

Public Input Solicitation and Comments Meeting
Re: South Carolina Draft Beneficiary Mitigation Plan
Tuesday, May 1, 2018 | 1:00 p.m. – 3:00 p.m.
South Carolina Bar Conference Center
1501 Park Street | Columbia, South Carolina 29201



Written Summary of Meeting and Meeting Materials

Note: What follows is a brief summary of the Public Input and Solicitation Meeting that was held on Tuesday, May 1, 2018 relating to South Carolina's Draft Beneficiary Mitigation Plan under the Volkswagen Environmental Mitigation Trust. Included in this summary is a copy of all presentations and the written comments submitted by each interested party that spoke during the meeting. To view the recording of the public meeting, [click here](#).

Welcome and Introduction

Ray Farmer, Director of the South Carolina Department of Insurance, began the meeting at approximately 1:02 p.m. He indicated that the Department of Insurance was designated by Governor McMaster as the lead state agency for the Volkswagen Environmental Mitigation Trust and advised that, today, the Department would take public comments from any interested party. He further advised that the Department requested that all planning to speak also submit their comments in writing.

Director Farmer indicated that, as will be discussed later, there will be an extended period of time – until May 25th – to submit written comments. Director Farmer then requested that all planning to speak limit their comments to five minutes in order to ensure that all speakers would have the opportunity to speak.

Director Farmer then provided a brief overview of the history of the Volkswagen Environmental Mitigation Trust.

Presentations and Public Comments

Included in this summary is a copy of Director Farmer's presentation, followed by the written comments submitted by each of the interested parties that spoke during the public meeting (the times in parenthesis correspond to the time of their presentation on the [recording](#)):

1. Ray Farmer, Director of Insurance (0:00 – 14:00)
2. Molly Spearman, Superintendent of Education (14:20 – 18:54)
3. Corky Clark, SC Propane Gas Association (19:17 – 23:58)
4. Emily Wier, Greenlots (24:20 – 28:23)
5. Eric McCarthy, Proterra (28:43 – 33:31)
6. Landon Masters, Palmetto Clean Fuels (33:56 – 36:00)
7. Michael Criss, US Green Building Council, SC Chapter (36:17 – 38:54)
8. Terecia Wilson, Transportation Association of SC (39:31 – 44:44)
9. Norm Sharp, Sierra Club (45:09 – 47:08)
10. Chris Carnevale, Southern Alliance for Clean Energy (47:36 – 53:24)
11. Alan Buck, EV owner (53:34 – 56:41)
12. Bonnie Loomis, SC Clean Energy Business Alliance (57:10 – 59:49)
13. Jack Ellsworth, Cummins Sales & Service (1:00:12 – 1:05:23)

Question and Answer Period

Following the conclusion of the public comments at approximately 2:06 p.m., the Director thanked everyone for their attendance and comments and then opened the meeting for questions. Those questions, and his answers, follow.

Q1: Who prepared the draft Beneficiary Mitigation Plan?

A1: The staff of the Department of Insurance, with assistance from our environmental engineering consultant.

Q2: Will the Department announce to the public if another public comment period will be made available?

A2: If, after we review all comments received, the Department determines that changes to the draft Plan are warranted, we'll make those changes and then provide an additional 30-day comment period. Director Farmer advised that anyone that hasn't signed up for our email notifications should do so as that is the best way for us to notify the public of these developments.

Q3: Is there any specific date on which we anticipate a call for projects will be announced?

A3: There is no defined timeline yet.

Q4: \$33 million can be spent quickly. Is there a time frame over which the Department intends to spend the funds?

A4: As pointed out, \$33 million is a lot of money, but it can be spent quickly. The time frame will depend on a number of things, such as what types of proposals we get back. The Director indicated that he doesn't want to go too fast as technology is changing so quickly.

Meeting Conclusion

There being no further questions, Director Farmer thanked everyone for attending and reminded them that the deadline for public comments is 5:00 p.m. on May 25, 2018. The meeting concluded at approximately 2:10 p.m.

Meeting Attendees (alphabetically by affiliation)

First Name	Last Name	Affiliation
John	Saleby	ABB
Mark	Denton	Alliance AutoGas
Joey	Coble	Blanchard Bus Centers
Paul	Dow	Blanchard Bus Centers
Bob	Gildner	Blanchard Bus Centers
James	Keel	City of Greenville/ Greenlink
Nicole	McAden	City of Greenville/ Greenlink
Keith	Moody	Clemson Area Transit
Brian	Barnes	CPS Consulting

First Name	Last Name	Affiliation
Jack	Ellsworth	Cummins Sales and Service
Joshua	Fisher	Cummins Sales and Service
Tim	Fogle	Cummins Sales and Service
Marshall	Rand	Duke Energy
John	Wilhelmi	Eastern Research Group, Inc
Breeden	John	Electric Cooperatives of SC
Mike	Smith	Electric Cooperatives of SC
Rick	Mosteller	Fort Sumter Tours
Emily	Wier	Greenlots
John	Williams	Greenville Co. Schools
Sarah	Hearn	House Ways and Means Committee
Todd	Manuel	Interstate Transportation Equipment
Zachary	Bullock	Mabon Energy, LLC
Patrick	Hamrick	Mabon Energy, LLC
Sally	Rogers	Nexsen Pruet
Maeve	Mason	Palmetto Clean Fuels/ SC Energy Office
Rachel	Mashaw	Palmetto Clean Fuels/ SC Energy Office
Landon	Masters	Palmetto Clean Fuels/ SC Energy Office
Bill	Leverett	Palmetto Railways
Mike	Steele	Palmetto Railways
Don	Strickland	Pee Dee Regional Transportation Authority
Hank	McCullough	Piedmont Natural Gas
Eric	McCarthy	Proterra
Tom	Hopkins	Roush Cleantech
Bonnie	Loomis	SC Clean Energy Business Alliance
Jay	Faulkenberry	SC Department of Administration, State Fleet Management
Mike	Boilman	SC Department of Education
Tim	Camp	SC Department of Education
Virgie	Chambers	SC Department of Education
Emily	Heatwole	SC Department of Education
Molly	Spearman	SC Department of Education
Kendall	Buchanan	SC Department of Insurance
Casey	Clyburn	SC Department of Insurance
Ray	Farmer	SC Department of Insurance
Katie	Geer	SC Department of Insurance
Gwen	McGriff	SC Department of Insurance
Michael	Wise	SC Department of Insurance
Corky	Clark	SC Propane Gas Association
Jim	Woods	Shealy Electric Wholesalers
Chris	Carnevale	Southern Alliance for Clean Energy
Terecia	Wilson	Transportation Association of SC

First Name	Last Name	Affiliation
Keith	Scott	Transportation Association of SC/ City of Anderson
Michael	Criss	US Green Building Council, South Carolina
Harland	Chadbourne	Waste Pro USA
Alan	Buck	

The following 49 pages include the presentations and written comments submitted by speakers.

[This space intentionally left blank.]



VW Environmental Mitigation Trust South Carolina's Draft Beneficiary Mitigation Plan

Raymond Farmer
Director
SC Department of Insurance

May 1, 2018 Public Meeting

Volkswagen Settlement Overview

- “Defeat devices” discovered in VW, Audi, and Porsche branded diesel vehicles
 - Model Years 2009-2016
 - Nearly 600,000 2.0L and 3.0L vehicles impacted
- Series of partial court settlements to remedy harm to environment and economy
- Our involvement relates to establishment of Environmental Mitigation Trust (EMT)
 - \$2.925 billion in funding from VW (nearly \$34 million or 1.16% for SC)
 - Goal is to mitigate excess NOx emissions by reducing future emissions

Environmental Mitigation Trust Timeline

2.0L Partial Court Settlement Approved	10/25/16
National Trustee Designated	03/15/17
3.0L Partial Court Settlement Approved	05/17/17
SCDOI Named SC's Lead Agency	06/14/17
Finalized Agreement/ Trust Effective Date	10/02/17
SC Submits Certification as EMT Beneficiary	11/21/17

Environmental Mitigation Trust Timeline

SC Named Beneficiary Under EMT	01/29/18
SC Publishes Draft Beneficiary Mitigation Plan	04/10/18
<i>Public Meeting on Draft BMP</i>	<i>05/01/18</i>
Deadline for Public Comments on Draft BMP	05/25/18

Requirements of EMT

- **Primarily a vehicle-for-vehicle or engine-for-engine replacement program (replaced vehicles/engines must be scrapped)**
- **Eligible Mitigation Actions**
 - 10 categories
 - Public or private fleets are eligible for funding
- **10 years to expend or obligate at least 80% of SC's allocation**
 - 10/02/27
- **Burden is on SC to certify compliance with terms of Trust**
- **Public reporting, accounting**

Eligible Mitigation Actions

- Class 8 local freight trucks and port drayage trucks
- Class 4-8 school, shuttle, and transit buses
- Freight switcher locomotives
- Ferry and tug boats
- Shore power for ocean going vessels
- Class 4-7 local freight trucks
- Airport ground support equipment
- Forklifts and port cargo handling equipment
- ZEV Charging Stations ($\leq 15\%$)
- DERA Projects
- Admin costs ($\leq 15\%$)

Early Feedback

**26 formal submissions* totaling
\$186,999,064.32 in funding requests**

Most popular categories:

- 2. Class 4-8 School Bus, Shuttle Bus, or Transit Bus (Eligible Buses)**
- 9. Light Duty Zero Emission Vehicle Supply Equipment**

