PLUG in SC

SOUTH CAROLINA
Electric Vehicle Market Study

South Carolina Electric Vehicle Market Study

Background

Palmetto Clean Fuels (PCF) is an initiative of the South Carolina Office of Regulatory Staff - Energy Office (Energy Office). PCF is one of more than 100 U.S. Department of Energy (DOE) Clean Cities designees and represents the entire state of South Carolina. Clean Cities is a locally based, voluntary public/private partnership created to promote energy use in the transportation sector that is clean, safe, sustainable, and less dependent upon foreign energy sources. Clean Cities builds on local initiatives and partnerships as well as nationwide networks to achieve its goals. By combining local decision-making with voluntary action by partners, this grassroots community action group seeks to create effective programs that support a sustainable nationwide alternative fuels market. PCF works to increase the use of alternative fuels and advanced vehicle technologies and strives to help public and private entities— as well as individuals— lower fuel costs, improve air quality, and reduce petroleum consumption. PCF also promotes idle reduction, fuel economy measures, vehicle miles traveled reductions, and bicycle and pedestrian efforts.

Clean Cities Coalitions

* Connecticut Clean Cities Include:
  – Norwich
  – New Haven
  – Connecticut Southwestern Area
  – Capitol Clean Cities (Hartford area)

Map Date: 04/12/16

Introduction

This study focuses on one aspect of PCF work—electric vehicles (EV). It builds on several regional studies as well as the past efforts of the organization, Plug-In Carolina. Plug-In Carolina, a registered non-profit, was selected to manage a program to install Electric Vehicle Supply Equipment (EVSE) funded with the American Recovery and Reinvestment Act (ARRA) through the Energy Office. In total, 38 EV charging stations were placed throughout the state. Plug-In Carolina has since dissolved as an organization.

Discussions with EV and EVSE owners, assessments of various alternative fueling stations throughout the state, and consultations with officials at the state and local levels have revealed several challenges that are impeding development of the EV market in South Carolina. Individuals are hesitant to purchase EVs because of the uncertainty surrounding recharging. Current EVSE are often overlooked due to inadequate and often inconsistent signage. Local jurisdictions indicate the availability of public charging stations in a variety of ways. Parking availability and electrical limitations may have caused many stations to be placed in obscure and hidden locations, thus making them difficult to find without directional signage. In addition, many of the original stations are now in need of repair.

Recognizing the importance of preparing the state for increased EV sales and interest, PCF performed this study to address these and related issues. The study considers the following:

- An assessment of the current EV infrastructure and policy framework in South Carolina
- An analysis of trends and the outlook for the future
- Actions to prepare South Carolina for future EV development

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Current Assessment

Types of EVs

Electricity is considered an alternative fuel under the Energy Policy Act of 1992. Hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and all-electric vehicles—also called electric drive vehicles collectively— use electricity either as their primary fuel or to improve the efficiency of conventional vehicle designs.

Hybrid Electric Vehicles

HEVs are powered by an internal combustion engine (ICE) and by an electric motor that uses energy stored in a battery. HEVs cannot be plugged in to charge the battery. Instead, the battery is charged through regenerative braking and by the ICE.

Plug-In Hybrid Electric Vehicles

PHEVs (sometimes called extended-range electric vehicles, or EREVs) use batteries to power an electric motor and use another fuel, such as gasoline, to power an ICE. PHEVs can be plugged into the grid to charge their batteries; their batteries can also be charged by the ICE and through regenerative braking.

All-Electric Vehicles

All-electric vehicles (also called battery-electric vehicles, or BEVs) use batteries to store the electrical energy that powers one or more motors. The batteries are charged by plugging the vehicle into the grid. EVs can also be charged in part through regenerative braking. EVs do not have ICEs and, therefore, do not produce tailpipe emissions. However, "life cycle" emissions are associated with the majority of electricity production in the U.S.

Current EV Stations *(2016)*

EV Stations per County *(2016, includes public and private stations)*

Counties with 1-4 stations		Counties with 5-10 stations		Counties with 11-20 stations		Counties with 21+ stations	
Anderson	4	Aiken	5	Charleston	17	Greenville	51
Berkeley	3	Beaufort	7	Horry	18	Richland	31
Chesterfield	1	Florence	6	Spartanburg	13		
Darlington	2	Georgetown	5	York	12		
Dillon	1	Pickens	10				
Greenwood	2	Lexington	5				
Jasper	2						
Kershaw	1						
Marlboro	1						
Oconee	3						
Orangeburg	3						
Sumter	4						
Union	4						

Number of charging outlets per EVSE Level *(2016, includes public and private stations)*

Level 1	9
Level 2	333
DC Fast Charger	66

Number of public and private stations *(2016)*

Public	136
Public- Call ahead	21
Public - Card key at all times	12
Public - Credit card at all times	7
Private	33

Current EV Registrations *(2016)*

The following tables list the approximate count of current registrations for EV, HEV, and PHEVs in South Carolina. This data was acquired from R.L. Polk, a private automotive intelligence company. Polk works directly with state motor vehicle departments and vehicle manufacturers to gather sales and registration data for all motor vehicles in the U.S.

BEVs per County

Counties with <5 BEVs		Counties with 5 - 25 BEVs		Counties with 26 - 100 BEVs		Counties with 100+ BEVs	
Abbeville	<5	Aiken	20	Anderson	30	Charleston	180
Bamberg	<5	Darlington	10	Beaufort	90	Greenville	120
Calhoun	<5	Dorchester	20	Berkeley	50		
Cherokee	<5	Florence	10	Horry	90		
Chester	<5	Georgetown	10	Lexington	40		
Chesterfield	<5	Kershaw	10	Pickens	30		
Clarendon	<5	Lancaster	10	Richland	90		
Colleton	<5	Oconee	20	Spartanburg	30		
Dillon	<5			York	70		
Edgefield	<5						
Fairfield	<5						
Greenwood	<5						
Jasper	<5						
Laurens	<5						
Marlboro	<5						
McCormick	<5						

Newberry <5 Orangeburg <5 Sumter <5 Union <5 Williamsburg <5			

HEVs per County

Counties with 1 - 499 HEVs	Counties with 500 - 999 HEVs	Counties with 1,000 - 2,500 HEVs	Counties with 2,501+ HEVs
Abbeville 110 Allendale 20 Bamberg 30 Barnwell 80 Calhoun 70 Cherokee 230 Chester 110 Chesterfield 140 Clarendon 150 Colleton 200 Darlington 280 Dillon 70 Edgefield 130 Fairfield 120 Greenwood 460 Hampton 60 Jasper 150 Kershaw 450 Laurens 320 Lee 50 Marion 80 Marlboro 60 McCormick 110 Newberry 210 Orangeburg 320 Saluda 60 Union 80 Williamsburg 60	Florence 840 Georgetown 540 Lancaster 740 Oconee 810 Sumter 520	Aiken 1300 Anderson 1300 Beaufort 2500 Berkeley 1500 Dorchester 1400 Spartanburg 2500 Pickens 1000 York 2300	Charleston 5000 Greenville 4900 Horry 2900 Lexington 2700 Richland 4000

PHEVs per County

Counties with <5 PHEVs	Counties with 5 - 49 PHEVs	Counties with 50 - 99 PHEVs	Counties with 100+ PHEVs
Abbeville <5 Barnwell <5 Calhoun <5 Cherokee <5	Aiken 30 Anderson 30 Colleton 10 Darlington 10	Beaufort 70 Berkeley 50 Horry 70 Lexington 70	Charleston 170 Greenville 190 Richland 100 York 120

Chester	<5	Dorchester	30	Spartanburg	70
Chesterfield	<5	Fairfield	10		
Clarendon	<5	Florence	20		
Edgefield	<5	Greenwood	10		
Georgetown	<5	Jasper	10		
Hampton	<5	Kershaw	10		
Marion	<5	Lancaster	20		
Marlboro	<5	Laurens	10		
Newberry	<5	Oconee	30		
Saluda	<5	Orangeburg	10		
Union	<5	Pickens	30		
		Sumter	10		

Counties that lead in EV, HEV, and PHEV registrations are Charleston, Greenville, Horry, Richland, Lexington, and York. These counties also lead in stations per county, with the exception being Lexington. Consumers are more susceptible to purchasing EVs, HEVs, and PHEVs when their counties have accommodating infrastructure.

Current Incentives

Federal

Qualified plug-in electric drive motor vehicle tax credit
A tax credit is available for the purchase of a new qualified plug-in electric drive motor vehicle that draws propulsion using a traction battery that has at least five kilowatt-hours (kWh) of capacity, uses an external source of energy to recharge the battery, has a gross vehicle weight rating of up to 14,000 pounds, and meets specified emission standards. The minimum credit amount is $2,500, and the credit may be up to $7,500, based on each vehicle's traction battery capacity and the gross vehicle weight rating. The credit will begin to be phased out for each manufacturer in the second calendar quarter following the calendar quarter in which a minimum of 200,000 qualified plug-in electric drive vehicles have been sold by that manufacturer for use in the U.S. This tax credit applies to vehicles acquired after December 31, 2009.[1]

Airport zero emission vehicle and infrastructure incentives
The Zero Emissions Airport Vehicle and Infrastructure Pilot Program provides funding to airports for up to 50% of the cost to acquire zero emission vehicles and install or modify supporting infrastructure for acquired vehicles. Grant funding must be used for airport-owned, on-road vehicles used exclusively for airport purposes. Vehicles and infrastructure must meet the Federal Aviation Administration's Airport Improvement Program requirements, including Buy American requirements. To be eligible, an airport must be for public use. The program will give priority to applicants located in nonattainment areas, as defined by the Clean Air Act (CAA), and projects that achieve the greatest air quality benefits, as measured by the amount of emissions reduced per dollar of funds spent under the program.[2]

The following federal incentives recently expired:

Alternative fuel infrastructure tax credit
Fueling equipment for natural gas, liquefied petroleum gas (propane), liquefied hydrogen, electricity, E85, or

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[1] http://www.afdc.energy.gov/laws/409
[2] http://www.afdc.energy.gov/laws/10394

diesel fuel blends containing a minimum of 20% biodiesel installed between January 1, 2015, and December 31, 2016, is eligible for a tax credit of 30% of the cost, not to exceed $30,000. Permitting and inspection fees are not included in covered expenses. Fueling station owners who install qualified equipment at multiple sites are allowed to use the credit towards each location. Consumers who purchased qualified residential fueling equipment prior to December 31, 2016, may receive a tax credit of up to $1,000. Unused credits that qualify as general business tax credits, as defined by the Internal Revenue Service (IRS), may be carried backward one year and carried forward 20 years.[3]

Qualified two-wheeled plug-in electric drive motor vehicle tax credit

A credit is available for the purchase of a new qualified two-wheeled plug-in electric drive vehicle that draws propulsion using a traction battery that has at least 2.5 kWh of capacity, uses an external source of energy to recharge the battery, has a gross vehicle weight rating of up to 14,000 pounds, is manufactured primarily for use on public roadways, and can drive at least 45 miles per hour. The credit is for 10% of the cost of the qualified vehicle, up to $2,500, and applies to vehicles acquired between January 1, 2015, and December 31, 2016.[4]

State

There are currently no state incentives for EVs in South Carolina.

The following state incentives recently expired:

Plug-In Hybrid Electric Vehicle (PHEV) Tax Credit

For taxable years before 2017, an income tax credit is available for the in-state purchase or lease of a new PHEV. For the purpose of this incentive, a PHEV is a vehicle equipped with an internal combustion and an electric engine with an all-electric range of at least nine miles, uses an external source of energy to charge the battery, and has at least four kWh of battery capacity. The credit is equal to $667, plus $111 if the vehicle has at least five kWh of battery capacity, plus an additional $111 for each additional kWh, with a maximum allowed credit of $2,000. Low- or medium-speed vehicles do not qualify for this credit. Total claims for all taxpayers in one year may not exceed $200,000 and are available on a first-come, first-served basis.[5]

Station Analysis

As part of this study, ChargePoint provided state-level statistics on charging at its stations. ChargePoint is an EVSE manufacturer, operating an extensive vehicle charging network in South Carolina.

The Alternative Fuels Data Center, a DOE resource, recognizes three levels of charging:

- AC Level 1 Charging provides two to five miles of range per one hour of charging.
- AC Level 2 Charging provides 10 to 20 miles of range per one hour of charging.
- DC Fast Charging provides 50 to 70 miles of range per 20 minutes of charging.[6]

ChargePoint's 2016 data showed that more than 93% of the charging sessions in South Carolina were Level 2. This is attributed to the fact that most stations in the ChargePoint network are Level 2.
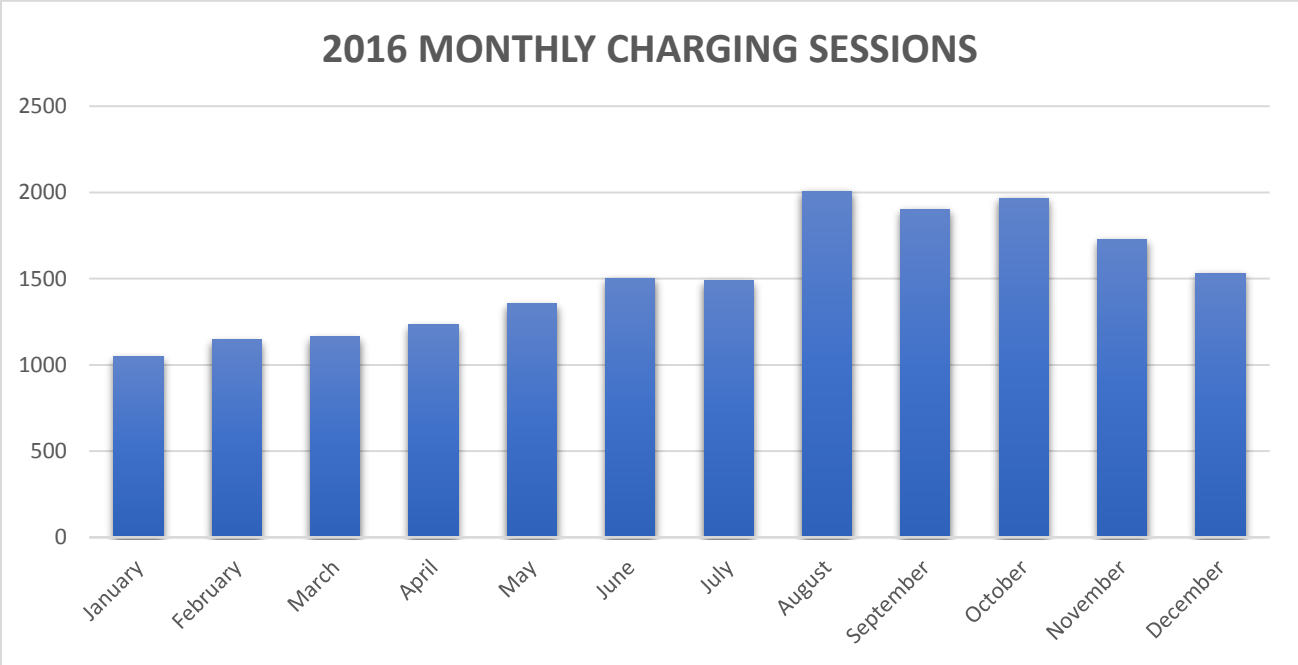

DC Fast 6.08%   Level 1 0.12%

Level 2 93.80%
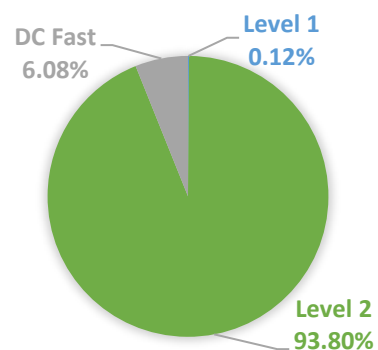
3 http://www.afdc.energy.gov/laws/10513
4 http://www.afdc.energy.gov/laws/11382
5 Reference South Carolina Code of Laws 12-6-3376
6 http://www.afdc.energy.gov/fuels/electricity_infrastructure.html

2016 MONTHLY CHARGING SESSIONS

The most popular daily time frame for EV public charging was from 5am to 10am with 39% of sessions. The second most popular time frame with 33% of the sessions was from 10am to 3pm. With 72% of charging sessions being from 5am to 3pm, this can be associated with the understanding that most consumers are on the road during that time and stopping to charge. Also, most ChargePoint stations are for public use and they would be available for charging during the day, whereas EV owners would charge at home during the evening hours. The least popular time frame with only 8% of sessions was from 9pm to 5am. Due to this timeframe being one where consumers are typically at home, although still accessible, public charging stations are not as utilized in comparison.

2016 PUBLIC CHARGING BY TIME OF DAY

9pm-5am
8%

3pm-9pm
20%

5am-10am
39%

10am-3pm
33%
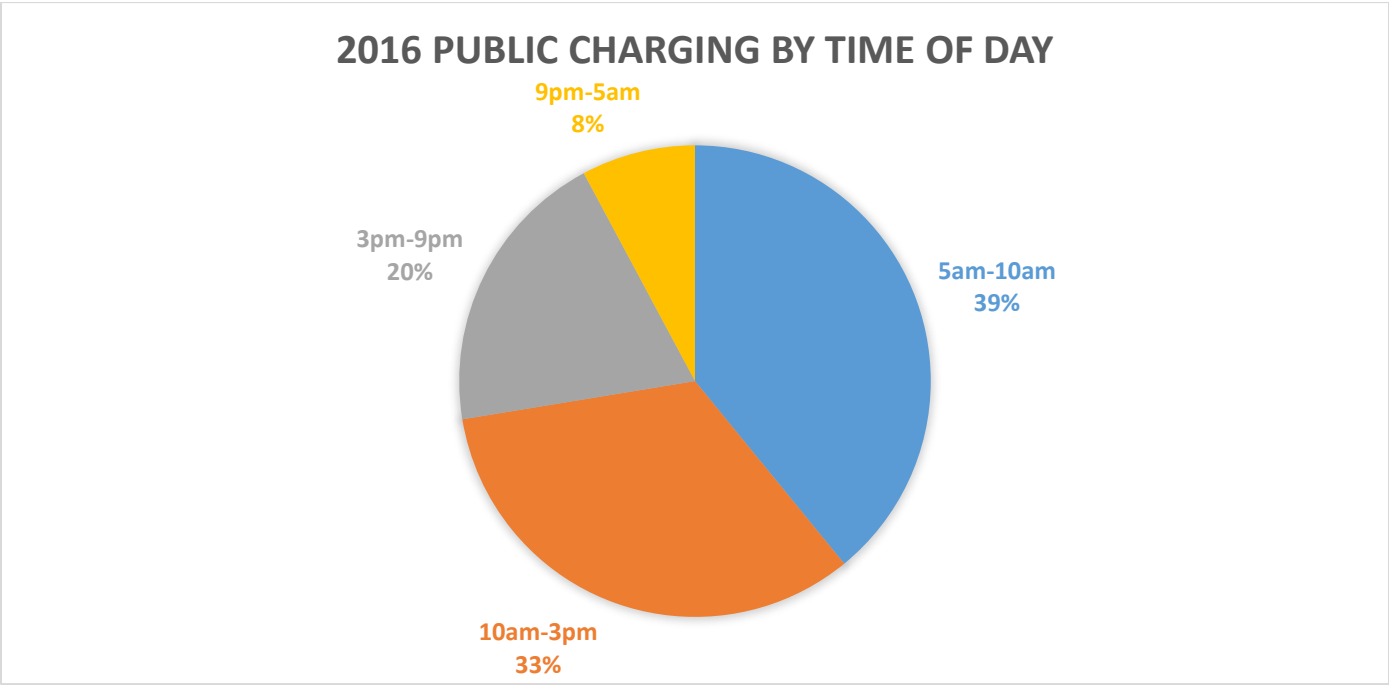
The average time that an EV was connected to a ChargePoint station was 407 minutes (or 6 hours and 47 minutes), while the average time that an EV was charging was 119 minutes (or 1 hour and 59 minutes). This difference indicates that the EVs were only charging for 29.22% of the time that they were connected to the station. EVs used an average of 6.6 kWh per session in 2016.

Trends and Future Outlook

Sales of EVs continue to increase, while at the same time, community readiness appears to lag. On the national level, federal agencies are beginning to recognize the need for greater attention to the needs of EV drivers.

EV Sales

Argonne National Laboratory provides monthly updates for EV sales. Argonne National Laboratory is managed by UChicago Argonne, LLC, for the DOE Office of Science. Argonne National Laboratory provides the following data.

