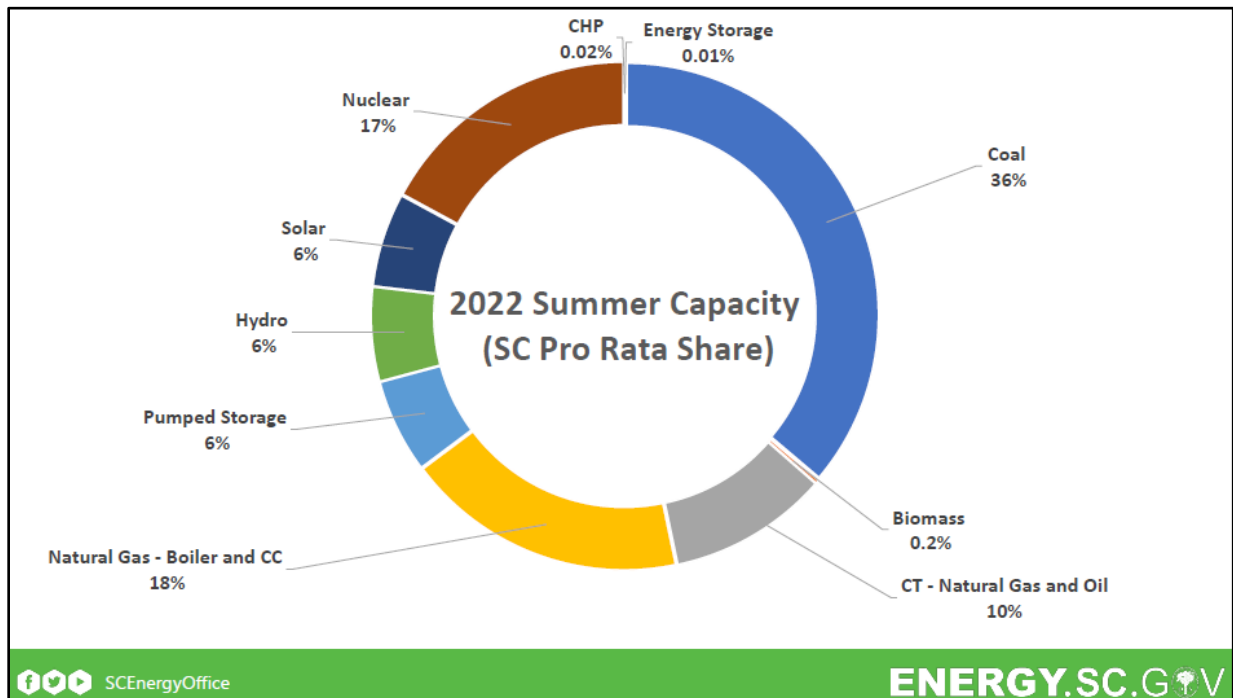
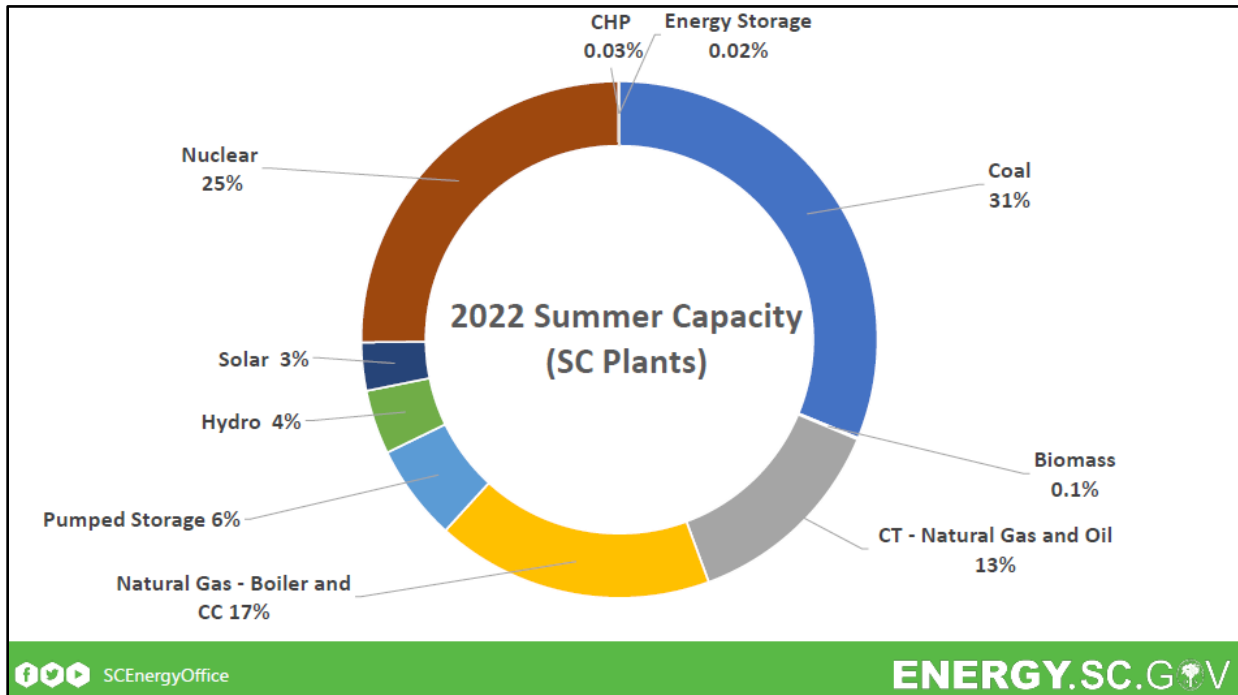


Figure 4 – South Carolina Electricity Grid Capacity and Pro Rata Share in 2019

Electricity generated in South Carolina is not fully consumed in the state. As previously discussed, South Carolina has two multi-state utilities (Duke Energy Carolinas and Duke Energy Progress) that share the electricity generated in both South Carolina and North Carolina among their customers. Therefore, the generation fuel mix does not solely represent the consumption by South Carolina customers. The pro rata share data in Figure 5 represents the portion of electricity consumed in South Carolina.

