South Carolina Electric Transportation Pilot

December 11 2019

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 1 of 19

Agenda:

National Electric Transportation Activity – Phil Jones, Executive Director, Alliance for Transportation Electrification

SC Electric Transportation Pilot – Lang Reynolds, Duke Energy

- Application Timeline
- Market Overview
- Program Overview

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 2 of

National Electric Transportation Activity

Phil Jones - Executive Director, Alliance for Transportation Electrification

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 3 of

SC Electric Transportation Pilot

Lang Reynolds – Director of Electric Transportation, Duke Energy

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 4 of

Application Timeline

October 10, 2018	Applications for SC Electric Transportation Pilot filed (DEC DEP).
December 19, 2018	ORS requests to facilitate Stakeholder Working Group.
January 28, 2019	Stakeholder Working Group meets.
March 7, 2019	Stakeholder Working Group conducts follow-up conference call.
April 1, 2019	ORS files Stakeholder Working Group report. Duke Energy files amended application to reflect stakeholder input.
April – August 2019	ORS, stakeholders, and Duke Energy file comments

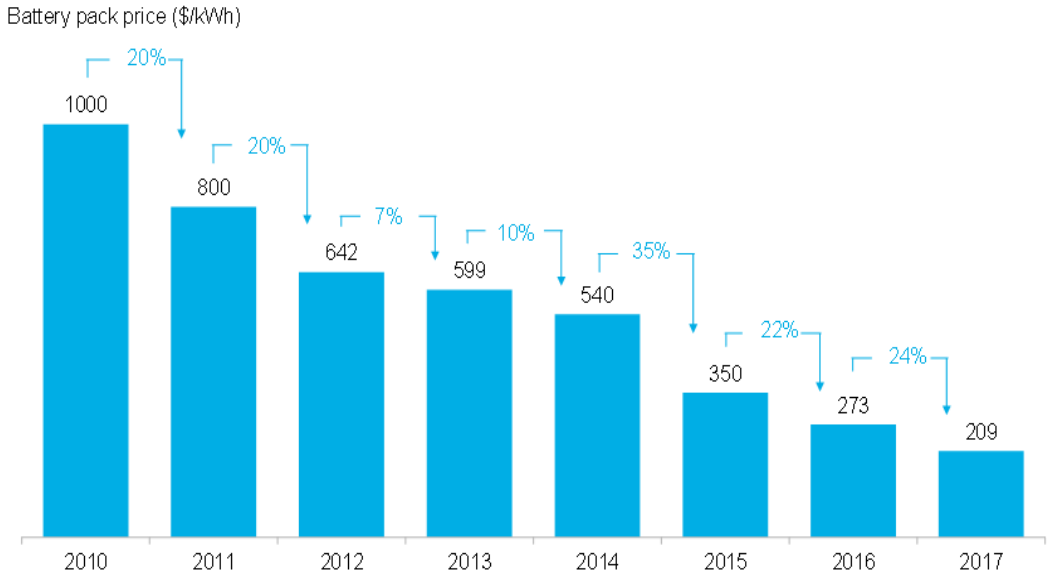
ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 5 of