Different trends and factors are associated with HEV sales, including gasoline prices and the unemployment rate.
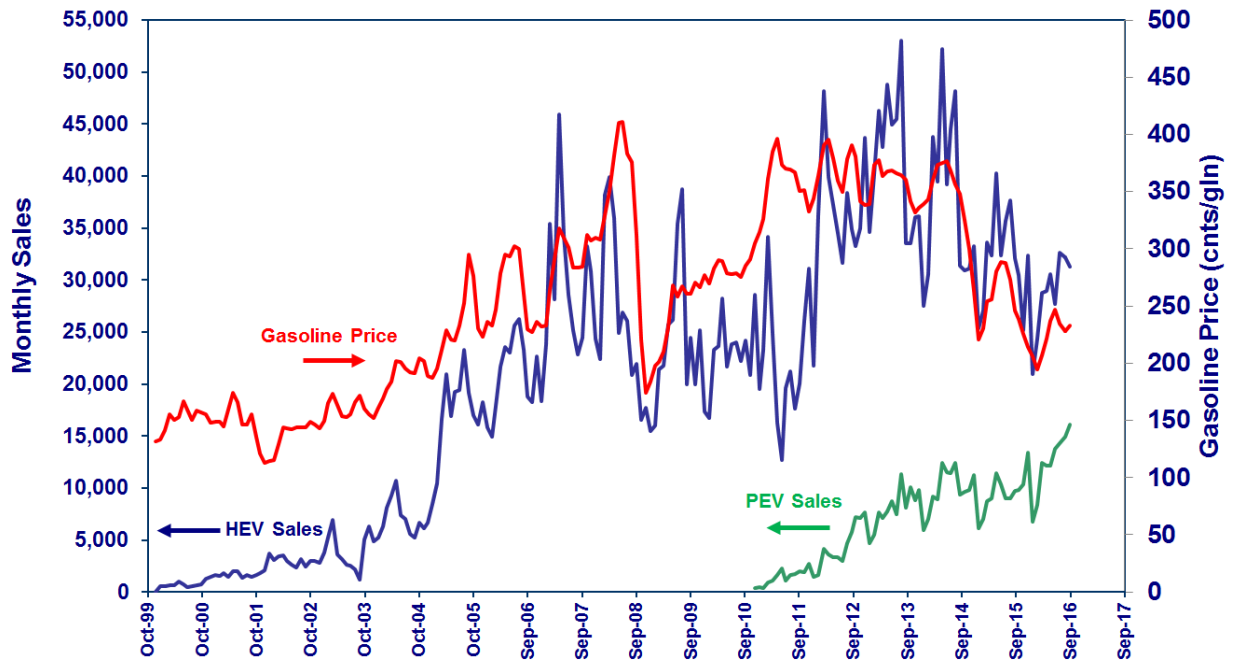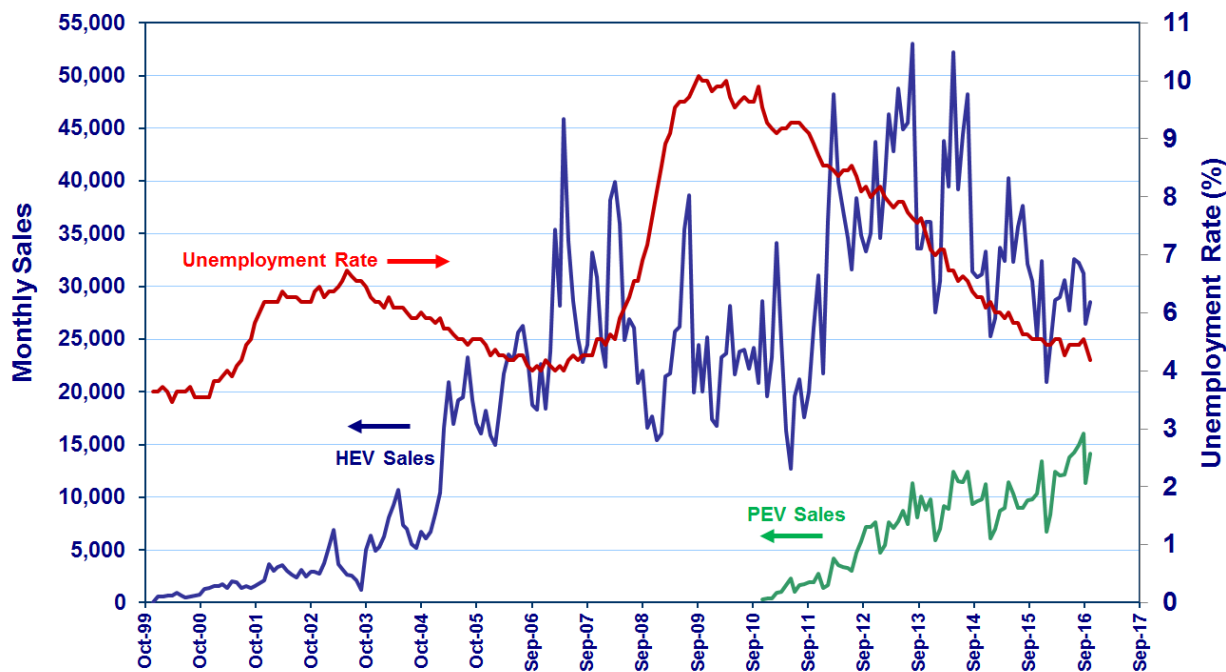
HEV sales and gasoline prices share a positive correlation: when gas prices are high, sales are high and when gasoline prices are low, sales are low. HEV sales and the unemployment rate share a negative correlation: when the unemployment rate is high, sales are low and when the rate is low, sales are high.

Plug-in (PEV) sales increase as gas prices drop and the unemployment rate decreases.

EV Readiness

EV Readiness is a term used to describe those strategies, policies, and actions that empower a community to support the deployment of PEVs and charging infrastructure and, as a result, derive the associated benefits.

Plug-In Readiness Scorecard

The DOE makes several tools available to Clean Cities coalitions to further the mission of advancing the nation's economic, environmental, and energy security by supporting local actions to cut petroleum use in transportation. One such tool is the *Plug-In Electric Vehicle Readiness Scorecard*.

The *Plug-In Electric Vehicle Readiness Scorecard* helps communities assess their readiness for the arrival of PEVs and EVSE. It also provides feedback and facilitates tracking progress toward the goal of PEV readiness.[7]

PCF sought to examine its own readiness using this tool. The results of this analysis indicate that the coalition needs to improve its efforts in this regard. However, market conditions within South Carolina appear favorable. (See Appendix A for the full results.)

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[7] https://www.afdc.energy.gov/pev-readiness

Southeast Regional EV Readiness Planning Program

A group of stakeholders from Alabama, Georgia, and South Carolina came together in October 2012 to develop a workbook to introduce the concept of EV Readiness to community stakeholders in the Southeast. The work was supported by a grant from the DOE National Energy Technology Laboratory, project DE-EE005579, and coordinated by the Center for Transportation and the Environment.

The workbook provides resources and tools to enable a community to become EV ready and is organized into three sections:

- Section I - An Introduction into the Concept of EV Readiness
- Section II - An in-depth Examination Into the Roles of Stakeholders
- Section III - Electric Vehicle Adoption in the Southeast, Peak Loading Addendum

A copy of the complete report can be found here: http://palmettocleanfuels.org/afuels/electric

The report itself found that, at the time, only a few Southeastern cities made an appearance on the Ford's list of top 25 EV Ready cities (and Project Get Ready assessment). However, the low cost of electricity, minimal grid impacts, and potential combination of federal and state incentives were found to create an environment in the Southeast that make EV deployment potentially highly beneficial. At the time of the report, four basic barriers were identified as limiting EV deployment:
> 1) EV original equipment manufacturers (OEMs) having not targeted the Tri-State region;
> 2) limited infrastructure availability;
> 3) limited focus on consumer education; and
> 4) the cost of new technology.

Volkswagen Settlement

On January 4, 2016, and as amended on October 7, 2016, the U.S. filed a complaint against Volkswagen (VW) alleging violations of the CAA with regard to approximately 600,000 diesel vehicles sold in the U.S. The alleged violations assert that vehicles were equipped with defeat devices in the form of computer software designed to cheat on federal emission tests. On June 28, 2016, the U.S. lodged with the court a settlement with Volkswagen. On October 25, 2016, the court approved the settlement.

In addition to a recall and buybacks or lease terminations, Volkswagen will pay $2.7 billion to fully remediate the excess NOx emissions from the affected vehicles. This money will be used to establish a mitigation trust that will be administered through a mitigation trustee, with allocations to specific state, territorial, and tribal government beneficiaries to use for specific NOx-reducing actions.

South Carolina is expected to receive $31 + million as part of the settlement. However, in order for a state to be considered a beneficiary, a government entity must file a certification form with the court within 60 days of the Trust Effective Date (TED), which has not been set. Each form must designate a lead agency in the State certified by the Office of the Governor. On June 14, 2017, Governor McMaster announced that the SC Department of Insurance would be named the beneficiary once the TED is established.

The state beneficiary has 120 days after the TED to offer a Beneficiary Mitigation Plan (the Plan) to include:
- overall goal for use of the funds;
- categories of actions;
- anticipated percentage of funds for each;

- a plan for how benefits will be considered for areas that bear a disproportionate share of air pollution burden; and
- a description of ranges of emissions benefits the Plan would realize.

Fifteen percent of the mitigation funds can be spent on EV infrastructure.

South Carolina State Energy Plan

In 2017, the Energy Office published a comprehensive State Energy Plan which includes consideration of transportation needs.

Clean transportation was the subject of nine recommendations presented in the State Energy Plan. Two of the eight top-tier recommendations include a focus on alternative transportation and EVs:

"Funding for Needed Energy Upgrades" seeks to alleviate the lack of a revenue stream to advance energy efficiency, renewable energy, and alternative transportation opportunities.

"Lead By Example – State Transportation" focuses on assessing interest in government fleet adoption of alternative fuels and ultimately encourages the development of statewide goals and incentives to promote alternative fuels.

Alternative Fuel Corridor Designations

On July 22, 2016, the Federal Highway Administration (FHWA) and U.S. Department of Transportation (DOT) published a Notice in the Federal Register (81 FR 47850) soliciting nominations for recommendations from state and local officials to assist in making these recommendations. On November 3, 2016, the FHWA announced Alternative Fuel Vehicle (AFV) corridor recommendations as part of the Fixing America's Surface Transportation (FAST) Act requirements.

PCF submitted recommendations for AFV corridors in South Carolina on behalf of its stakeholders. PCF believes that the corridor recommendations designated within the state provide a significant opportunity to 1) advance the deployment of AFVs, such as EVs and 2) to develop the necessary infrastrure along these corridors. The map depicts the designated EV corridors in South Carolina.[8]

Legend
2010 Urbanized Area
Alternative Fuel Corridors
EV - Signage Ready
EV - Signage Pending
0   15   30   45
Miles

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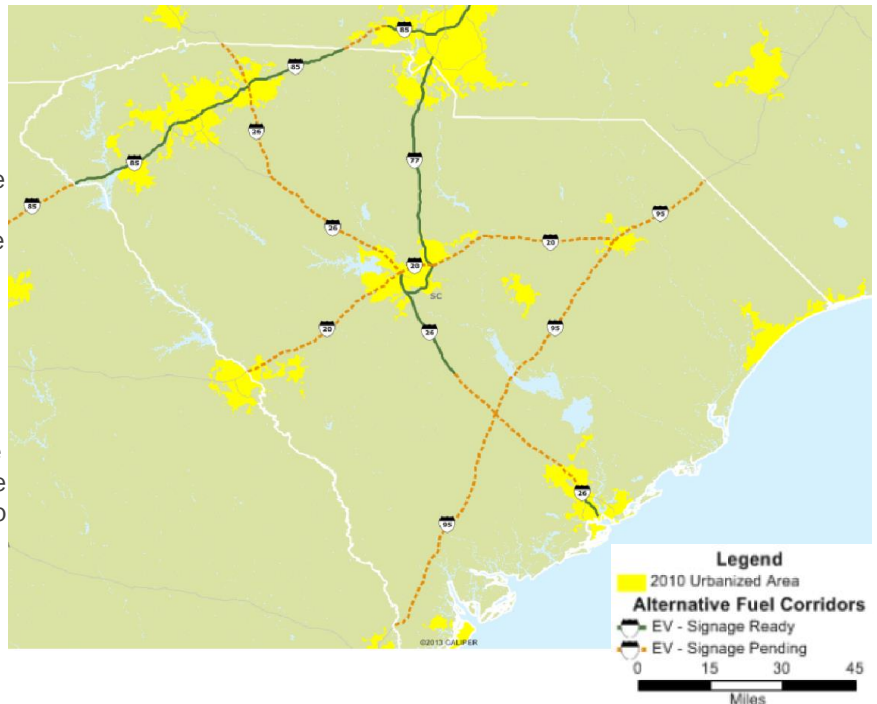
[8] http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

Challenges & Objectives

The Challenge:

As interest in EVs grows, existing infrastructure must be evaluated. It can be difficult to locate electric and plug-in EV infrastructure in South Carolina. Therefore, PCF seeks to unify EV stakeholders, standardize signage to advance the recognition of EVSE, and encourage EV adoption in South Carolina.

Objectives:

- Standardize signage and pavement markings for existing and new charging stations
- Develop strategic deployment of EVSE
- Track and assess future EV growth

Implementation

PCF has identified two significant needs that can be addressed immediately to support the EV market in South Carolina. The first is a priority list of infrastructure development or repair that can be undertaken as funds become available. The second is the development of a communications strategy which is the Plug in SC Plan to (a) encourage adoption of EVs and (b) support existing EV owners by standardizing and improving signage and markings.

Infrastructure Development

Infrastructure is important for EVs. It is often what alleviates range anxiety in consumers and can lead to increased adoption. As previously noted, current EV infrastructure is clustered in major counties of the state. While this clustering helps to foster adoption where it is more likely to take place, it neglects the idea of connecting different regions of the state and developing corridors. PCF recommends an overarching goal of connecting the vast stretches of major interstates and roadways that currently lack EVSE.

Google Mapping Tool

PCF has created a map detailing both current EVSE infrastructure as well as a host of other relevant information which may help to determine potential future locations around the state. This interactive map can be found by using the following link:
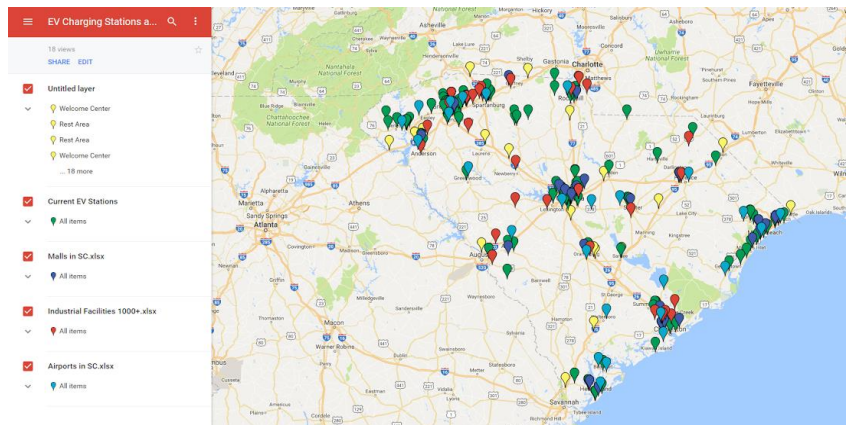
https://drive.google.com/open?id=1gtQPr9ZVOfW_hho1kHUoeDESOw0&usp=sharing

ArcGIS Mapping Tool

In addition to the Google mapping tool, PCF staff also partnered with University of South Carolina (USC) students to develop another tool using an ArcGIS web application to depict current infrastructure along with potential alternative fuel nodes, or concentrations of transportation corridors. Early discussions suggested identifying nodes to ensure that sufficient alternative fueling infrastructure exists. The analysis performed by the students included both identifying areas in the state where multiple modes of transportation currently converge and developing a process to update the information in the future. The information is necessary to encourage, house, and deploy AFVs and infrastructure, as well as to support truck stop anti-idling technology and reduction in vehicle miles traveled, particularly with regard to traffic moving in and out of deep water and inland ports.

The online mapping tool includes a base map gallery and detailed legend to describe several data layers from the Environmental Protection Agency (EPA), the SC Department of Commerce, the SC Department of Transportation (SCDOT), among others. Several features and widgets were added to the tool to facilitate measuring distances between alternative fueling stations and the ability to bookmark certain analyses.

Using the Google map and ArcGIS mapping tool as a resource and guide, PCF— along with its stakeholders— will seek to adopt and implement a strategy to appropriately invest in EVSE infrastructure.

Strategic Approach

In developing a strategy to identify potential areas to invest in EVSE, it is important to look at several factors, from the ease of permitting to the number of potential EV customers. Examining the factors involved helps to ensure that limited resources can be effectively used and public-private partnerships can be leveraged in a way that benefits the entire state.

Considerations for placing EVSE:
- Proximity to AFV corridor
- Regional connections
- Amenities or activities
- Visibility

Considerations for type or level of charger deployed:
- Traffic or visitors
- Usual length of stay
- Proximity to amenities or activities
- Visibility

Existing EV Permitting Process

PCF has conducted research on EV permitting in South Carolina, but the current status of permitting and guidance on such issues will be addressed in a working group consisting of the Municipal Association of South Carolina (MASC) and other interested parties. Permitting differs from municipality to municipality, so PCF will attempt to unify efforts to standardize permitting across the state. Guidelines will address barriers that exist for municipalities looking to install EVSE and the implementation of recommended standardized signage.

2015 Ranked South Carolina Metropolitan Statistical Areas

Below are the top-ranked metropolitan statistical areas (MSAs) in South Carolina by population according to information from the U.S. Census Bureau.

Rank	MSA	2015 Estimate
63	Greenville-Anderson-Mauldin, SC MSA	874,869
71	Columbia, SC MSA	810,068
75	Charleston-North Charleston, SC MSA	744,526
123	Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA	431,964
153	Spartanburg, SC MSA	325,079
211	Hilton Head Island-Bluffton-Beaufort, SC MSA	207,413
212	Florence, SC MSA	206,448
340	Sumter, SC MSA	107,480

Although South Carolina MSAs do not rank in the top, they are key pit-stops and gateways to major cities. For example, to travel from Charlotte, NC (ranked number 22 MSA) to Atlanta, GA (ranked number nine MSA), one would travel via I-85 through both Spartanburg and Greenville, SC. To travel from New York City, NY (ranked number one MSA) to Miami, FL (ranked number eight MSA), one would travel via I-95 directly through Florence, SC and through the entire eastern coast of South Carolina. To create connected EV corridors, specific focus needs to be given to the interstates and roadways between these top South Carolina MSAs.

Recommendations

Rest Areas & Welcome Centers

Currently, large stretches of roadway have absolutely no infrastructure, thus forcing EV motorists to stray from their course in order to charge. Using the aforementioned mapping tools, PCF was able to tell the distance between current EVSE along major roadways. In places where chargers are farther apart, DC fast chargers should be placed. Deciding the actual locations of these chargers is the next step.