SC's Goals and Priorities

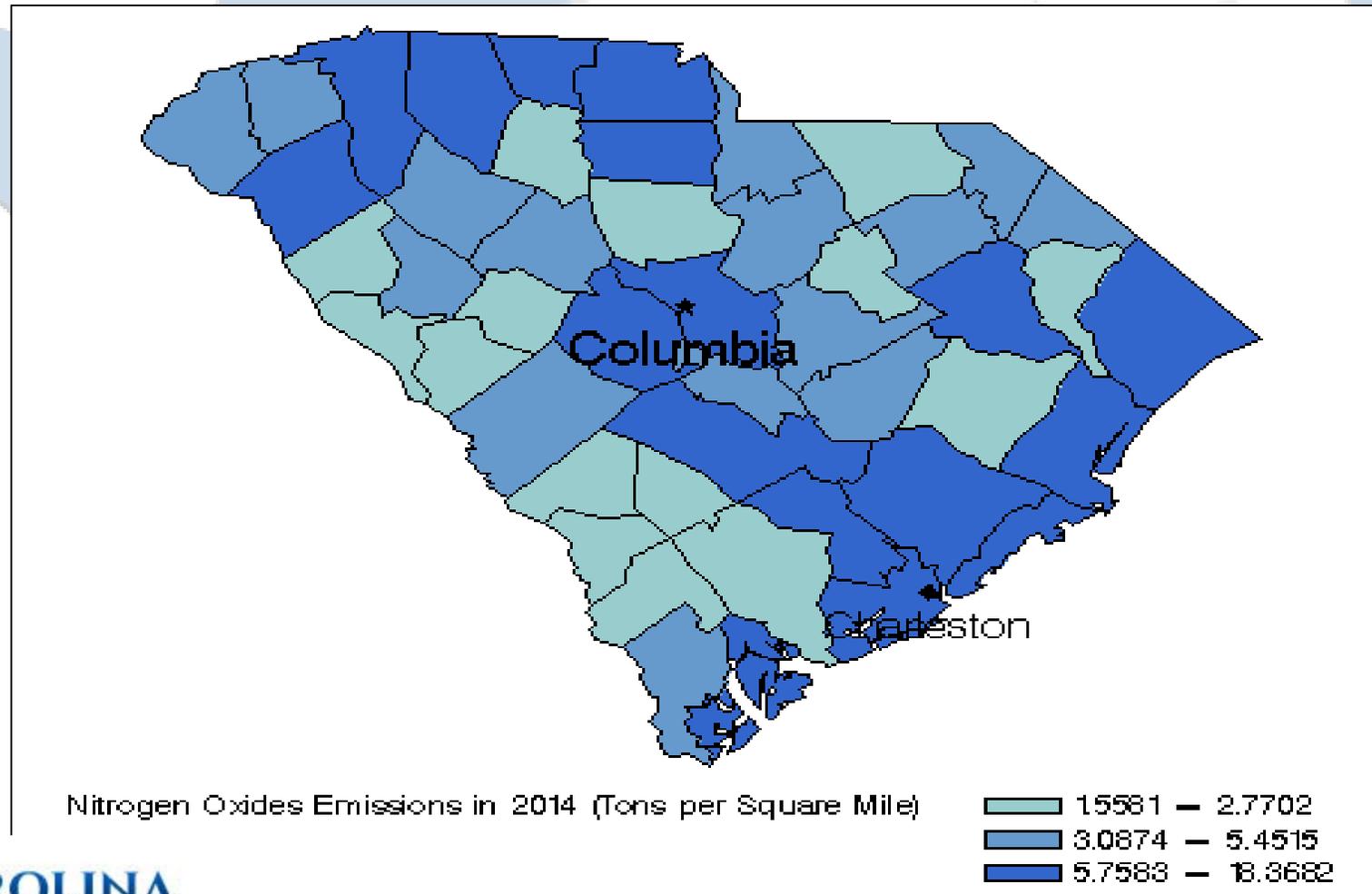
Overall Goal:

Reduce future NOx emissions while focusing on the state's needs.

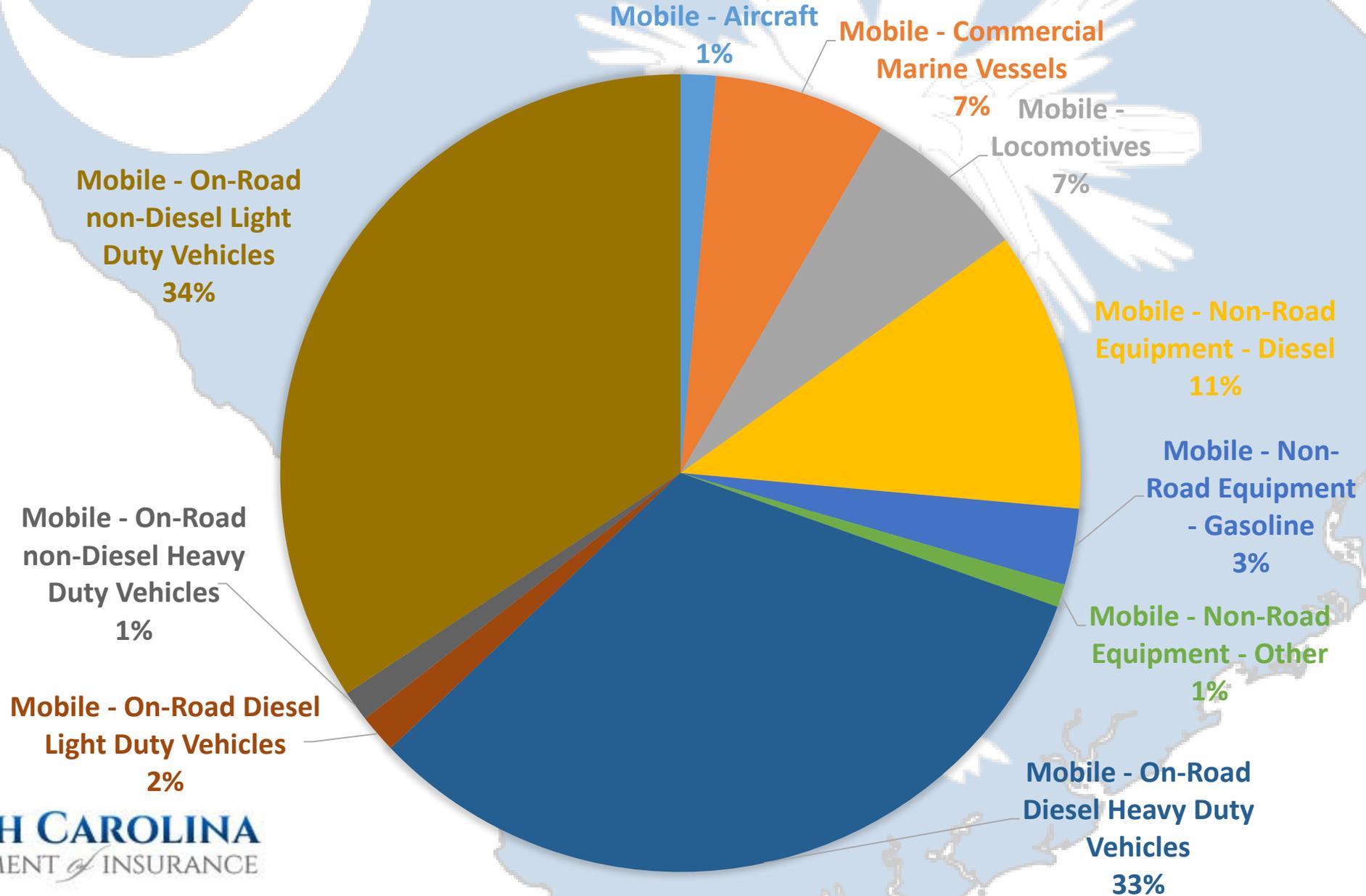
Factors Being Considered Based on SC's Goals and Priorities

- NOx emissions reductions;
- The State's needs;
- Cost effectiveness;
- Benefits to areas that experience disproportionate levels of air pollutants;
- Public health benefits, including those for more vulnerable populations;
- Environmental justice issues;
- Current and long-term environmental and economic benefits;
- Leveraged funding opportunities;
- Other potential funding sources; and
- Demonstrated experience and/or ability to implement project.

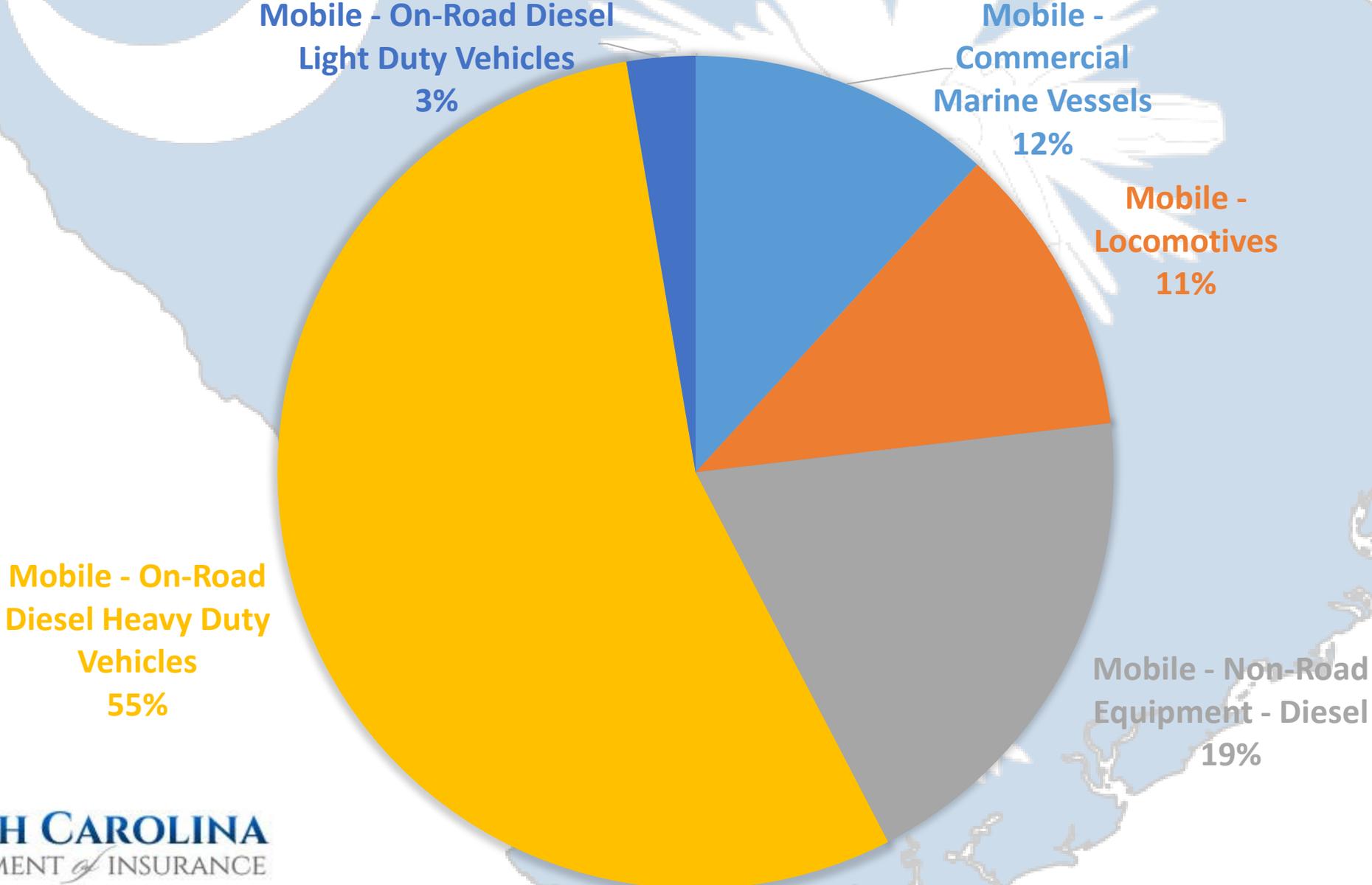
SC's 2014 NOx Emissions by County



SC's 2014 Mobile NOx Emissions



SC's 2014 Mobile NOx Emissions - Diesel



SC's Proposed Allocation of EMT Funds

1. Class 4-8 School, Shuttle and Transit Buses (Eligible Buses)
2. Light Duty Zero Emission Vehicle (ZEV) Supply Equipment
3. Other Eligible Mitigation Actions

As outlined in the draft Beneficiary Mitigation Plan, South Carolina will prioritize funding requests for categories 1&2 listed above, subject to the goals and considerations outlined in Section III. However, additional Eligible Mitigation Actions may be considered for funding and can be submitted for consideration in response to the forthcoming solicitation for projects.