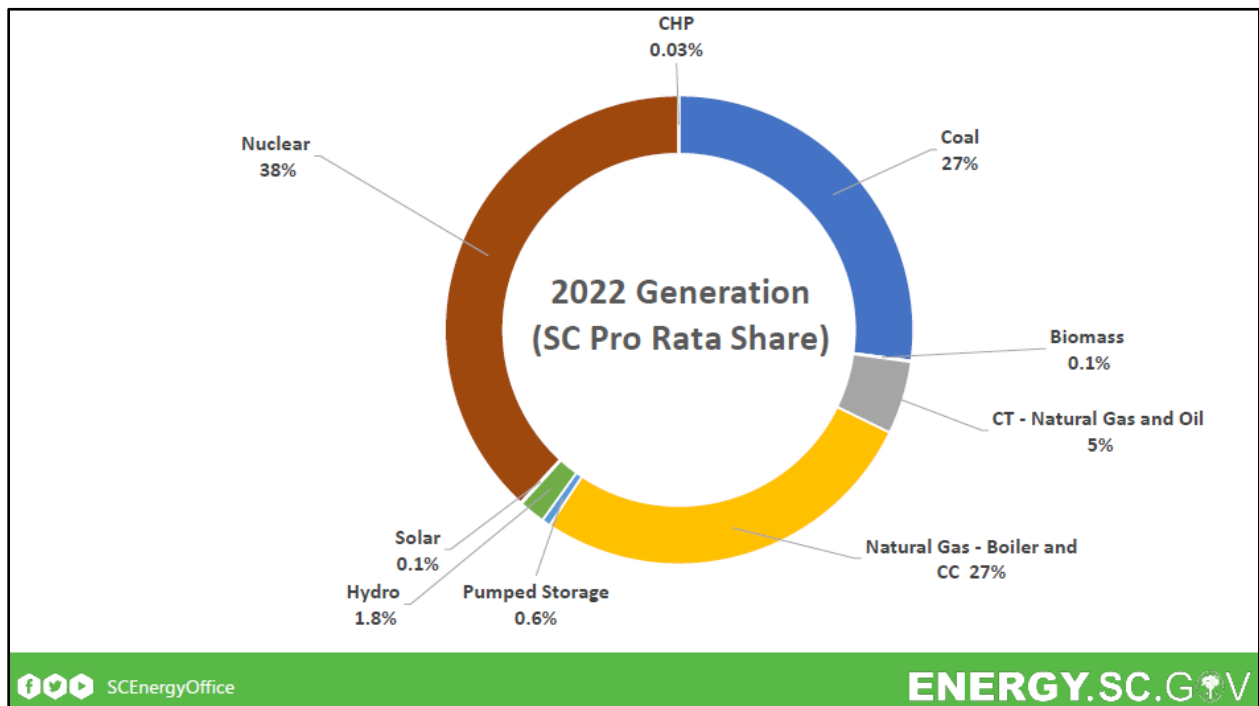
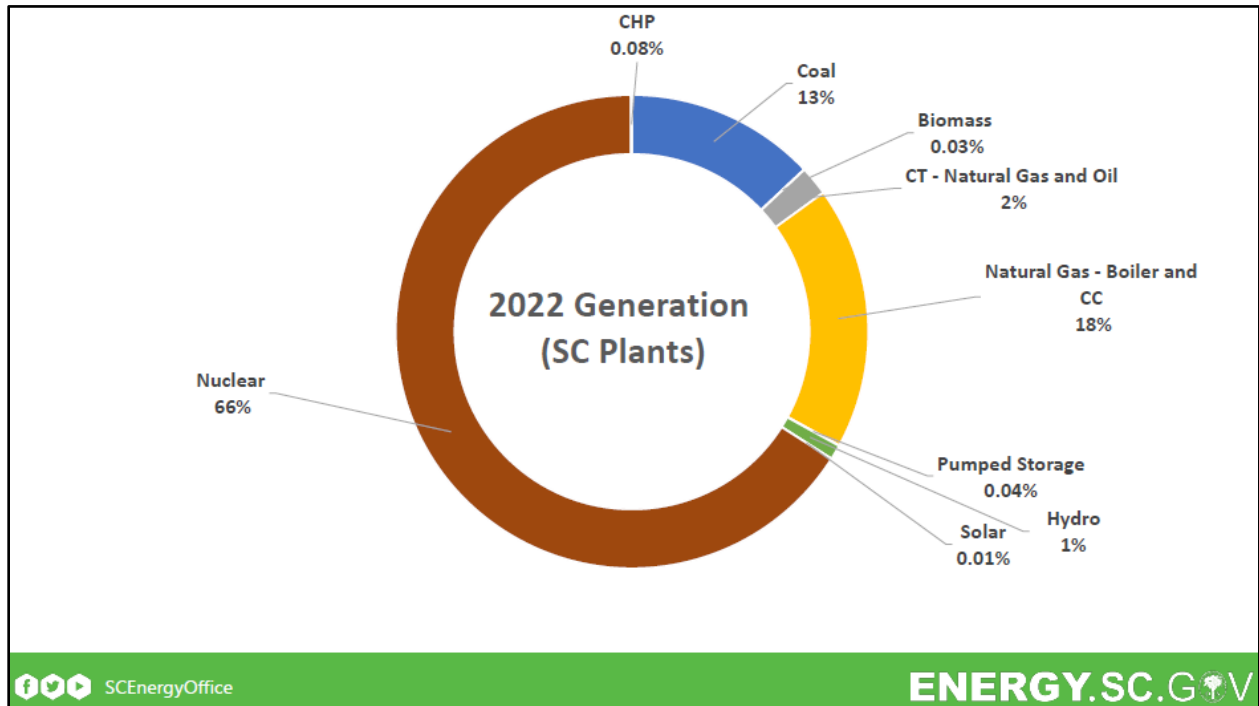


Figure 5 – South Carolina Electricity Generation and Pro Rata Share in 2019

State Geography, Terrain, Climate and Land Use Patterns

South Carolina's geography, terrain, climate, and land use patterns will influence the load profiles for EV charging equipment and will also play a role in how EV owners will charge and drive. Consideration will be provided for these variables as further development of specific locations for EV charging equipment are identified. The following information provides an overview of South Carolina specific characteristics.

Geography

The state can be divided into three natural geographic areas which then can be subdivided into five distinct cultural regions. The natural environment is divided from east to west by the Atlantic coastal plain, the Piedmont, and the Blue Ridge Mountains. Culturally, the coastal plain is split into the Lowcountry and the Pee Dee region. The upper Piedmont region is referred to as the Piedmont and the lower Piedmont region is referred to as the Midlands. The area surrounding the Blue Ridge Mountains is known as the Upstate.