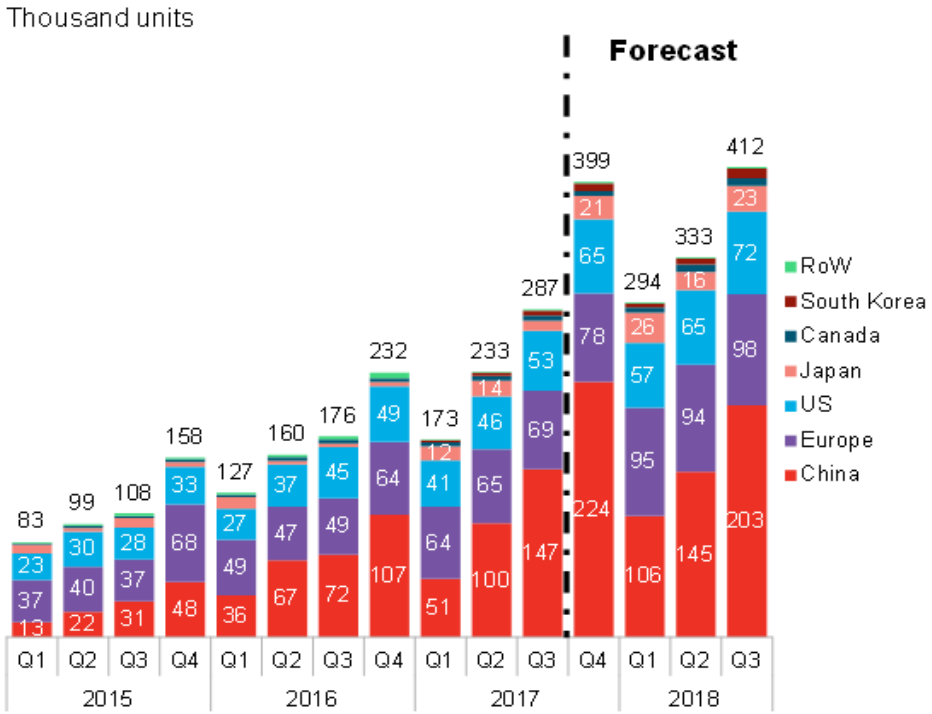
ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 6 of

Strong current worldwide sales growth resulting from:

- Declining battery costs
- Policy mandates
- Increased consumer interest.

Lithium-ion battery pack prices have fallen 79% since 2010





- Market trends: affordable, long-range EVs are here:

Chevy Bolt

Tesla Model 3

Nissan LEAF 2.0

- Product announcements expanding– many additional models announced for 2020/21:

Audi E-Tron Sportback

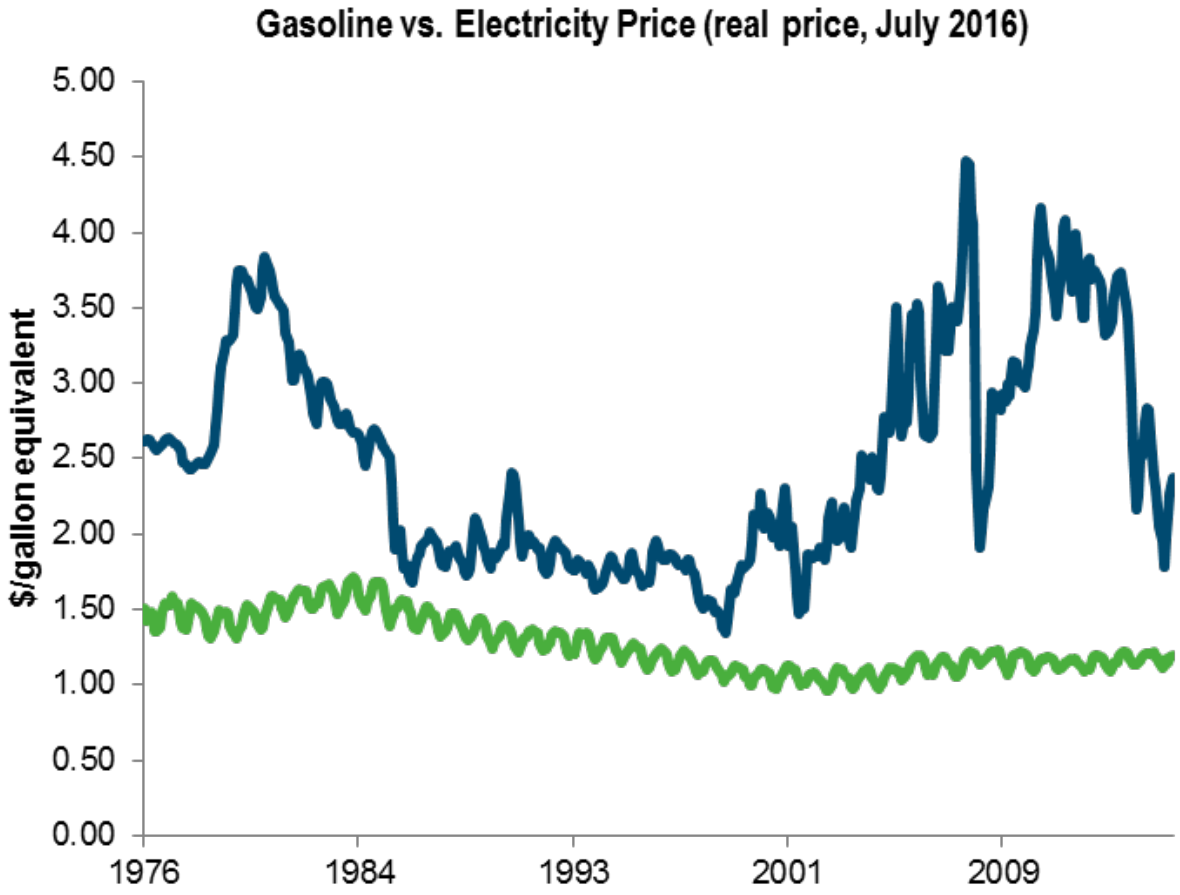
VW ID Crozz

Mustang Mach-E

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 7 of

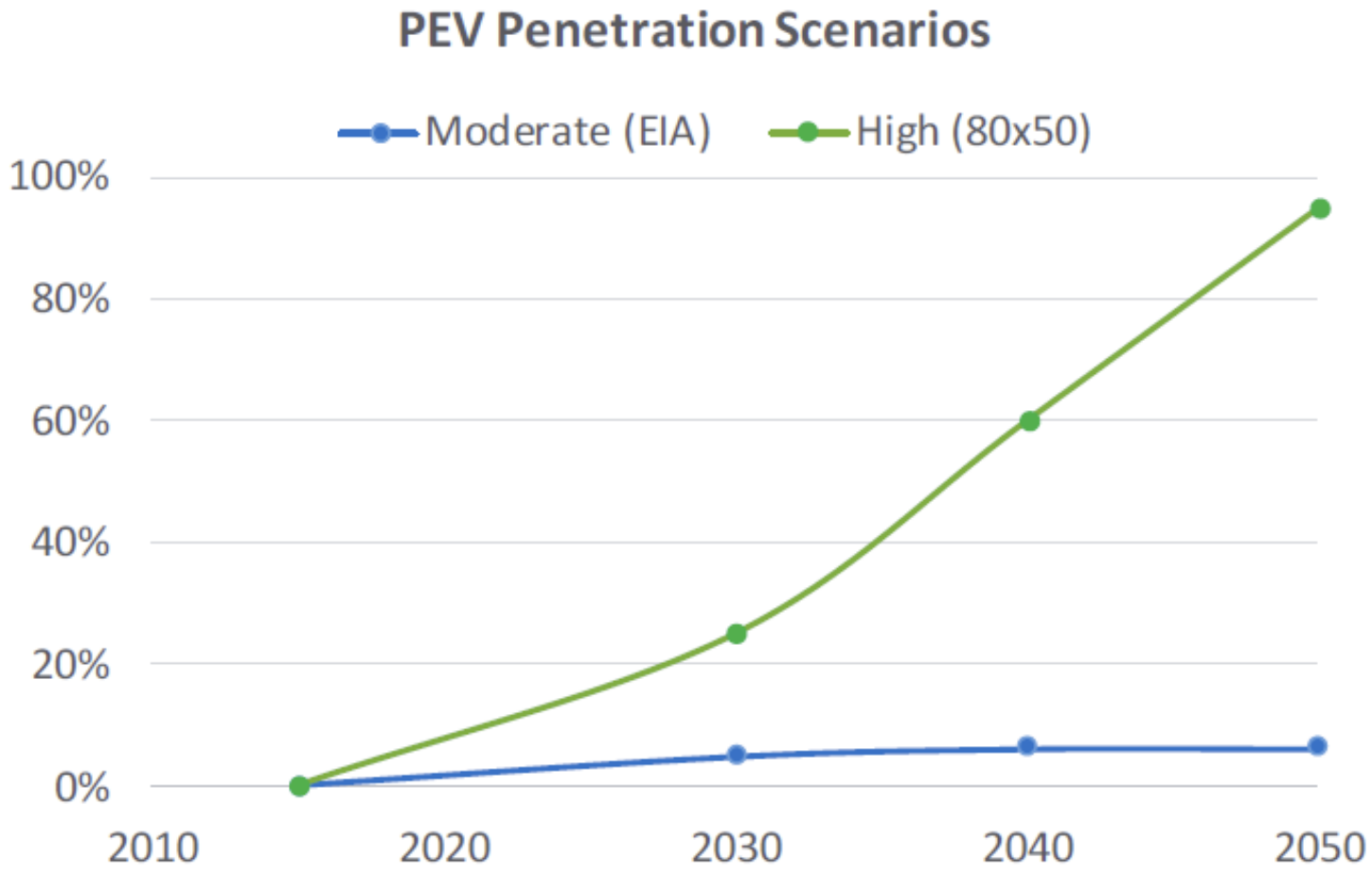
ELECTRIFICATION AS ECONOMIC DEVELOPMENT