How to Comment

- All comments must be made in writing
- Ways to submit public comments:
 - Today's Public Meeting
 - Email to vwsettlement@doi.sc.gov
 - Mail or hand delivery to:
South Carolina Department of Insurance
Attn: Kendall Buchanan
1201 Main Street, Suite 1000
Columbia, South Carolina 29201

***Deadline for
Comments:
5:00 p.m. EDT
Friday, May 25th***

What's Next?

Following the May 25th deadline for public comments:

- ✓ **SCDOI to review all public comments/ publicly post comments or a summary thereof**
- ✓ **If substantial changes to draft BMP are needed, a revised draft will be published along with a 30-day public comment period**
- ✓ **Final BMP will be published**
- ✓ **SCDOI will issue a solicitation for projects**



Opportunity for Public Comment

Contact Us:

vwsettlement@doi.sc.gov | (803) 737-2420

vwsettlement.sc.gov

Thank you Mr. Farmer for allowing the Department of Education time on today's agenda. As you know, the South Carolina Department of Education manages one of the largest bus transportation fleets in the United States. Our fleet of 5700 buses transports 350,000 students – about ½ of our total 750,000 population to and from school each day travelling almost 80 million miles per year. The safety of our students is our top priority. That is why our goal to transform our fleet from the oldest, most pollutant and least efficient in the country to a safe, clean, and efficient system brings me before you today.

Over the past three years, working with the General Assembly and using savings in the transportation operations budget, we have replaced approximately 1800 1995 type D rear-engine school buses that had significant structural and thermal issues. By the end of this calendar year, we will have the remaining 108 1995 rear-engine buses off the road. That is a

victory for all of our students and citizens. However, that leaves us with a very dirty pollution problem – approximately 800 buses – the oldest manufactured in 1988 that are still on the road every day all across South Carolina transporting our students.

These 1988 buses – and there are 443 of them, cost \$0.41 cent per mile to operate and they each emit 916 lbs or 416,000 grams of nitrogen oxide each year. If you calculate that pollution annually – it means our 443 1988 buses alone send 406,000 lbs. or 203 tons of nitrogen oxide into the atmosphere all across our state while transporting our most precious resource. This is shameful and can be quickly improved.

If these Volkswagen Settlement funds are utilized to replace our oldest most toxic buses, new clean buses would operate at a cost of \$0.22 per mile versus \$0.41 per mile and emit as little as 8 lbs or 3600 grams of nitrogen oxide annually per bus versus the 916 lbs of pollutant

mentioned earlier. Ultimately, a total reduction of 143,000,000 grams or 158 tons of NOX.

Assuming \$34 million is the maximum amount of settlement funding available, and the Insurance Commission desires to set aside 15% of funding- approximately \$5.8 million for electrical vehicles, the Department of Education would include the retrofitting of current hybrid buses that are in our fleet with the required infrastructure, to serve as an electric bus pilot project.

The \$29 million settlement funds remaining would then be used to purchase approximately 350 clean diesel and alternative fueled buses. We will continue to be committed to work with the General Assembly to have all of the 800 pollutant buses off the road within the next few years.

That accomplishment will be one that we can all share pride in knowing that we truly made the

safety of our children and citizens a number one priority.



May 1, 2018

South Carolina Department of Insurance
Attn: Kendall Buchanan
1201 Main Street, Suite 1000
Columbia, South Carolina 29201

Re: Public Comments re Draft Beneficiary Mitigation Plan

Dear Ms. Buchanan,

Thank you for the opportunity to offer these public comments today. My name is James M. Clark, Jr. and I am the Executive Director of the South Carolina Propane Gas Association.

As your department has stated in its recently published Draft Beneficiary Mitigation Plan for South Carolina (BMP), the overall goal is to reduce future NOx emissions while focusing on the state's needs. Clean burning propane autogas can help meet that goal.

In our opinion the most pressing need in South Carolina that the funds from the Mitigation Trust can be used for is the replacement of our aging school bus fleet. There are three (3) reasons for this. First, running dirty diesel buses which spew nitrogen oxide at unacceptable levels can cause serious air quality and health issues for the communities the buses pass through and especially for children that ride the dirty diesel buses. Secondly, certain of these buses are prone to catch on fire which presents serious safety concerns for the children and bus driver and (3) due to the age of our state's school bus fleet many of our buses are unreliable and leave students stranded beside the road waiting for the bus to be repaired or towed. We have all seen this situation as we are on the road going about our daily activities.

When parents put their children on the school bus each morning they should not have to worry about the safety and health of their children, but right now they do. We need to fix this situation.

SOUTH CAROLINA PROPANE GAS ASSOCIATION

2 Lehigh Court Columbia, SC 29223

Fax: (803) 865-6532

Phone: (803) 865-2284

email: scpga@sc.rr.com

Ms. Kendall Buchanan
Page 2
May 1, 2018

In 2007 our legislature mandated in state statute 59-67-580 that that the State Board of Education shall implement a school bus replacement cycle such that a complete replacement of the entire bus fleet will occur every 15 years. As we all know that has not happened. Unfortunately, our Department of Education does not receive adequate funding through the state's budgetary process to keep the state's school bus fleet up to date.

The Department of Education has many buses that are 20 years or older and keeps some decommissioned buses in their inventory so they can use parts from them to repair newer buses. This is not a good situation, but there is a solution - provide for the purchase of new, low NOx, propane powered school buses to replace our state's aging bus fleet.

Propane fueled school buses exist today that are much cleaner than even the cleanest diesel school buses. In fact, ROUSH's 2017 model year propane school bus recently received its California Air Resources Board (CARB) certification at 0.05 grams of NOx per brake horsepower-hour (g/bhp-hr.).¹ This means that ROUSH'S new propane engine is 75 percent cleaner than today's cleanest diesel engines and 99% cleaner than the oldest, pre-2007 bus engines that are in over half of our state's 5,582 school buses.² The next generation ROUSH propane bus engine is designed to achieve .02 grams of NOx per brake horsepower-hour which will far surpass anything on the market today for school buses.

As outlined in the Draft Beneficiary Mitigation Plan, eligible buses can be repowered or replaced using alternate fueled engines, such as the clean burning propane bus engines referenced above, at 100 percent of their cost. Allocating the maximum funding available to South Carolina from the VW Mitigation Trust to the Department of Education for the purchase of clean burning propane autogas buses will provide the following benefits:

¹ "Executive Order A-344-0074". California Environmental Protection Agency, Air Resources Board, May 15, 2017.
https://www.arb.ca.gov/msprog/onroad/cert/mdehdehdv/2017/roush_hdoe_a3440074_6d8_0d05_lpg.pdf.

² For model year 1998 to 2003 diesel engines, EPA established a NOx emission standard of 4.0 g NOx / bhp-hr. Please refer to EPA's [summary table](#) of diesel engine exhaust emission standards for further detail.

Ms. Kendall Buchanan
Page 3
May 1, 2018

1. Reduce NOx emissions by more than 75 percent than the cleanest diesel engines currently available which will result in a cleaner environment for all our state's citizens as well as reduce health issues like asthma and bronchitis for the children riding clean propane buses.
2. Allow for the replacement of older and fire prone 1995 rear-engine buses in the state's bus fleet which will reduce maintenance costs and improve student safety.
3. Ease the financial burden on our Department of Education for overall bus replacement thereby allowing them to put more funding back into the actual education of students.

I believe these benefits meet the stated goal of the Draft Beneficiary Mitigation Plan and I hope you will give propane autogas buses favorable consideration in your final Plan. As State Superintendent of Education Molly Spearman said in her January 9, 2017 press conference, "We can no longer wait to address the needs of our state's student transportation system".

With kindest regards,

A handwritten signature in blue ink, appearing to read "J. M. Clark, Jr.", written in a cursive style.

J. M. Clark, Jr.
Executive Director

**Testimony of Emily Wier
Policy and Market Development Associate
Greenlots
South Carolina Department of Insurance
Draft Beneficiary Mitigation Plan
May 1, 2018**

Thank you for the opportunity to provide public comments on the South Carolina Draft Beneficiary Mitigation Plan. My name is Emily Wier, Associate for Policy and Market Development at Greenlots. Greenlots is a leading provider of grid-focused electric vehicle charging software and services. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America. Greenlots' smart charging solutions are built around an open standards-based focus on future proofing while helping site hosts, utilities, and grid operators manage dynamic electric vehicle charging loads and respond to local and system conditions.

Greenlots strongly encourages the Department to invest the full 15% allowable for light-duty electric vehicle charging infrastructure. This investment is critical to supporting electric vehicle adoption across the State. The deployment of public charging stations can help indirectly incentivize the purchase and use of other electric vehicles. Because on-road light-duty vehicles are the largest contributor to mobile NOx in South Carolina, the 15% light-duty charging investment represents a critical step toward enabling long-term emissions reductions of NOx and greenhouse gases.