Terrain

The state's terrain can be divided into three areas. The Atlantic coastal plain, the Piedmont, and the Blue Ridge Mountains. The Atlantic coastal plain is relatively flat. The Piedmont is also relatively flat in the southern portion with rolling hills near the center of the state and high hills to the northern portion of the Piedmont. The Blue Ridge Mountains have low soft hills in the southern portion and majestic mountains in the northern portion.

Climate

The following information was obtained from the website of the South Carolina State Climatology Office (<https://www.dnr.sc.gov/climate/sco/index.php>). South Carolina has primarily a humid subtropical climate, with hot humid summers and mild winters. There is no wet or dry season; only relatively heavy precipitation periods or light precipitation periods. No month averages less than two inches of precipitation anywhere in South Carolina. In northwestern South Carolina, winter precipitation is greater than summer; the reverse is true for the remainder of the state. During summer and early fall of most years, the state is affected by one or more tropical storms or hurricanes.

Severe weather occurs in South Carolina occasionally in the form of violent thunderstorms and tornadoes. Although less frequent than surrounding states, thunderstorms are common in the summer months. The more violent storms generally accompany squall lines and active cold fronts of late-winter or spring. Strong thunderstorms usually bring high winds, hail, considerable lightning, and rarely spawn a tornado.

Tropical cyclones affect the South Carolina coast on an infrequent basis, but do provide significant influence annually through enhanced rainfall inland during the summer and fall months. Depending on the storm's intensity and proximity to the coast, tropical systems can be disastrous. The major coastal impacts from tropical cyclones are storm surge, winds, precipitation, and tornadoes. Hurricanes are the most intense warm season coastal storms and routinely threaten South Carolina during the Atlantic Hurricane Season, which runs from June 1 through November 30 of each year.

Flooding occurs on several streams in the state each year. A certain amount of control can be effected on the large rivers which have dams. The state can experience riverine flooding any month of the year. However, it is most likely to occur in association with tropical cyclones, because of their typically slow forward motion and abundant moisture.

Resilience

A project is underway by E4 Carolinas titled, “Carolina Alternative Fuel Infrastructure for Storm Resilience Plan”. This project engages appropriate Carolina alternative fuel vehicle stakeholders. They will undertake planning, training, and implementation to create an integrated Carolina plan to employ alternative fuel vehicles in enhancing resilience during, and recovery from, infrastructure disruption. The plan will establish emergency procedures, training, and best practices for the diversification of, and access to, alternative fuels to expedite storm recovery, increase disruption resilience and ensure that alternative fuel supplies are reliable during times when conventional fuel supplies are susceptible to disruption. This project will produce a plan augmenting the content of both North Carolina’s and South Carolina’s emergency preparedness plans by clearly identifying 1) alternative fuel vehicle (AFV) fleets which can be employed in storm, disaster, or petroleum fuel disruption recovery, 2) alternative fuel resources for such fleets, 3) means by which alternate fuel vehicles can better serve in recovery actions, and 4) communication of information regarding fleets and alternate fuel systems to facilitate increased utilization. The final report for this project will be issued on or before November 1, 2022. The findings of this report will be reviewed to determine if they are appropriate for South Carolina’s implementation of the NEVI Formula Program.

Land Use Patterns

The stakeholder engagement process will ensure coordination occurs with the local/regional planning authorities. This coordination will allow us to understand existing and future development characteristics of land with the goal of using the information to assist with strategic placement of EV charging equipment.

State Travel Patterns, Public Transportation Needs, Freight and Other Supply Chain Needs

Population in South Carolina has continued to increase, with the state ranked as the 10th fastest growing in the country following the 2020 Census. Between the decennial Census of 2010 and 2020, the population in South Carolina grew by 10.7% to 5.1 million citizens, an increase of 493,041 people. By 2040, the population is expected to surpass 6.3 million.

Between 2010 and 2020, South Carolina saw a shift in population from the state’s rural to urban areas, with significant growth following the I-26, I-85 and I-77 corridors. Reference Figure 6 for a map depicting this shift in population.