- Fuel and maintenance cost savings remain in-state.
- Improved air quality facilitates continued industrial recruitment.
- Automakers are expanding electric drive manufacturing and supply chains.
- Potential for downward rate pressure to preserve attractive electricity costs.



ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 8 of

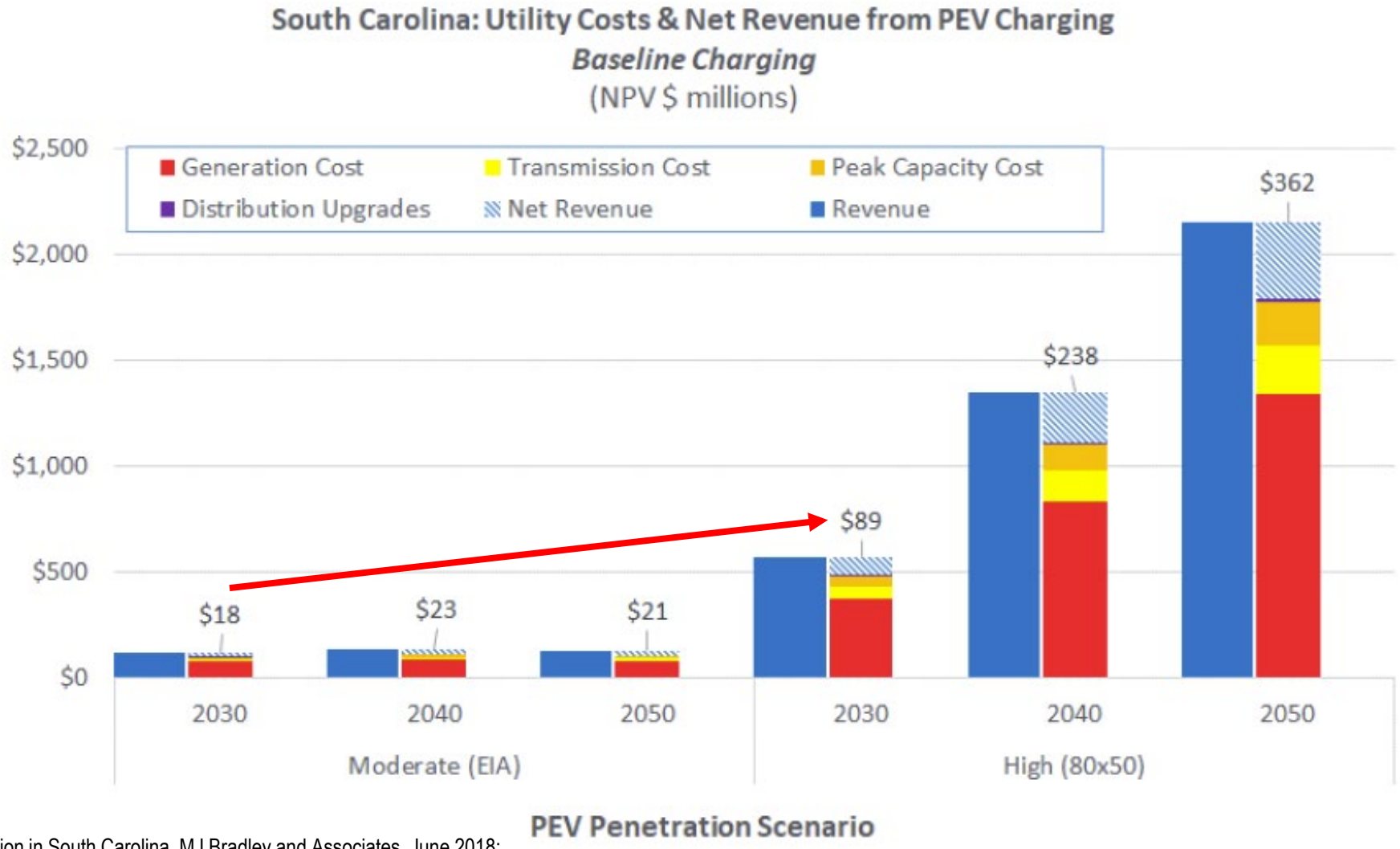
Background Study: Potential benefits of increasing EV adoption in South Carolina.