South Carolina's Welcome Center & Rest Area Locations
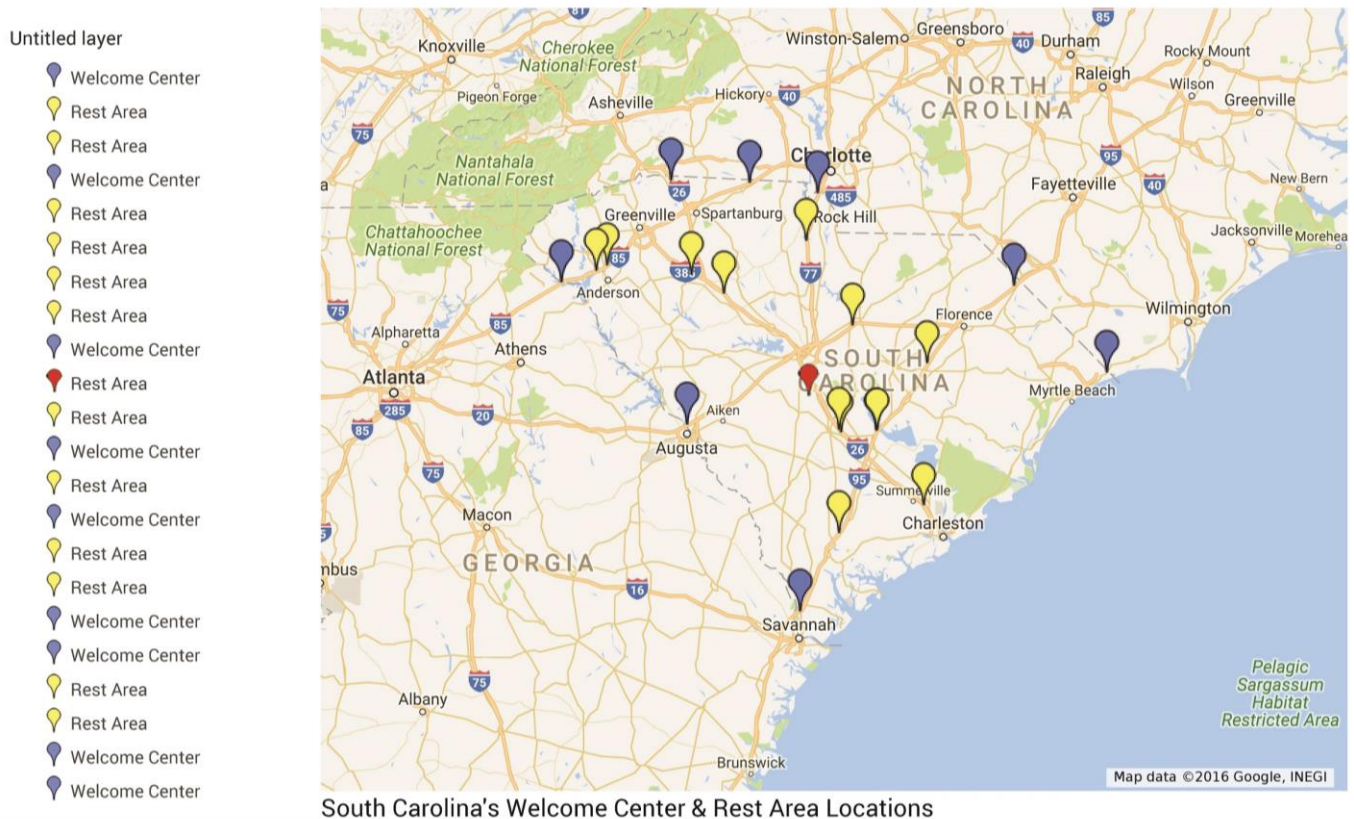
Locations of DC Fast Chargers should be along major interstates and roadways to facilitate the long-distance travel of an EV owner. PCF also recommends taking into consideration a guidance document first developed in response to the FHWA call for nominations for AFV corridors (see Appendix B). This analysis recommends that infrastructure, in the form of DC Fast Chargers, be placed at public, state-owned facilities along major roadways. These facilities include Welcome Centers and Rest Areas. A full list of the Welcome Centers and Rest Areas in the state can be found in Appendix C. These facilities are optimal locations for DC Fast Charging because of their usage pattern, proximity to the roadway, amenities, and visibility to the public. Visitors are usually at these locations for a brief period of time in order to look at information, stretch their legs, or use the restroom, which makes the fast charging speeds perfect for a quick boost. These facilities also house restrooms, snacks, and other amenities that draw members of the public to stop on their journey. These facilities are located directly on the roadways and major interstates, thus allowing for easy access by traveling EV motorists. Also, members of the public that do not own EVs will be exposed to EVSE capabilities and infrastructure availability — namely, they may recognize that if they purchase an EV, they would not have to go out of their way to charge. It is also a great way to market the positive benefits of EVs through signage, charging station wraps, pavement markings, and information available in the facility.

Shopping Centers and Malls

Shopping centers and malls serve as the perfect facility type for Level 2 EVSE. Consumers often spend long periods of time parked while enjoying the amenities that the facility offers. This arrangement, in turn, offers economic development opportunities in the state. In addition, shopping centers can provide premium parking, an incentive for EV owners.

South Carolina boasts a number of productive and active shopping facilities in many populated and well-traveled areas of the state. Using the aforementioned mapping tools PCF recommends installing infrastructure in strategic shopping centers and malls to facilitate the advancement of EVs in South Carolina. For a full list of shopping centers and malls in SC, see Appendix D.

Industrial and Manufacturing Facilities

Industrial facilities can provide a space for consumers to learn about EVs and provide support for EVs in the marketplace. South Carolina boasts a large list of industrial manufacturing and shipping facilities that many South Carolinians drive to every day. PCF recommends installing EVSE at industrial manufacturing and shipping facilities to aid in the adoption of EVs in South Carolina.

Range anxiety is real, and many South Carolinians fear driving to work and not being able to get home on a charge. By providing infrastructure at the place they spend eight or more hours per day, they will be able to see the availability of charging their vehicle.

By installing EVSE at these facilities, businesses will be encouraged to adopt EV initiatives and develop plans for incentivizing employees. It will also encourage them to adopt EVs in their own fleets, as the infrastructure would be readily available.

With manufacturing facilities bringing in people from all over the country and world, new viewpoints and opinions are propelling EV initiatives forward. Many of these facilities are also located in rural parts of the state. Installing infrastructure in these locations, where charging may not be as accessible as in other places, could give an employee reasons to purchase an EV. It would also make EVs more visible in locations where adoption rates are low, or nonexistent. Below is a list of industrial facilities with over 1,000 employees where targeted marketing campaigns can be initiated. For an in-depth look at these employers, see Appendix E.

- Blackbaud, Inc
- Boeing South Carolina
- Bridgestone Americas Tire Operations LLC
- Electrolux Home Products
- Fluor Corp
- GE Energy
- Husqvarna Outdoor Products Inc
- Kimberly-Clark Corp
- Kraft Heinz Company
- Michelin Americas Research & Development Corp
- Michelin North America Inc (MATC/HNA

- Michelin North America Inc (US#0)
- Michelin North America Inc (US#5)
- Mohawk Industries-Oak River Mill
- Nestlé Prepared Foods Co
- Nucor Corp
- PGBA / Blue Cross Blue Shield
- Red Ventures
- Robert Bosch LLC
- Robert Bosch LLC
- SAIC Science Applications International Corp
- Verizon Wireless

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- Verizon Wireless -Greenville
- World Acceptance Corp
- ZF Transmissions Gray Court LLC
- Amick Farms, LLC
- BMW Manufacturing Co
- BlueCross BlueShield of SC
- Colonial Life & Accident Insurance Co
- Computer Sciences Corp World Sourcing Services
- First Citizens Bancorporation, Inc
- Humana Military Healthcare/TriCare

- Michelin North America Inc (US #3)
- Palmetto GBA
- Pilgrims Pride Corp
- Ross Stores Distribution Center
- Sealed Air/Cryovac Division
- South State Bank
- Verizon Wireless
- Wells Fargo Home Mortgage Inc
- Westinghouse Electric Co LLC
- Adidas America

Airports

Another location that provides an optimal opportunity for EVSE is airports. Every day, South Carolinians and people from around the nation visit South Carolina airports. PCF recommends placing charging infrastructure at all South Carolina airports to increase EV adoption, accessibility, and visibility.

Available EV infrastructure can also facilitate the adoption of EVs in the rental car business. If EV owners from other states have the option to rent an EV when they arrive in South Carolina and can easily drive the vehicle to their final destination, it may provide a catalyst for tourism and economic development in the state.

Level 2 EVSE is particularly useful at airports because of the long-term parking and marketing capabilities that it provides. Below is a list of the active airports in the state. Those facilities in bold with 1,000+ enplanements should be targeted first for deployment of infrastructure because of the traffic they receive. For an in-depth look at these facilities, see Appendix F.

- **Aiken Municipal Airport**
- Anderson Regional Airport
- **Beaufort County Airport**
- Berkeley County Airport
- Charleston Executive Airport
- **Charleston International Airport / Charleston AFB**
- **Columbia Metropolitan Airport**
- Conway-Horry County Airport
- Donaldson Center Airport
- **Florence Regional Airport**
- Georgetown County Airport
- Grand Strand Airport
- Greenville Downtown Airport

- **Greenville-Spartanburg International Airport (Roger Milliken Field)**
- Greenwood County Airport
- **Hilton Head Airport**
- Lowcountry Regional Airport
- MCAS Beaufort (Merritt Field)
- McEntire JNGB
- **Myrtle Beach International Airport**
- Oconee County Regional Airport
- Orangeburg Municipal Airport
- Pickens County Airport
- Rock Hill/York County Airport (Bryant Field)
- **Shaw Air Force Base**
- Spartanburg Downtown Memorial Airport

Restaurants, Refueling stations, and Hotels

Many EVSE installation opportunities exist on the local level at restaurants, refueling stations, and hotels. PCF recommends installing Level 2 EVSE at restaurants, refueling stations, and hotels along major roadways and interstates. This will further the adoption of EVs within the state, due to visibility and accessibility, and will also foster economic development as visitors from other states see EVSE available to them as they visit local attractions and restaurants, and consider staying in South Carolina hotels. The availability of EVSE provides

local businesses and refueling stations with unique opportunities to entice EV owners to visit their location over another that may not provide charging.

Hotels and restaurants can help bridge the gap in rural areas and along major roadways for tourists. For a complete list of members of the South Carolina Restaurant and Lodging Association, see Appendix G.

Because of the private competition between these companies, specifying which locations the EVSE should be installed is difficult. Therefore, PCF recommends an initiative to examine the list of hotels and restaurants using the aforementioned mapping tools. The initiative would include developing with key stakeholders an education and outreach campaign aimed at considering how available resources could be spent. Such expenditures would include installing Level 2 EVSE at locations within a reasonable distance from AFV corridors along major interstates and roadways and in rural locations where charging is currently nonexistent.

Educational Campaign:
Plug in SC

Plug in SC is a PCF marketing program designed to encourage a unified approach to EV signage based on nationally recognized templates. Use of a unified approach will assist EV stakeholders and increase EV adoption and visibility in South Carolina.

Plug in SC recommends standardized EVSE parking signage, pavement markings, and directional signage. In addition, Plug in SC will serve as an EV information clearinghouse and source of information for success stories on EV adoption and best practices in EV implementation.

Plug in SC.
Plug in SC is the only public campaign in South Carolina focused on the advancement of EVs. With quality information, stakeholder engagement, and a connected presence in the alternative fuels world, PCF provides a platform for stakeholders to learn more about and advance EVs. PCF invites South Carolinians, whether they are EV enthusiasts or EV inquirers, to "plug in" to the EV grid.

Strategic Partners
PCF must engage EV stakeholders throughout the state and nation to increase EV adoption in South Carolina and serve as an EV information clearinghouse. These stakeholders include federal and state agencies, local governments and municipalities, EVSE and original equipment manufacturers, utilities, other Clean Cities coalitions, EV owners/advocacy groups, and other organizations. See Appendix H for a listing of all potential partners.

Federal and State Governments
Federal, state, and local government programs and initiatives relating to EVs: lead by example

PCF will work to partner with the SC Department of Administration to allow for EVs to be purchased on state contract, thereby increasing adoption among state agency fleets. PCF will attempt to set a goal of EV

representation in state fleets as a percentage and also provide a catalog of EVs that are available on state contract. This catalog will highlight those EVs that are available and encourage state fleets to purchase these vehicles over their petroleum counterparts.

The SC Department of Health and Environmental Control (SCDHEC) administers Clean Air Coalitions across the state aimed at reducing emissions. Plug in SC will target these coalitions to promote EV education.

SCDHEC also administers their Breathe Better (B2) Anti-Idling program. This program is a perfect opportunity to partner on EV initiatives. It is a way to reach those that are idling at educational facilities, businesses, and other facilities. To educate these drivers on the benefits of EVs for air quality and petroleum reduction, PCF will encourage SCDHEC to integrate Plug in SC into B2 programs. This integration will both promote EVs and reduce the emissions and petroleum that is wasted while idling around school campuses and other public spaces.

In addition to electrification of their fleet, Plug in SC will work with SCDOT to implement signage along FHWA AFV corridors and directional signage to EVSE. SCDOT, also a major funding source for mass transit affiliates, is crucial in helping to encourage transit agencies to convert to electric buses and transportation sources.

Local Governments and Municipalities
Planning, zoning, permitting, right-of-way access, signage, traffic, and inspection

PCF has an existing relationship with MASC and will utilize this relationship to reach municipalities that are interested in EVs and educate municipalities that may want to learn more about how they can implement and EV program in their area.

PCF will attempt to partner with other municipalities that have embraced EV technology to promote the positive effects of going electric.

PCF will also make an effort to learn more about the permitting processes, or lack of processes, that are at the municipal level for EV infrastructure and EVs.

EVSE Manufacturers
Station availability, obstacles, permitting, and EVSE future investments

EVSE manufacturers will be invited to participate in a planning group to review the current charging infrastructure as it relates to the current and future potential of EV adoption in South Carolina. Challenges and best practices will be recorded to review the obstacles that may serve as barriers for EVSE manufacturers in South Carolina.

EATON chargers were the choice of many municipalities during the ARRA period. EATON has since discontinued its commercial EVSE manufacturing and maintenance. This decision by EATON has caused issues with many chargers that need upgrading or maintaining. PCF will reach out to EATON to ensure that the current charging infrastructure is receiving maintenance. It will also try to confirm that future infrastructure is installed with a commitment to ongoing maintenance and upgrades. Gaining this commitment will help to ensure that future EVSE will be maintained and reliable.

Original Equipment Manufacturers
Impact on vehicle sales, development of vehicle technologies, ratio of chargers to vehicles, vehicle capabilities and level of charging

Each OEM has its own initiatives, but Plug in SC will become a unifying front for EV promotion in the state. PCF will solicit information on current EV sales data and obstacles that stand in EV manufacturers' way. Each EV manufacturer will be encouraged to adopt Plug in SC marketing when trying to promote EVs to South Carolinians.

Utilities
Rate structure, availability of power, metering, total load management, demand charges, and level of charging

PCF's Plug in SC campaign will encourage electric power utilities to become leaders in moving from petroleum to electricity in mobile sources.

PCF will engage utilities in order to:

Identify barriers and incentives for electric utilities to promote the use and increased use of electricity for transportation.

Encourage all utilities in the state to support EVSE installation and rebates.
Electric utilities should support their business and residential customers who are transitioning to EVs. PCF will encourage and investigate a potential incentive program from utilities that provides some sort of encouragement to adopt EVs and EVSE.

Encourage utilities to maximize grid benefits of EVs and further explore Time of Use options.
Electric power providers should develop pilot projects that seek to reduce daily peak energy use, such as using Time of Use (TOU) rates or discounts for charging EVs during off-peak hours when the power grid is underutilized. Shifting charging to evening hours will help make better use of expensive generation, transmission, and distribution infrastructure.

Clean Cities Coalitions

Many Clean Cities organizations have initiated or been a part of initiating "plug-in" campaigns in their own states. PCF will seek recommendations of best practices from other Clean Cities coalitions and partnerships for implementing Plug in SC.

EV owners/advocacy groups

PCF has worked with various advocacy groups in the past. These groups include EV owners and South Carolinians that are committed to the advancement of EVs. Specifically, PCF has worked with a group that promotes the National Drive Electric Week (NDEW) event. This planning group is comprised mostly of EV owners that wish to promote the advantages of EVs for the consumer. Plug in SC will continue this commitment through involvement with NDEW events planned throughout the state. PCF will ensure that the NDEW event will be promoted in conjunction with the Plug in SC marketing materials with the help of this planning group and various stakeholders.

Other Organizations

The South Carolina Clean Energy Business Alliance (SCCEBA) is in the midst of planning a multi-year Clean Transportation plan. PCF has been involved in this plan since its inception and will continue to promote EVs as an integral part of this implementation and educational plan on a state level.

Businesses and industries around the state have begun to recognize EV opportunities. Many have begun to research EVs while others are actively promoting EV fleet adoption, employee incentive programs, and workplace charging opportunities.

Other organizations, such as Advanced Energy and NC State University, will be instrumental in the Plug in SC campaign, as they have experience with other "plug-in" campaigns and alternative transportation initiatives in neighboring states.

Integrated Marketing

Plug-in Campaigns

PCF conducted research on other "plug-in" campaigns across the U.S. Slogans, logos, and outreach efforts were analyzed to establish a baseline and help distinguish a potential South Carolina campaign. Logos of other EV-affiliated organizations were also analyzed.

Many states have some variation of a "plug-in" campaign, each with its own creative look and focus. While most include at least a nod to an EV, whether it is a wheel or an actual vehicle, others are more abstract or structured. A full catalog of EV campaigns and affiliate logos can be found in Appendix I.

To solidify the Plug in SC initiative, PCF will initiate a launch event for the campaign in late 2017. PCF will attempt to coordinate a launch event via a press conference and news release including many of the Plug in SC campaign stakeholders and government officials. A state initiative to increase the adoption of EVs will be introduced, and the Plug in SC campaign will be announced as a statewide initiative to increase the adoption of EVs at the state and consumer levels.

PCF will engage state EV owners and advocacy groups in conjunction with NDEW 2017 events. This action will solidify Plug in SC initiatives both by marketing to consumers directly as EV owners and by educating the public on EVSE and EV availability within the vehicle marketplace.

Signage

When compiling a catalog of EVSE signage variations, it was found that a wide range of wording and iconography exists. A full catalog of EVSE signage can be found in Appendix J. Lack of consistency can make it difficult for EV drivers to identify EVSE within a garage, or even know where to look to find EVSE in a parking structure. To ensure that all EV infrastructure is visible and recognizable, we recommend that all EVSE owners/operators adopt the federal guidelines specified in the Manual on Uniform Traffic Control Devices (MUTCD) for signing EVSE. Of course, state and local guidelines must also be followed. In addition, PCF suggests that current signage incorporate the Plug in SC branding into the existing and future signage. This can be done through plaques, stickers, or a full replacement with the new recommendations.

PCF recommends that EVSE owners and operators adhere to all federal, state, and municipal regulatory guidelines. To comply with policies and regulations, EVSE owners and operators should comply with the MUTCD:
http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm

However, the following supplemental resources concentrate on EV-specific resources and may be easier to navigate:

- U.S. Department of Energy, Plug-In Electric Vehicle Handbook for Workplace Charging Hosts
  http://www.afdc.energy.gov/uploads/publication/pev_workplace_charging_hosts.pdf

- U.S. Department of Energy, Plug-In Electric Vehicle Handbook for Public Station Charging Hosts
  http://www.afdc.energy.gov/pdfs/51227.pdf

- West Coast Green Highway
  http://www.westcoastgreenhighway.com/evsigns.htm

- Alternative Fuels Data Center
  http://www.afdc.energy.gov/fuels/electricity_charging_station_signage.html#station

PCF has developed recommendations for different forms of signage in the following locations to standardize the labeling of and directions to EVSE:

- Parking spaces
- Timed or metered parking spaces
- Pavement markings
- General service signs
- Special service signs
- Parking garages

Parking Spaces

To be enforceable, 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. Private parking areas that are not open to the public (such as employee parking areas at workplaces) 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.

Often, elaborate iconography is combined with more structured signage. There seems to be no standardized ordinances or regulations from a state or local level establishing EVSE signage for parking spaces, but DOE does state the following on signage recommendations:

Although there are stations, locating them can be difficult. Many are hidden in corners, with little to no signage, or in lots that many would not consider as publicly accessible. Also, signage is inconsistent when stating "EV Parking Only."

However, there are a few that are clearly recognizable as charging stations. For example, the station at the Hilton garage in Columbia is clearly marked and prominently placed near exits to the hotel and other attractions.

PCF recommends that parking spaces where vehicles can access EVSE should be properly labeled as "EV Parking Only." The signs would mirror the Washington State "de-ICEing" law (RCW 46.08.185) that requires EVSE to be clearly identified with regulatory signs and striping, including:

1.   An "EV Charging Station" sign
2.   A "No Parking Except for Electric Vehicle Charging" sign
3.   Green pavement markings

The law also states that it is a "parking infraction, with a monetary penalty of $124, for any person to park a vehicle in an EVSE provided on public or private property if the vehicle is not connected to the charging equipment."

PCF recommends that EVSE be properly identified with a sign that restricts the use of spaces designated for EV charging to only those vehicles that have established a connection for electric charging purposes. The "No Parking Except for Electric Vehicle Charging" regulatory sign should be posted in a visible spot adjacent to the space. The red, black, and white signs should be 12" wide x 18" tall."