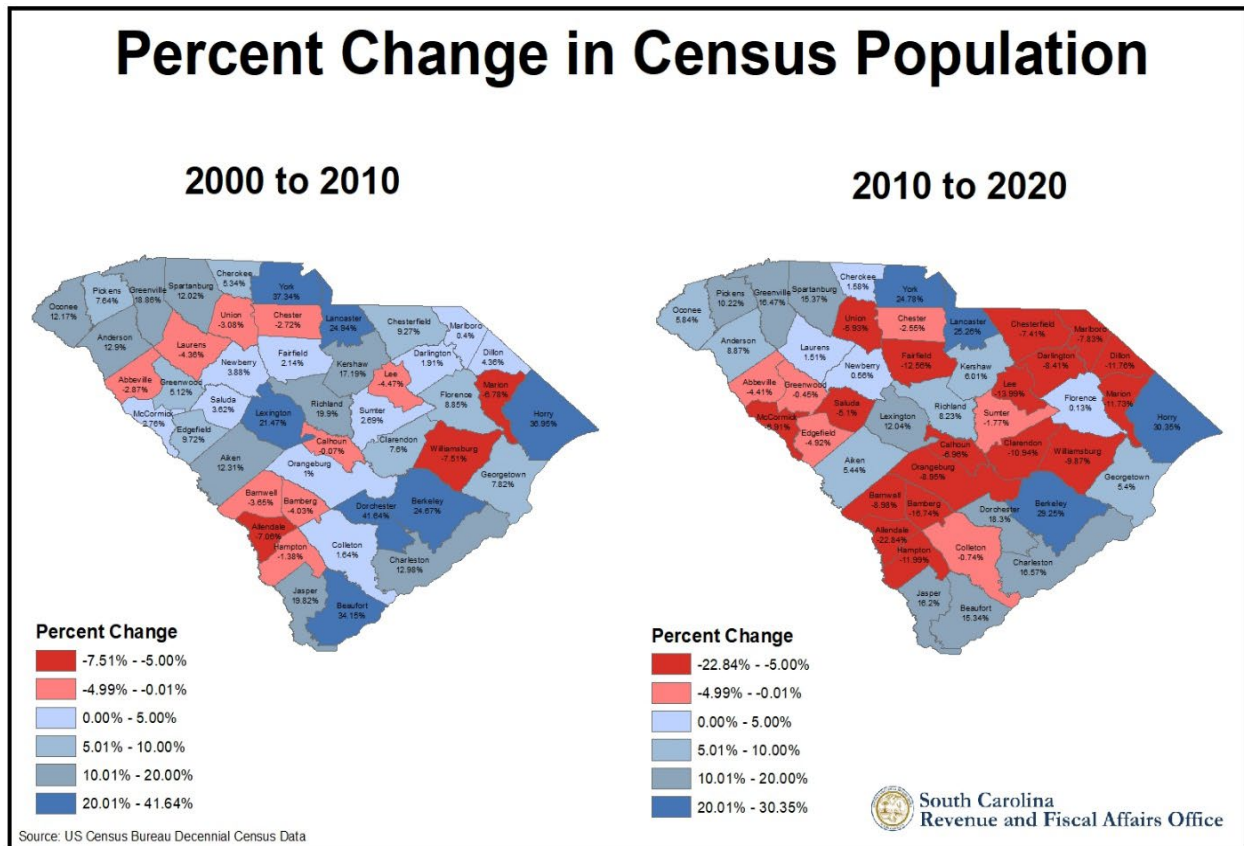


Figure 6 – South Carolina Percent Change in Census Population

Over 30 million visitors come to South Carolina each year to enjoy our rich history, charming cities, beautiful beaches, and mountains. South Carolina is home to industry giants, such as BMW in the Upstate region as well as Boeing, Mercedes Benz, and Volvo in the Charleston region. South Carolina is also considered the “Tire Capital of the World” with Bridgestone, Continental, and Michelin manufacturing plants around the state.

The South Carolina Ports Authority (SCPA) relies on an effective highway and rail system to move goods throughout South Carolina as well as throughout the southeastern United States. SCPA operates the state’s vital seaport assets in Charleston. This is a \$53 billion-a-year economic engine generating 1 of every 11 jobs within the state. In October 2013, the first inland port opened in South Carolina allowing

the Port of Charleston to reach 212 miles inland to Greer and in 2018, the second inland port opened in Dillon, South Carolina. The addition of these two South Carolina inland ports provides shippers’ access to more than 95 million consumers within a day’s drive.

Twenty-eight public transit systems operate in 42 of South Carolina’s 46 counties. Given the close proximity to Clemson University’s International Center for Automotive Research (CU-ICAR), Proterra, a manufacturer of electric transit buses and electric charging systems, located a manufacturing facility in Greenville. With the advantage of having an industry leader within the state, a number of transit systems, including those in Charleston, Greenville, Clemson, and Rock Hill (just south of Charlotte), have introduced electric buses and charging infrastructure to their fleets.

The South Carolina Department of Commerce created a new website, <https://scpowersev.com/>, to communicate South Carolina’s strong ability to support sustained growth in the EV sector. South Carolina is home to six (6) EV original equipment manufacturers (OEMs) and was recently announced as the host site for Scout Motors. Additional information about South Carolina’s strong presence in the EV sector can be found at the aforementioned website.

AFC - Corridor Networks

The below chart specifies the Alternative Fuel Corridor (AFC) designations that have been identified by South Carolina as part of rounds 1 through 6 of the AFC designation process.

Route	Status - Date	Amount of Corridor
I-85	Ready as of 2022	Entire Length of Corridor
I-77	Ready as of 2022	Entire Length of Corridor
I-26	Ready as of 2022	From Irmo to Orangeburg and from Ladson to Charleston
I-26	Pending as of 2022	From SC/NC border to Irmo and from Orangeburg to North Charleston
I-95	Pending as of 2022	Entire Length of Corridor
I-20	Pending as of 2022	Entire Length of Corridor

All of the aforementioned AFCs will require evaluation of existing EV charging infrastructure to ensure compliance with the NEVI Formula Program standards and requirements. Figure 8, Figure 10, and Appendix B specify the current EV charging sites along AFCs that are potentially NEVI compliant as-is. Annual updates to this plan will include evaluations of existing EV charging sites along AFCs to determine if they can be utilized as-is or upgraded to meet the requirements of the NEVI Formula Program.

Existing Locations of Charging Infrastructure along AFCs

The following figures depict public accessible EV chargers in South Carolina. Reference Appendix A for data that was utilized to create Figure 7. Reference Appendix B for data utilized to create Figure 8.

