

# Westy Westmoreland

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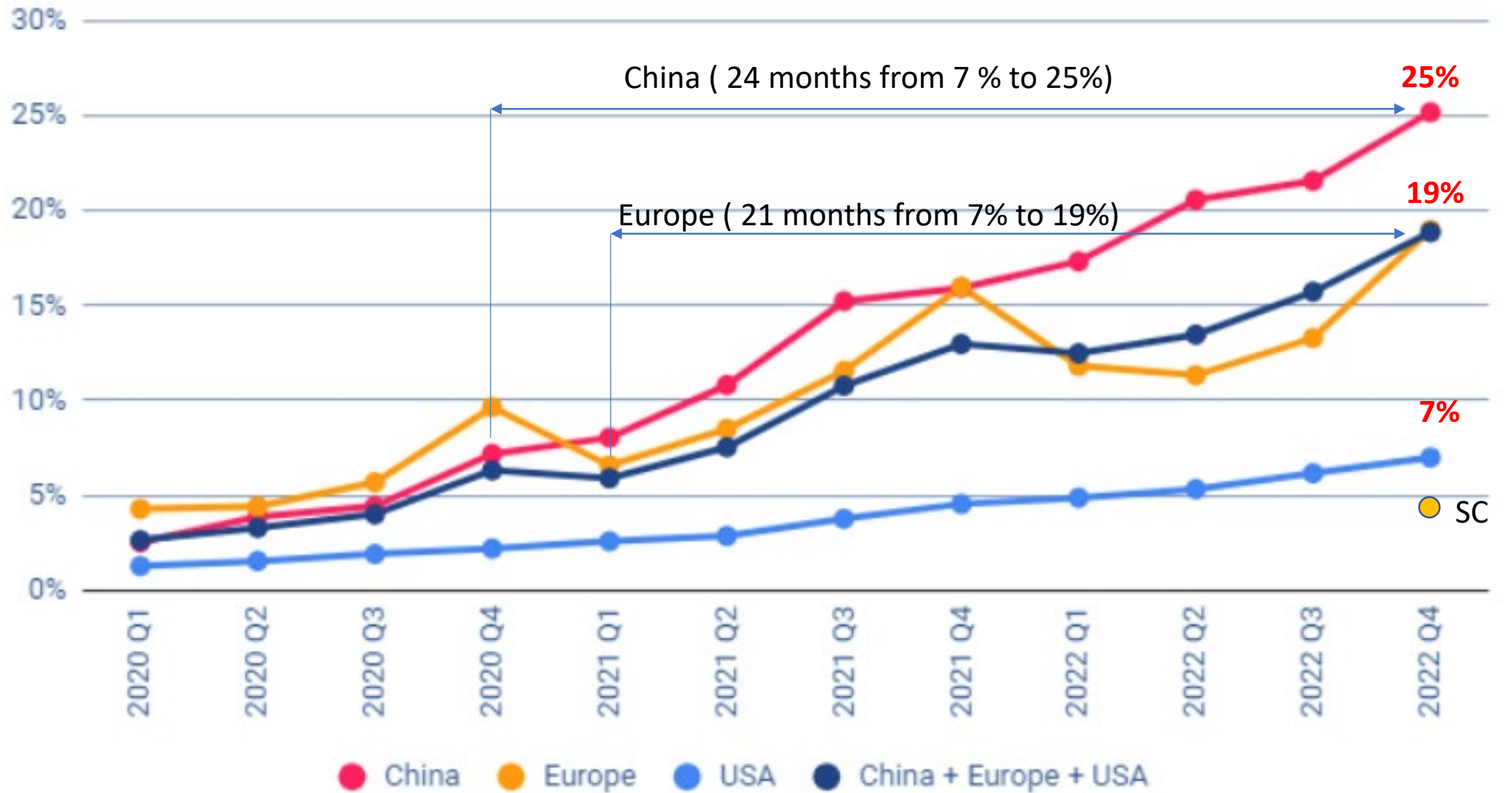
Director – Electrification

32 Years – Dominion Energy South Carolina and SCE&G

**Clemson University**  
**Mechanical Engineering '90**



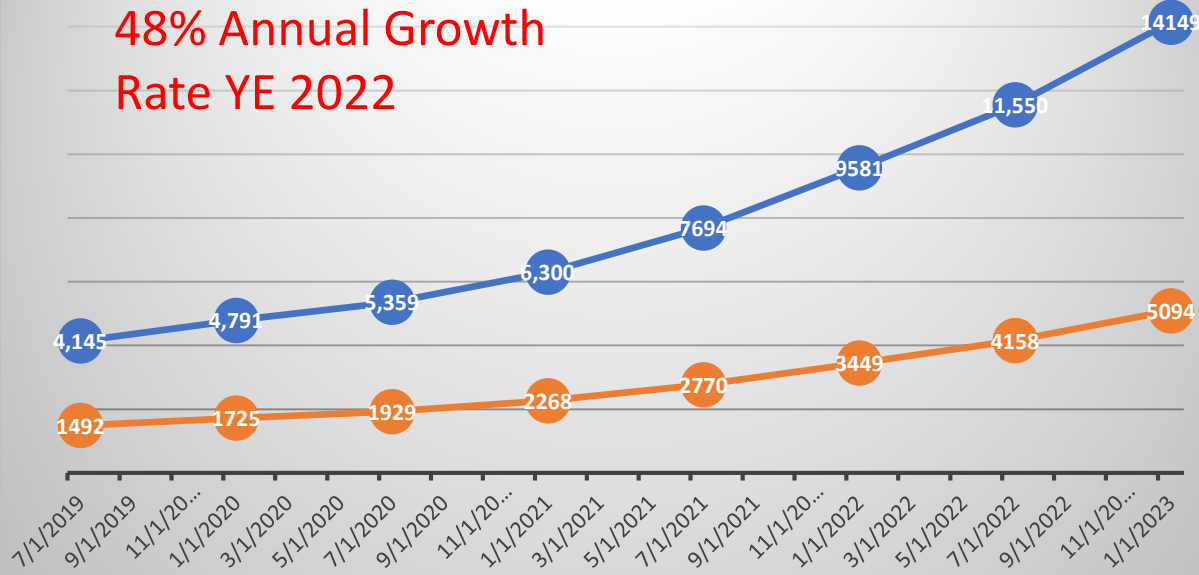
# BEV (Battery Electric Vehicle) Adoption Rate for Passenger Vehicles