PCF recommends using the alternative "Electric Vehicle Charging Station Symbol" sign at the charging station location. This general service sign should be used in combination with the "No Parking Except for Electric Vehicle Charging" regulatory sign. The "Electric Vehicle Charging Station Symbol" should be on a separate sign, mounted on a pole above the regulatory sign, and be 12" x 12" to match the width of the regulatory sign.

Supplementary signs may be posted to provide additional information including the monetary penalty for parking a vehicle in an EV parking space, if the vehicle is not connected to the charging equipment.

As a part of the Plug in SC campaign, Plug in SC branded signs or markings should be added to the recommended signage. These signs can direct EV owners and other interested parties to more information on the PCF website and reinforce the Plug in SC message.

Timed or metered parking spaces

PCF recommends that signs for spaces with EVSE where parking time is restricted be altered to indicate that the spot is available only to EVs. The general service alternative "Electric Vehicle Charging Station Symbol" should be on a separate sign, mounted on a pole above the regulatory sign, and be 12" x 12" to match the width of the regulatory sign. More information on signage specifications can be found in the MUTCD.[9]

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9 http://mutcd.fhwa.dot.gov/resources/policy/rsevcpfmemo/

Pavement Markings

Pavement markings are another way to differentiate an EV parking space from other spaces. There are many variations on pavement markings, from very elaborately painted green spaces, to simple green-lined spaces. A full catalog of EVSE pavement markings can be found in Appendix K. Like parking space signage, there seems to be no standardized ordinances or regulations from a state or local level establishing EVSE pavement markings, but DOE does state the following:

"Pavement markings, painted on the surface of a parking space, can be used to reinforce signage for charging stations. Notably, most jurisdictions deem pavement markings unenforceable on their own. For general information about pavement markings, see Chapter 3B of the MUTCD."[10]

FHWA states in Chapter 3B Section 19 of the Manual on Uniform Traffic Control Devices (MUTCD), titled Parking Space Markings:

"Marking of parking space boundaries encourages more orderly and efficient use of parking spaces where parking turnover is substantial. Parking space markings tend to prevent encroachment into fire hydrant zones, bus stops, loading zones, approaches to intersections, curb ramps, and clearance spaces for islands and other zones where parking is restricted.

Standard:
Parking space markings shall be white.

Option:
Blue lines may supplement white parking space markings of each parking space designated for use only by persons with disabilities."[11]

PCF recommends that EV charging stalls be outlined with green pavement markings of 4" to 6" wide stripes. The exact green color is not specified, but bright green reflective paint is recommended. Station owners may elect to add additional green stripes or elaborate graphics to mark the pavement.

Parking garages

Many of these stations are located in publicly accessible parking garages. Although this is a target location for stations, the garages do not have any sort of exterior notation that there is EVSE located inside. Only one of the Columbia garages noted that there was a station available and where it was located in the garage.

PCF recommends that EV parking spaces located in garages be treated the same as other parking signage with an "Electric Vehicle Charging Station Symbol" sign, a "No Parking Except for Electric Vehicle Charging" regulatory sign, and green pavement markings.

Signage indicating that EVSE is located in a garage should be placed on the outside of the entrance to the garage. This sign should mimic signage that labels the actual space and indicate on which level the station is located.

This signage will help with the visibility of available EVSE and promote EVs by highlighting those stations that are not visible from the roadway.

General Service Signs

DOT has standardized highway and road directional signage for EVSE, and this was collected to use when making signage decisions. Examples of EV Road Signage can be found in Appendix L.

General Service signs are defined in FHWA's MUTCD Section 2D.45 titled General Service Signs (D9 Series):

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10 http://www.afdc.energy.gov/fuels/electricity_charging_station_signage.html
11 http://mutcd.fhwa.dot.gov/htm/2009/part3/part3b.htm

Figure 2D-11. General Service Signs
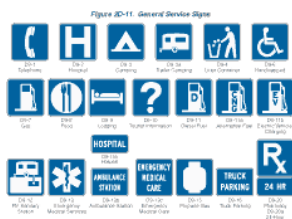
"On conventional roads, commercial services such as gas, food, and lodging generally are within sight and are available to the road user at reasonably frequent intervals along the route. Consequently, on this class of road there usually is no need for special signs calling attention to these services. Moreover, General Service signing is usually not required in urban areas except for hospitals, law enforcement assistance, tourist information centers, and camping.

Option:
General Service signs (see Figure 2D-11) may be used where such services are infrequent and are found only on an intersecting highway or crossroad."[12]

Signage on interstates and roadways is lacking. Even though some EVSE is located off major interstates, there is no way to tell that EVSE is there. No enforceable regulation exists regarding the implementation of mandatory signage, but FHWA has granted interim approval to use an EV symbol, as shown in the MUTCD 2009 Edition Part 2 Figure 2I-1, titled General Service Signs and Plaques:

D9-11b is shown as a square sign with a symbol of a gas pump with the letters "EV" placed vertically on the pump. It is labeled "Electric Vehicle Charging."

D9-11bP is shown as a horizontal rectangular plaque with the words "ELECTRIC VEHICLE CHARGING" on three lines.[13]
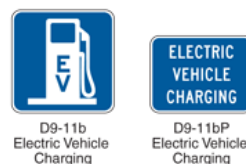
Interim Approval for Optional Use of an Alternative Electric Vehicle Charging General Service Symbol Sign (IA-13) can be found in FHWA Policy Memorandums, outlining the use of these EV signs:

"The Office of Transportation Operations has reviewed the available data and considers the alternative sign (see attachment, p. IA-13-1) to be satisfactorily successful for the application of providing direction to an EVSE. The alternative sign provides agencies with a means of directing road users to an EVSE without the use of a word legend sign or supplemental plaque, thus reducing the informational load presented to the observer and promoting a uniform symbol for this general service.

The design of the alternative Electric Vehicle Charging symbol sign is not proprietary and can be used by any jurisdiction that requests and obtains interim approval from the FHWA to use the sign. The FHWA believes that the alternative Electric Vehicle Charging symbol sign has a low risk of safety or operational concerns.

This Interim Approval does not create a new mandate compelling the use of this new sign, but will allow agencies to install this sign, pending official MUTCD rulemaking, to provide direction to road users to EVSEs.

Agencies may also continue to use the ELECTRIC VEHICLE CHARGING (D9-11bP) plaque as an educational message mounted below the alternative Electric Vehicle Charging symbol sign in a Directional Assembly.

Agencies may use the alternative Electric Vehicle Charging symbol in General Services (D9-18 Series) guide signs.

Conditions of Interim Approval: The FHWA will grant Interim Approval for the optional use of an alternative Electric Vehicle Charging symbol sign (see attachment, p. IA-13-1) to any jurisdiction that submits a written request to the Office of Transportation Operations. A State may request Interim Approval for all jurisdictions in that State. Jurisdictions using the sign under this Interim Approval must agree to comply with the technical conditions detailed below, to maintain an inventory list of all locations where the signs are installed, and to comply with Item D in Paragraph 18 of Section 1A.10 of the 2009 MUTCD, which requires:

"An agreement to restore the site(s) of the Interim Approval to a condition that complies with the provisions in this Manual within three months following the issuance of a Final Rule on this traffic control device; and terminate use of the device or application installed under the interim approval at any time that it determines significant safety concerns are directly or indirectly attributable to the device or application. The FHWA's Office of Transportation Operations has the right to terminate the interim approval at any time if there is an indication of safety concerns."

1. *General Conditions:*
   The use of the alternative Electric Vehicle Charging symbol sign is optional. However, if an agency opts to use this sign under this Interim Approval, the following design and installation requirements shall apply and shall take precedence over any conflicting provisions of the MUTCD.

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[12] *http://mutcd.fhwa.dot.gov/htm/2003r1/part2/part2d2.htm*

[13] *http://mutcd.fhwa.dot.gov/htm/2009/part2/fig2i_01_longdesc.htm*

2. *Allowable Uses:*
Installation and use of the alternative Electric Vehicle Charging symbol sign shall conform to the general provisions for General Services signs in accordance with MUTCD Chapter 2I.

3. *Sign Design and Size:*
   a. *The design of the alternative Electric Vehicle Charging symbol sign shall be as shown in the attached sign detail.*
   b. *The minimum size of the alternative Electric Vehicle Charging symbol sign shall be 24 inches in width by 24 inches in height.*
   c. *The size of the alternative Electric Vehicle Charging symbol sign shall otherwise be in accordance with those of other D9-11 series signs.*

4. *Other:*
Except as otherwise provided above, all other provisions of the MUTCD applicable to signs shall apply to the alternative Electric Vehicle Charging General Service symbol sign.''[14]

FHWA specifically states "**Individual States may sign for whatever alternative fuels are available at appropriate locations.**"[15]

D9-11b
Electric Vehicle
Charging

D9-11bP
Electric Vehicle
Charging

The departments of transportation in Washington, Oregon, and California adopted a standardized symbol to identify publicly accessible EVSE along major roadways. The West Coast states are using the "Alternate Electric Vehicle Charging Symbol" sign (D9-11b Alternate) approved by the FHWA. PCF suggests and is using a similar signage structure.

Installation of highway and follow-through signs for DC fast charging

Although EV drivers can find charging locations using mobile apps and onboard station locators, highway signs help increase public awareness of charging infrastructure. The charger should be located within a reasonable distance from the exit, thereby allowing for speedy quick-charger access. To direct motorists to publicly accessible EVSE, PCF recommends using the "Alternate Electric Vehicle Charging Symbol" sign (D9-11b Alternate) along the highways. The signs are posted at the interchange or intersection nearest to the DC fast-charging facility with follow-through signs on the off ramps. The blue and white sign is 30" x 30" on expressways and freeways and 24" x 24" on conventional highways.

Signage for urban or rural area EVSE

In places where EVSE is located in a publicly accessible parking lot or area, PCF recommends the general service sign be used to direct drivers to the charger. These chargers are not easily accessible from major interstates or roadways, but still need to be highlighted to increase their use and visibility. Local governments may opt to use this alternative symbol for directional signage along county roads and city streets. The blue and white signs must be 24" x 24" or larger on local roads and must comply with the MUTCD design and installation requirements. Agencies need to maintain an inventory of where the new alternate symbol signs are located, in case the signs need replacement statewide due to future changes in signage standards or specifications.

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[14] *http://mutcd.fhwa.dot.gov/resources/interim_approval/ia13/index.htm*

[15] *http://mutcd.fhwa.dot.gov/htm/2009/part2/part2i.htm*

Directional Arrows

Directional signage is also lacking for stations located in parking lots, service stations, and other locations. This includes directional signage from interstates and roadways.

PCF recommends directional arrows be used in combination with the EV General Service sign to help direct motorists to the EVSE. The arrows should be white on a blue background and should meet the MUTCD sign specifications. When a left or right turn is required from a highway off ramp or on a local road, the identification sign for EV charging should be supplemented with Directional Arrow 90 Degrees (D9-401).

Special Service Signs

Special Service signs are defined by FHWA as:

"Guide signs that provide road users with business identification and directional information for services and for eligible attractions. Eligible service categories shall be limited to gas, food, lodging, camping, attractions, and 24-hour pharmacies."[16]

Service stations that utilize Special Service Signs can add the availability of EVSE.

Many of these categories offer charging at their facilities. When a facility that offers EV charging is featured on a special service sign, PCF recommends they include the availability of the EVSE.

Alternative Fuel Corridor Signage

FHWA's 2016 Designation of AFV corridors as mandated by the FAST Act established EV corridors in the state. The corridors lack the appropriate signage to be identified as an EV roadway. PCF recommends SCDOT implement that FAST Act corridor recommendations by placing general service signs at the interchange or intersection nearest to the DC fast charging facility with follow-through signs on the off ramps. PCF also recommends signage along the roadway indicating that it is an EV corridor, increasing visibility of EVs in the state.

Future EV Roadway Signage

As technology advances, there will need to be adjustments in EV signage. Research is being conducted on EV charging as the vehicle moves down the roadway. When this technology is implemented in the state, PCF recommends SCDOT look at appropriate signage and pavement markings to indicate the EV charging lane.

A High Occupancy Vehicle (HOV) lane is a restricted traffic lane reserved at peak travel times, or longer, for the exclusive use of vehicles with a driver and one or more passengers. In most states, these lanes are available to EVs to encourage the adoption of electric technologies. As South Carolina considers/begins to adopt HOV lanes, EV signage and pavement markings should be included to indicate the availability of the lane for EVs.

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[16] *http://mutcd.fhwa.dot.gov/htm/2009/part2/part2j.htm*

Outreach and Education

EV stakeholders have made it clear that signage is not enough. They also expressed the need for a unifying voice and repository of information for EVs in South Carolina, as well as for an educational campaign to familiarize citizens and government decision makers with issues related to EVs. Accordingly, Plug in SC will undertake the following:

Billboards

As a part of the Plug in SC campaign from PCF and an extension of the Best.Drive.EVer. campaign from DOE, PCF will place billboard advertisements across the state, as funds are available, to encourage the adoption of EVs. These billboards will focus on the categories set forth by the Best.Drive.EVer. and be localized with South Carolina photos and information.

These categories include:
- Convenience
- Performance
- Love
- Technology
- Today

The billboards will also feature the PCF website and Plug in SC campaign. The billboards will not highlight any one technology or vehicle, but be a general promotion of EV technology.

Workplace Charging

The DOE established the Workplace Charging Challenge program for businesses that support or offer charging to employees. Although the program is no longer seeking participants, information that may be helpful to employers is available.

Two South Carolina employers committed to the challenge:
- Schneider Electric
- KEMET

In order to continue to facilitate workplace charging, PCF will implement the following initiatives:

Assist employers to establish workplace charging stations. There are many large employers in South Carolina that have the potential to offer charging that have not yet installed EVSE. The Plug in SC campaign will include an effort to recruit new businesses and organizations to offer charging by providing technical assistance.

Raise EV Awareness among business leaders and decision makers by creating an award program to recognize employers who demonstrate a commitment to advancing EVs. This program should motivate other companies to explore workplace charging in the effort to receive this award.

PCF will hold a media event once a year where PCF coordinators and corporate leaders from the business or organization granted the Workplace Charging Challenge award announce their commitment to provide workplace charging for their employees.

Encourage businesses to pursue other electric technology implementations. There are other electric technologies that businesses might want to explore including forklifts, truck stops, truck refrigeration units, port equipment, airport ground support, and tugs. These efforts can increase the electrification of other sorts of transportation equipment, thereby replacing their petroleum counterparts.

Marketing Campaigns

DOE launched two campaigns aimed at increasing EV adoption in the U.S. — EV Everywhere and Best.Drive.EVer. Each produced material that can be incorporated into Plug in SC. The media packet includes advertisements that can be used in outdoor applications to provide more visibility for the EV presence in South Carolina. The complete campaign user guide can be found in Appendix M.

Digital

Digital promotion includes social media, website content, web videos, web advertisements, and DOE website customizations.

Social Media

All social media regarding the Plug in SC campaign will consist of campaign elements derived from the Best.Drive.Ever. DOE initiative as outlined below.

Content will include SC-specific images that are relevant to plug-in initiatives in South Carolina and modified images to include the Plug in SC logo.

The Trip Advisor website and other hotel websites/social media will be encouraged to promote the availability of charging at their locations. This promotion will help local businesses and advance the South Carolina economy.
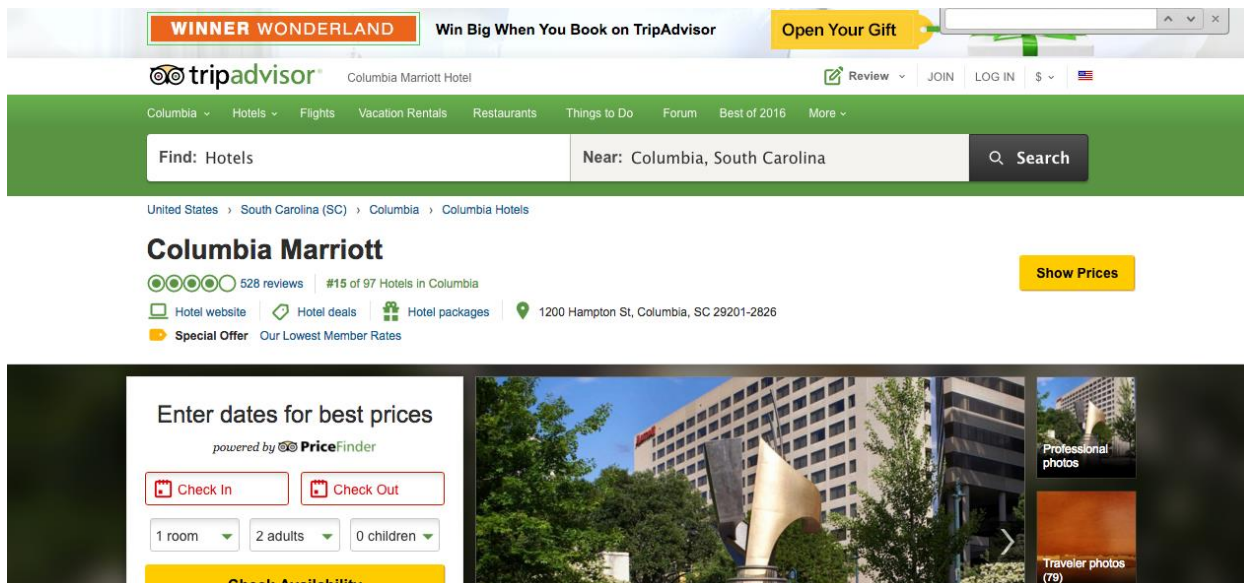
Currently, the Energy Office utilizes Twitter as a social networking site. Many of the current accounts that @SCEnergyOffice follows promote EVs, including DOE; however, the Energy Office should follow many other accounts to interact with and promote EVs. These accounts will help to foster relationships in a digital environment and establish the Energy Office and PCF as a plug-in supporter. These accounts include:

- @PlugInNC
- @NatDriveElecWk
- @NCCleanTech

Website

PalmettoCleanFuels.org website content will be altered and expanded to incorporate the Plug in SC campaign branding and Best.Drive.Ever. content.

Web banners that indicate PCF's Plug in SC initiative will be featured prominently on the PCF homepage. These banners will be similar in format to the Best.Drive.Ever. campaign and will be altered to include the logo and messaging of Plug in SC. Banners will link to website content relevant to the banner's messaging.

Content will be added to mirror the messaging of the Best.Drive.Ever. campaign:

Convenience
Content in this category will highlight EVSE availability and links to available EVs for consumers.

New signage recommendations and visibility will be highlighted to draw South Carolinians' attention to potential and future signage on South Carolina roadways.

The availability of at-home charging will also be noted to show South Carolina that charging does not have to happen at designated charging stations, but can also conveniently happen at home.

Performance

Current technological advancements will be linked through DOE web links. The performance and equivalence to petroleum-powered vehicles will be acknowledged, which should draw attention to the fact that many EVs perform just as well as, if not better than, current traditional vehicles in the marketplace.

Videos and factual content will be showcased to provide visitors with visual interactive content that compares EVs to other vehicles.

MPG and fuel economy are also other categories where EVs perform better than conventional petroleum-powered vehicles. These advantages will provide visitors to PalmettoCleanFuels.org with more information to make their EV decisions.

Love

Testimonials of current EV owners and EVSE operators will be highlighted to share current EV adoption in the state.

PCF has a reserve of many EV owners that enjoy owning and driving their EVs. PCF will initiate conversations to facilitate photoshoots and success stories that can be shared via social media and website content.

The love of the environment will be highlighted to show EV drivers' commitment to reducing greenhouse-gas emissions and reducing reliance on petroleum.

Technology

EVs score relatively higher than many other vehicles in the technology category. EVs implement autonomous features and fuel economy improvements that put them above petroleum-powered vehicles. All of these unique features will be highlighted to showcase EVs' advantages and their technology.

EV infrastructure, including the levels of charging and range of specific EVs based on charging times, will be explained.

Videos that explain the technology will serve as a catalyst to explain EVs and EVSE. This will help to alleviate any hesitance to use the existing and future EVs and EVSE.

Today

The current adoption of EVs in South Carolina and the status of EVs will be explained to give a visitor an overview of where EVs are currently in the state.

Current incentives will also be highlighted to encourage the adoption of EV technology.
Current EV stations will be showcased to visually relay the availability of EVSE.

Initiatives, including the State Energy Plan, Plug in SC, PCF, and other EV projects in the state will be highlighted. This will show South Carolinians that initiatives are currently underway to push the adoption of EVs and the advancement of EV technology in the state.