A clear emphasis of support for light-duty DC fast charging infrastructure should be articulated in the Beneficiary Mitigation Plan. This is a critical gap in the (deficient) overall infrastructure

deployment to date. The highway corridor chargers need to be DC fast chargers, to meet the needs of electric vehicle drivers who need to charge on the go, rather than where the car is parked for more than an hour or two. Providing DC fast charging options across multiple power levels in line with different use cases will be particularly effective. Level 2 charging will be important for locations with long-dwell times, such as at destination locations, workplaces, or fleet charging.

Leveraging the Environmental Mitigation Trust funds with utility-sponsored programs can also help maximize funds disbursement. ~~South Carolina's utilities are in a unique and powerful position to help drive the investment in light-duty electric vehicle charging, in a similar way to what they have done for many years with energy efficiency and conservation programs to the benefit of their ratepayers. At this early stage of the market, ownership and operation of charging infrastructure—including charging stations—is an appropriate and in many respects necessary role for the utility in accelerating the market.~~ South Carolina has significant opportunity and potential for growth of electric vehicles. This growth can yield net savings for ratepayers and benefits to the electric grid, including optimizing grid load to improve cost efficiency, reduce wholesale electricity rates, and facilitate grid resiliency.

For the remaining 85% of funds, Greenlots encourages the Department to implement a comprehensive method for calculating cost effectiveness. A lifecycle cost and benefit analysis is appropriate, which should capture the long-term emissions benefits, cost savings, and potential to mitigate climate change. While electric buses and vehicles have higher up-front costs, they have reduced fuel and maintenance costs, a longer vehicle lifespan, greater potential to reduce criteria air pollutants and greenhouse gases, and provide health benefits for workers, schoolchildren, and

community members. If the State only considers short-term NOx reductions, it is conceivable that the State may be inadvertently locked in to fossil fuel infrastructure that could have been mitigated through a more robust approach in the Beneficiary Mitigation Plan.

As such, we encourage the Department to sharpen focus for transportation electrification opportunities, including electric school and transit buses. By investing in transit and school bus electrification, South Carolina would be providing direct benefits to populations that may not directly benefit from home electric vehicle charging; heavy-duty charging provides both direct and indirect public health and social welfare benefits for transportation users and many surrounding communities—many of which tend to bear a disproportionate share of pollution (e.g., NOx, SOx, particulate matter). If benefits for environmental justice communities is indeed a priority for the State, electrification of transit and school buses is a natural fit.

It will be important for the Department to outline a transformative strategy in the Environmental Mitigation Plan that leads to long-term emissions reductions—Greenlots believes this objective can only be achieved with wide-scale transportation electrification. Greenlots will be available as a resource to the Department through the finalization and implementation of the Environmental Mitigation Plan. Thank you for your consideration.

Contact: ewier@greenlots.com



May 1, 2018

South Carolina Department of Insurance
Attn: Kendall Buchanan
1201 Main Street, Suite 1000
Columbia, South Carolina 29201

RE: Proterra Comments on South Carolina's Draft Beneficiary Mitigation Plan ("BMP")

Proterra, the leading U.S. manufacturer of electric, zero-emission transit buses, with its largest manufacturing facility located in Greenville, SC, appreciates the opportunity to provide comments on the draft spending plan, which describes South Carolina's overall intentions and plan for spending ~ \$34M of South Carolina's VW allocation funding.

The proposed BMP appropriately prioritizes projects that reduce NOx and GHG emissions efficiently and cost-effectively, with a clear focus on the replacement of on-road diesel heavy duty vehicles. On page 9, the plan references the funding of Class 4-8 School, Shuttle or Transit Buses, which the plan defines as "Eligible Buses." But the chart on page 10 seems to focus on eligible school bus projects. For purposes of these comments, Proterra assumes that Eligible Buses includes public transit buses.

Proterra strongly supports funding for Eligible Buses (i.e., school and transit buses). But it urges the state to fund the purchase of *zero-emission, battery-electric* school buses and transit buses – not buses fueled by CNG, propane or other alternative fuels. Proterra certainly agrees with the statewide focus on achieving significant reductions in diesel emission exposures in priority air quality areas and areas that receive a disproportionate amount of air pollution from diesel vehicles. The state can accomplish both by investing heavily in battery electric buses. Replacing diesel buses with electric buses is simply one of the best investments the state can make to help electrify public transit and improve air quality. Indeed, this is a primary reason why South Carolina transit agencies such as Greenlink (Greenville, SC) and CATBus (Clemson, SC) and cities such as Seneca, SC and Rock Hill, SC have purchased Proterra electric buses, using money from the FTA's LowNo Emission Grant Program. We believe that the best way to accomplish the state's VW goals is to use the funds from the trust to fund 110% of the incremental cost of a new electric transit bus and associated charging infrastructure. This approach will help spur the adoption of a greater number of electric buses among transit agencies, airports and universities.

The electrification of heavy duty vehicles offers a pathway towards achieving the numerous benefits associated with zero emission transit. Indeed, Park City, Utah's recent deployment of Proterra electric transit buses is the poster child for why states should emphasize the electrification of transit buses with their VW mitigation funding. In June 2017, Park City Transit deployed six battery electric buses. Since that time, the electric fleet has traveled more than 160,000 miles using 269,400 of kWh electricity, resulting in an average fuel efficiency of 1.7 kWh/mile, or just over 22 MPGe (compared to 4 MPG for Park City's diesel buses). The electric buses have displaced the use of ~ 32,000 gallons of diesel fuel in their first four months alone, while eliminating more than 801,000 lbs. of GHG emissions. Additionally, the electric buses have saved Park City Transit money through the savings in fuel and maintenance. In fact, the cost per mile of operation has dropped from a high of \$0.63 a mile using diesel to a low of \$0.30 using electricity. Not surprisingly, Park City has seen



an increase in ridership on those routes utilizing zero emission buses, causing other municipalities to determine how they too can add and/or increase the number of zero emission buses on the road.

Your Office has indicated the importance of using VW funding to reduce the primary sources of mobile NOx emissions in the state, and buses are certainly a leading culprit. But to achieve that goal, Proterra encourages the DoI to promote the adoption of zero-emission technology, and not "near-zero" technology (i.e., do not allocate funding for "clean diesel," propane or natural gas vehicles). Nationally, 7,461,458 tons of NOx, or 55% of the 13,489,110 tons of NOx emitted derive from mobile sources; 35% attributable to on-road sources.¹ In the state of South Carolina, 122,298 tons of NOx, or 66% of the 185,800 tons of NOx emitted are from mobile sources.² On this basis alone, we urge DoI to use ~25% of its VW funds specifically to advance the electrification of public transit buses in those areas disproportionately impacted by the VW diesel vehicle emissions, and the remaining funds for Category 2 projects to help fund the purchase of electric school buses. By doing so, South Carolina will help achieve its program goals, including the reduction of NOx, greenhouse gases and other pollutants.

Thank you for the opportunity to provide comments on the draft spending plan. Please feel free to contact me directly about these comments or Proterra's initial project proposal titled *The Public Transit Electrification Project: Sustainable Mobility for South Carolina*. I can be reached at 864-214-2668 or emccarthy@proterra.com.

Sincerely,

Eric J. McCarthy
SVP, Government Relations, Public Policy and Legal Affairs
Proterra Inc.

¹ <https://www3.epa.gov/cgi-bin/broker?polchoice=NOX& debug=0& service=data& program=dataprog.national.1.sas>

² <https://www3.epa.gov/cgi-bin/broker? service=data& debug=0& program=dataprog.state.1.sas&pol=NOX&stfips=45>



On behalf of the Palmetto Clean Fuels Coalition (PCF), administered by the South Carolina Office of Regulatory Staff – Energy Office (Energy Office), we are pleased to have this opportunity to comment on the draft Beneficiary Mitigation Plan.

PCF is South Carolina’s designated US Department of Energy Clean Cities coalition.¹ PCF is a voluntary partnership of alternative fuel manufacturers, distributors, and supporters who collectively work together to increase the adoption of alternative fuels and advanced vehicle technologies. Together, last year alone, PCF’s stakeholders (made up of over 125 organizations) reduced 5,826,806 gasoline gallon equivalents and 26,602 tons of greenhouse gas emissions.

PCF appreciates that your office supports investing in electric vehicle infrastructure and is setting aside 15% for investment. In addition, we are encouraged by your commitment to reducing NOx emissions from class 8 school, shuttle, and transit buses. PCF stakeholders would support your office dedicating a portion of the funds for class 8 vehicles to those using a Department of Energy recognized alternative fuel.² This commitment would not only reduce emissions but help to diversify fleet vehicles (reducing dependence on petroleum), promote public/private partnerships aimed at addressing necessary fueling infrastructure, and spur economic development.

We appreciate this opportunity and look forward to continuing the work already underway to reduce mobile source emissions and promote the use of alternative fuels and alternative fuel infrastructure.

¹ <https://cleancities.energy.gov/>

² <https://www.afdc.energy.gov/fuels/>

**VW Settlement
South Carolina Draft Beneficiary Mitigation Plan
Public Input Solicitation and Comments Meeting 5/1/18
Michael P. Criss, AICP, LEED AP
US Green Building Council South Carolina**

COMMENTS

Good afternoon. I am Michael Criss, a volunteer with the US Green Building Council South Carolina. USGBC is the private, non-profit headquartered in Washington, DC that created the most widely used green building rating system in the world, Leadership in Energy and Environmental Design, known as LEED.

As a market-driven, voluntary award system, LEED is used to certify the sustainability of new and existing buildings at various levels of performance. Point categories include energy and water consumption, use of green building materials, waste management, conservation of building site natural resources, indoor environmental quality for the occupants, and land use and transportation efficiency of the building location.

Recognizing the relationship between green buildings and the transportation system that serves them, LEED provides credit for supporting green vehicles that reduce pollution by promoting alternatives to conventionally fueled automobiles. For example, install electrical vehicle supply equipment (EVSE) in 2% of all the building project's parking spaces, for sole use by plug-in electric vehicles.

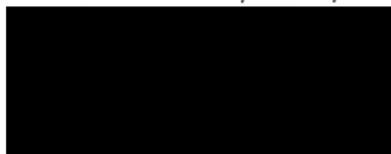
Therefore, USGBC South Carolina strongly supports the Draft Beneficiary Mitigation Plan's proposed priority of utilizing the maximum 15% of its total funding allocation for the acquisition, installation, operation, and maintenance of new light duty zero emission vehicle supply equipment. That will encourage electric vehicle charging station networks to participate in the forthcoming solicitation for projects, in a public-private partnership that leverages the funding and expands the green economy in South Carolina.