## SC & DESC

48% Annual Growth

Rate YE 2022



## South Carolina

Total registered vehicles: 5.5M

Statewide EVs

DESC EVs

14,149  
(<0.5% market share)

5,094  
(36% of state total)

5% of New Registrations in 2022 were Plug In EVs

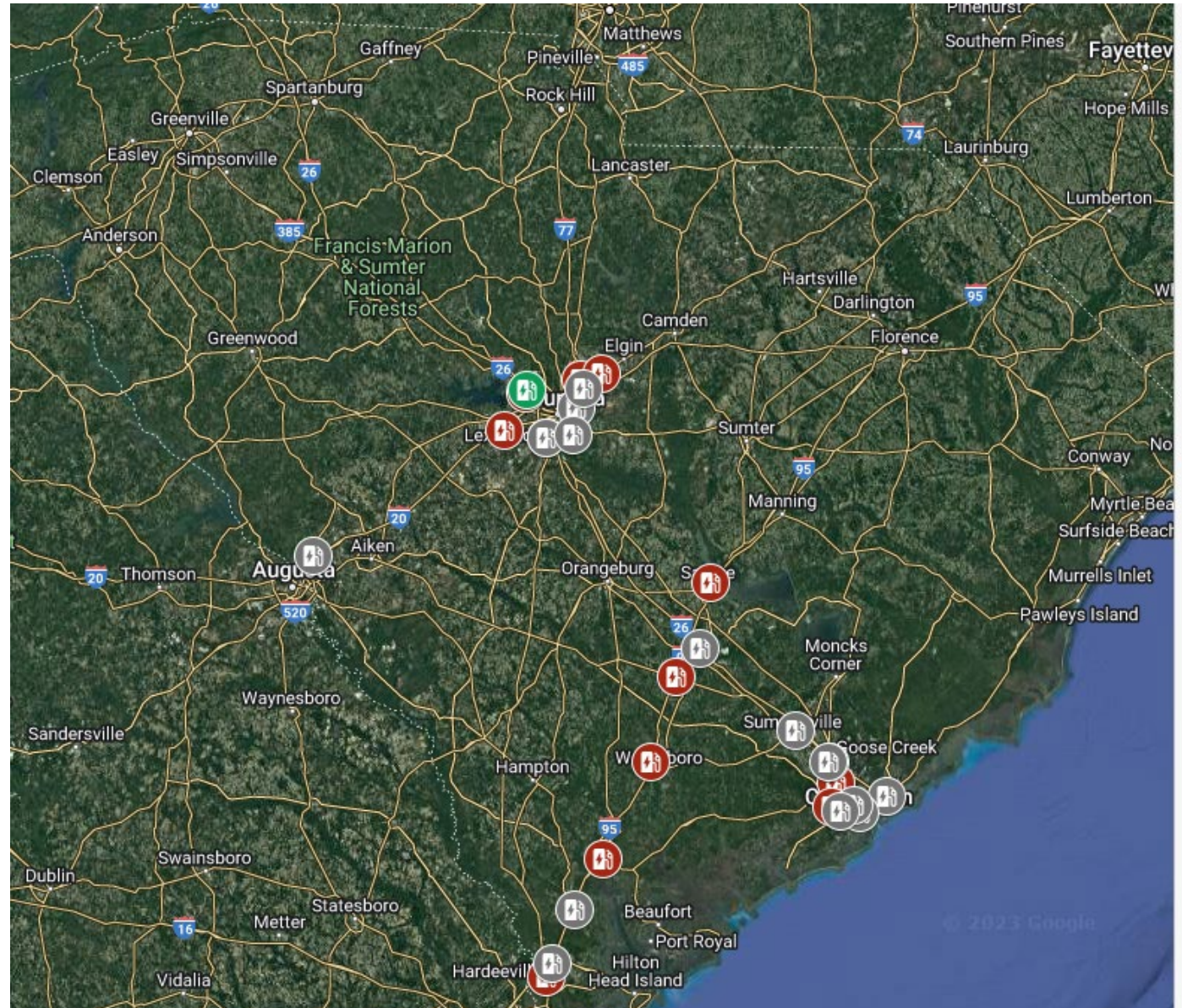
# DESC DCFC Stations > 150 KW In Service ( 126 ports)

## Tesla (In Service) DESC

- 1 - Santee (6)
- 2 - Columbia - Farrow Rd (8)
- 3 - Hardeeville (8)
- 4 - Tanger N Chas (8)
- 5 - Yemassee (8)
- 6 - St. George (12)
- 7 - Lexington (12)
- 8 - Walterboro (12)
- 9 - Harbison (16)
- 10 - Columbia - Sand Hills (12)
- 11 - Cayce Crossing (12)
- 12 - Citadel Mall (12)

## Electrify America (In Service) DESC

- 1 - Rivers Ave N Chas (4)
- 2 - Harbison Walmart (4)