Source: Cost-Benefit Analysis of EV Adoption in South Carolina, MJ Bradley and Associates, June 2018: https://mjbradley.com/sites/default/files/SC%20PEV%20CB%20Analysis%20FINAL.pdf

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 9 of

Increasing EV adoption can create long-term downward rate pressure:



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ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 10 of

South Carolina Electric Transportation Pilot Programs

Program Goals

Study and determine best practices for realizing the significant potential benefits associated with increased electric transportation adoption including:

- Customer benefits from increasing electric system utilization.
- Economic benefits from retaining fuel cost savings in state, improving the state energy trade balance, and deploying cutting-edge vehicle technology.
- Environmental benefits of improving local air quality.

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 11 of 19

- SC Electric Transportation Pilot - Overview

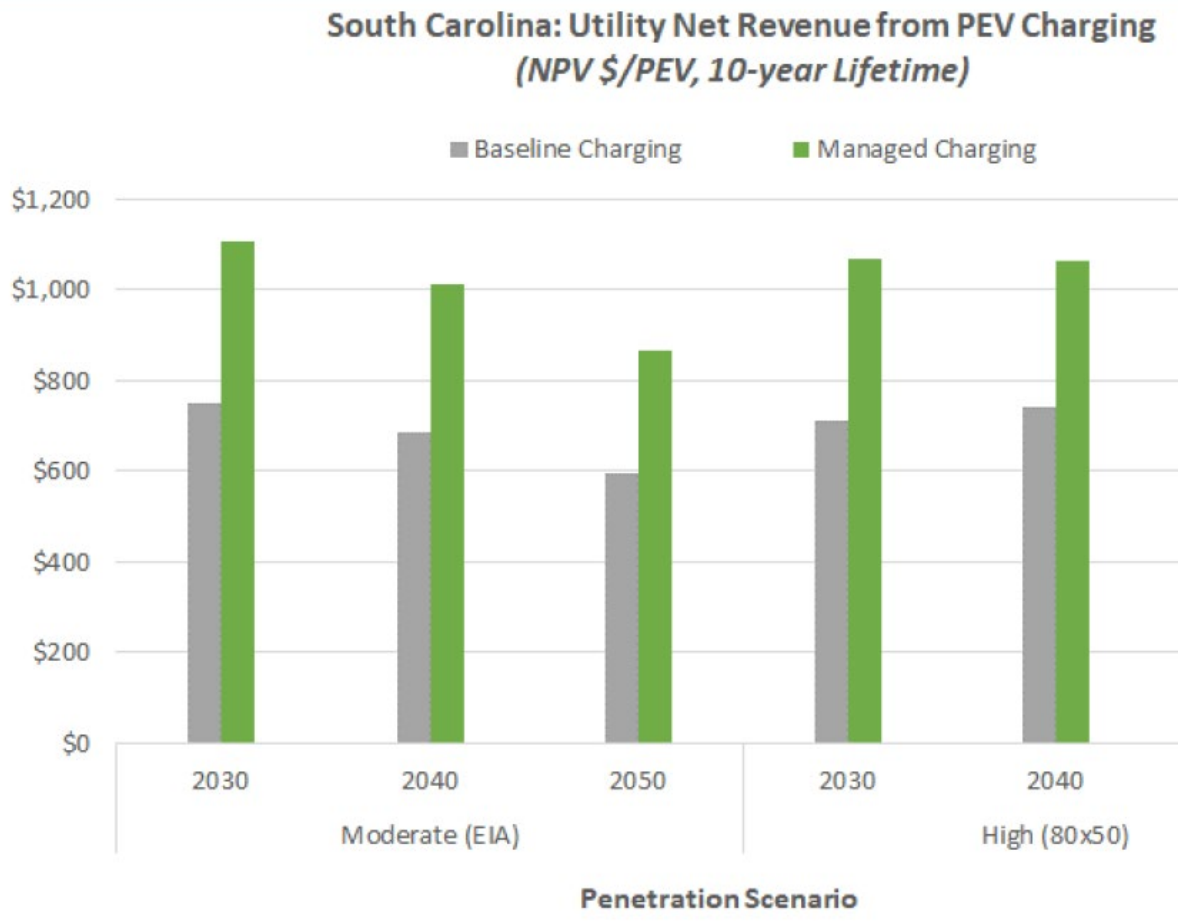
Residential EV Charging Program	EV School Bus Program
EV Transit Bus Program	Fast Charging Program

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 12 of 19

Residential EV Charging Program

- 400 customer limit (DEC). $500 rebate, $41.66 quarterly payment for up to $1000 total over 3 years.
- Customer must purchase and install customer choice of L2 EVSE.
- Year 1: Baseline data gathering
- Year 2: Experimental load management.
- Year 3: Experimental load management.

Figure 2 NPV of Projected Life-time Utility Net Revenue per PEV



ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 13 o

Electric School Bus

- Purpose: gather EV school bus charging data and determine possible value of bi-directional power flow from school bus batteries for backup power and other applications.
- Up to 10 (DEC) and 5 (DEP) EV School Bus Incentive limit.
- Customer-owned infrastructure, responsibility for ongoing O&M.
- Customer provides charging data and connectivity for V2G demonstration testing.
- Company retains ownership right to batteries after useful life in bus (8-12yrs).