The Draft Beneficiary Mitigation Plan's other proposed priority, which includes the repowering or replacement of diesel engine school buses, is aligned with the version of LEED designed specifically for schools. That green building rating system rewards the use of green buses which reduce nitrogen oxide and particulate matter emissions.

Thank you for the opportunity to comment on this focused Draft Beneficiary Mitigation Plan.

Michael P. Criss, USGBC SC, Advocacy Chair

Michael P. Criss, AICP, LEED AP, LLC



mcriss@sc.rr.com



TASC Comments
Volkswagon Settlement: Public Input Solicitation and Comments Meeting
Regarding the South Carolina Draft Beneficiary Mitigation Plan (BMP)
Tuesday, May 1, 2018/1:00 p.m. – 3:00 p.m.
South Carolina Bar Conference Center
1501 Park Street
Columbia, SC 29201

Good afternoon. My name is Terecia Wilson, and I am the Director of the Transportation Association of South Carolina, known as TASC. TASC is a non-profit organization that promotes public transportation in South Carolina. Our members include public service transportation providers, human services agencies providing specialized transportation services to seniors and persons with disabilities and special needs, government agencies, private transportation providers, educational institutions, and vendors that serve the transportation industry. As an organization, TASC is committed to expanding and enhancing public transportation services throughout the State of South Carolina.

With me here today are Keith Scott, the President of TASC. Mr. Scott is also the Director of Transit for the City of Anderson, South Carolina, and Ms. Lisa Firmender, Executive Director of Generations Unlimited from Barnwell. We appreciate the opportunity to provide comments today regarding the South Carolina Draft Beneficiary Mitigation Plan.

Comment #1: TASC is in full agreement with Section II of the Draft BMP regarding Air Quality in South Carolina. We concur that the Trust represents an opportunity for the SC Department of Insurance (DOI) to fund projects that result in significant reductions in NOx emissions, and we are very pleased that the Draft BMP proposes to support projects that reduce emissions across the State, rather than prioritizing any specific areas within the State.

TASC was pleased to see the acknowledgement in the Draft BMP that “mobile emissions are the largest contributor of NOx in the state, accounting for over 125 thousand tons a year.” Using funds from the Trust to replace or repower diesel-powered vehicles with engines that are less polluting and more efficient will indeed improve the health and well-being of all residents of South Carolina.

In November 2016, TASC sponsored the first Transportation and Wellness Summit ever held in South Carolina. There were presentations related to air quality issues as the result of mobile emissions, including the impact of on children with asthma. Our industry has proven that public transportation reduces congestion. The use of public transportation makes the entire transportation system work more efficiently. Every ten people on a bus in your community during rush hour means there are nine fewer cars on the roads, increasing the efficiency of the entire transportation network – meaning less traffic congestion, fewer carbon emissions, and a safer and healthier environment for everyone. The use of settlement funding to replace or repower diesel-powered vehicles, such as transit buses that have outlived their useful life, can further contribute to reduced emissions.

TASC Comments
Public Input Solicitation and Comments Meeting
South Carolina Draft Beneficiary Mitigation Plan
May 1, 2018
Page 2

Comment #2: TASC concurs with the general factors that will be part of the project review process, as listed under Section III of the Draft BMP – Overview of Draft Environmental Mitigation Plan and Goals. In particular, we were pleased to see that leveraged funding opportunities will be one of the factors, along with other potential funding sources, current and long-term environmental and economic benefits. As an organization whose members serve the elderly, persons with disabilities and special needs, those needing reliable transportation in order to maintain employment, and those seeking educational opportunities, we are also pleased to see that general factors also include public health benefits for more vulnerable populations and environmental justice issues.

The factor regarding addressing the State’s needs is one of the most important of the general factors to be included in the project review process. This is certainly true for transit. At present, much of the transit fleet in the state is at or nearing the end of its useful life. Many of the vehicles in the current fleet are 15 to 22 years old. According to the SC Office of Public Transit of the SC Department of Transportation (SCDOT), 45% of the transit vehicles for which they currently hold the title have exceeded their useful life. Many of these vehicles are not energy efficient nor are they environmentally friendly. Further, there are other transit agencies, such as large and small urban that buy their own buses through the Federal Transit Administration (FTA), and the Office of Public Transit does not hold title to those vehicles. We believe that the overall percentage of vehicles past their useful life is up to 50%. All of these vehicles need to be replaced with vehicles that utilize alternative fuel sources, such as electricity, propane, and natural gas.

Further, expanding public transportation is critically important for South Carolina. Growth trends in population, employment, vehicle miles of travel and transit usage indicate a greater demand for future mobility. According to SC State Data Center projections, the population of the state is expected to increase by 31 percent, from 4.625 million in 2010 to approximately 6.061 million in 2040. The state’s population is also aging. Between 2000 and 2010, the age group 65 and over increased by 30%, compared to an increase by 41% in the age group 85 and older. Advances in health and modern medicine are allowing more people to live past 85 years. The need for reliable, affordable and accessible transportation is increasing among the state’s older population. At the same time, resources for expanded transportation services and to upgrade the fleet are extremely limited. Some counties have no public transportation services, leaving some seniors essentially homebound. Also, some people in our state remain unemployed due to the lack of reliable transportation services.

Traffic congestion continues to increase statewide. According to the 2015 TRIP Report, “significant levels of traffic congestion cause significant delays in South Carolina, particularly in its larger urban areas, choking commuting and commerce.” Based on a study completed by the Texas Transportation Institute (TTI), the average driver in the Charleston urban area loses \$647 each year in the cost of lost time and wasted fuel as a result of traffic congestion, and 30 hours each year stuck in traffic. The estimate for Columbia-area drivers is \$663 annually and 30 hours each year stuck in traffic. For the Greenville area, the loss is \$590 per year and 27 hours. Expanded public transportation plays a significant role in finding smart solutions to these challenges the state is facing.

Energy-efficient and environmentally-friendly rolling stock that utilize clean natural gas or that are powered by electric engines will lessen carbon emissions and help to improve air quality throughout the state. And for every \$1 invested in public transportation, \$4 minimum is generated in economic returns!

TASC Comments
Public Input Solicitation and Comments Meeting
South Carolina Draft Beneficiary Mitigation Plan
May 1, 2018
Page 3

Comment #3: TASC appreciates the inclusion of transit buses, as listed in Section V, Categories of Eligible Mitigation Actions, under the eligible replacements of vehicles and equipment. With the high percentage of transit vehicles across the state that have outlived their useful life, there is an urgent need to replace these vehicles with vehicles that utilize clean natural gas, propane or that are powered by electric engines in order to make significant reductions in emissions.

Comment #4: TASC concurs with the Funding Priorities as listed under Section V-b, "South Carolina's Funding Priorities" of the Draft BMP, in which Class 4 – 8 School, Shuttle, and Transit Buses are listed as a top funding priority. Providing up to 100% of the cost of a Repower with a new diesel or Alternate Fueled engine and/or up to 100% of the cost of a new diesel or Alternate fueled vehicle, as well as providing up to 100% of the cost for charging infrastructure, etc., is especially significant for the transit industry. The majority of public transportation agencies do NOT have sufficient local match needed to access federal and state funding for the purchase of new rolling stock. This provision is also critical for areas of the state with no public transportation services at all, and would greatly enhance their ability to initiate transportation services that are environmentally-friendly.

Comment #5: In the table on Page 10 of the Draft BMP, TASC respectfully requests that "Transit Buses" be included in the title headings, to read: "Maximum Allocations for Eligible School Bus Projects and Transit Bus Projects" in the first column; and "Government-Owned Eligible Buses and Privately Owned School Buses Under Contract w/a Public School District and Government-Owned Eligible Transit Buses" in the third column. We respectfully request that in the second heading on this table, "Non-Government-Owned Transit Buses" be included as well. Making these changes would be consistent with the heading on Page 9 of the Draft BMP that lists "Class 4 – 8 School, Shuttle, and Transit Buses (Eligible Buses)" as a funding priority category.

Comment #6: TASC supports the language in the Draft BMP, in the Appendix, under "Eligible Mitigation Action Administrative Expenditures." Allowing for a percentage of actual administrative expenditures associated with implementing Eligible Mitigation Action to be included in funding projects will be extremely beneficial to member agencies that have experienced budget cuts in operations and administration over the last several years, making proposal submittal a much more attractive opportunity.

On behalf of TASC, thank you for the opportunity to provide comments today regarding the Draft BMP. Our members appreciate your consideration of these comments as you finalize the Draft BMP and prepare to issue a future solicitation for projects. As requested, we are providing a written copy of our comments. We have attached a Fact Sheet to the comments with information pertinent to the issues at hand. If you have any questions regarding our comments, please contact me or TASC President Keith Scott. Our addresses are included at the end of the written comments.

Respectfully submitted,

Keith Scott, TASC President
Director of Transit, City of Anderson, SC
kscott@cityofandersonsc.com
(864) 231-7626

Terecia Wilson, TASC Director
wilsontw123@gmail.com
(803) 537-6807

South Carolina Department of Insurance

Attn: Kendall Buchanan

1201 Main St., Suite 1000

Columbia, SC 29201

Re: South Carolina Draft Beneficiary Mitigation Plan

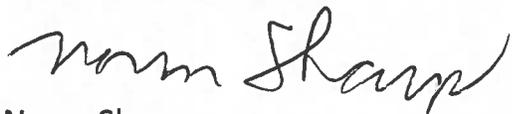
I am from Easley, SC and a volunteer leader with the Sierra Club. The Sierra Club has already submitted comments so I won't expand on them.

As one of the funding priorities in the Draft Mitigation Plan stated on pages 9-11, South Carolina should take advantage of the full 15% allocation for electric vehicle supply equipment.

The draft plan also prioritizes school, shuttle and transit buses. Those funds should be allocated to electric buses, rather than new diesel or alternative fuel vehicles. Electric buses have lower comparative lifetime costs than diesel and CNG buses and costs continue to drop rapidly.

Also, near my home in Easley is one of the largest manufacturers of electric buses in the nation, Proterra. South Carolina should be one of the nation's leaders in cutting edge transportation like Proterra is.