# 2023 DESC DCFC Stations > 150 KW In Development ( 124 ports)

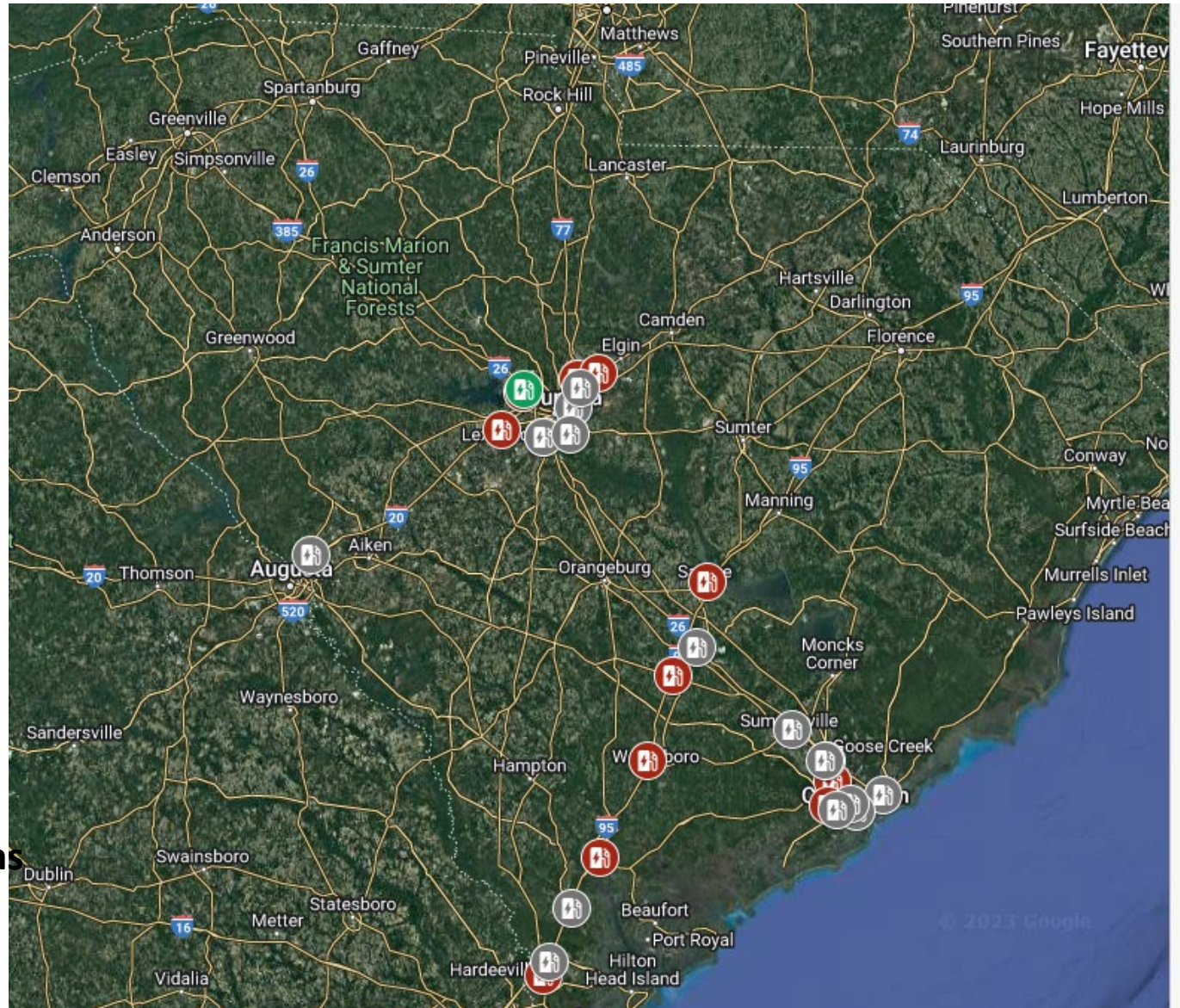


Tesla (In-Development) DESC 8 Stations (100 ports)  
I-95, I-26, I-20, Chas area , Columbia

EV GO (In - Development) 2 Stations (12 ports)  
Chas, Cola

Circle K (In-Development) DESC 3 Stations (12 ports)  
Chas, Cola

**Interstates and City Centers are current focus,  
Major Highways (Non-Interstate) and Rural Towns  
need attention ( e.g Hwy 17, 78, 25 etc),  
Especially Evacuation routes.**



# Keys to DCFC Success - Reliability (Uptime)

Chargers that just work



# Keys to DCFC (Highway) Success - Charging Speed

Top Charging speed needs to be  $> 250$  KW and upgradeable

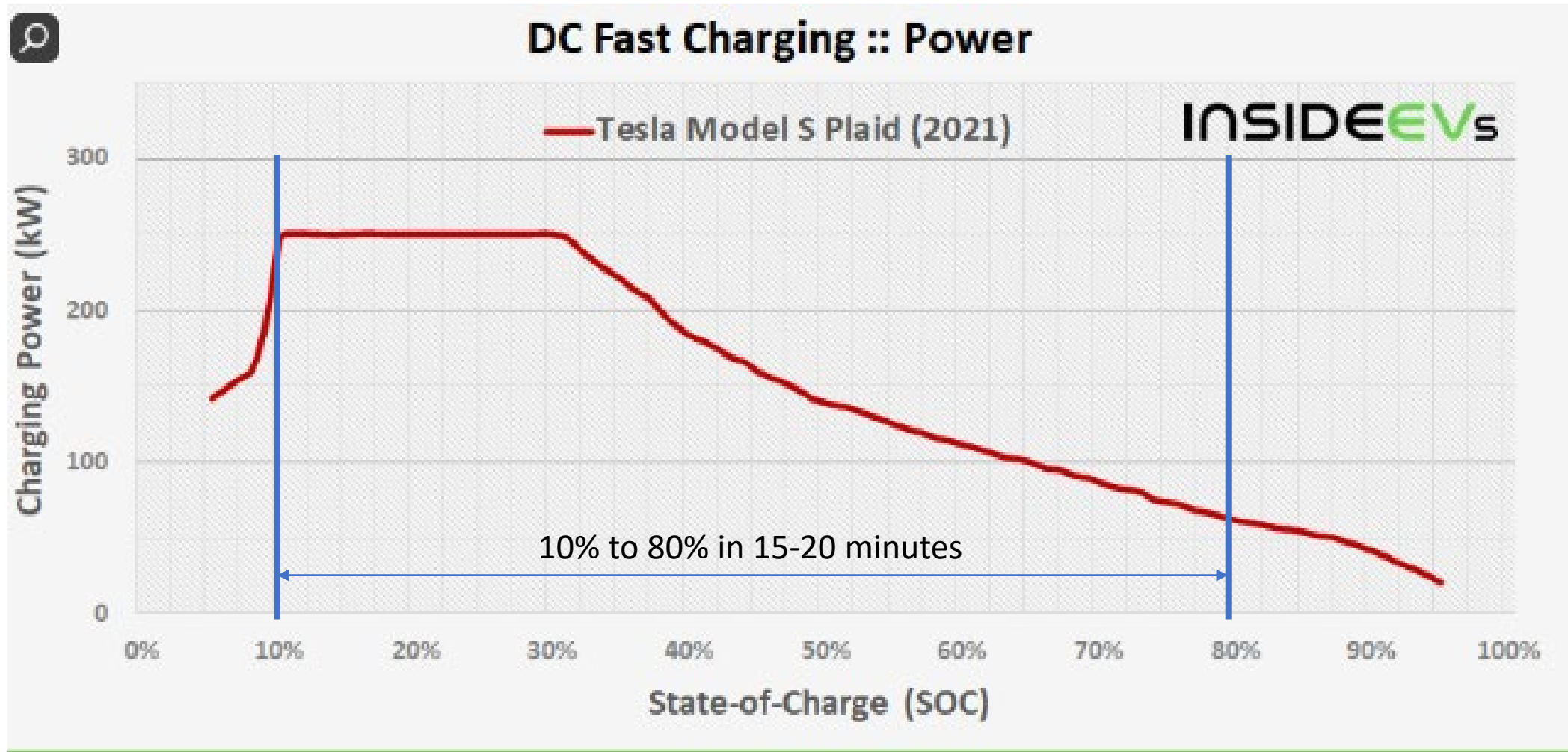
Many EV Drivers will by-pass DCFC  $< 250$  KW unless no other options