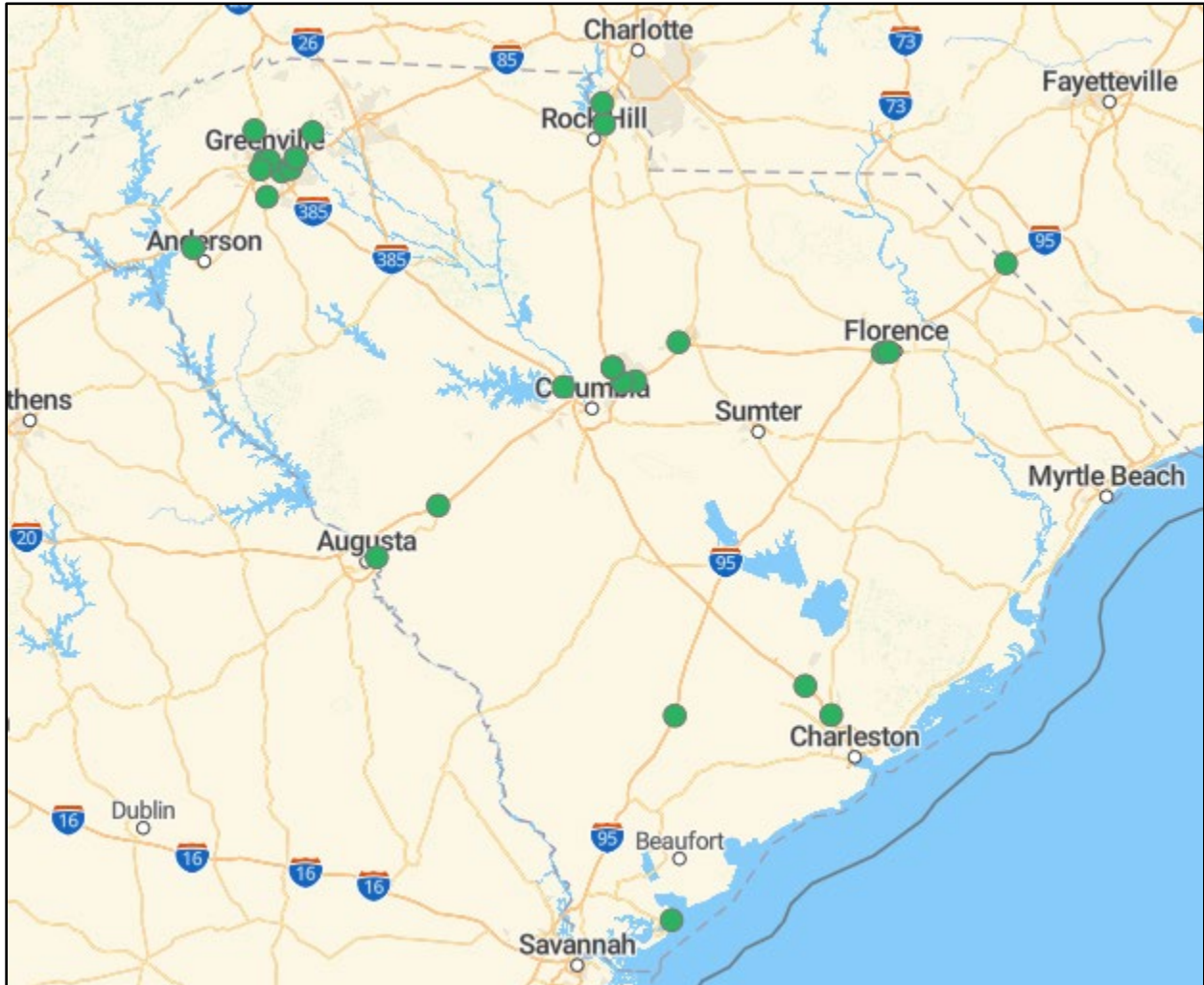


Figure 7 – Existing Public DCFC in South Carolina
CCS Plugs
Information Obtained from <https://afdc.energy.gov>

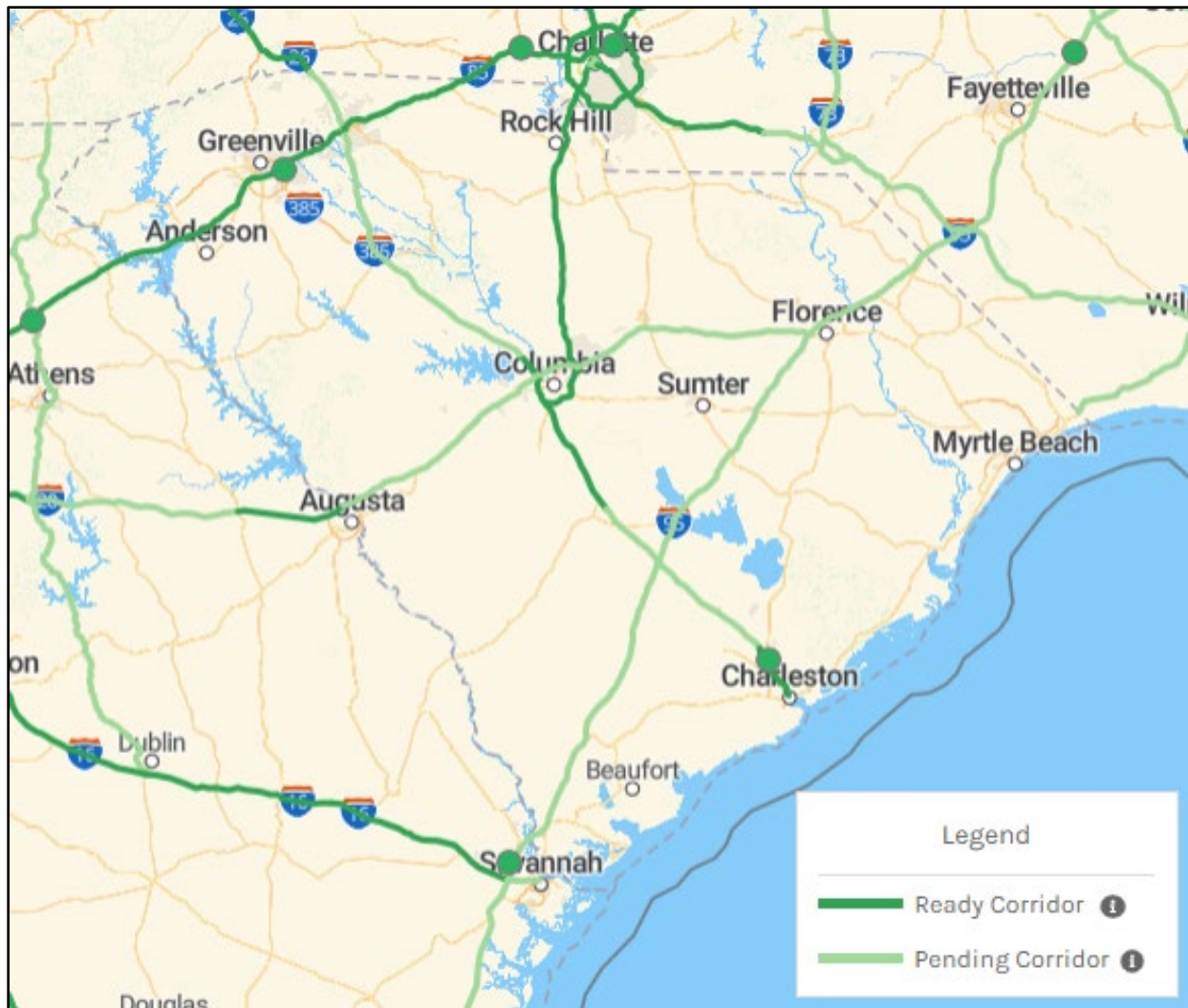


Figure 8 – Existing Public DCFC Locations on South Carolina AFC Corridors
 Information Obtained from <https://afdc.energy.gov>

Known Risks and Challenges

In the current market, it is reasonable to consider challenges may arise concerning labor shortages, supply chain issues with construction materials and computer chips, volatile fuel prices, and unstable cost estimation. These issues may impact timeliness and efficiency for the delivery of this initiative.

Upon selection of a consultant, the forthcoming stakeholder engagement initiative will potentially identify other risks for which mitigation strategies will be developed to ensure challenges are overcome.