In addition to content added to the website, handouts will be created to make available online and at events that PCF hosts. These handouts will be localized with South Carolina information and photos to make content relevant to South Carolinians, and they will have a similar look to Best.Drive.Ever. content as shown below:

You've got a lot going on in your life.
An electric vehicle can simplify things and save you time — less maintenance, easy charging, ready to go when you are.

<local call to action and any additional information/ event information here>

Best.
Drive.
EVer.

DOE currently hosts information relating to PCF and initiatives in SC. PCF will work with DOE to include information on the Plug in SC initiative.

- www.cleancities.energy.gov/coalitions/palmetto-state

This effort will link PCF initiatives with the Clean Cities official website and DOE plug-in campaigns.

APPENDICES

APPENDIX A

PEV Scorecard Results: PSCFC

Needs Improvement based on 100% of questions answered

Long-Term Vehicle and Infrastructure Planning

Topic 1: Planning and Collaboration
1. Does your area have, or is your area in the process of creating, a comprehensive plan for PEV infrastructure deployment?
   Yes
2. Has your area created a collaborative group of local stakeholders to help align PEV interests and plan for deployment?
   No
3. Has an elected leader in your area (for example, mayor or governor) appointed a single agency or person to oversee the development and implementation of a PEV infrastructure deployment plan?
   I don't know

Topic 2: Market Potential and Analysis
1. Has someone in your area performed an analysis to select the best locations for initial public EVSE?
   I don't know
2. Has your area selected a cohesive set of signage to designate and direct drivers to EVSE?
   No

Plug-In Vehicle Market Conditions

Topic 3: Plug-in Vehicle, EVSE, and Service Availability
1. How many PEV models do you expect to be available for purchase or lease in your area during the next one to two years? If more than 10, please enter the expected number of available models in the notes section below.
   More than 10
2. How many dealerships in your area are currently selling PEVs?
   2 to 10
3. How many public EVSE charging outlets are currently in service in your area? Note: An electric charging station may have multiple charging outlets.
   More than 25
4. What percentage of PEV buyers are installing residential level 2 (240 V) EVSE in your area?
   Greater than 75%
5. How many public EVSE charging outlets do you anticipate will be constructed in your area during the next one to two years? Note: An electric charging station may have multiple charging outlets.
   More than 25
6. How many workplace EVSE charging outlets do you anticipate will be constructed in your area during the next one to two years? Note: An electric charging station may have multiple charging outlets.
   10 to 25

Topic 4: Plug-in Vehicle Projections
1. How many PEVs are in use by government fleets (federal, state, and local) in your area?
   None
2. How many PEVS are in use by private and utility fleets in your area?
   I don't know
3. How many PEVs do government fleets (federal, state, and local) in your area plan to add in the next one to two years?
   Less than 10
4. How many PEVs do private and utility fleets in your area plan to add in the next one to two years?
   I don't know

Utility Involvement

Topic 5: Electricity Rates and Programs
1. Do utilities in your area have a program to address grid infrastructure requirements and operational impacts of PEV charging?
   I don't know
2. Do utilities in your area offer a separate rate for PEV charging? If so, please use the notes section to describe the rate.
   No

3. Do utilities in your area offer any tools to help consumers understand the costs and benefits of PEVs under different rate structures?
   I don't know

Topic 6: Utility Planning and Implementation
1. Are the utilities in your area engaged in local efforts to deploy PEVs and charging infrastructure (for example, participation in planning efforts, working with local jurisdictions to understand building permitting and codes, or working with public utility commissions on how to help with PEV rollouts)?
   Yes, moderately engaged
2. Have the utilities in your area analyzed the impacts of PEVs on the local grid or forecasted the location of potential PEV concentrations?
   Yes
3. Is there a procedure in your area to notify utilities before installing EVSE so they can plan for additional demand?
   I don't know
4. Have the utilities in your area deployed "smart grid" technologies, like smart meters, to assist with development of future PEV markets and capabilities?
   I don't know

Education and Outreach

Topic 7: Educational and Outreach Efforts
1. Does your area have a website that provides local information about PEVs and charging infrastructure?
   Yes
2. Does your area utilize Clean Cities educational resources for PEVs, such as the Alternative Fuels Data Center, FuelEconomy.gov, or local Clean Cities coalition websites? Use the notes section to explain.
   Yes
3. Does your area work with a national outreach program to encourage the use of PEVs (for example, Clean Cities, Project Get Ready, or National League of Cities)? Use the notes section to explain.
   Yes
4. Is there regional- or state-level coordination for educational efforts in your area?
   Yes

Laws, Incentives, and Financing

Topic 8: Laws and Incentives
1. Does your area offer a tax incentive, grant, or rebate to purchase highway-certified PEVs? If yes, indicate the maximum amount allowable per vehicle.
   I don't know
2. Does your area have a tax incentive, grant, or rebate for residential or public charging equipment? If yes, indicate the maximum allowable per installation.
   More than $750
3. What low-cost or non-monetary incentives does your area offer for PEVs? Check all that apply.
   Free charging
4. Does your area have any existing policies that benefit PEVs (for example, local fleet mandates to use electric vehicles, low carbon fuel standards, greenhouse gas emission regulations, or planning/zoning requirements for new construction to include EVSE provisions)? Use the notes section to explain.
   No
5. Are there any future laws, policies, or incentives pending or planned that would affect the deployment of PEVs in your area? Use the notes section to explain.
   Yes, there are proposed policies that will encourage PEVs

Topic 9: Financing
1. Does your area have any financing or special purchase options for PEVs or EVSE?
   I don't know

Electric Vehicle Supply Equipment (EVSE) Permitting and Inspection Process

Topic 10: Application Process
1. How long does it take an EVSE owner or site manager to complete the permitting, installation, and inspection process?
   I don't know
2. What are the options for submitting an EVSE permitting application? Check all that apply.

I don't know
3. What EVSE-specific permits have been developed in your area? Check all that apply.
   Fast charger

Topic 11: Information Access and Assistance
1. Where can applicants find information about the EVSE permitting process? Check all that apply.
   I don't know
2. Is there an accessible, designated point of contact for questions about the EVSE permitting process?
   I don't know

Topic 12: Permit and Inspection Fees
1. What is the average fee for a residential EVSE permit and inspection? If your area charges a separate fee for these two services, add the two together.
   I don't know
2. What is the average fee for a commercial EVSE permit and inspection? If your area charges a separate fee for these two services, add the two together.
   I don't know

Topic 13: Installation Workforce Training
1. Are there EVSE installer training or certification programs available for electricians in your area? If so, please enter the program name(s) in the notes section below.
   I don't know
2. Have permitting inspectors in your area been trained on the specifics of EVSE installations?
   I don't know

OMB Control #: 1910-5171 Exp Date: 2/28/2019

APPENDIX B

EV AFV Corridor Recommendation Submittal

The below recommendation addresses the basic and ideal recommendations to enable EV corridors across South Carolina utilizing existing state-owned properties.

Assumptions
- State-owned property should be quicker to open with centralized approvals, regulations and installation contracts.
- Per Section 111 of Title 23 U.S. Code, charging should be provided free of cost. With the locations largely away from city centers, local charging should be minimized.
- Distance between charging stations should be around 100 miles.
- Major cities should have their own DC fast charging infrastructure (Greenville, Spartanburg, Columbia, and Charleston).
- Tesla provides their owners proprietary Supercharging capabilities deployed today (Santee SC, Greenville SC, Augusta GA, Asheville NC, Charlotte NC, and Lumberton NC) and will continue to add locations with a Columbia location expected in 2016.
- DC fast charging has two standards today and will continue to have both in future cars. Combined Charging Standard (CCS) is found in BMW i3 and Chevrolet products. The CHAdeMO standard is found in Mitsubishi, Nissan and Kia products. Providing both standards will address the vast majority of commercially available vehicles for the next five years.
- Cost estimates are based on installing two ChargePoint CPE 2000*[17] at retail cost $37,000 per charger with an estimated installation cost equal to the equipment for a total cost of $148,000 per location. With CHAdeMO and CCS plugs, this charger will address the vast majority of DC fast charging capable automobiles.

Minimal Installations

- All South Carolina Welcome Centers (8) plus Interstate Rest Areas at I-95 at mile marker 99 (Santee), I-26 at mile marker 126 (Orangeburg), I-20 at mile marker 93 (Camden), and I-26 at mile marker 63 (Joanna)
- Chargers   48 (12 locations, two rest areas per location, two chargers per location)
  Equipment Cost $37,000
  Est. Install Cost $37,000
  Total Estimated Cost $3,552,000

Ideal Installations

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[17] Telephone conversation with ChargePoint representative. Cost would be lower with volume purchase or commitment.

- All of the above locations
- I-77 at mile marker 67 (Richburg), I-95 at mile marker 47 (Yamassee), I-95 at mile marker 139 (Shiloh), I-26 at mile marker 204 (Summerville), Georgetown, Greenwood, Hampton, Cheraw.
- Georgetown, Greenwood, Hampton and Cheraw locations should be placed on SCDOT property constantly open to public access, if possible. Only two chargers should be needed for these locations since they will not be on divided access Interstates.
- Chargers: 72 (16 locations, two rest areas per location, two chargers per rest area + four cities with two chargers per city)

Charger Cost $37,000
Est. Install Cost $37,000
Total Estimated Cost $5,328,000

Blue dots represent the Minimal Installation plan.
Red dots represent the Ideal Installation plan.
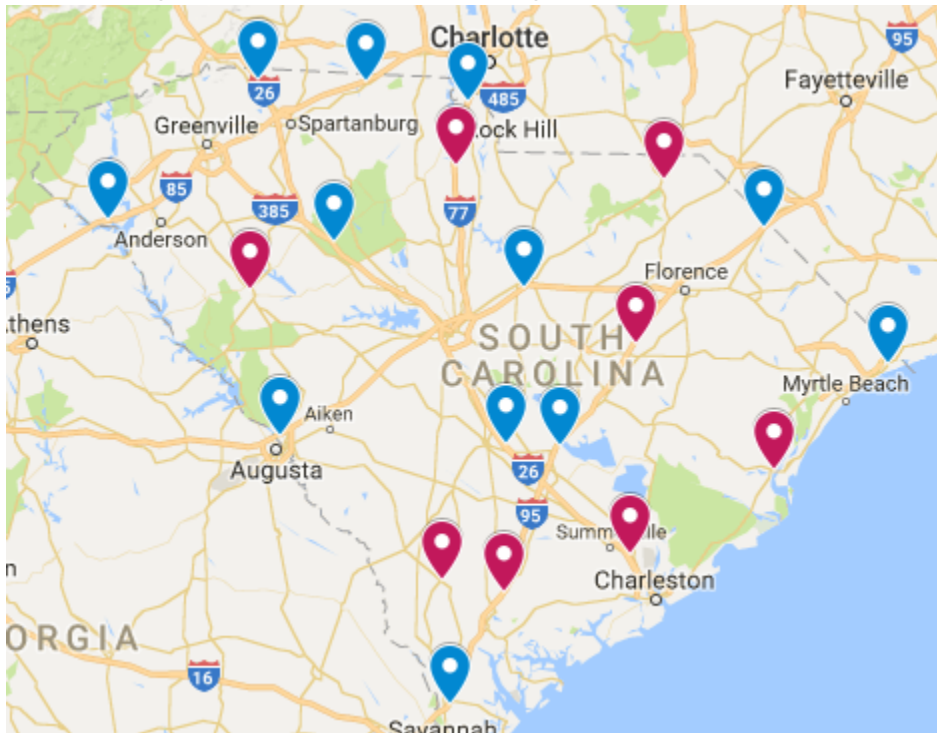
APPENDIX C

Welcome Centers and Rest Areas

TYPE	LOCATION
Welcome Center	I-95 Northbound at Mile Marker 4.3
Rest Area	I-95 North & Southbound at Mile Marker 47
Rest Area	I-26 Eastbound at Mile Marker 204
Welcome Center	I-95 Southbound at Mile Marker 99
Rest Area	I-95 Northbound at Mile Marker 99
Rest Area	I-26 Westbound at Mile Marker 152
Rest Area	I-26 Eastbound at Mile Marker 150
Rest Area	I-95 North & Southbound at Mile Marker 139
Welcome Center	I-95 Southbound at Mile Marker 195
Rest Area	I-26 East & Westbound at Mile Marker 123 - CLOSED
Rest Area	I-20 East & Westbound at Mile Marker 93.5
Welcome Center	I-20 Eastbound at Mile Marker 0.05
Rest Area	I-77 North & Southbound at Mile Marker 65.7
Welcome Center	I-77 Southbound at Mile Marker 89
Rest Area	I-26 East & Westbound at Mile Marker 63.5
Rest Area	I-385 North & Southbound (Median) at Mile Marker 5.8
Welcome Center	I-85 Southbound at Mile Marker 103.3
Welcome Center	I-26 Eastbound at Mile Marker 3
Rest Area	I-85 Southbound at Mile Marker 24
Rest Area	I-85 Northbound at Mile Marker 17

Welcome Center	I-85 Northbound at Mile Marker 0
Welcome Center	US 17 Southbound at Mile Marker 35

APPENDIX D

Shopping Centers and Malls in SC

Columbia Area	Richland Mall	3400 Forest Drive Columbia, South Carolina 29204
	Columbia Place	7201 Two Notch Road Columbia, SC 29223
	The Village at Sandhill	481 Town Center Place, Columbia, SC 29229
	Columbiana Centre	100 Columbiana Circle, Columbia, SC 29212
	Dutch Square	421 Bush River Rd Columbia SC 29210
	Five Points	532 Congaree Ave Columbia, SC 29205
Myrtle Beach Area	Coastal Grand Mall	2000 Coastal Grand Circle Myrtle Beach, SC 29577
	Broadway at the Beach	1325 Celebrity Circle Myrtle Beach SC 29577
	Barefoot Landing	4898 Hwy 17 South North Myrtle Beach, SC 29582
	Inlet Square Mall	10125 Hwy 17 Bypass Murrells Inlet, SC 29576
	Myrtle Beach Mall	10177 N Kings Hwy Myrtle Beach, SC 29572
	Tanger Factory Outlet Centers	4635 Factory Stores Blvd, Myrtle Beach, SC 29579
	Tanger Factory Outlet Centers	10835 Kings Road, Myrtle Beach, SC 29572
	The Market Common	4017 Deville St. Myrtle Beach, SC 29577
Greenville Area	Haywood Mall	700 Haywood Rd, Greenville, SC 29607-2725
	Magnolia Park Town Center	1025 Woodruff Road Greenville, SC 29607
Florence Area	Magnolia Mall	2701 David H. McLeod Blvd. Florence, SC 29501
Charleston Area	Citadel Mall	2070 Sam Rittenberg Blvd Charleston, SC 29407

	Ashley Plaza Mall	1401 Sam Rittenberg Boulevard Charleston, SC
	Tanger Factory Outlet Centers	1414 Fording Island Rd., Bluffton, SC 29910
	Tanger Factory Outlet Centers	4840 Tanger Outlet Blvd., N. Charleston, SC 29418
	Mount Pleasant Towne Centre	1218 Belk Dr, Mt Pleasant, SC 29464
North Charleston Area	Northwoods Mall	2150 Northwoods Blvd. North Charleston, SC 29406
Hilton Head Island Area	Shelter Cove Towne Centre	40 Shelter Cove Lane Hilton Head Island, SC
Orangeburg Area	Prince of Orange Mall	2390 Chestnut N.E. Orangeburg, SC 29115
Rock Hill Area	Rock Hill Galleria	2301 Dave Lyle Boulevard Rock Hill, SC 29730
Spartanburg Area	Westgate Mall	205 W. Blackstock Rd. Spartanburg, SC 29301
Anderson Area	Anderson Mall	3131 N Main St, Anderson, SC 29621
Cherokee Area	Gaffney Premium Outlets	1 Factory Shops Blvd, Gaffney, SC 29341
Sumter Area	Sumter Mall	1057 Broad St #73, Sumter, SC 29150
Aiken Area	Aiken Mall	2441 Whisk+A2:C45ey Rd, Aiken, SC 29803

APPENDIX E

Industrial Facilities with 1000+ Employees

Company	Industries	NAICS	Type of Operation	Number of Employees	Parent Company Country of Origin	County
Blackbaud, Inc	Information Technology	(541511) Custom Computer Programming Services	Engineering and Design	1000+		Charleston County
Boeing South Carolina	Composites and Advanced Materials, Aerospace, and Aviation	(336411) Aircraft Manufacturing, (336413) Other Aircraft Parts and Auxiliary Equipment Manu	Manufacturing	1000+	USA	Charleston County
Bridgestone Americas Tire Operations LLC	Automotive, Plastics, and Rubber	(326211) Tire Manufacturing (except Retreading)	Manufacturing, Warehousing and Distribution	1000+	Japan	Aiken County
Electrolux Home Products	Plastics and Rubber, Machinery, and Consumer Products	(335222) Household Refrigerator and Home Freezer Manufacture	Manufacturing, Research and Development	1000+	Sweden	Anderson County
Fluor Corp	Consulting Services	(237990) Other Heavy and Civil Engineering Construction , (541330) Engineering Services	Engineering and Design	1000+	USA	Greenville County
GE Energy	Alternative Energy, Machinery	(333611) Turbine and Turbine Generator Set Units Manufacture	Manufacturing, Research and Development	1000+	USA	Greenville County
Husqvarna Outdoor Products Inc	Metal Products, Machinery, Consumer Products	(333112) Lawn and Garden Tractor and Home Lawn and Garden	Manufacturing	1000+	Sweden	Orangeburg County
Kimberly-Clark Corp	Medical, Wood and Paper Products, and	(322121) Paper (except Newsprint) Mills	Manufacturing	1000+	USA	Aiken County

	Consumer Products					
Kraft Heinz Company	Agribusiness and Food Processing	(311612) Meat Processed from Carcasses	Manufacturing	1000+	USA	Newberry County
Michelin Americas Research & Development Corp	Automotive, Plastics, and Rubber	(541712) Research and Development in the Physical, Engineering field	Manufacturing, Research and Development	1000+	France	Greenville County
Michelin North America Inc (MATC/HNA	Automotive, Plastics, and Rubber	(326211) Tire Manufacturing (except Retreading)	Services	1000+	France	Greenville County
Michelin North America Inc (US#0)	Composites and Advanced Materials, Automotive, Plastics, and Rubber	(326211) Tire Manufacturing (except Retreading)	Manufacturing	1000+	France	Greenville County
Michelin North America Inc (US#5)	Automotive, Plastics, and Rubber	(326211) Tire Manufacturing (except Retreading)	Manufacturing	1000+	France	Lexington County
Mohawk Industries-Oak River Mill	Composites and Advanced Materials, and Textiles	(313112) Yarn Texturizing, Throwing, and Twisting Mill	Manufacturing	1000+	USA	Marlboro County
Nestlé Prepared Foods Co	Food Processing	(311412) Frozen Specialty Food Manufacturing	Manufacturing	1000+	Switzerland	Cherokee County
Nucor Corp	Automotive, Metal Products, and Construction		Manufacturing	1000+	USA	Berkeley County
PGBA / Blue Cross Blue Shield	Finance and Insurance	(561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+	USA	Florence County
Red	Consulting Services	(541613) Marketing	Services,	1000+		Lancaster County

Ventures		Consulting Services	Research and Development			
Robert Bosch LLC	Automotive	(336310) Motor Vehicle Gasoline Engine and Engine Parts Ma, (336390) Other Motor Vehicle Parts Manufacturing	Manufacturing	1000+	Germany	Anderson County
Robert Bosch LLC	Automotive	(336312) Gasoline Engine and Engine Parts Manufacturing, (336340) Motor Vehicle Brake System Manufacturing	Manufacturing	1000+	Germany	Dorchester County
SAIC Science Applications International Corp	Aerospace, Aviation, and Information Technology	(541330) Engineering Services	Engineering and Design	1000+	USA	Charleston County
Verizon Wireless	Information Technology and Utilities	(561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+	USA	Charleston County
Verizon Wireless - Greenville	Information Technology and Utilities	(517210) Wireless Telecommunications Carriers (except Sate, (561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+	USA	Greenville County
World Acceptance Corp	Finance and Insurance	(522291) Consumer Lending	Services	1000+		Greenville County
ZF Transmissions Gray Court LLC	Automotive	(336350) Motor Vehicle Transmission and Power Train Parts	Manufacturing	1000+	Germany	Laurens County
Amick Farms, LLC	Food Processing	(311615) Poultry Processing	Manufacturing	1000+	USA	Saluda County