Future charging speeds  $> 300$  KW and up to 500 KW (1-3 years)

150 KW Charging Speed was State of Art in 2013 (10 years ago)

NO STRANDED ASSETS

# Keys to DCFC (Highway) Success - Charging Speed





# Keys to DCFC Success - Utility & Siting

- Engage early in the DCFC Siting Process with Electric Utility
- Transformer Capacity
- Proximity to Grid & Capacity
- First Contact to In-service < 6 months
- Supply Chain
  - -480 V 3 phase transformers Lead Time( 12 mo+)
  - -Utility stock of 3 phase transformers for DCFC
- Amenities (Restroom\*, Food, Shopping, Lighting)
- Siting and Site Host Agreements are one of Biggest Challenges
  - Easement Acquisition
  - Land Value Use
  - Compensation



## SC Interagency EV Working Group – 4/25/23

Jay Oliver, Managing Director - Grid Systems Integration

# Start Service Process



# Lessons Learned from Other States



## DO

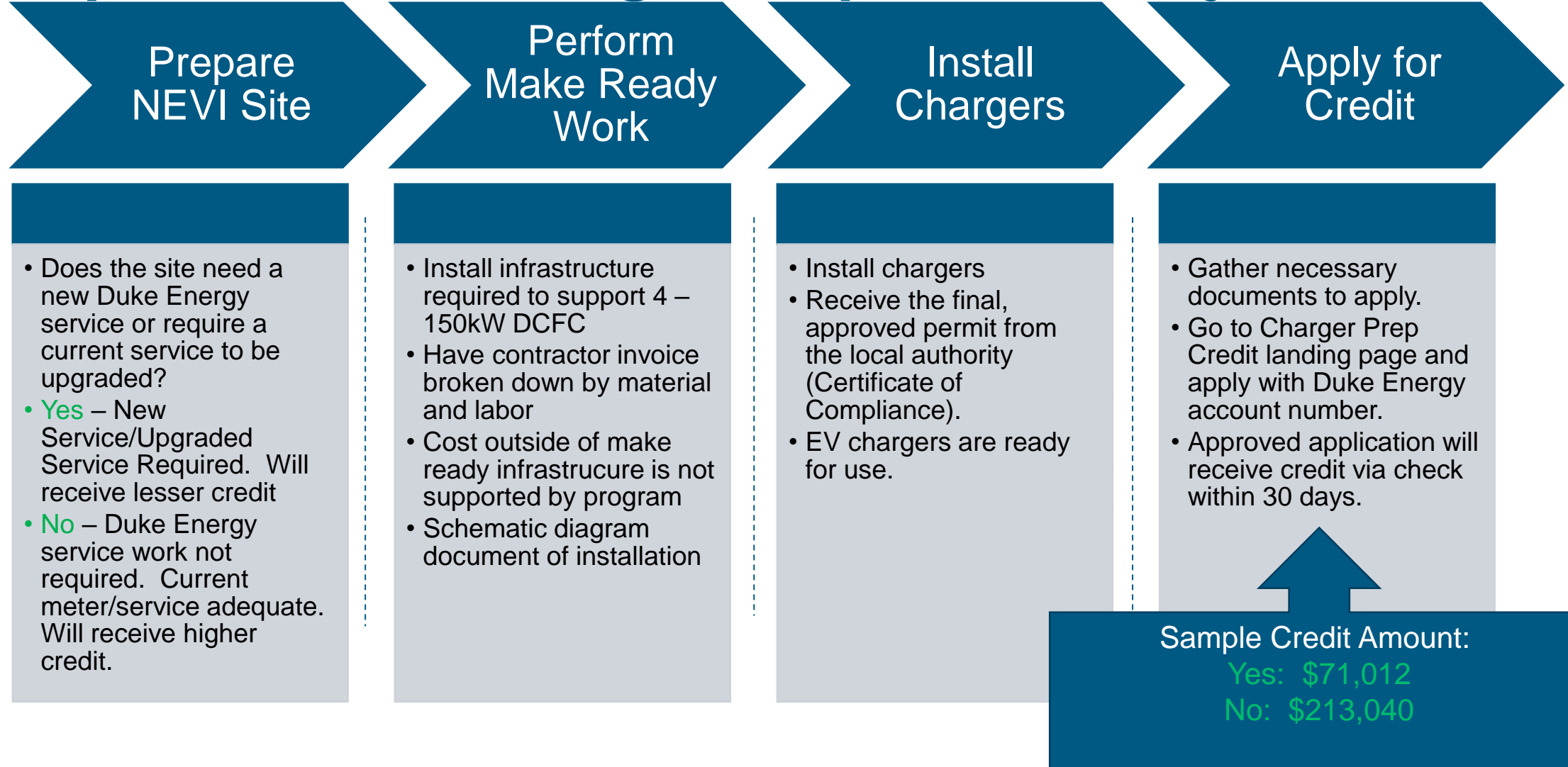
- Eliminate interchanges along alternative fuel corridors (AFCs) that are not viable; for example screen out sites that do not have adequate amenities
- Allow local utilities to perform a feasibility screen for viable interchanges along AFCs
- Consider selecting primary and alternate sites at preferred interchanges to further streamline the process
- Award interchanges/sites/lengths of AFC to bidders and require them to select sites before asking utilities to perform detailed engineering tasks such as