Although it is not the focus of the mitigation plan, a side benefit of electric buses is the reduction of greenhouse gases associated with climate change. I am a retired insurance actuary and this issue has gotten the attention of the actuarial profession, which now publishes the Actuaries Climate Index, an objective measure of changes in extreme weather and changes in sea level relative to the base period of 1961 through 1990. I have submitted a couple of recent press releases on the Index.



Norm Sharp

100 N Severn Circle

Easley, SC 29642

[English](#) | [Français](#) | [Contact Us](#)

ACTUARIES CLIMATE INDEX
INDICE ACTUARIEL CLIMATIQUE

About the Actuaries Climate Index

The Actuaries Climate Index (ACI) is intended to provide a useful monitoring tool—an objective indicator of the frequency of extreme weather and the extent of sea level change. This website provides graphics and data for download for those who wish to explore the Index. The ACI is available for the United States and Canada and 12 subregions thereof, and will be released when analysis of data for each meteorological season is complete, on both a monthly and a seasonal basis (months ending February, May, August, and November).

The six components of the Actuaries Climate Index are:

1. High temperatures;
2. Low temperatures;
3. Heavy rainfall;
4. Drought (consecutive dry days);
5. High wind; and
6. Sea level.

The temperature components are defined as the change in frequency of warmer temperatures above the 90th percentile (T90) and of colder temperatures below the 10th percentile (T10), relative to the reference period of 1961 to 1990. As temperatures are

warming over the United States and Canada in recent decades, T10 is generally less than it was during the reference period; i.e., the change is a negative number, while the change in T90 is generally a positive number. To properly reflect this change in the temperature distribution, the sign of T10 is reversed in the Actuaries Climate Index to properly reflect its contribution to this shift. An increased value of the Index due to the reduction in cold extremes is consistent with an increased risk of perils due to melting permafrost, the propagation of diseases, and the population of pests and insects that were previously less likely to survive in lower temperatures.

The precipitation components are the maximum 5-day rainfall (P) in the month, which measures flood risk, and the maximum number of consecutive days in a year with less than 1mm of daily precipitation, which measures drought (D). As with each of the other components, differences between the 5-day rainfall maxima and the consecutive dry days and their respective average values in the reference period are calculated for each month, with the latter being approximated by interpolating the annual values.

Daily wind speed measurements are converted to wind power (W), which is proportional to the cube of the wind speed. Wind Power is used because impacts from high winds (i.e., damages) have been shown to be more closely related to the cube of wind speed. The procedure used for temperatures is followed, by finding the 90th percentile of wind power for each month or season and subtracting the 90th percentile of wind power for that month or season over the reference period.

Sea level measurements are available on a monthly basis via tide gauges located at permanent coastal stations in Canada and the United States. The tide gauges measure sea level relative to the land below, but because the land is moving in many places, the ACI sea level component measures the combined effect on coastal shorelines of the generally rising seas and the rising or falling land.

For the purpose of combining the six components, the monthly differences versus the reference period are divided by the reference period standard deviation. This ratio is a dimensionless quantity known as the standardized anomaly. The approach allows such inherently different quantities to be combined in a single index while preserving the accuracy of the components. For any individual indicator, the standardized anomaly corresponds to how unusual that month's/season's value is, compared to the reference period mean and standard deviation for that month/season. Hence, each component is in units of the standard deviation of that quantity.

The final expression for the ACI, then, is:

$$ACI = \text{mean}(T90_{std} - T10_{std} + P_{std} + D_{std} + W_{std} + S_{std})$$

More information is available in this [Guided Tour](#) and an [Executive Summary](#). For a detailed description of the methodology behind the index, please read the [Development & Design](#) document and [Terms of Use](#).

Sign up for the
latest updates

Actuaries Climate
Index
Indice actuariel
climatique

© 2018 All Rights Reserved. [Privacy Statement](#) and
[Terms of Use](#)

Nonprofit web design by Matrix Group International



Contact: media@actuariesclimateindex.org

Actuaries Climate Index™ Summer 2017 Data Released

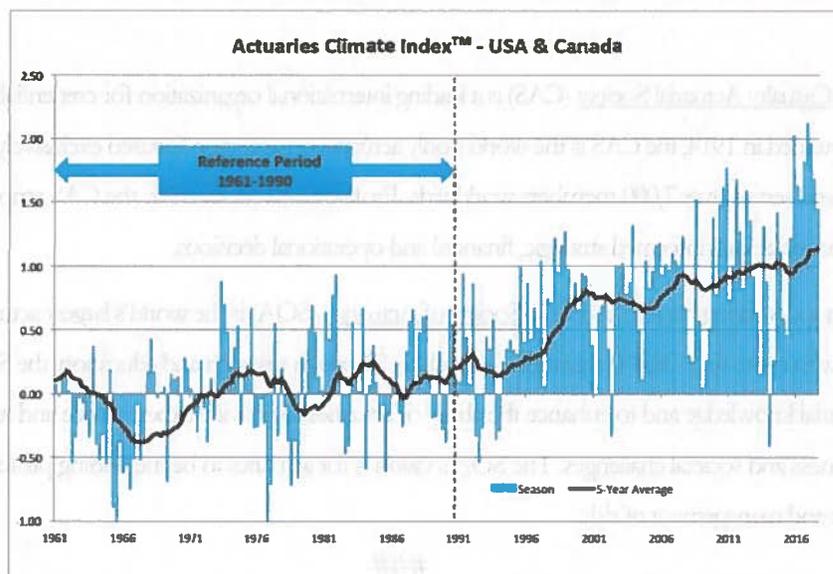
ACI Seasonal Value Dips But Remains at High Level

Washington, D.C., Arlington, VA, Schaumburg, IL, and Ottawa, ON (April 24, 2018)—New Actuaries Climate Index™ data reported today by organizations representing the actuarial profession in Canada and the United States show that the five-year moving average of climate extremes across the two countries remains at the high recorded in winter 2016-17 and spring 2017.

“Sea levels, high temperatures, and heavy precipitation continue to be pronounced relative to their historical norms, sustaining the long-term trend of high ACI values,” said Doug Collins, Chair of the Climate Index Working Group.

Measured with the new summer 2017 data included, the five-year moving average of the Actuaries Climate Index remains at 1.14, a record-high value first attained in, and sustained since, winter 2016-17. The elevated index value reflects continued deviation of climate and sea level extremes from historically expected patterns for the two countries.

A decline in the seasonal ACI value did not affect the five-year moving average. The seasonal ACI value for summer 2017 was 1.45, compared to 1.66 in spring 2017, making summer 2017 the first seasonal ACI value in eight seasons below 1.5. “While the seasonal value does not represent the extremes seen in the last two years, the value was still quite high from a historical perspective,” said Collins.





The Actuaries Climate Index is based on analysis of seasonal data from neutral, scientific sources for the six different index components collected since 1961. The index measures changes in extremes of high and low temperatures, high winds, heavy precipitation, and drought, as well as changes in sea level, expressed in units of standard deviations from the mean for the 30-year reference period of 1961 to 1990 for the United States and Canada combined.

The index, sponsored by the American Academy of Actuaries, the Canadian Institute of Actuaries, the Casualty Actuarial Society, and the Society of Actuaries, is designed to provide actuaries, public policymakers, and the general public with objective data about changes in the frequency of extreme climate events over recent decades.

Updated values are posted quarterly on ActuariesClimateIndex.org as data for each meteorological season becomes available. The organizations are also developing a second index, the Actuaries Climate Risk Index, to measure correlations between changes in the frequency of extreme events as measured by the index and economic losses, mortality, and injuries.

About the Sponsoring Organizations

The [American Academy of Actuaries](http://AmericanAcademyofActuaries.org) is a 19,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

The [Canadian Institute of Actuaries](http://CanadianInstituteofActuaries.org) (CIA) is the national, bilingual organization and voice of the actuarial profession in Canada. Its 5,000+ members are dedicated to providing actuarial services and advice of the highest quality. The Institute holds the duty of the profession to the public above the needs of the profession and its members.

The [Casualty Actuarial Society](http://CasualtyActuarialSociety.org) (CAS) is a leading international organization for credentialing and professional education. Founded in 1914, the CAS is the world's only actuarial organization focused exclusively on property and casualty risks and serves over 7,000 members worldwide. Professionals educated by the CAS empower business and government to make well-informed strategic, financial and operational decisions.

With roots dating back to 1889, the [Society of Actuaries](http://SocietyofActuaries.org) (SOA) is the world's largest actuarial professional organization with more than 28,000 actuaries as members. Through research and education, the SOA's mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA's vision is for actuaries to be the leading professionals in the measurement and management of risk.

####



Actuaries Climate Index™ Spring 2017 Data Released **Sea Levels in Atlantic, Gulf Coast Regions Keep Five-Year Moving Average at Current High**

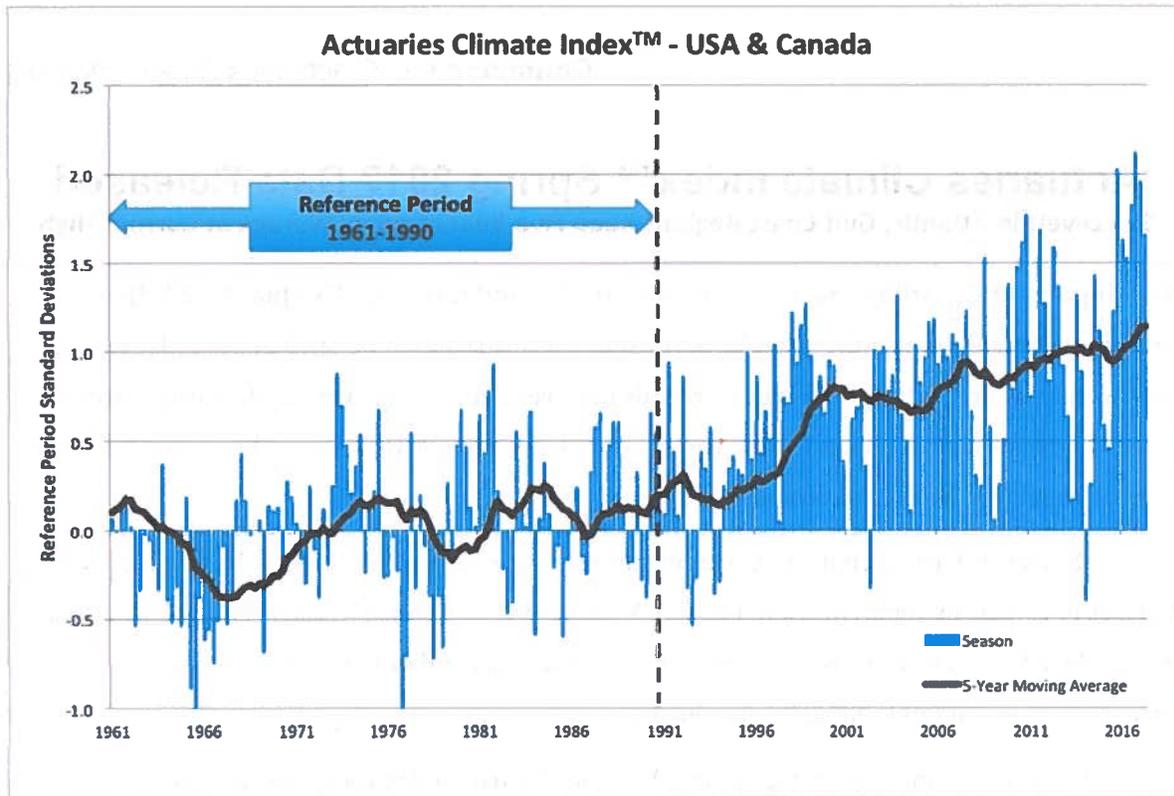
Washington, D.C., Arlington, VA, Schaumburg, IL, and Ottawa, ON (Jan. 17, 2018)—