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 14 o

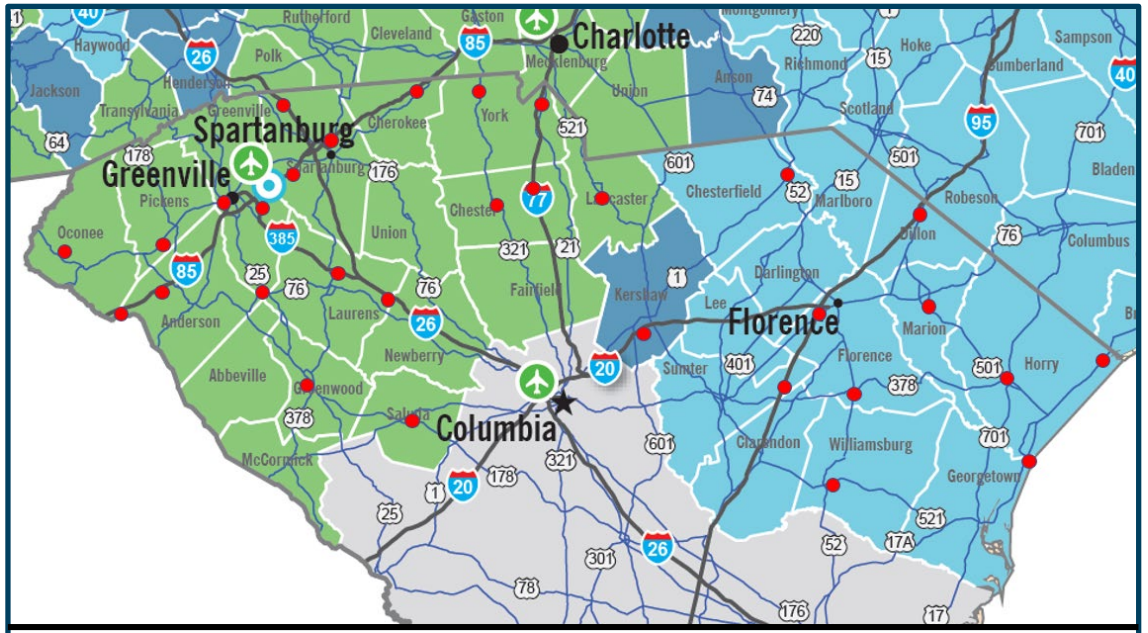
Electric Transit Bus

DEC 20 Buses **$55,000 Incentive** **DEP 10 Buses**

- Customer-owned infrastructure, responsibility for ongoing O&M.
- Customer provides charging data and connectivity for possible load management.

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 15 o

Fast Charging Program



DEC 40 Stations **DEP 20 Stations**

- Utility-owned and operated fast charging infrastructure.
- 100+ kW, future-proofed installations.
- “Fast Charge Fee” charged to drivers in line with statewide average charging costs.

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 16 o

South Carolina Electric Transportation Pilot – Program Overview

Segments	DEC	DEP	Goal
Residential EV Charging	400		Establish customer charging behavior and utility managed charging potential.
Electric School Bus	10	5	Demonstrate electric school bus capabilities for load balancing and backup power applications.
Electric Transit Bus	20	10	Establish transit bus charging behavior and utility managed charging potential.
Fast Charge Stations	40	20	Provide a foundational network of DC Fast Charging throughout South Carolina.

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 17 of

South Carolina Electric Transportation Pilot – Program Overview

South Carolina		2020		2021		2022		Total
DEC								
Capital	$	2,000,000	$	2,000,000	$	-		
O&M	$	476,553	$	2,751,208	$	2,619,958		
Total	*$*	*2,476,553*	*$*	*4,751,208*	*$*	*2,619,958*	*$*	*9,847,719*
DEP								
Capital	$	1,000,000	$	1,000,000				
O&M	$	106,880	$	1,320,020	$	1,263,770		
Total	*$*	*1,106,880*	*$*	*2,320,020*	*$*	*1,263,770*	*$*	*4,690,670*
Total Budget	*$*	*3,583,433*	*$*	*7,071,228*	*$*	*3,883,728*	*$*	*14,538,389*

- Residential EV Charging Program: $0.4M
- EV School Bus Rebate: $3.97M
- EV Transit Bus Rebate: $1.71M
- DC Fast Charge Stations: $7.83M
- Education/Outreach, Project Mgmt, Ongoing O&M $0.6M

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 18 of

CONCLUSION

Timing is right for an EV Pilot in SC

- Gather data from EV customers in SC.
- Explore different methods for EV charging load management.
- Support advanced market adoption of EVs in SC.
- Support public agencies deploying EV alternatives to reduce costs and emissions.
- Leverage available funding from VW Settlement and federal grant funding programs.

ACCEPTED FOR PROCESSING - 2019 December 16 5:21 PM - SCPSC - 2018-322-E - Page 19 of