## DO NOT

- Let power availability be the only/primary factor in site selection
- Perform an “open RFP” such that all bidders contact the utility regarding any/all sites that interest them within the state
  - This has resulted in utilities fielding multiple, differing requests for the same interchanges and sites
- Require detailed and/or precise utility cost values until actual sites are selected and an “application” is filed with the utility
- Expect that your utility will offer “capacity maps”

# Sample SC NEVI Charger Prep Credit Project Flow

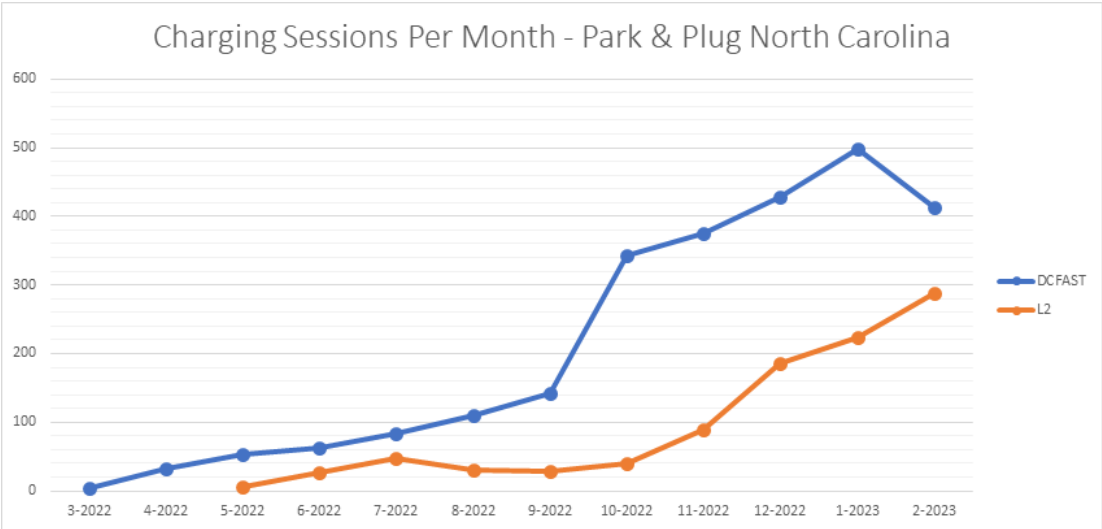
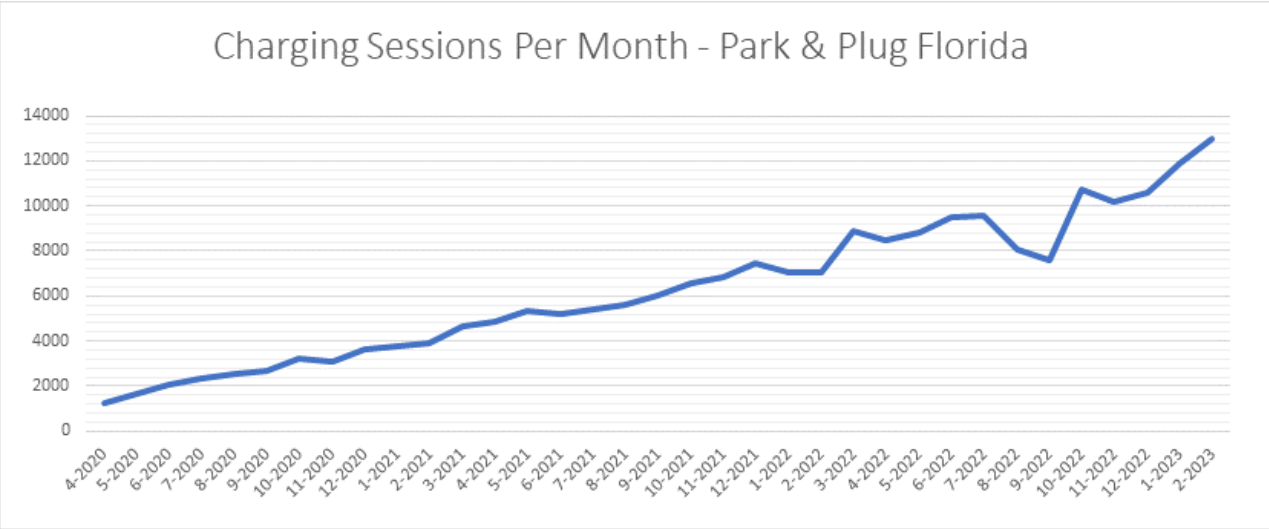
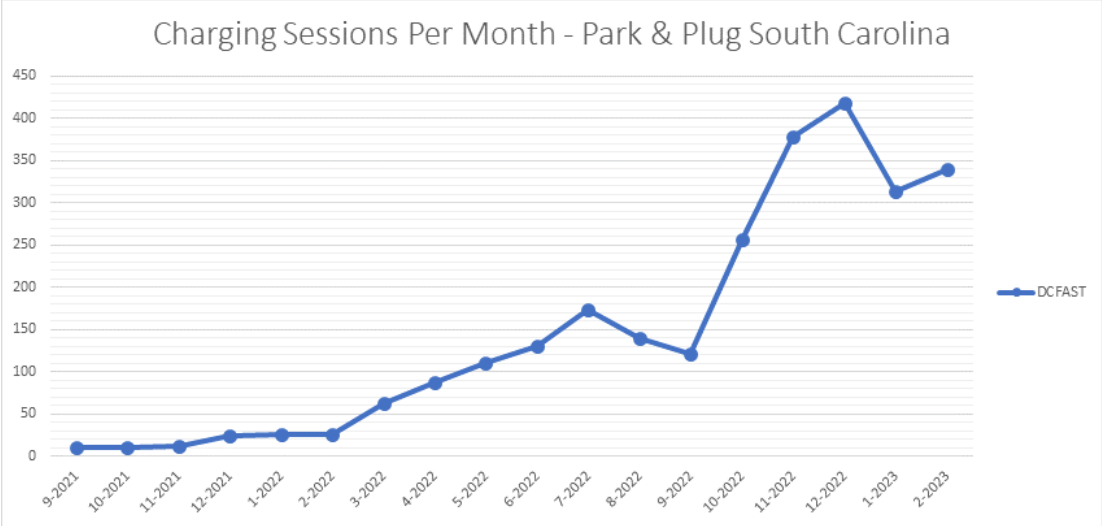


# Park & Plug Public Charging



## Park & Plug Program

- 24/7 Public access
- Well lighted, public rest room facilities, public food/drink options
- Fully Subscribed.