Company	Industry	NAICS	Type	Employees	Country	Location
BMW Manufacturing Co	Automotive	(336111) Automobile Manufacturing	Manufacturing	1000+	Germany	Spartanburg County
BlueCross BlueShield of SC	Finance and Insurance	(524114) Direct Health and Medical Insurance Carriers	Services	1000+	USA	Richland County
Colonial Life & Accident Insurance Co	Finance and Insurance	(561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+	USA	Richland County
Computer Sciences Corp World Sourcing Services	Information Technology	(541511) Custom Computer Programming Services,	Customer Service Center	1000+	USA	Richland County
First Citizens Bancorporation, Inc	Finance and Insurance	(551111) Offices of Bank Holding Companies	Services	1000+		Richland County
Humana Military Healthcare /TriCare	Finance and Insurance	(524114) Direct Health and Medical Insurance Carriers	Services	1000+		Richland County
Michelin North America Inc (US #3)	Automotive, Plastics, and Rubber	(326211) Tire Manufacturing (except Retreading)	Manufacturing	1000+	France	Spartanburg County
Palmetto GBA	Finance and Insurance	(524114) Direct Health and Medical Insurance Carriers	Services	1000+		Richland County
Pilgrims Pride Corp	Food Processing	(311615) Poultry Processing	Manufacturing	1000+	Brazil	Sumter County
Ross Stores Distributio	Consumer Products	(424330) Women's, Children's, and Infants' Clothing and Ac	Warehousing and Distribution	1000+	USA	York County

n Center						
Sealed Air/ Cryovac Division	Composites and Advanced Materials, Alternative Energy, Plastics, and Rubber	(326150) Urethane and Other Foam Product (except Polystyre	Manufacturing, Research and Development	1000+	USA	Spartanburg County
South State Bank	Finance and Insurance	(551111) Offices of Bank Holding Companies	Services	1000+		Richland County
Verizon Wireless	Information Technology and Utilities	(561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+	USA	Richland County
Wells Fargo Home Mortgage Inc	Finance and Insurance	(561422) Telemarketing Bureaus and Other Contact Centers	Customer Service Center	1000+		York County
Westinghouse Electric Co LLC	Alternative Energy, Nuclear, Electronics, and Computers	(541330) Engineering Services	Manufacturing, Research and Development	1000+	Japan	Richland County
Adidas America	Consumer Products	(423910) Sporting and Recreational Goods and Supplies Merc	Warehousing and Distribution, Customer Service Center	1000+	Germany	Spartanburg County

APPENDIX F

Airports in SC, Ranked by Number of Boardings in 2015

This list contains the following information:

- City served – The city generally associated with the airport, as per the airport's master record with the Federal Aviation Administration. This is not always the actual location since some airports are located in smaller towns outside of the city they serve. It is not meant to be a complete list of cities served, which can be found in or added to each airport's Wikipedia article.
- FAA – The location identifier assigned by the Federal Aviation Administration (FAA). These are linked to each airport's page at the South Carolina Aeronautics Commission.
- IATA – The airport code assigned by the International Air Transport Association (IATA). Those that do not match the FAA code are shown in bold.
- ICAO – The location indicator assigned by the International Civil Aviation Organization (ICAO).
- Airport name – The official airport name. Those shown in bold indicate the airport has scheduled passenger service on commercial airlines.
- Role – One of four FAA airport categories, as per the 2011–2015 National Plan of Integrated Airport Systems (NPIAS) report released October 2010:
  - P-*s*: *Commercial service – primary* are publicly owned airports that receive scheduled passenger service and have more than 10,000 passenger boardings (*enplanements*) each year. Each primary airport is sub-classified by the FAA as one of the following four "hub" types (*s*):
    - L: *Large hub* that accounts for at least 1% of total U.S. passenger enplanements.
    - M: *Medium hub* that accounts for between 0.25% and 1% of total U.S. passenger enplanements.
    - S: *Small hub* that accounts for between 0.05% and 0.25% of total U.S. passenger enplanements.
    - N: *Nonhub* that accounts for less than 0.05% of total U.S. passenger enplanements, but more than 10,000 annual enplanements.
  - CS: *Commercial service – nonprimary* are publicly owned airports that receive scheduled passenger service and have at least 2,500 passenger boardings each year.
  - R: *Reliever* airports are designated by the FAA to relieve congestion at a large commercial service airport and to provide more general aviation access to the overall community.
  - GA: *General aviation* airports are the largest single group of airports in the U.S. airport system.
- Enpl. – The number of *enplanements* (commercial passenger boardings) that occurred at the airport in calendar year 2015, as per FAA records released October 2016

City served	FAA	IATA	ICAO	Airport name	Role	Enpl.	Address
Pickens	LQK	LQK	KLQK	Pickens County Airport	GA	1	240 Airport Rd, Liberty, SC 29657

Greenwood	GRD	GRD	KGRD	Greenwood County Airport	GA	2	322 Terminal Rd, Greenwood, SC 29649
Orangeburg	OGB	OGB	KOGB	Orangeburg Municipal Airport	GA	2	1811 Airport Rd, Orangeburg, SC 29115
Moncks Corner	MKS		KMKS	Berkeley County Airport	GA	3	1003 US-52, Moncks Corner, SC 29461
Conway	HYW		KHYW	Conway-Horry County Airport	GA	4	1700 Airport Rd, Conway, SC 29527
Georgetown	GGE	GGE	KGGE	Georgetown County Airport	GA	6	129 Airport Rd, Georgetown, SC 29440
Spartanburg	SPA	SPA	KSPA	Spartanburg Downtown Memorial Airport	GA	7	500 Ammons Rd, Spartanburg, SC 29306
Walterboro	RBW	RBW	KRBW	Lowcountry Regional Airport	GA	11	537 Aviation Way, Walterboro, SC 29488
Rock Hill	UZA	RKH	KUZA	Rock Hill/York County Airport (Bryant Field)	R	24	550 Airport Road, Rock Hill, SC 29732
Clemson	CEU	CEU	KCEU	Oconee County Regional Airport	GA	26	365 Airport Rd, Seneca, SC 29678
North Myrtle Beach	CRE	CRE	KCRE	Grand Strand Airport	GA	36	2800 Terminal St, North Myrtle Beach, SC 29582
Greenville	GMU	GMU	KGMU	Greenville Downtown Airport	GA	44	100 Tower Dr, Greenville, SC 29607
Charleston	JZI		KJZI	Charleston Executive Airport	GA	57	2742 Fort Trenholm Rd, Johns Island, SC 29455
Anderson	AND	AND	KAND	Anderson Regional Airport	GA	111	5805 Airport Rd, Anderson, SC 29626
Greenville	GYH	GDC	KGYH	Donaldson Center Airport	GA	234	Idaho Street, Greenville, SC 29605
Eastover	MMT	MMT	KMMT	McEntire JNGB		326	1325 South Carolina Rd. Eastover, SC
Beaufort	NBC		KNBC	MCAS Beaufort		700	Geiger Blvd, Beaufort, SC 29904

				(Merritt Field)			
Beaufort	ARW	BFT	KARW	Beaufort County Airport	GA	1,301	39 Airport Cir, Beaufort, SC 29907
Sumter	SSC	SSC	KSSC	Shaw Air Force Base		1,722	464 Myers St. Shaw AFB, South Carolina, 29152
Aiken	AIK	AIK	KAIK	Aiken Municipal Airport	GA	8,596	129 Aviation Blvd, Aiken, SC 29805
Hilton Head Island	HXD	HHH	KHXD	Hilton Head Airport	P-N	38,322	120 Beach City Rd, Hilton Head Island, SC 29926
Florence	FLO	FLO	KFLO	Florence Regional Airport	P-N	52,611	2100 Terminal Dr, Florence, SC 29501
Columbia	CAE	CAE	KCAE	Columbia Metropolitan Airport	P-S	533,575	3250 Airport Blvd, West Columbia, SC 29170
Myrtle Beach	MYR	MYR	KMYR	Myrtle Beach International Airport	P-S	899,859	1100 Jetport Rd, Myrtle Beach, SC 29577
Greer	GSP	GSP	KGSP	Greenville-Spartanburg International Airport (Roger Milliken Field)	P-S	955,097	2000 GSP Dr, Greer, SC 29651
Charleston	CHS	CHS	KCHS	Charleston International Airport / Charleston AFB	P-S	1,669,98	5500 International Blvd, Charleston, SC 29418

APPENDIX G

Members of the South Carolina Restaurant and Lodging Association

Company	Address_Line1	Address_Line2	City	State	Postal Code
Holiday Inn Express & Suites - Orangeburg	118 Sleep Inn Road		Orangeburg	SC	29118
Rose Hill Estate	221 Greenville St. NW		Aiken	SC	29801
Aloft - North Charleston	4875 Tanger Outlet Boulevard		North Charleston	SC	29418
America's Best Value Inn	27 Charlenes Lane		Bishopville	SC	29010
Anchorage Inn	26 Vendue Range		Charleston	SC	29401
Anderson Ocean Club & Spa	2600 N. Ocean Boulevard		Myrtle Beach	SC	29577
Andrew Pinckney Inn	40 Pinckney Street		Charleston	SC	29401
Atlantica Resorts	1702 N. Ocean Blvd.		Myrtle Beach	SC	29577
Avista Resort	300 N. Ocean Blvd.		North Myrtle Beach	SC	29582
Bar Harbor Motor Inn	100 N. Ocean Blvd.		Myrtle Beach	SC	29577
Bay View Resorts	504 N. Ocean Blvd.		Myrtle Beach	SC	29577
Bay Watch Resort	2701 South Ocean Blvd.		North Myrtle Beach	SC	29582
Baymont Inn & Suites	1826 West Lucas Street		Florence	SC	29501
Beach Colony Resort	5308 N. Ocean Blvd.		Myrtle Beach	SC	29577
Beach Cove Resort	4800 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Beachcomber Vacations	3802 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Bermuda Sands	104 N. Ocean Blvd.		Myrtle Beach	SC	29577
Best Western - Carowinds	3675 Foothills Way		Fort Mill	SC	29708

Best Western King Charles Inn	237 Meeting Street		Charleston	SC	29401
Best Western Ocean Sands Resort	1525 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Carolinian Beach Resort	2506 N. Ocean Blvd.		Myrtle Beach	SC	29577
Suites on the Market Common	1232 Farrow Parkway	Suite B	Myrtle Beach	SC	29577
Sun-N-Sand Resort	2701 S. Ocean Blvd		Myrtle Beach	SC	29577
Surfside Beach Oceanfront Resort	15 S. Ocean Boulevard		Surfside Beach	SC	29575
Tilghman Beach & Golf Resort	1819 N. Ocean Blvd.		North Myrtle Beach	SC	29582
Sands Dunes Resort	201 74th Avenue North		Myrtle Beach	SC	29572
Town & Country Inn & Conference Center	2008 Savannah Hwy		Charleston	SC	29407
TownePlace Suites by Marriott - Columbia	250 E. Exchange Blvd.		Columbia	SC	29209
Ocean Forest Plaza & Villas	PO Box 2587		Myrtle Beach	SC	29578-2587
Trinity Management	1011 Clemson Frontage Road		Columbia	SC	29229
Tropical Seas Hotel	2807 South Ocean Blvd.		Myrtle Beach	SC	29577
Twilight Surf Motel	1703 S. Ocean Blvd.		Myrtle Beach	SC	29577
Village at Palmetto Dunes, The	RMC Mgmt	Dept 214 - PO Box 4579	Houston	TX	77210
Water's Edge Resort, Inc.	1012 N. Waccamaw Drive		Garden City	SC	29576
Wentworth Mansion	149 Wentworth Street		Charleston	SC	29401

Westin Hilton Head Island Resort & Spa	Attn: Gwen Pascoe	Two Grasslawn Avenue	Hilton Head Island	SC	29928
Westin Poinsett Hotel	120 South Main Street		Greenville	SC	29601
Willcox, The	100 Colleton Avenue SW		Aiken	SC	29801
Windsurfer Hotel	210 N. Ocean Blvd.		Myrtle Beach	SC	29577
Wingate by Wyndahm - Lexington	108 Saluda Pointe Court		Lexington	SC	29072
Wingate by Wyndham - CSU	9280 University Boulevard		North Charleston	SC	29406
James F Martin Inn At Clemson University	240 Madren Center Drive		Clemson	SC	29634-5673
Sleep Inn - Mt. Pleasant	299 Wingo Way		Mt. Pleasant	SC	29464
Sonesta ES Suites	303 Fantasy Harbour Blvd.		Myrtle Beach	SC	29579
Wyndham Sea Watch Plantation	151 Sea Watch Drive		Myrtle Beach	SC	29572
Best Western Plus Grand Strand Inn & Suites	1804 South Ocean Blvd.		Myrtle Beach	SC	29577-4695
Best Western Sea Island Inn	PO Box 1479		Beaufort	SC	29901
Best Western Sweetgrass Inn	1540 Savannah Highway		Charleston	SC	29407
Bestway Inn	825 Riverview Road		Rock Hill	SC	29730
BlueWater Resort, The	2001 S. Ocean Blvd.		Myrtle Beach	SC	29577
Boardwalk Beach Resort	2301 N. Ocean Blvd.		Myrtle Beach	SC	29577
Breakers Paradise Tower, The	PO BOX 485		Myrtle Beach	SC	29578

Aqua Beach Inn	1301 N. Withers Drive		Myrtle Beach	SC	29577
Breakers Resort Hotel, The	2006 N. Ocean Blvd.		Myrtle Beach	SC	29577
Budget Hotel	588 Anderson Road		Rock Hill	SC	29730
By The Sea	1717 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Cabana Shores Hotel	5701 N. Ocean Blvd.		Myrtle Beach	SC	29577
Cam Motel	1203 S. Ocean Boulevard		Myrtle Beach	SC	29577
Camelot By the Sea	2000 N. Ocean Blvd		Myrtle Beach	SC	29577
Candlewood Suites - Greenville	25 Green Heron Road		Greenville	SC	29607
Candlewood Suites Northwood	2177 Northwoods Blvd.		North Charleston	SC	29406
Captain's Quarters Family and Golf Resort	901 S. Ocean Blvd.		Myrtle Beach	SC	29577
Caravelle Resort, The	6900 N. Ocean Blvd.		Myrtle Beach	SC	29572
Atlantic Breeze Ocean Resort	1321 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Arcadian I, Inc.	10200 Beach Club Drive		Myrtle Beach	SC	29572
Caribbean Resort & Villas	3000 N. Ocean Blvd.		Myrtle Beach	SC	29577
Carolina Winds Resort	200 76th Ave. N.		Myrtle Beach	SC	29572
Clarion Hotel	1615 Gervais Street		Columbia	SC	29201
Clarion Hotel	1615 Gervais Street		Columbia	SC	29201
Island Vista	6000 N. Ocean Blvd.		Myrtle Beach	SC	29577
Jade Tree Cove	200 75th Avenue N.		Myrtle Beach	SC	29572
John Rutledge House Inn	116 Broad Street		Charleston	SC	29401

Jonathan Harbour	2611 S. Ocean Blvd.		Myrtle Beach	SC	29577
Hilton Garden Inn - Florence Civic Center	2671 Hospitality Boulevard		Florence	SC	29501
Kingfisher Inn	100 N. Waccamaw Drive		Garden City	SC	29576
Kings Courtyard Inn	198 King Street		Charleston	SC	29401
Knights Inn	631 U.S. Hwy 321 Bypass		York	SC	29745
La Quinta Inn - 48th Avenue	4709 N. Kings Hwy		Myrtle Beach	SC	29577
Landmark Inn	1301 S. 4th Street		Hartsville	SC	29550
Landmark Resort Hotel	1501 S. Ocean Blvd.		Myrtle Beach	SC	29577
Litchfield Beach & Golf Resort	14276 Ocean Hwy		Pawleys Island	SC	29585
Long Bay Resort, The	7200 N. Ocean Blvd.		Myrtle Beach	SC	29572
Marina Inn & Suites at Grande Dunes	8121 Amalfi Place		Myrtle Beach	SC	29572
Hampton Inn - Woodruff Rd.	15 Park Woodruff Lane		Greenville	SC	29607
Hampton Inn - Columbia	822 Gervais Street		Columbia	SC	29201
Marriott Hotel - Columbia	1200 Hampton Street		Columbia	SC	29201
Marriott Hotel - Columbia	1200 Hampton Street		Columbia	SC	29201
Marriott Hotel - Greenville	One Parkway East		Greenville	SC	29615
Marriott Monarch at Seapines - Hilton Head	3 Phoebe Lane		HHI	SC	29928
Marriott Resort and Spa - Hilton Head	1 Hotel Circle		Hilton Head Island	SC	29928

Marriott Resort at Grande Dunes - Myrtle Beach	8400 Costa Verde Drive		Myrtle Beach	SC	29572
Marriott Vacation Club International	10 Fifth Street		Hilton Head Island	SC	29928
Marriott's Barony Beach Club - Hilton Head	5 Grasslawn Avenue		Hilton Head Island	SC	29928
Staybridge Suites Myrtle Beach - West	303 Fantasy Harbour Blvd		Myrtle Beach	SC	29579
Sandcastle Oceanfront Resort at the Pavilion	1802 N. Ocean Blvd		Myrtle Beach	SC	29577
The Strand	PO Box 1948		Myrtle Beach	SC	29578
Ansonborough Inn of Charleston	21 Hasell Street		Charleston	SC	29401
Charleston Harbor Resort and Marina	20 Patriots Point Road		Mt. Pleasant	SC	29464
Comfort Suites Mt. Pleasant	1130 Hungryneck Blvd		Mt. Pleasant	SC	29464
Courtyard by Marriott Charleston Airport	2415 Mall Drive		North Charleston	SC	29406
Courtyard by Marriott Charleston Historic District	125 Calhoun Street		Charleston	SC	29401
Courtyard by Marriott Charleston-Mt. Pleasant	1251 Woodland Avenue		Mt. Pleasant	SC	29464
Crowne Plaza Charleston	4831 Tanger Outlet Boulevard		North Charleston	SC	29418
Embassy Suites Historic District	337 Meeting Street		Charleston	SC	29403
Fairfield Inn & Suites	4841 Tanger Outlet Boulevard		North Charleston	SC	29418

Airport Convention Center					
Grand Bohemian	55 Wentworth St.		Charleston	SC	29401
Hampton Inn & Suites Charleston / West Ashley	678 Citadel Haven Drive		Charleston	SC	29414
Hampton Inn Historic District	345 Meeting Street		Charleston	SC	29403
Hampton Inn Patriots Point	255 Sessions Way		Mt. Pleasant	SC	29401
Hawthorn Suites Charleston	2455 Savannah Highway		Charleston	SC	29414
Hilton Garden Inn Charleston Airport	5265 International Blvd.		North Charleston	SC	29418
Hilton Garden Inn Downtown	45 Lockwood Dr.		Charleston	SC	29401
Holiday Inn Charleston Airport & Convention Center	5264 International Blvd.		North Charleston	SC	29418
Holiday Inn Charleston Historic Downtown	425 Meeting Street		Charleston	SC	29401
Holiday Inn Express & Suites Airport & Convention Center	3025 West Montague Avenue		North Charleston	SC	29418
Home2 Suites Airport-Charleston	3401 West Montague Avenue		Charleston	SC	29418
Homewood Suites by Hilton Charleston - Mt. Pleasant	1998 Riviera Drive		Mount Pleasant	SC	29464
Homewood Suites by Hilton Charleston	5048 International Boulevard		North Charleston	SC	29418

Airport / Convention Center					
Hyatt House & Hyatt Place Charleston Historic District	560 King Street		Charleston	SC	29403
Hyatt Place Charleston Convention Center	3234 West Montague Avenue		North Charleston	SC	29418
Kiawah Island Golf Resort	One Sanctuary Beach Drive		Kiawah Island	SC	29455
Comfort Inn & Suites - Columbia	7337 Garners Ferry Road		Columbia	SC	29209
Comfort Suites - Lexington	325 W. Main Street		Lexington	SC	29072
Comfort Suites - Rock Hill	1323 Old Springdale Road		Rock Hill	SC	29730
Coral Beach Resort & Suites	1105 S. Ocean Blvd.		Myrtle Beach	SC	29577
Country Inn & Suites - Myrtle Beach	3516 Waccamaw Blvd.		Myrtle Beach	SC	29579
Courtyard by Marriott - Broadway	1351 21st. Avenue		Myrtle Beach	SC	29577
Courtyard by Marriott - Charleston-Waterfront	35 Lockwood Drive		Charleston	SC	29401
Courtyard by Marriott - Columbia Downtown @USC	630 Assembly Street		Columbia	SC	29201
Courtyard By Marriott - Columbia Northeast	111 Gateway Corporation Blvd		Columbia	SC	29203
Courtyard By Marriott - Florence	2680 Hospitality Blvd.		Florence	SC	29501