EV Charging Infrastructure Deployment

South Carolina is aware of the NEVI Formula Program Guidance document (dated February 10, 2022) and also of the Notice of Proposed Rulemaking (NPRM) for Minimum Standards and Requirements for the NEVI Formula Program that was issued for public comment on June 22, 2022. The comment period for the NPRM closes on August 22, 2022. South Carolina will ensure that the deployment of EV charging equipment occurs in compliance with the program guidance and final version of the minimum standards. The deployment is anticipated to focus on rural sections of the interstate system where the lack of urban facilities make it less feasible for private sector investments. Upon selection of a consultant, public outreach and stakeholder engagement will be initiated to serve as the primary resource of information to guide revisions to the vision and goals specified in this plan.

Funding Sources

SCDOT will evaluate the feasibility for obtaining the matching funds from entities that will receive revenue from the EV charging stations. SCDOT will also evaluate the feasibility of providing matching funds from the State Highway Fund or the State General Fund.

2022 Infrastructure Deployments/Upgrades

Figure 9 depicts the results of a preliminary analysis to identify the anticipated maximum number of EV charging sites that will be needed to achieve compliance with the NEVI Formula Program. The number of interchanges are also specified to assist with understanding the feasibility of establishing host sites along these corridors.

AFC	Amount of Corridor	Length (miles)	Number of Interchanges	Anticipated Maximum Number of EV Charging Sites to Achieve NEVI Compliance
I-85	Entire Length of Corridor	106	37	2
I-77	Entire Length of Corridor	91	29	2
I-26	From Irmo to Orangeburg	48	17	1
I-26	From Ladson to Charleston	16	9	1
I-26	From SC/NC border to Irmo	101	25	2
I-26	From Orangeburg to North Charleston	56	13	1
I-95	Entire Length of Corridor	199	39	4
I-20	Entire Length of Corridor	141.5	34	3

Figure 9 - Anticipated Maximum Number of EV Charging Sites to Achieve NEVI Compliance

Figure 10 identifies EV charging sites on AFCs that are potentially NEVI compliant. These sites were identified by reviewing the data available from the Alternative Fuels Data Center (AFDC). While the mapping feature on the AFDC website only depicts two (2) publically accessible DCFC sites on AFCs as shown in Figure 8, a review of the data specifies seven (7) sites along AFCs that are potentially NEVI compliant. These sites will be further evaluated to ensure compliance with the current and pending NEVI requirements and if deemed compliant, will be used to supplement the number of new sites needed to achieve compliance with the NEVI Formula Program.

Information in Figure 10 was obtained from the US Department of Energy Alternative Fuels Data Center. All locations have been identified as being within one (1) mile of an AFC designation by FHWA with a minimum of four (4) 150kW DC Fast Chargers with Combined Charging System (CCS) connectors.

ID	Alternative Fuel Corridor	Street Address	City	Zip Code	EV Network
122985	I-26	7250 Rivers Ave	North Charleston	29406	Electrify America
133662	I-85 / I-385 (interchange)	1211 Woodruff Road	Greenville	29607	Electrify America
167167	I-20 / I-95 (interchange)	230 N Beltline Drive	Florence	29501	Electrify America
169353	I-26	360 Harbison Blvd	Columbia	29212	Electrify America
169461	I-95	2110 Bells Highway	Walterboro	29488	Electrify America
222442	I-77	2764 Cherry Rd	Rock Hill	29730	Circle K
235142	I-20	102 W Frontage Rd	Aiken	29805	EVGateway

Figure 10 – Potential NEVI Compliant EV Charging Sites

Annual updates to this plan will include evaluations of existing EV charging sites along AFCs to determine if they can be utilized as-is or upgraded to meet the requirements of the NEVI Formula Program.

The consultant will assist with identifying more precise locations for the EV charging infrastructure based upon completion of the stakeholder engagement initiative.

State, Regional, and Local Policy

The Interagency Working Group and the stakeholder initiative establishes a statewide forum to ensure that state and local policies are implemented to support the completion of the NEVI Formula Program. South Carolina is engaged on a monthly basis with our neighboring states to ensure regional approaches are coordinated.

Implementation

Implementation of the plan will adhere to all applicable requirements specified for the NEVI Formula Program. Additional details are provided in the following sections.

Strategies for EV Charging Infrastructure Operations & Maintenance

Based upon an initial assessment of industry trends, a minimum five (5) year period of support after construction will be established for maintenance and operations of the equipment. This timeline will be reevaluated as part of the annual update to this plan and in conjunction with stakeholder engagement. The costs for maintenance and operations are anticipated to be 5 – 10 percent of the installation costs.

Strategies for Identifying Electric Vehicle Charger Service Providers and Station Owners

The current strategy is to utilize a competitive process to identify the selected service provider(s) to design, construct, operate, and maintain EV charging stations. The selected service provider(s) will also be responsible for generating reporting metrics to measure success of the NEVI Formula Program. This strategy may evolve based on the information received from stakeholder engagement.

We anticipate the selected service provider(s) will obtain the necessary agreements and permits to establish host sites with public or private entities.

Strategies for EV Charging Equipment Data Collection & Sharing

The selected service provider(s) will be contractually obligated to provide data required for compliance with the NEVI Formula Program. South Carolina will ensure open and transparent availability of data.

Strategies to Address Resilience, Emergency Evacuation, Snow Removal/Seasonal Needs

South Carolina climate, as previously discussed in this plan, includes snow/ice, tropical systems, and heavy rains with flooding. The level of climate diversity requires that each EV charging station site have a unique analysis of natural threats to ensure resiliency is established at the host sites.

Further considerations will be provided to determine the feasibility of providing backup power generation for the EV chargers in the event of a natural disaster that interrupts the power grid.

In addition, reference the narrative for the E4 Carolinas project that was provided in the section of this plan titled, “State Geography, Terrain, Climate and Land Use Patterns”.

Strategies to Promote Strong Labor, Safety, Training, and Installation Standards

South Carolina will coordinate with EV charging industry leaders to ensure appropriate certifications for labor are contractually required by the service provider to promote safety, training, and compliant installation/operation of EV chargers.

Reference the section of this plan titled, “Equity Considerations” for additional information on labor/workforce strategies.