Organizations representing the actuarial profession in Canada and the United States today reported new Actuaries Climate Index™ data that reveals the five-year moving average of climate extremes across the two countries remains at the high recorded in Winter 2016-7, driven by sea level changes in the Atlantic and Gulf Coast regions.

“Sea levels have overtaken high temperatures as the biggest single factor behind the record averages in climate extremes measured by the Actuaries Climate Index,” noted actuary Kevin Ryan, MAAA, FCAS. “Sea level measurements in the Atlantic coast and Gulf Coast regions were particularly important in keeping the moving index value at its current high level.”

The five-year moving average of the Actuaries Climate Index for spring 2017 was 1.14, the same value as reported in the previous quarter, which was a record. Sea level, one of the six components of the index, has been highest in recent years in the Southeast Atlantic region (from Virginia to Louisiana) and in the Southern Plains coastal region (Texas). Sea levels in the Central East Atlantic (from Maryland to Maine) and Northeast Atlantic (Canadian maritime) regions also contributed to the increased significance of the component.

In addition, the seasonal Actuaries Climate Index value in spring 2017 was 1.66, compared to 1.94 in winter 2016-2017, making the spring the seventh consecutive season with an elevated value of above 1.5. The sustained elevated index value reflects continued deviation of climate extremes from historically expected patterns for the two countries.



The Actuaries Climate Index is based on analysis of seasonal data from neutral, scientific sources for the six different index components collected since 1961. The index measures changes in extremes of high and low temperatures, high winds, heavy precipitation, and drought, as well as changes in sea level, expressed in units of standard deviations from the mean for the 30-year reference period of 1961 to 1990 for the United States and Canada combined.

The index, sponsored by the American Academy of Actuaries, the Canadian Institute of Actuaries, the Casualty Actuarial Society, and the Society of Actuaries, is designed to provide actuaries, public policymakers, and the general public with objective data about changes in the frequency of extreme climate events over recent decades.

Updated values are posted quarterly on ActuariesClimateIndex.org as data for each meteorological season becomes available. The organizations are also developing a second index, the Actuaries Climate Risk Index, to measure correlations between changes in the frequency of extreme events as measured by the index and economic losses, mortality, and injuries.



About the Sponsoring Organizations

The [American Academy of Actuaries](#) is a 19,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

The [Canadian Institute of Actuaries](#) (CIA) is the national, bilingual organization and voice of the actuarial profession in Canada. Its 5,000+ members are dedicated to providing actuarial services and advice of the highest quality. The Institute holds the duty of the profession to the public above the needs of the profession and its members.

The [Casualty Actuarial Society](#) (CAS) is a leading international organization for credentialing and professional education. Founded in 1914, the CAS is the world's only actuarial organization focused exclusively on property and casualty risks and serves over 7,000 members worldwide. Professionals educated by the CAS empower business and government to make well-informed strategic, financial and operational decisions.

With roots dating back to 1889, the [Society of Actuaries](#) (SOA) is the world's largest actuarial professional organization with more than 28,000 actuaries as members. Through research and education, the SOA's mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA's vision is for actuaries to be the leading professionals in the measurement and management of risk.

-###-

May 1, 2018

1.866.522.SACE
www.cleanenergy.org

South Carolina Department of Insurance
Attn: Kendall Buchanan
1201 Main Street, Suite 1000
Columbia, South Carolina 29201

P.O. Box 1842
Knoxville, TN 37901
865.637.6055

46 Orchard Street
Asheville, NC 28801
828.254.6776

250 Arizona Avenue, NE
Atlanta, GA 30307
404.373.5832

P.O. Box 310
Indian Rocks Beach, FL 33785
954.295.5714

P.O. Box 13673
Charleston, SC 29422
843.225.2371

Re: SACE Comments on South Carolina Draft Beneficiary Mitigation Plan for Volkswagen Diesel Emission Settlement

Dear Director Farmer, Ms. Buchanan, and Department of Insurance,

Thank you for this opportunity to comment on our state's draft beneficiary mitigation plan as part of the Volkswagen diesel emission settlement. We appreciate your dedication to a transparent process and willingness to incorporate public opinion into the plan.

The Southern Alliance for Clean Energy (SACE) is a regional nonprofit membership organization that promotes responsible energy choices that create global climate change solutions and ensure clean, safe and healthy communities throughout the Southeast. We have worked to reduce the burden of diesel emissions and advocated for clean transportation fuels and vehicle electrification for 15 years throughout the region, including South Carolina, North Carolina, Georgia, Tennessee, and Florida.

Vehicle electrification has emerged as the most economic transportation-sector technology opportunity to reduce harmful vehicle emissions. As such, we recommend that South Carolina prioritize vehicle electrification as the top priority in our beneficiary mitigation plan. Specifically, we have two recommendations:

1. any bus engine-for-engine swap carried out under the mitigation plan should be electric
2. the plan should maximize the allowable 15% for light duty electric vehicle charging equipment

1. Electric engine swaps for buses

Switching buses from a diesel engine to electric is a more cost-effective option on a total cost of ownership basis than any other fuel option available.

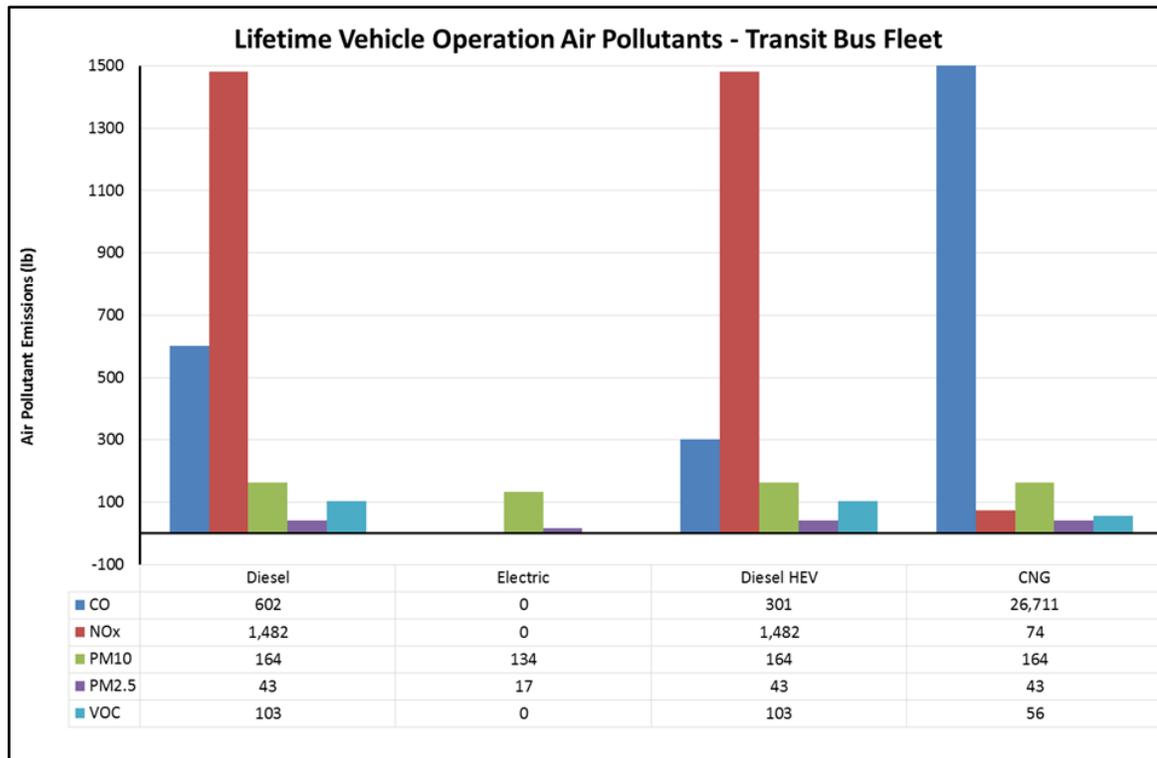
While electric buses have higher upfront prices than diesel, compressed natural gas (CNG), or hybrid buses, the very low operating costs of electric buses make them the most economical option. Currently, a new electric bus costs approximately \$789,000 (for example, a Proterra electric bus). A hybrid bus costs about \$674,000, a CNG bus costs about \$542,000, and a diesel bus costs about \$483,000. Nationwide, per bus annual fuel and maintenance costs are approximately \$55,000 for diesel, \$90,000 for hybrid, and \$72,000 for CNG. By contrast, those costs of electric buses are only \$15,000 a year per bus.

Based on these costs and estimates using the Argonne National Laboratory's AFLEET modeling, the total cost of ownership for an electric bus is 21% lower than a new diesel bus. Maintenance costs for electric buses are also between 70% and 79% lower than for CNG and new diesel buses respectively, contributing to significant cost savings over the lifetime of a bus. Based on currently reported data, each all-electric bus acquired to replace a diesel bus will save the fleet over \$200,000 as compared to a new diesel bus purchase.

Further, the cost premium of electric buses is dropping quickly. As manufacturing scales up, and as battery costs—the most expensive part of an electric vehicle—plummet over time, electric bus prices have and will continue to fall rapidly.