Courtyard by Marriott - Greenville Downtown	50 West Broad Street		Greenville	SC	29601
Courtyard By Marriott - Greenville-Airport	115 The Parkway		Greenville	SC	29615
Courtyard By Marriott - Rock Hill	1300 River Run Court		Rock Hill	SC	29732
Crown Reef Resort & Suites	2913 South Ocean Boulevard		Myrtle Beach	SC	29577
Crowne Plaza Hotel - Greenville	851 Congaree Road		Greenville	SC	29607
Dayton House Oceanfront Resort	2400 N. Ocean Blvd.		Myrtle Beach	SC	29577
Defender Resorts, Inc.	6301 N. Kings Hwy.		Myrtle Beach	SC	29572
Deluxe Inn & Suites	1568 E. Alexander Love Hwy		York	SC	29745
Doubletree by Hilton - Columbia	2100 Bush River Road		Columbia	SC	29210
Doubletree by Hilton - Columbia	2100 Bush River Road		Columbia	SC	29210
Driftwood at the Boardwalk	1600 N. Ocean Blvd		Myrtle Beach	SC	29577
Dunes Village Resort	5200 N. Ocean Blvd.		Myrtle Beach	SC	29577
Econo Lodge	962 Riverview Road		Rock Hill	SC	29730
Econo Lodge - Summerville	110 Holiday Drive		Summerville	SC	29483
Meridian Plaza Hotel	2310 N. Ocean Blvd.		Myrtle Beach	SC	29577
Mermaid Inn, The	5400 N. Ocean Boulevard		Myrtle Beach	SC	29577
Microtel Inn & Suites by Wyndham- Rock Hill	1047 Riverview Road		Rock Hill	SC	29730

Monterey Bay Suites	6804 N. Ocean Blvd.		Myrtle Beach	SC	29572
Motel 6	962 Riverview Road		Rock Hill	SC	29730
Myrtle Beach Seaside Resorts	300 N. Ocean Blvd.		North Myrtle Beach	SC	29582
North Beach Plantation	719 N. Beach Blvd.		North Myrtle Beach	SC	29582
Ocean Creek Resort, Inc.	10600 North Kings Hwy		North Myrtle Beach	SC	29572
Ocean Dunes Resort & Villas	201 75th Avenue N.		Myrtle Beach	SC	29572
Howard Johnson - Rock Hill	911 Riverview Road		Rock Hill	SC	29732
Ocean Front Viking Motel, The	1811 S. Ocean Blvd.		Myrtle Beach	SC	29577
Ocean Isle Inn	37 W. First Street		Ocean Isle Beach	SC	28469
Inn At Harbour Town	7 Lighthouse Lane		Hilton Head Island	SC	29938
Ocean Plaza Motel	1005 S Ocean Blvd		Myrtle Beach	SC	29577
Ocean Reef Resort, The	7100 N. Ocean Blvd.		Myrtle Beach	SC	29572
Ocean Villas Beach Resort	7509 N. Ocean Blvd.		Myrtle Beach	SC	29577
Oceana Resorts	1000 Second Avenue South	Suite 110	North Myrtle Beach	SC	29582
Keowee River Club	931 Reserve Blvd.		Sunset	SC	29685
Oceans One Resort	102 S. Ocean Blvd		Myrtle Beach	SC	29577
Palace Resort, The	1144 Shine Ave		Myrtle Beach	SC	29577
Palmetto Shores	PO Box 1948		Myrtle Beach	SC	29578
Palms Hotel, The	1126 Ocean Blvd.		Isle of Palms	SC	29451
Palms Resort, The	2500 N. Ocean Blvd.		Myrtle Beach	SC	29577
Paradise Resort	2201 S. Ocean Blvd.		Myrtle Beach	SC	29577

King Charles Inn	237 Meeting Street		Charleston	SC	29401
Mainstay Suites Mount Pleasant	400 McGrath Darby Blvd		Mount Pleasant	SC	29464
Middleton Place (The Inn)	4300 Ashley River Road		Charleston	SC	29414
Mills House Hotel, The	115 Meeting Street		Charleston	SC	29401
Quality Inn and Suites at Patriots Point	196 Patriots Point Rd		Mt. Pleasant	SC	29464
Renaissance Charleston Hotel	68 Wentworth St		Charleston	SC	29401
Residence Inn by Marriott Airport	5035 International Blvd		North Charleston	SC	29418
Residence Inn® by Marriott® Charleston Mt. Pleasant	1116 Isle of Palms Connector		Mt. Pleasant	SC	29464
Sleep Inn North Charleston	7435 Northside Drive		North Charleston	SC	29420
Staybridge Suites	7329 Mazyck Road		Charleston	SC	29406
Tides at Folly Beach, The	One Center Street		Folly Beach	SC	29439
Vendue, The	19 Vendue Range		Charleston	SC	29401
Wild Dunes Resort	1992 Pierce St		Daniel Island	SC	29492
Beaufort Inn	209 Port Royal St.		Beaufort	SC	29902
Quality Inn at Town Center	2015 Boundary Street	Suite 300	Beaufort	SC	29902
Residence Inn Greenville	120 Milestone Way		Greenville	SC	29615
Holiday Inn & Suites - Beaufort	2225 Boundary Street		Beaufort	SC	29902

The Boardwalk Inn	5757 Palm Blvd		Isle of Palms	SC	29451
Aloft Greenville Downtown	5 N. Laurens Street		Greenville	SC	29601
Home 2 Suites Greenville Downtown	350 North Main Street		Greenville	SC	29601
Comfort Inn of North Myrtle Beach	1755 Hwy 17 N.		North Myrtle Beach	SC	29582
Cottage at The Arsenal	PO Box 1987		Beaufort	SC	29901
Elliott Luxury Homes	401 Sea Mountain Hwy.		North Myrtle Beach	SC	29582
Embassy Suites - Greenville	670 Verdae Boulevard		Greenville	SC	29607
Embassy Suites Oceanfront Hotel @ Kingston Plantation	9800 Queensway Blvd.		Myrtle Beach	SC	29572
Embassy Suites Airport Convention Ctr - N Chas	5055 International Blvd.		North Charleston	SC	29418
Embassy Suites Airport Convention Center - North Charleston	5055 International Blvd.		North Charleston	SC	29418
Embassy Suites Hotel - Columbia	200 Stoneridge Drive		Columbia	SC	29210
Embassy Suites Hotel - Columbia	200 Stoneridge Drive		Columbia	SC	29210
Fairfield Inn - Bluffton	105 Okatie Center Blvd. N.		Bluffton	SC	29910
Fairfield Inn - Columbiana	320 Columbiana Drive		Columbia	SC	29210
Fairfield Inn - Greenville	48 Fisherman Lane		Greenville	SC	29615
Fairfield Inn - Hartsville	200 S. 4th Street		Hartsville	SC	29550
Fairfield Inn & Suites -	120 Blarney Drive		Columbia	SC	29223

Columbia					
Fairfield Inn & Suites - North Charleston - Ashley Phosphate	2540 North Forest Drive		North Charleston	SC	29420
Fairfield Inn & Suites - North Charleston - University	2600 Elms Center Road		North Charleston	SC	29406
Fairfield Inn @ Broadway at the Beach	1350 Oleander Drive		Myrtle Beach	SC	29577
Florence Inn & Suites	3821 Bancroft Road		Florence	SC	29501
Forest Dunes Resort	5511 N. Ocean Blvd.		Myrtle Beach	SC	29577
Francis Marion Hotel	387 King Street		Charleston	SC	29403
French Quarter Inn	166 Church Street		Charleston	SC	29401
Fulton Lane Inn	202 King Street		Charleston	SC	29401
Gazebo Inn	1607 S. Ocean Blvd.		Myrtle Beach	SC	29577
Grand Atlantic Ocean Resort	2007 S. Ocean Blvd.		Myrtle Beach	SC	29577
Grande Shores Ocean Resort	201 77th Avenue N.		Myrtle Beach	SC	29572
Inn At Houndslake	897 Houndslake Drive		Aiken	SC	29803
Patricia Grand Resort Hotel	2710 N. Ocean Blvd		Myrtle Beach	SC	29577
Pawleys Plantation Golf & Country Club	70 Tanglewood Drive		Pawleys Island	SC	29585
Pelican Motel, Inc.	2310 N. Ocean Blvd.		North Myrtle Beach	SC	29582
Planters Inn	112 N. Market Street		Charleston	SC	29401
Planters Inn	112 N. Market Street		Charleston	SC	29401
Polynesian Beach & Golf	1001 South Ocean Blvd.		Myrtle Beach	SC	29577

Resort					
Prince Resort at the Cherry Grove Pier	3500 N. Ocean Blvd.		North Myrtle Beach	SC	29582
Red Roof Inn & Suites	2801 S. Kings Hwy.		Myrtle Beach	SC	29577
Reef Resort, The	2101 South Ocean Blvd.		Myrtle Beach	SC	29577
Residence Inn - Florence	2660 Hospitality Boulevard		Florence	SC	29501
Residence Inn - Spartanburg	9011 Fairforest Road		Spartanburg	SC	29306
Residence Inn By Marriott - Charleston	90 Ripley Point		Charleston	SC	29407
Residence Inn by Marriott -Columbia NE	2320 LeGrand Road		Columbia	SC	29223
Restoration on King	75 Wentworth St		Charleston	SC	29401
Riptide Beach Club I	2806 N. Ocean Blvd.		Myrtle Beach	SC	29577
Market Pavilion Hotel	225 East Bay Street		Charleston	SC	29401
Sanctuary @Kiawah Island Golf Resort	1 Sanctuary Beach Drive		Kiawah Island	SC	29455
Marriott Hotel - Charleston	170 Lockwood Blvd.		Charleston	SC	29403
Sandcastle South Beach	2207 S. Ocean Blvd.		Myrtle Beach	SC	29577
Sands Beach Club Resort	9400 Shore Drive		Myrtle Beach	SC	29572
Sands Ocean Club Resort	9550 Shore Drive		Myrtle Beach	SC	29572
Sandy Beach Resort	201 S. Ocean Blvd.		Myrtle Beach	SC	29577
Schooner Beach & Racquet Club	7050 N. Ocean Blvd.		Myrtle Beach	SC	29572
Sea Crest Oceanfront Resort	803 S. Ocean Blvd.		Myrtle Beach	SC	29577

Hampton Inn - Broadway at the Beach	1140 Celebrity Circle		Myrtle Beach	SC	29577
Hampton Inn - Clinton	201 East Corporate Center Drive		Clinton	SC	29325
Hampton Inn - Columbia NE	1021 Clemson Frontage Road		Columbia	SC	29229
Hampton Inn - Daniel Island	160 Fairchild Street		Charleston	SC	29492
Hampton Inn - Duncan	108 Spartangreen Boulevard		Duncan	SC	29334
Hampton Inn - Georgetown Marina	420 Marina Drive		Georgetown	SC	29440
Hampton Inn - Murrells Inlet	512 Courtfield Drive		Murrells Inlet	SC	29576
Hampton Inn - North Charleston	7424 Northside Drive		North Charleston	SC	29418
Hampton Inn - Pawleys Island	150 Willbrook Blvd.		Pawleys Island	SC	29585
Hampton Inn - Santee	PO Box 855		Santee	SC	29142
Hampton Inn & Suites - Greenville Riverplace	171 Riverplace		Greenville	SC	29601
Hampton Inn & Suites - Summit Pointe	805 Spartan Blvd.		Spartanburg	SC	29301
Hampton Inn & Suites Oceanfront - Myrtle Beach	1803 S. Ocean Blvd.		Myrtle Beach	SC	29577
Hampton Inn Northwood	620 75th Avenue N.		Myrtle Beach	SC	29572
Hampton Inn - West	4551 Hwy 501		Myrtle Beach	SC	29579
Harbourview Inn	2 Vendue Range		Charleston	SC	29401

Hilton Columbia Center	924 Senate Street		Columbia	SC	29201
Hilton Garden Inn - Columbia	434 Columbiana Drive		Columbia	SC	29212
Hilton Garden Inn - Greenville	108 Carolina Point Parkway		Greenville	SC	29607
Hilton Garden Inn - Myrtle Beach At Coastal Grand Mall	2283 Coastal Grand Circle		Myrtle Beach	SC	29577
Hilton Hotel & Towers - Greenville	45 West Orchard Park Drive		Greenville	SC	29615
Hilton Hotel Corporation	C/O Kingston Plantation	9800 Queensway Blvd.	Myrtle Beach	SC	29572
Hilton Myrtle Beach Resort	10000 Beach Club Drive		Myrtle Beach	SC	29572
Holiday Inn & Suites Columbia Airport	110 McSwain Drive		West Columbia	SC	29169
Holiday Inn at the Pavilion	1200 N. Ocean Blvd.		Myrtle Beach	SC	29577
Holiday Inn Club Vacations- South Beach Resort	3000 S. Ocean Blvd.		Myrtle Beach	SC	29577
Holiday Inn Express - Ashley River	250 Spring Street		Charleston	SC	29403
Holiday Inn Express - MB Broadway at the Beach	3100 Oleander Drive		Myrtle Beach	SC	29577
Holiday Inn Express - Savannah Highway	1943 Savannah Hwy		Charleston	SC	29407
Holiday Inn Express - Columbia NE	1011 Clemson Frontage Road		Columbia	SC	29229

Holiday Inn Express & Suites - Anderson	107 Interstate Blvd.		Anderson	SC	29621
Holiday Inn Express & Suites - Ft. Jackson	7329 Garners Ferry Road		Columbia	SC	29209
Holiday Inn Express & Suites - Greenville	407 N Main Street		Greenville	SC	29601
Holiday Inn Express & Suites - Mt. Pleasant	350 Johnnie Dodds Blvd		Mt. Pleasant	SC	29464
Holiday Inn Oceanfront at Surfside Beach	1601 N. Ocean Blvd.		Surfside Beach	SC	29575
Holiday Sands North "On the Boardwalk"	400 N. Ocean Blvd.		Myrtle Beach	SC	29577
Holiday Sands South Properties	2411 S. Ocean Blvd.		Myrtle Beach	SC	29577
Homewood Suites	230 Greystone Blvd.		Columbia	SC	29210
Hotel BLUE	705 S. Ocean Blvd.		Myrtle Beach	SC	29577
Fairfield Inn & Suites - Simpsonville	3821 Grandview Drive		Simpsonville	SC	29680
Hyatt Regency	220 North Main Street		Greenville	SC	29601
Indigo Inn	2209 S. Ocean Blvd.		Myrtle Beach	SC	29577
Inlet Sports Lodge, The	4600 Hwy. 17 Business		Murrells Inlet	SC	29576
Inn At Claussens, The	2003 Greene Street		Columbia	SC	29205
Holiday Inn Express - Florence	3440 West Radio Drive		Florence	SC	29501
Inn At Palmetto Bluff	476 Mount Pelia Road		Bluffton	SC	29910
Inn At USC	1619 Pendleton Street		Columbia	SC	29201
Inn at Winthrop, The	Winthrop University	Joynes Hall	Rock Hill	SC	29733

Quality Inn at Town Center	2001 Boundary Street		Beaufort	SC	29902
Beaufort Inn	209 Port Royal Street		Beaufort	SC	29902
The Rhett House Inn	1009 Craven Street		Beaufort	SC	29902-5577
Hyatt Place - The Vista	819 Gervais Street		Columbia	SC	29201
Comfort Suites - Florence	2120 W. Lucas Street		Florence	SC	29501
Country Inn & Suites - Florence	1739 Mandeville Rd.		Florence	SC	29501
Hampton Inn & Suites - Florence Civic Center	3000 West Radio Drive		Florence	SC	29501
Holiday Inn Express & Suites - Florence	2101 Florence Harlee Blvd		Florence	SC	29506
Home 2 Suites - Florence	900 Woody Jones Blvd.		Florence	SC	29501
Ocean 22 by Hilton Grand Vacations Club	2200 N. Ocean Blvd		Myrtle Beach	SC	29577
Fairfield Inn - Myrtle Beach	10231 N. Kings Hwy		Myrtle Beach	SC	29572
Hilton Grand Vacations Club @ Anderson Ocean Club	2200 N. Ocean Blvd.		Myrtle Beach	SC	29577
The Mantissa	130 East Carolina Avenue		Hartsville	SC	29550
Prista Vacation Rentals	1229 38th Ave. N., #104		Myrtle Beach	SC	29577
The Matriarch Bed & Breakfast, Meeting and Special Events Venue	1170 Fischer St.		Orangeburg	SC	29115
The Cuthbert House Inn	1203 Bay Street		Beaufort	SC	29902
Carolina Streetscapes	302B Raleigh St.		Wilmington	NC	28412

Residence Inn By Marriott - Charleston	90 Ripley Point		Charleston	SC	29407
Hilton Garden Inn - Mt. Pleasant	300 Wingo Way		Mt. Pleasant	SC	29464
TownePlace Suites Columbia/Harbison	438 Columbiana Dr.		Columbia	SC	29212
Yachtsman Resort	1304 N Ocean Blvd.		Myrtle Beach	SC	29577
Sanctuary @Kiawah Island Golf Resort	One Sanctuary Beach Dr		Kiawah Island	SC	29455
SpringHill Suites by Marriott - Mt. Pleasant	245 Magrath Darby Blvd		Mt. Pleasant	SC	29464
Luxury Beach Rentals	5335 N. Kings Hwy. #178		Myrtle Beach	SC	29577
Sea Dip Motel & Condo	2608 N. Ocean Blvd.		Myrtle Beach	SC	29577
Sea Mist Oceanfront Resort	1200 S. Ocean Blvd.		Myrtle Beach	SC	29577
Sea Pines Resort	32 Greenwood Drive		Hilton Head Island	SC	29938
Sea Watch Resort, LLC	161 Sea Watch Drive		Myrtle Beach	SC	29572
Seaport Village	C/O Dunes Realty	128 Atlantic Avenue	Garden City	SC	29576
Seaside Resort	2301 S. Ocean Blvd.		North Myrtle Beach	SC	29582
Ocean Park Resort	1905 S. Ocean Blvd.		Myrtle Beach	SC	29577
Serendipity Inn	407 71st Ave. N.		Myrtle Beach	SC	29572
Shem Creek Inn	1401 Shrimpboat Lane		Mt. Pleasant	SC	29464
Sheraton Broadway Plantation	3301 Robert Grissom Parkway		Myrtle Beach	SC	29577
Sheraton Myrtle Beach Convention Center	2101 N. Oak Street		Myrtle Beach	SC	29577

Hotel					
Sleep Inn - Charleston	1524 Savannah Hwy		Charleston	SC	29407
Oceanfront Litchfield Inn, The	1 Norris Drive		Pawleys Island	SC	29585
Roxanne Towers	1604 N. Ocean Blvd.		Myrtle Beach	SC	29577
Sonesta Resort Hilton Head Island	130 Shipyard Drive		Hilton Head Island	SC	29228
Sonship Hospitality	108 Spartangreen Boulevard		Duncan	SC	29334
Southern Breeze Motel	1901 S. Ocean Blvd.		Myrtle Beach	SC	29577
Southwind II Homeowners Assoc.	RMC Mgmt	Dept 214 - PO Box 4579	Houston	TX	77210
South Wind on the Ocean	5310 N. Ocean Blvd.		Myrtle Beach	SC	29577
Springhill Suites By Marriott - Charleston Riverview	98 Ripley Point Drive		Charleston	SC	29407
Springhill Suites By Marriott - Columbia	511 Lady Street		Columbia	SC	29201
Springhill Suites By Marriott - Florence	2670 Hospitality Boulevard		Florence	SC	29501
DoubleTree Resort by Hilton Myrtle Beach Oceanfront	3200 South Ocean Blvd.		Myrtle Beach	SC	29577
St. Clements Homeowners Association	6900 N. Ocean Blvd.		Myrtle Beach	SC	29572
Towers at North Myrtle Beach	2104 N. Ocean Blvd.		North Myrtle Beach	SC	29582
Castaway Beach Inn	1717 S. Ocean Blvd		North Myrtle Beach	SC	29582

Sheraton Downtown Columbia Hotel	c/o Ms. Nita Patel - Sejwad Hotels	8105 Two Notch Road	Columbia	SC	29223
Homewood Suites Ocean Resort and Conf Center	1805 S. Ocean Blvd		Myrtle Beach	SC	29577
Residence Inn by Marriott- Columbia/Harbison	944 Lake Murray Blvd		Irmo	SC	29063
TownePlace Suites by Marriott - Rock Hill	2135 Tabor Drive		Rock Hill	SC	29730
Carolina Safety Surfaces	801 Bragg Dr		Wilmington	NC	28409-6901
TownePlace Suites by Marriott - Florence	2650 Hospitaltiy Blvd		Florence	SC	29501
Hotel Florence	126 W. Evan Street		Florence	SC	29501
Booking.com	271 17th St., 6th Floor		Atlanta	GA	30363
Courtyard by Marriott - Myrtle Beach @ Barefoot Landing	1000 Commons Blvd.		Myrtle Beach	SC	29572
Expedia	610 Mammie Dr.		Myrtle Beach	SC	29588
Towers at Ocean Creek	PO Box 1575		North Myrtle Beach	SC	29598
Hampton Inn & Suites Florence -North	1735 Stokes Road		Florence	SC	29501
Brittain Resorts & Hotels	PO Box 1948		Myrtle Beach	SC	29578
Elliott Grande Villas	401 Sea Mountain Hwy		North Myrtle Beach	SC	29582
Sejwad Hotels	60 Old Still Road		Columbia	SC	29223
Wyndham Garden Hotel - Mt. Pleasant	1330 Stuarat Engals Boulevard		Mount Pleasant	SC	29464

Holiday Inn Express & Suites Greenville Airport	2681 Dry Pocket Road		Greer	SC	29650
Best Western Plus Columbia NE	7525 Two Notch Road		Columbia	SC	29223
Hilton Garden Inn - Rock Hill	650 Tinsley Way		Rock Hill	SC	529730
Anchorage 1770 Inn	1103 Bay Street		Beaufort	SC	29902
Ambassador Golf & Beach	PO Box 1936		Myrtle Beach	SC	29578
City Loft Hotel	301 Carteret Street		Beaufort	SC	29902

APPENDIX H

Strategic Partners

In order for PCF to increase EV adoption in the State and serve as an EV clearinghouse for information, it must engage EV stakeholders throughout the State and nation. These stakeholders include Federal and State Agencies, local governments and municipalities, EVSE and Original Equipment Manufacturers, utilities, other Clean Cities Coalitions, EV owners/advocacy groups, and other organizations.