Civil Rights

South Carolina will adhere to Title VI of the Civil Rights Act of 1964 regarding discrimination by recipients of federally funded programs, Section 504 for the Rehabilitation Act of 1973, and with the American with Disabilities Act. SCDOT is the lead agency for implementation of the NEVI Formula Program and has extensive experience with achieving compliance with the aforementioned Acts. The SCDOT Office of Minority & Small Business Affairs will provide expertise and assistance on matters related to Civil Rights. The forthcoming stakeholder engagement initiative will connect relevant stakeholders (both public and private) to ensure a well-balanced approach to implementation of the NEVI Formula Program. Contractual controls will be implemented to ensure compliance with the necessary requirements. These controls will apply to everything from EV charger installation, operation and maintenance, to equitable and accessible unit placement and payment methods.

Equity Considerations

With the cost of gasoline significantly increasing in 2022, the extreme fluctuation of gasoline makes travel by electric vehicle a competitive option for consumers. Limited transportation options and high fuel prices disproportionately impact many low-income neighborhoods across our state. Expanding accessibility to electric vehicle charging in low-income and disadvantaged communities is important to provide all income groups with opportunities to access alternative sources of transportation.

Consistent with the Justice40 initiative, SCDOT will consider how disadvantaged communities will benefit from the added job growth resulting from the NEVI Formula Program and will examine the availability of the workforce to meet the proposed requirements. The installation and maintenance of EV charging equipment is required to be performed safely by a skilled workforce that has appropriate licenses, certifications, and training. SCDOT will take proactive steps to work with entities like training providers, workforce boards, labor unions, other worker organizations, community-based organizations, and non-profits to build a local workforce that will support the EV network. This includes encouraging the expansion of registered apprenticeship programs and other programs that prepare workers for employment opportunities in this emerging field.

To ensure payment options are not only secure but also equitable and accessible, SCDOT will evaluate innovations in payment methods. This includes proposed requirements that payment options are ADA compliant and include contactless payment be accepted from all credit and debit cards, and that access and service are not restricted by membership or payment method type. Not requiring that a sole payment method be credit card takes into consideration the needs of the unbanked and underbanked who may need to pay via another payment method, such as a prepaid card developed to be used at EV charging stations or software applications on smart devices.

Given that South Carolina's population centers are largely spread out across the state, moving people to and from these centers via the major interstates is important. Moreover, South Carolina's economy is largely dependent on tourism and manufacturing. With an unemployment rate of 3.4 percent, and the importance of manufacturing and tourism, it is critical that the state be able to effectively move both goods and people. Increasing access to electric vehicle charging along these corridors is essential to increasing opportunities and improving the lives of disadvantaged groups and communities by providing transportation options.

Identification and Outreach to Disadvantaged Communities (DACs) in the State

South Carolina will utilize the EV Charging Justice40 Map Tool from the United State Department of Energy and United States Department of Transportation to identify DACs in South Carolina. This map tool is available online at <https://www.anl.gov/esia/electric-vehicle-charging-equity-considerations>.

Other tools will also be evaluated as follows:

- FHWA Screening Tool for Equity Analysis of Projects (STEAP), available online at <https://hepgis.fhwa.dot.gov/fhwagis/buffertool/>
- The Council on Environmental Quality Economic (CEQ) Climate Justice Screening Tool, available online at <https://screeningtool.geoplatform.gov/en/#4.29/38.32/-85.06>
- The United States Environmental Protection Agency (US EPA) Environmental Justice Screening and Mapping Tool, available online at <https://ejscreen.epa.gov/mapper/>

Process to Identify, Quantify, and Measure Benefits to DACs

Annual updates to this plan will identify metrics to quantify and measure in order to evaluate benefits to DACs. Upon selection of a consultant, public outreach will serve to establish metrics that are meaningful to DACs to ensure the appropriate issues are targeted and tracked.

Benefits to DACs through this Plan

Providing transportation options is an essential principal to benefit DACs. The NEVI Formula Program will provide DACs will a transportation option that will hopefully decrease in expense as availability of EVs and EV chargers becomes more prevalent. Targeted public outreach to DACs will be implemented and used to modify the annual updates to this plan.

Coordination will occur with FHWA-SC and the Joint Office to adapt as additional guidance is provided on this subject.

Labor and Workforce Considerations

In compliance with 23 CFR 680.106(j) to ensure that the installation and maintenance of chargers is performed safely by a qualified and increasingly diverse workforce of licensed technicians and other laborers, all electricians installing, operating, or maintaining Electric Vehicle Supply Equipment must receive certification from the Electric Vehicle Infrastructure Training Program (EVITP) or a registered apprenticeship program for electricians that includes charger-specific training developed as part of a national guideline standard approved by the Department of Labor in consultation with the Department of Transportation, if and when such programs are approved.

The Interagency Working Group is comprised of the appropriate members to initiate discussion of labor and workforce related to EV charging equipment. Subsequent coordination with EV charging industry leaders will occur to ensure a partnered approach to solving challenges related to labor and the workforce.

Options for addressing issues related to this subject are to engage with the South Carolina technical college system. South Carolina's technical college system and its internationally renowned programs - readySC™ and Apprenticeship Carolina™ - provide the training and education necessary to build a competitive and diverse workforce.

As an integral part of the SC Technical College System, readySC™ works together with the state's 16 technical colleges to prepare South Carolina's workforce to meet the needs of the state's industries. Established in 1961, readySC™ is one of the oldest and most experienced workforce training programs in the country, and seeks to assist companies with identifying the skills, knowledge and abilities needed, designing new and innovative training solutions, and developing training and project management programs.

Apprenticeship Carolina™, a division of the SC Technical College System, leads South Carolina in registered apprenticeship programs that help businesses and communities thrive economically. Through innovation and partnerships, Apprenticeship Carolina catalyzes the promotion of registered youth, adult, and pre-apprenticeships. Apprenticeship Carolina is also a resource to help employers create, maintain, and maximize the use of these programs. Apprenticeship Carolina is committed to creating and strengthening career pathways that enrich and enhance South Carolina's existing and future workforce.

Cybersecurity

The consultant selected to assist with the annual updates will provide industry expertise on cybersecurity provisions. Contract specifications for cybersecurity provisions will be required as part of the implementation of EV charging stations. Information from the National Institute of Standards and Technology will be utilized in conjunction with feedback from industry leaders to ensure risk of cyber threat is managed to not impact payment or data analytics at EV charging stations.

Program Evaluation

Procurement of a consultant with expertise in EV charging programs will assist with identifying measurements for acceptable performance. The annual plan update will include a review of reporting data and if needed, revised strategies to mitigate inefficiencies. This annual review will also evaluate emerging technology and industry innovations to determine if the implementation plan needs refinement.