A recent California Air Resources Board (CARB) study shows that every year the price premium for electric buses decreases and, by 2022, they will be at cost parity with and continue to decrease as compared to diesel buses. Therefore, every new bus bought will continue to shift the premium down. Using the VW Environmental Mitigation Trust funds to invest in electric buses now will place additional downward pressure on cost premiums and set the stage for future procurement.

Not only is the lifetime cost lower, electric buses also offer the most cost-effective NOx reductions, as well as the biggest reductions in air pollution and greenhouse gas emissions of available technologies for bus replacement. According to the AFLEET model, there are drastic differences between lifetime emissions of criteria pollutants and greenhouse gases across electric, diesel, and CNG buses (see chart below).



While diesel and CNG buses emit NOx and VOCs, electric buses do not have any tailpipe emissions. While electricity from the grid to charge plug-in vehicles can result in such emissions, electric vehicles are already currently cleaner than any conventional vehicles on the road and will only get cleaner over time as the state

electricity generation shifts to more lower-emitting and non-emitting sources. In addition to South Carolina's efforts to make its grid cleaner, emissions from the grid are also not at street level in densely populated areas, where vehicle exhaust can concentrate.

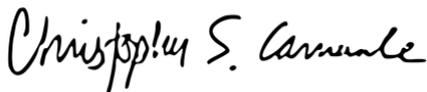
2. Light duty electric vehicle charging equipment

We support the Department's priority to investigate allocating up to 15% of the EMT settlement for light duty vehicle charging equipment. Investing in highly visible electric vehicle charging stations will help build the charging network that will be required for broader deployment of electric vehicles. Publicly accessible and visible charging stations will help improve the experience of electric vehicle drivers by increasing the convenience of charging, and will also help alleviate concerns of range anxiety that prevent car buyers from buying electric in spite of EVs' relative advantages over conventional engines.

Furthermore, deploying electric vehicle charging stations will help build the growing EV economy in South Carolina, where major manufacturers are investing billions of dollars and employing thousands of South Carolinians to bring electric vehicles to market. For example, Volvo is investing \$1 billion into their brand-new Berkeley county plant, creating 4,000 local jobs, where they will make exclusively electric and hybrid vehicles beginning next year. Over the years, BMW has invested \$8 billion in its Spartanburg facility, which now has a battery assembly hall to produce power cells for the X5 hybrids, and currently produces the plug-in hybrid electric X5 xDrive40e iPerformance and will begin producing the all-electric X3 in 2020. Proterra, who employs 200 people at its Greenville facility, has recently captured about 5% of the domestic bus market, and is forecasting a tripling in production this year. Electric vehicles are clearly a growth industry for South Carolina and the deployment of electric charging stations would help grow the EV market locally and provide economic benefits to the state.

Thank you for the opportunity to comment.

Sincerely,



Chris Carnevale
Coastal Climate & Energy Manager
Southern Alliance for Clean Energy
Charleston, SC



Anne Blair
Clean Fuels Director
Southern Alliance for Clean Energy
Atlanta, GA

VW Settlement Public Comments
May 2, 2018
Alan Buck

Good afternoon, I am Alan Buck and represent EV owners in South Carolina. Having purchased my first EV in 2013, I've fielded hundreds of questions about EV ownership, and as a five-year captain for Columbia's edition of the National Drive Electric Week event, I encourage those questions and public interaction.

The questions follow the same pattern:

"How do you like it?"

"What's the range?"

"What do you do if you want to go on vacation?"

The last question about long distance travel tends to challenge non-EV owners and induce range anxiety. Americans are fairly unique in the mentality of wanting the ability to drive anywhere, anytime, and for any reason. Even if we choose not to, we WANT to. Our geographically large country, Eisenhower Expressways, and ingrained wanderlust have served Americans well and will not change anytime soon. As a consequence, 34% of South Carolina's mobile NOx emissions comes from on-road, light duty, non-diesel vehicles. Therefore our mission is clear: overcome South Carolinians' EV range anxiety.

The good news: VW's Settlement funds can provide the solution while increasing EV adoption, boosting tourism within SC, and improving South Carolina's image as a technology forward state. I recommend adding 2 DC Fast Charging ports to Rest Areas located halfway between major cities and at South Carolina Welcome Centers.

- Eight SC Welcome Centers plus Interstate Rest Areas at Santee, Orangeburg, Camden, and Joanna (halfway between Columbia and Spartanburg)
- Total of 48 DC Fast Charge Ports
- Three phase power would need to be provided to the charging ports
- The I-20 Welcome Center in North Augusta would be an ideal trial location

Estimated Total Equipment Cost	\$37,000 per charger
Estimated Installation Cost	\$37,000 per charger
Total Estimated Cost	\$3,552,000 + three phase power installation

State regulations prohibit the selling of products and services at Rest Areas and Welcome Centers, so expensive credit payment systems would not be required. Removing barriers to instate travel via DC Fast Charging would help overcome range anxiety, increase SC tourism, and provide a positive image for South Carolina as a technology forward state. I hope you will strongly consider this recommendation.

Kendall Buchanan

From: Bonnie Loomis <bonnie@sceba.biz>
Sent: Thursday, May 03, 2018 12:26 PM
To: VW Settlement
Subject: Re: Registration of intention to appear

WARNING

This is an external email. DO NOT CLICK links or open attachments unless you recognize the sender and know that the content is safe.

Kendall - Here is the text of my comments - thank you!

Thank you for today's meeting on this Draft Mitigation Plan and for the work leading up to today, along with the work to come.

I am Bonnie Loomis and, as of February 2018, I am Executive Director of the SC Clean Energy Business Alliance (SCCEBA).

SCCEBA is a 501(c) 3 chartered in 2011 whose mission is the expand SC's clean energy economy. As of 2016, SC's clean energy economy accounted for almost 400 firms, 18,000 full-time equivalent employees and nearly \$4B annually in gross revenue.

In support of this mission, SCCEBA engages in information exchange, strategic partnership and thought leadership across our state. One of our current thought leadership efforts is development of a set of market-driven, voluntary clean energy goals for SC for achievement by 2025. A 25% increase in clean transportation is one of those goals.

To that end, SCCEBA has engaged in academic study and stakeholder discussion of SC's current clean transportation environment and our future opportunities. SCCEBA plans to present written comment based on this study and stakeholder feedback.

One of our recommendations will be for DOI to specifically integrate a weighting of SC clean energy economic impact into the grant evaluation criteria such that this is independent of environmental benefits and favors grants with SC clean energy economic benefits.

Again, thank you DOI. And, to those in attendance today, please consider partnering with SCCEBA through membership or event support so that, together, we can achieve our collective environmental and economic goals for SC.



May 1, 2018

Public Input Solicitation and Comments Meeting
Re: South Carolina Draft Beneficiary Mitigation Plan

In September of 2015 Volkswagen admitted to regulators that they had cheated and had installed a defeat device that effectively lowered emissions for testing purposes. I had just purchased my 2nd VW and I was angry, angry that I had put my faith in a company that cheated and angry because I've spent the better part of my career working for a diesel engine company and VW was giving our industry a black eye.

The US Environmental Protection Agency along with the diesel engine industry set up emissions reduction targets for all diesel engine companies to follow. In 2004 when EPA Tier II took effect it represented a 27% reduction in NOx and introduced Particulate Matter for the first time. Fast forward to 2014 and we see that EPA Tier IV represents a 90% reduction in Particulate Matter and an 80% reduction in NOx compared to Tier II standards. That said, it makes more sense to take the oldest diesels, the non-tiered diesels, out of service and replace them w/ today's cleaner burning diesel and natural gas engines.

There are many ways that SC's share of the fine can be spent to mitigate emissions. It can be done with electrical infrastructure and electrification, or by repowering old engines with new natural gas engines or by repowering old engines with new cleaner Tier III and Tier IV engines but where do you get the most bang for your buck?

The larger the engine the bigger the reduction in NOx and PM that can be achieved. The largest engines are in rail, marine and mining. Patricia Keefe in her March 2018 article for Maritime Reporter and Engineering News writes "As an example, swapping out an older 'uncontrolled' engine for a Tier IV engine in just one old tugboat removes an estimated 96,000 lbs. of NOx per year, equivalent to replacing 76 older trucks or removing 74,000 cars for one year, this is according to a report on 'emission reductions and cost effectiveness for marine and locomotive projects,' from the Diesel Technology Forum (DTF) a diesel industry organization and the Environmental Defense Fund"

“By comparison, it is estimated that a rough approximation of the total tons of reduced and equivalent trucks replaced and cars removed by going to Tier III instead of Tier IV, might be somewhere in the neighborhood of 76,000 pounds of NOx reduced annually, 60 old trucks replaced and 58,500 cars removed for one year.”

“In other words, upgrading the engines in a few vessels or locomotives is far more cost effective for states than upgrading a fleet of city busses, especially since by some estimates the lifetime mileage weighted average NOx emission factors for diesel school buses has already been slashed by roughly 92%. Which means the achievable emission reductions from upgrading buses won't come anywhere close to what's achievable with a marine or rail project, while also taking longer and being more work to manage, since each bus would be a separate project.”

One option on the table is electrification but the cost of the technology outweighs the benefits. I have been involved in several bids to do hybrid electric passenger vessels. Where a diesel engine acts as a generator to charge batteries which power electric motors and propel the vessel with 0 emissions while in battery mode. In each case battery mode would be approximately 70% of the time. The cost of each project has been right at a million dollars and the diesel engines were only 20% of the cost while the batteries and the electric motors were 80% of the cost. The point here is that it is too expensive, the technology just isn't there yet. **With technology available today, more emission reductions can be attained per dollar spent with clean diesel and natural gas.**

“The US Department of Transportation and the US Environmental Protection Agency found that 1 ton of NOx emissions may be eliminated by investing \$20,000 in clean diesel technology versus, on average, \$1 million in electric infrastructure.” * Not that there won't someday be a time when electrification is the right way to go but to spend grant dollars today on a technology that is still too expensive is not in our collective best interest.

*Congestion Mitigation and Air Quality (CMAQ) Improvement Program Cost Effectiveness Tables Development and Methodology (December 3, 2015)

Thank you for allowing the public to speak on this topic we truly appreciate your taking the time to listen.

Jack Ellsworth
Cummins Sales & Service
Loris SC & Summerville, SC
Jack.Ellsworth@cummins.com
910.262.2434