Federal and State Agencies
Federal and State programs and initiatives relating to EVs, lead by example

SC Department of Administration State Fleet Management
www.admin.sc.gov/generalservices/state-fleet-management

PCF has participated in the procurement process for the South Carolina State Fleet for a number of years. This includes "Spec Meetings" where the State Fiscal Accountability Authority calls for bids on state-negotiated contracts, which state agencies and affiliated municipalities can purchase. Currently, EV representation is lackluster if not non-existent. Plug in SC will allow PCF to attempt to partner with the SC Department of Administration in order to allow for EVs to be purchased on state contract, increasing the adoption among state agency fleets. This, in a lead-by-example effort will contribute to an Energy Office State Energy Plan recommendation, which outlines a statement of alternative fuel adoption at the State level. Plug in SC will attempt to set a goal of EV representation in State fleets as a percentage, and also provide a catalogue of EVs that are available on state contract. This catalogue will highlight those EVs that are available and encourage state fleets to purchase these vehicles over their petroleum counterparts.

SC Department of Health and Environmental Control Bureau of Air Quality
www.scdhec.gov/HomeAndEnvironment/Air

The SC Department of Health and Environmental Control (SCDHEC) houses the Bureau of Air Quality (BAQ). The BAQ houses the mobile source division, aimed at reducing emissions and effects on air quality from mobile source emissions. SCDHEC administers SC's Diesel Emission Reduction program. With some of the same goals, PCF partners with SCDHEC on many projects. SCDHEC will act as a partner to help share PCF's Plug in SC campaign to its stakeholders. It will also help to quantify emission reductions in South Carolina as a result of electrification.

SCDHEC administers Clean Air Coalitions across the State aimed at reducing emissions. Plug in SC will target these coalitions to promote EV education. Coalitions across the State include:
- Upstate Air Quality Advisory Committee
- CSRA Air Quality Alliance
- Catawba Air Quality Coalition
- Waccamaw Air Quality Coalition
- BCDCOG Clean Air and Climate Coalition
- Central Midlands Council of Governments

SCDHEC also administers their Breathe Better (B^2) Anti-Idling program.

Breathe Better (B2) is an anti-idling, clean air education program promoted by SCDHEC's Bureau of Air Quality. The goal of B2 is to help protect public health and improve air quality by reducing harmful vehicle emissions around school campuses and other public spaces.

This program is a perfect opportunity to partner of EV initiatives. It is a way to reach those that are sitting at educational facilities, businesses, and other facilities and idling, in order to educate them on the benefits of EVs on air quality and petroleum reduction. PCF will encourage SCDHEC to integrate

Plug in SC into B[2] programs in order to promote EVs and reduce the emissions and petroleum that is wasted while idling around school campuses and other public spaces.

SC Department of Transportation
www.dot.state.sc.us

SC Department of Transportation (SCDOT) is an integral partner in the Plug in SC initiative. In addition to electrification of their fleet, Plug in SC will work with SCDOT to implement signage along FHWA alternative fuel corridors and directional signage to EV charging stations. SCDOT, also a major funding source for mass transit affiliates, will be crucial in helping to encourage transit agencies to convert to electric busses and transportation sources. SCDOT will also be instrumental in implementing the integration of EV infrastructure into plans for road infrastructure. Many municipalities will be looking to SCDOT for guidance on regulations and codes related to EV infrastructure. PCF will serve as the information source to guide these regulations regarding signage recommendations, spatial allocations, and code enforcement. Signage recommendations are addressed later in this plan.

Local Governments and Municipalities
Planning, zoning, permitting, right-of-way access, signage, traffic and inspection

Municipal Association of South Carolina
www.masc.sc

Formed in 1930, the Municipal Association of South Carolina (MASC) represents and serves the state's 270 incorporated municipalities. The Association is dedicated to the principle of its founding members: to offer the services, programs and tools that will give municipal officials the knowledge, experience and tools for enabling the most efficient and effective operation of their municipalities in the complex world of municipal government. PCF has an existing relationship with MASC and will utilize this relationship to reach municipalities that are interested in EVs and educate municipalities that may want to learn more about how they can implement and EV program in their area.

City of Seneca
www.seneca.sc.us

The City of Seneca's public transit system, a part of the Clemson Area Transit network, replaced its diesel buses in 2011 with 35-foot, fast-charge battery electric buses built locally by Proterra in Greenville, S.C. Seneca works to train mechanics in the operation and maintenance of EVs. This initiative has resulted in efforts to bring EV maintenance education to the Upstate of South Carolina, to include building facilities that can be used as classrooms and test labs and actively recruiting tech schools to participate in training programs. PCF will partner with the City of Seneca to produce a case study that can be replicated in other municipalities. It will also outline best practices and obstacles that may be encountered when trying to convert to electric busses in other municipalities.

PCF will attempt to partner with other municipalities that have embraced EV technology in order to promote the positive effects of going electric.

PCF will also make an effort to learn more about the permitting processes, or lack of processes that are at the municipal level for EV infrastructure and EVs. This is part of a broader initiative of standardizing signage and permitting across the state.

EVSE Manufacturers
Station availability, obstacles, permitting, and EVSE future investments

Plug in SC should include an attempt at unifying EVSE Manufacturers across the nation for a goal of increasing the availability of EVSE across South Carolina.

The Plug in SC campaign will help to solicit hard and soft costs associated with specific levels of charging stations.

All of the following EVSE providers will be invited to participate in a planning group to review the current charging infrastructure as it relates to the current and future potential of EV adoption in the State. Challenges and best practices will be recorded in order to review the obstacles that may hamper EVSE Manufacturers in South Carolina.

ChargePoint
www.chargepoint.com

nrg eVgo
www.evgo.com

U-GO Stations
www.ugostations.com

BLINK
www.blinknetwork.com

Bosch
www.boschevsolutions.com

Aerovironment
www.evsolutions.com

ClipperCreek
www.clippercreek.com

Leviton
www.leviton.com

EATON
www.eaton.com/EatonCA/ProductsSolutions/Electrical/ProductsandServices/Residential/ElectricVehicleChargingSolutions

EATON chargers were the choice of many municipalities during the ARRA period. EATON has since discontinued its commercial EVSE manufacturing and maintenance. This has caused issues with many chargers that need upgrading or maintaining. PCF will work reach out to EATON to ensure that the current charging infrastructure is receiving maintenance. It will also try to confirm that future infrastructure is installed with a commitment to ongoing maintenance and upgrades. This will ensure that future EVSE will be maintained and reliable.

Original Equipment Manufacturers
Impact on vehicle sales, development of vehicle technologies, ratio of chargers to vehicles, vehicle capabilities and level of charging

Plug in SC will bring EV manufacturers together to join the EV promotion in South Carolina. Each EV manufacturer has its own initiatives, but Plug in SC will become a unifying front for EV promotion in the state. PCF will solicit information on current EV sales data and obstacles that stand in EV manufactures' way. Each EV manufacturer will be encouraged to adopt Plug in SC marketing when trying to promote EVs to South Carolinians.

Nissan North America
www.nissanusa.com/electric-cars/leaf

Tesla Motors
www.tesla.com

Chevrolet
www.chevrolet.com/volt-electric-car

Proterra
www.proterra.com

BYD
www.byd.com

Utilities
Rate structure, availability of power, metering, total load management, demand charges and level of charging

PCF's Plug in SC campaign will encourage electric power utilities to become leaders in moving from oil to electricity in mobile sources. Increasing the use of electricity for transportation provides net benefits for both society and utility ratepayers.

PCF will engage utilities in order to:

Identify barriers and incentives for electric utilities to promote the use and increased use of electricity for transportation.

Encourage all utilities in the State to support EVSE installation and rebates.

> Electric utilities should support their business and residential customers who are transitioning to EVs. PCF will encourage and investigate a potential incentive program from utilities that provides some sort of encouragement to adopt EVs and EVSE.

Encourage utilities to maximize grid benefits of EVs and further explore TOU options.

> Electric power providers should develop pilot projects that seek to reduce daily peak energy use, such as using time-of-use rates or discounts for charging EVs during off-peak hours when the power grid is underutilized. Shifting charging to evening hours will help make better use of expensive generation, transmission, and distribution infrastructure.

The follow utilities will be integral in implementing the Plug in SC initiative.

Duke Energy
www.duke-energy.com

Santee Cooper
www.santeecooper.com

South Carolina Electric & Gas
www.sceg.com

Electric Cooperatives of South Carolina
www.ecsc.org

Clean Cities Coalitions

As mentioned, DOE administers the Clean Cities Program, including PCF. These organizations in neighboring states will be integral to the implementation of Plug in SC for South Carolina.

Many Clean Cities organizations have initiated or been a part of initiating "Plug-in" campaigns in their own states. PCF will seek recommendations of best practices from these coalitions and partnerships for implementing Plug in SC.

Triangle J Clean Cities
www.trianglecleancities.org

Centralina Clean Cities
www.4cleanfuels.com

Land of Sky Clean Vehicles Coalition
www.cleanvehiclescoalition.org

Clean Cities Georgia
www.cleancitiesgeorgia.org

Tennessee Clean Fuels
www.tncleanfuels.org

EV owners/advocacy groups

PCF has worked with various advocacy groups in the past. These groups include EV owners and South Carolinians that are committed to the advancement of EVs. Specifically, PCF has worked with a group that promotes the National Drive Electric Week (NDEW) event. This planning group is comprised mostly of EV owners that wish to promote the advantages of EVs for the consumer. Plug in SC will continue this commitment through involvement with NDEW events planned throughout the State. PCF will ensure that the NDEW event will be promoted in conjunction with the Plug in SC marketing materials with the help of this planning group and various stakeholders throughout the State.

Other Organizations

South Carolina Clean Energy Business Alliance
www.scceba.org

The South Carolina Clean Energy Business Alliance (SCCEBA) is in the midst of planning a multi-year Clean Transportation plan. PCF has been involved in this plan since its inception and will continue to promote EVs as an integral part of this implementation and educational plan on a State level.

The following organizations will be instrumental in the Plug in SC campaign, as they have experience with other "Plug-in" campaigns and alternative transportation initiatives in neighboring states:

NC Clean Energy Technology Center
www.nccleantech.ncsu.edu
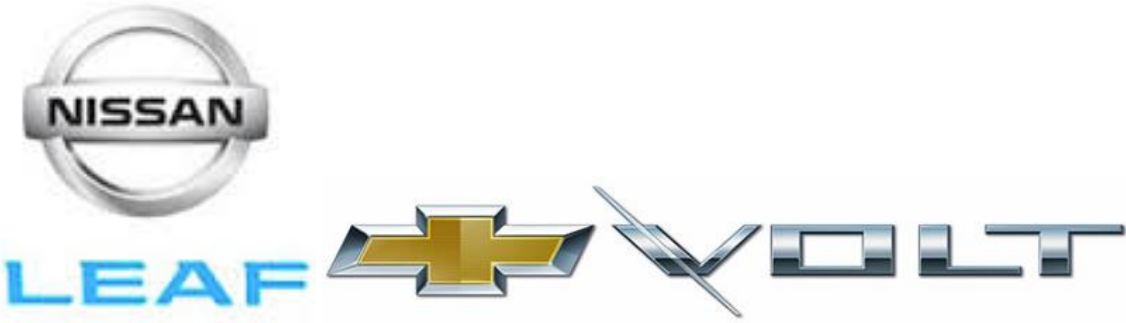
Advanced Energy
www.advancedenergy.org

APPENDIX I

EV Affiliated Logos

APPENDIX J

EV Parking Signage

APPENDIX K

EV Pavement Markings

APPENDIX L

EV Road Signage

APPENDIX M

Best.Drive.EVer. Campaign User Guide

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Department of Energy (DOE)

Energy Efficiency and Renewable Energy

Vehicles Technology Office

Requirement: DE-DT0011496

"Best.Drive.EVer."

11-1-2016

Campaign User Guide

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This document provides end-users with guidance and recommendations on how to use the Best.Drive.Ever. PEV awareness campaign products. We invite and encourage you to use the campaign products extensively and in innovative ways to help promote your own EV initiatives to increase the adoption and use of PEVs. All files can be accessed/downloaded at: www.afdc.energy.gov/best-drive-ever.

Once you have registered and accepted the "Guidelines for Use" you will be taken to the download page. On the download page you will find download links for each of the available media packets. Each of the five themes (Convenience, Performance, Love, Technology and Today) will have individual links for each of the six available media packets (Message Board, Print Ad, Social Media Graphics, Transit Ad, Web Banner and Social Media Video). Clicking on the link will automatically start a download of the associated files for the selected media packet and theme.

Each media packet has clearly labeled folders with print ready (PDF & Web Optimized JPEGs for Web Banner Ads) and customizable (InDesign & InDesign Markup for those using older versions of the InDesign software) files. In addition to the InDesign and InDesign Markup files, the customizable folder also contains all collected fonts; all imported images, graphics, and logos; and an instructions file containing the information and links for the collected fonts, images graphics and logos. **Read on** for more information on how to modify the files to meet your organizations goals.

Your feedback is appreciated! Email U.S. at EVEverywhere@ee.doe.gov with any comments or questions and don't forget to let U.S. know how the materials helped your organization further its PEV awareness efforts!

NOTE: The PDF files located in the "Print Ready" folder require no action taken by the user before inserting into your campaign. The following section only applies to customization of the InDesign and InDesign Markup Files found in the "Customizable" folder.

CUSTOMIZATION

Customization of files requires Adobe InDesign software and a graphic designer or pre-press department of a printer. All customizable files are prepared as Adobe Creative Cloud InDesign files. The file collection includes the native InDesign file; an InDesign Markup (.idml) file for users with older software; all collected fonts; all imported images, graphics, and logos; and an instructions file containing the information and links for the collected fonts, images graphics and logos.

The end-user is responsible for working with a qualified professional who has access to the software required to modify the files provided. Any charges incurred to modify the files, along with any arrangements for media placement, printing, and other distribution methods, as well as the associated costs for distribution, are the responsibility of the end-user.

Design files can be used as-is or they can be customized by the end-user. The InDesign files are all print-ready, but provide you the option of replacing the link to the EV Everywhere homepage with your own web address and/or adding a local call to action to customize the file to fit your specific purposes. You also have the option to modify the font color/style and the photography

CAMPAIGN INTEGRITY

To ensure integrity (i.e., consistency in look and feel) of the Best.Drive.EVer. campaign, please note the following:

1. Photography

Photographs may be changed to reflect your geographic location or your specific demographic. Replacement images must adhere to the existing look and feel of the image on the message board.

2. Logo and headline lockup

The Best.Drive.EVer. logo should be the most prominent design element in the layout, secondary only to the main image. Use of the vertical option is preferred and recommended. The transparency of the Best.Drive.EVer. logo will react differently based on the colors of the image behind it. The transparency can be adjusted to promote readability, while still maintaining the overall look of the campaign. Transparent treatment includes multiple layers in the layout file, and varies in the deliverables to create maximum readability and visibility.

3. Campaign duration

IMPORTANT: The supplied images and text are for use in print and digital media only – not broadcast media – through September 2018. Given the rapid advancement inherent to the industry, it is anticipated that updated content and messaging will become necessary at that time, if not sooner, so this guideline may cease to apply.

Adding a Call to Action

All supplied design files are highly customizable by the end-user. There are visual cues within the layout files that prompt the end-user to enter your market's specific event and/or location information, local web sites, phone numbers, etc. Look for the following prompts within the layout files:

<Local call to action here>

<Local call to action and any additional information/event information here>

End-users can type directly over the already-formatted text, or format text per the end-user's discretion, in keeping with the overall look and feel of the supplied finished layouts. You may also replace the EV Everywhere homepage (electricvehicles.energy.gov) with your own web address depending on the goal of your organizations efforts.

IMPORTANT*: If no local information is available to insert in these areas, the end-user should <u>delete</u> the placeholder(s) from the layout before publication. These placeholders have already been removed from the PDF (Print Ready) files.*

<u>Modifications to Photography</u>

All original photography supplied with finished design files is high-resolution and print-ready. While you are welcome to use the photography as supplied in these layouts, you may also substitute the in-place images for images that are more specific to your market, geographic region, etc. Please be sure to use image resolution that is appropriate to each application (i.e., 300 dpi images for all materials intended for print). DOE cannot be held responsible for any alternate images placed by the end-user that fail to reproduce correctly.

<u>Print Ad Media File (side two only)</u>

The second page of the Print Ad file provides an opportunity for you to provide basic EV industry information and statistics to your audience. Relevant industry statistics **as of September 2016** have been included for your use. DOE cannot be held responsible for any modifications to this section and encourages utilizing the EV Everywhere home page (www.electricvehicles.energy.gov) or the Alternate Fuels Data Center (www.AFDC.energy.gov) webpage to locate information. If modifications are made to this section, <u>the style and color of the new font should be changed to match the rest of the call-out text within that layouts</u>, as shown in other places on that same layout page.

<u>Repurposing</u>

End-users also have the added flexibility of repurposing the design files for applications beyond what we have represented here. For example, the files titled "Print Ad-Poster-Flyer" can be resized to fit some or all of those named uses, or resized to fit your specific needs. Another example would be the files titled "Transit Ad;" those files are sized at a standard outdoor board proportion, but can also be repurposed and used as a starting point for such applications as bus boards, bus shelter ads, rail car posters, back-lit airport boards, etc.

<u>Social Media Samples</u>

The social media graphics and social media video media packets will also include a PowerPoint file with sample posts for each of their respective themes. There are multiple message options included for various social media platforms (Twitter, Instagram, Facebook, etc.), as well as suggested images and/or video links to be included. Images can be replaced with your own.

Recommended hashtags:

#BestDriveEVer

End-users are encouraged to use the recommended hashtag in all social media posts. Using the hashtag will aid in consistency of messaging across all platforms and allow for indexing, trending, and searching.

Social Media Videos

Videos may be downloaded for purposes of sharing and/or embedding on your own website(s).

Please see the "Best.Drive.EVer. Campaign Video Guide" for additional suggestions on how to use the Best.Drive.EVer videos.