Discretionary Exceptions (if any)

If needed, discretionary exceptions will be reviewed in coordination with FHWA-SC prior to formal consideration. There are no discretionary exceptions identified at this time. Annual updates to this plan may introduce the need to use this tool; however, it will be reserved for unique scenarios that are well justified.

Appendix A

**Tabular Data
For
Existing Public DCFCs with CCS Plugs
In South Carolina**

Existing Public DCFCs with CCS Plugs in South Carolina

ID	Charger Level	Street Address	Zip Code	Station Name	EV Network	City	Date Last Confirmed
38309	2, DCFC	66 Richardson St	29601	City of Greenville - Richardson Garage	Non-Networked	Greenville	6/14/2022
78914	2, DCFC	5 Research Dr	29607	Clemson University CU-ICAR	Non-Networked	Greenville	6/7/2021
122985	DCFC	7250 Rivers Ave	29406	Target T1829 - N Charleston, SC	Electrify America	North Charleston	7/10/2023
133662	DCFC	1211 Woodruff Road	29607	Sam's Club 8278 - Greenville, SC	Electrify America	Greenville	7/10/2023
166482	2, DCFC	9564 Two Notch Rd	29223	Sesquicentennial State Park	Non-Networked	Columbia	6/12/2023
167167	DCFC	230 N Beltline Drive	29501	Walmart 630 Florence	Electrify America	Florence	7/10/2023
169353	DCFC	360 Harbison Blvd	29212	Walmart 1164 - Columbia, SC	Electrify America	Columbia	7/10/2023
169461	DCFC	2110 Bells Highway	29488	Walmart 1358 - Walterboro, SC	Electrify America	Walterboro	7/10/2023
190282	2, DCFC	490 Killian Rd	29203	McDaniels Auto Group	Non-Networked	Columbia	6/12/2023
202936	DCFC	33465 US-301	29547	Sunoco West	SHELL_RECHARGE	Hamer	1/10/2023
212656	DCFC	825 US-1	29078	Lugoff Chevrolet Buick GMC	Non-Networked	Lugoff	4/6/2022
222442	DCFC	2764 Cherry Rd	29730	Circle K - Rock Hill, SC	Circle K	Rock Hill	2/13/2023
228009	DCFC	1417 E Washington St	29607	Spinx	eVgo Network	Greenville	7/9/2023
228010	DCFC	8001 Broad River Rd	29063	Spinx	eVgo Network	Irmo	7/9/2023
228011	DCFC	7495 Augusta Rd	29673	Spinx	eVgo Network	Piedmont	7/9/2023
228015	DCFC	901 Marue Dr	29605	Spinx	eVgo Network	Greenville	7/9/2023
235142	DCFC	102 W Frontage Rd	29805	McDonald's	EVGATEWAY	Aiken	11/10/2022
238832	DCFC	9960 Farrow Road	29203	STIVERS HYUNDAI DC2	ChargePoint Network	Columbia	7/10/2023
238833	DCFC	9960 Farrow Road	29203	STIVERS HYUNDAI DC1	ChargePoint Network	Columbia	7/10/2023
241154	DCFC	121 Farmington Rd	29483	McElveen Buick GMC	AMPUP	Summerville	2/13/2023
251153	DCFC	71 Matthews Dr	29926	Circle K - Hilton Head Island	Circle K	Hilton Head Island	2/13/2023
254025	DCFC	1925 Pearman Dairy Rd	29621	HOA CHARGERS 1 HYUNDAI CHRGR 1	ChargePoint Network	Anderson	7/10/2023

254035	DCFC	1925 Pearman Dairy Rd	29621	HOA CHARGERS 1 HYUNDAI CHRGR 2	ChargePoint Network	Anderson	7/10/2023
255385	DCFC	13740 E Wade Hampton Blvd	29651	TLH 1 HOG CUSTOMER	ChargePoint Network	Greer	7/10/2023
256676	DCFC	2451 Highway 160 W	29708	Stonecrest Village	eVgo Network	Fort Mill	7/9/2023
256689	DCFC	5585 Jefferson Davis Hwy	29842	TLH 1 THL-1	ChargePoint Network	Beech Island	7/10/2023
260945	DCFC	125 Trailblazer Dr	29690	Travelers Rest Municipal Complex	Non-Networked	Travelers Rest	6/12/2023
262499	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-1A)	RIVIAN_ADVENTURE	Greenville	7/10/2023
262500	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-1B)	RIVIAN_ADVENTURE	Greenville	7/10/2023
262501	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-1C)	RIVIAN_ADVENTURE	Greenville	7/10/2023
262502	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-2B)	RIVIAN_ADVENTURE	Greenville	7/10/2023
262503	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-2A)	RIVIAN_ADVENTURE	Greenville	7/10/2023
262504	DCFC	3620 Pelham Road	29615	3620 Pelham Road (US-TDR- XZH-2C)	RIVIAN_ADVENTURE	Greenville	7/10/2023
263039	DCFC	1700 W Evans St	29501	King Cadillac Buick GMC	EV Connect	Florence	7/10/2023

Appendix B

Tabular Data

For

DCFC Locations with CCS Plugs

Within One (1) Mile of Interchange

On South Carolina AFC Corridors

DCFC Locations with Four (4) CCS Plugs within One (1) Mile of Interchange on South Carolina AFC Corridors

ID	Charger Level	Number of Connectors	Street Address	City	Zip Code	Location	EV Network	Date Last Confirmed
122985	DCFC	4	7250 Rivers Ave	North Charleston	29406	Target T1829 - N Charleston, SC	Electrify America	7/10/2023
133662	DCFC	4	1211 Woodruff Road	Greenville	29607	Sam's Club 8278 - Greenville, SC	Electrify America	7/10/2023
167167	DCFC	4	230 N Beltline Drive	Florence	29501	Walmart 630 Florence	Electrify America	7/10/2023
169353	DCFC	4	360 Harbison Blvd	Columbia	29212	Walmart 1164 - Columbia, SC	Electrify America	7/10/2023
169461	DCFC	4	2110 Bells Highway	Walterboro	29488	Walmart 1358 - Walterboro, SC	Electrify America	7/10/2023
222442	DCFC	4	2764 Cherry Road	Rock Hill	29730	Circle K	Circle K	2/13/2023
235142	DCFC	4	102 W Frontage Rd	Aiken	29805	McDonalds	EVGateway	11/10/2022