# Santee Cooper Electric Vehicle Overview

THE  
POWER  
IS YOURS

empowerAUTO



Steven Roys  
April 25, 2023

- EV Task Force
- Fleet adoption
- Charging infrastructure for fleets and employees
- Participate in regional electric vehicle groups
- Collaborate with business and government organizations





## Residential Level 2 Charger Program

- Up to \$250 towards the purchase of a qualifying Level 2 Charging Station

## Commercial EVOlve Grant Program

- Customers can apply for up to \$25,000 in funding
- Competitive application process

## Experimental Residential EV Rates

- REV – Whole home rate
- EVO – Electric vehicle only rate

EV 101

Home Charger  
Installation Guide

EV Savings  
Calculator

## EV Savings Calculator

Use this EV Savings Calculator to see potential fuel savings from driving an electric vehicle.



On average, how many miles do you travel daily?



40 miles per day



How many miles per gallon does your vehicle get?




30 miles per gallon



What's the current gas price in your area?



\$3.00 per gallon

\$121.67	Monthly Gas Cost
\$38.83	Monthly Utility Cost
 \$82.84	Monthly Savings

This information is provided to help you estimate savings to make your own decisions. Actual savings may vary based on individual factors. This estimate uses the current average fuel efficiency of EVs in the US market (3.5 miles per kWh), and Santee Cooper's average residential energy charges on the RG rate. Fuel efficiency may vary based on your particular EV.



# Preparing for EVs

Monitor known EV customers

Forecast load growth from EVs in our Integrated Resource Plan

Benchmark with utilities that have higher EV adoption

Continue to develop programs that will encourage off-peak charging

Remain proactive in monitoring EV adoption and make upgrades to the grid as necessary

# Electric Vehicle Demand

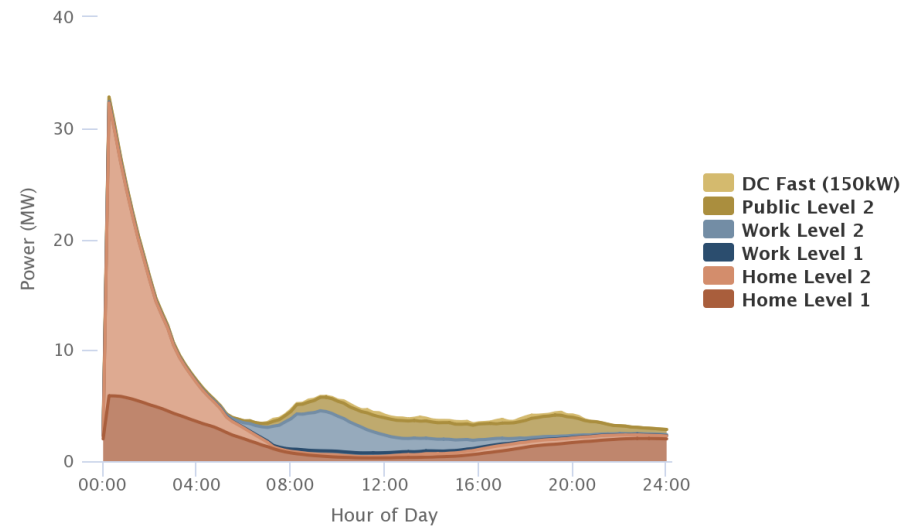
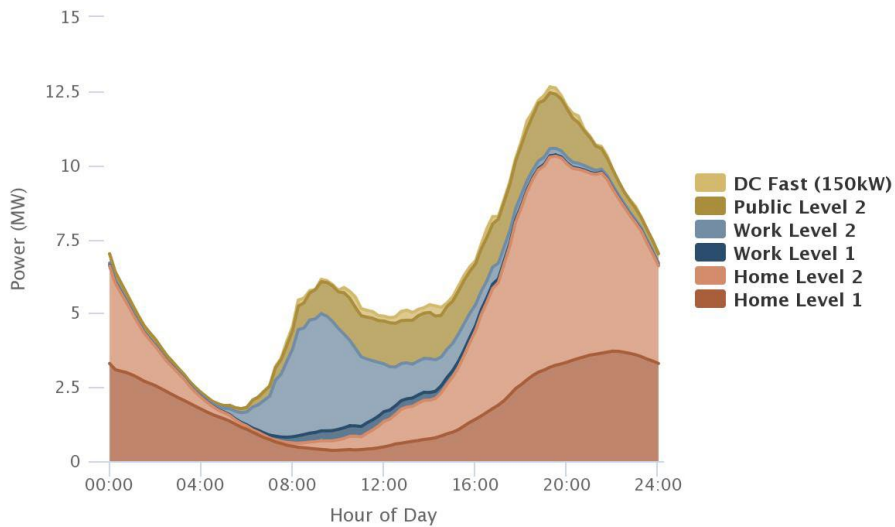


## Charge as needed

## Charge at midnight

Weekday Electric Load

Weekday Electric Load



1. Source: US Department of Energy Alternative Fuels Data Center EVI-Pro Lite
2. Assumptions based on Myrtle Beach Area
3. Load shape at 86 degrees, per 10,000 electric vehicles
4. 35 miles driven per day
5. 50% sedans
6. 50% all-electric, 50% plug-in hybrid
7. 80% preference for home charging

# Charging

## Now vs Future



### Level 2

Now

- 32, 40 and 48-Amp Charging
- Single Customer on a Transformer

Future

- Possibly 48, 60, and 80-Amp Charging
- Multiple Customers on a Transformer

### DC Fast Charging

Now

- 50, 100, 150 KW stations

Future

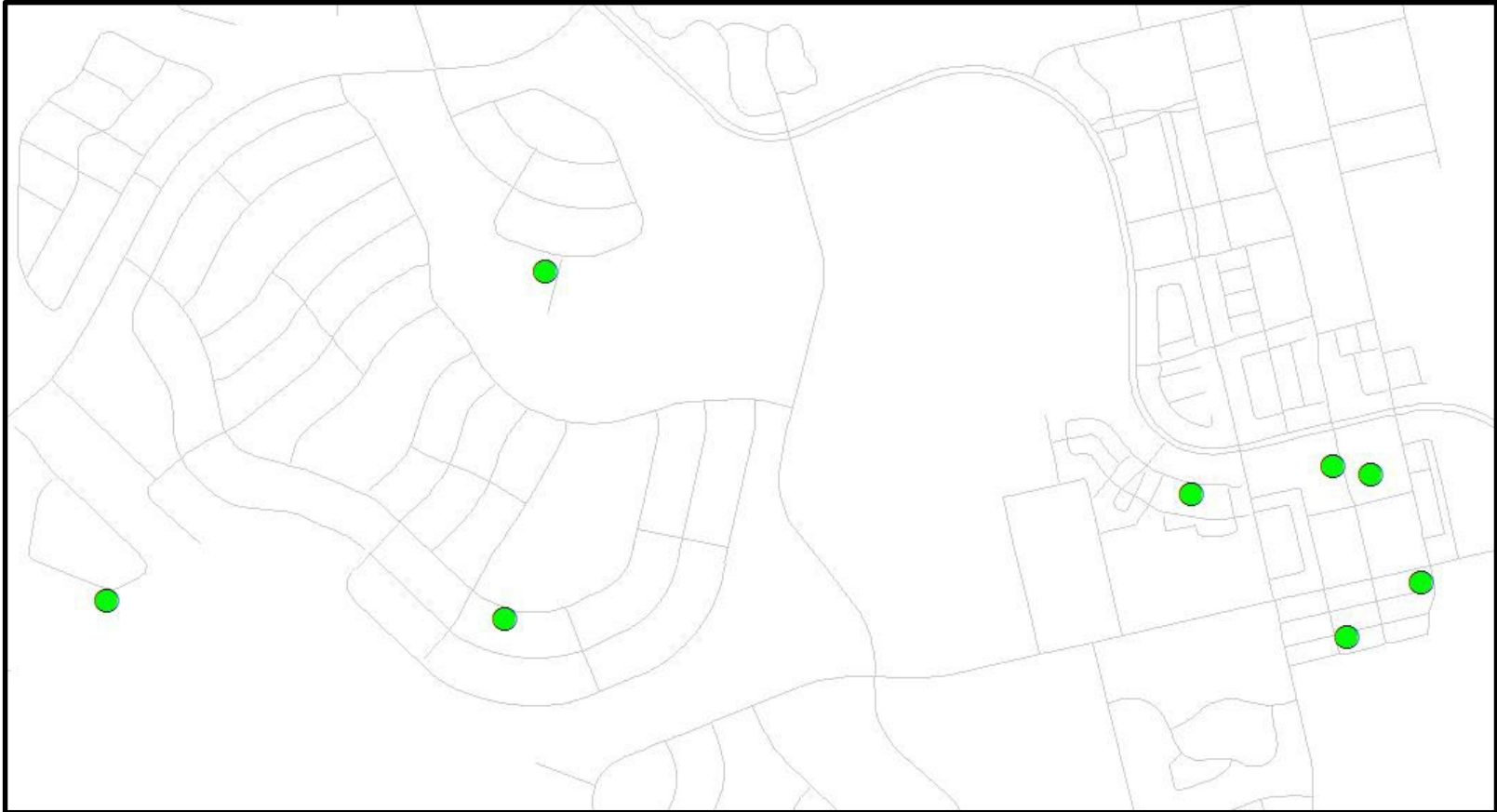
- 150, 350+ KW stations

# Level 2 Charger Analysis



santee cooper®

## Cluster Effect



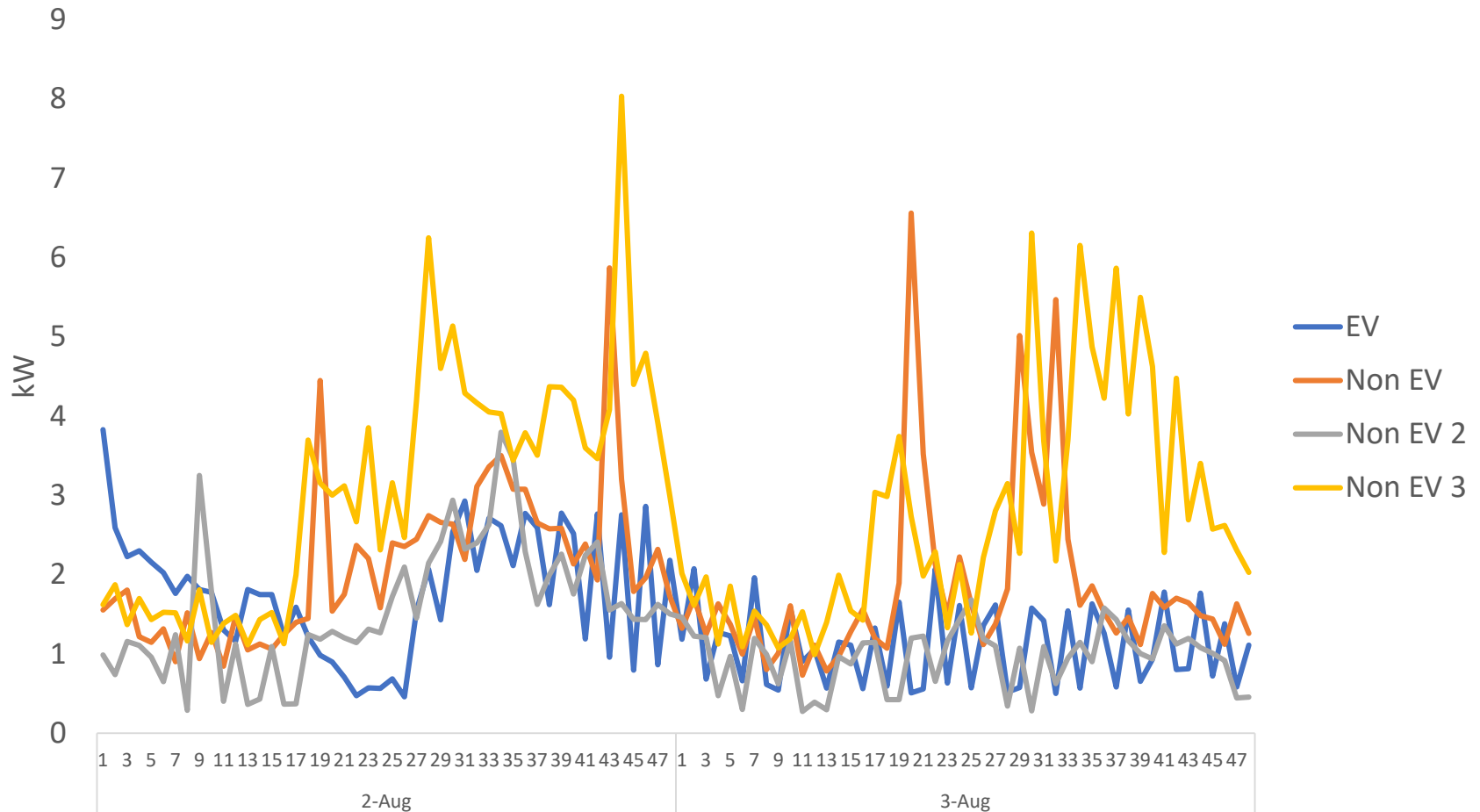
- **Neighbors Proclaiming the FUN of EVs**
- **Neighborhood with 8 EVs**
- **No Issues: none on same transformer**

# Transformer Scenario

## EV Not Charging



0.5 Hour Demand by Premise - Aug 2-3, 2021

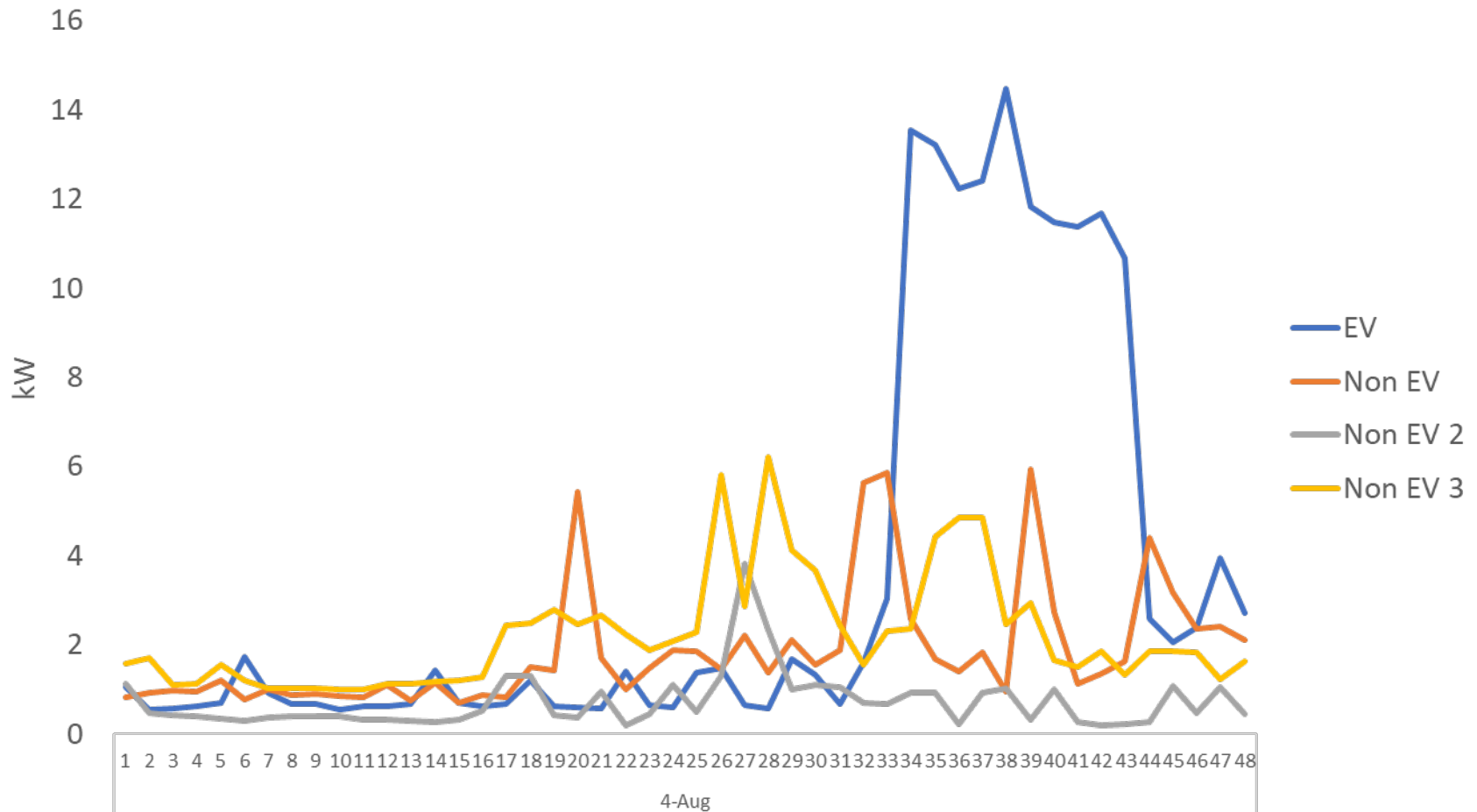


# Transformer Scenario

## EV Charging



0.5 Hour Demand by Premise - August 4, 2021





# Questions?



# South Carolina

Association of Municipal Power Systems





# SCAMPS Members

# WHO IS SCAMPS?

- Public Power Systems in SC – 20 Members
- 163,000 Electric Customers
- Organization Purpose
  - Provide Mutual Aid Support
  - Legislative Advocacy
  - Regulatory Agency Coordination
  - Public Relations Programs
  - Safety Programs & Training



# GOVERNOR'S INTERAGENCY EV WORKING GROUP PARTNERSHIP

- Understand the Vision of the Working Group
- Identify & Communicate Concerns/Issues from Public Power
- Identify Opportunities for Partnership

# Members with Interstate Service Territory

- City of Camden
- City of Clinton
- Gaffney Board of Public Works
- Laurens Commission of Public Works
- Orangeburg Department of Public Utilities
- City of Rock Hill



## Orangeburg DPU Service Territory– Existing Installation



# City of Rock Hill Service Territory – Existing Installation







# SC Public Power Challenges

- Cost of Powerline Extension to the Service Point
- Transformer Cost and Availability
- EV Rate Design