COMMENTS RECEIVED REGARDING RHODE ISLAND'S PROPOSED VOLKSWAGEN ENVIRONEMTNAL BENEFICIARY MITIGATION PLAN

This document contains all the comments received from the public regarding the VW Proposed Volkswagen Environmental Beneficiary Mitigation Plan. The public had the opportunity to provide plan specific feedback during a 30-day public comment (May 10, 2018 through June 11, 2018). In total, DEM received twenty-one (21) comments before the submittal deadline.

Appendix of Comments:

The Hydrogen Association, Sara Enochs

Rock Spot Climbing, Peter Sancianco

Jonathan Season

Mike Major, Brown University- Class of '87

Tracy Miller, Brown University- MPA '12

Proterra, Eric J. McCarthy

Interstate Navigation Company (the Block Island Ferry)/ Schacht & McElroy Attorneys at Law, Michael R. McElroy

General Motors, Britta K. Gross

Rhode Island Department of Health, Dr. Nicole Alexander-Scott

Clean Works Energy, Holmes Hummel, PhD

Greenlots, Thomas Ashley

EVgo, Sara Rafalson

Rhode Island Trucking Association, Christopher Maxwell & Jeff Flath of eNow

Conservation Law Foundation (CLF), James Crowley

Sierra Club, Andrea Marshall & Joshua Berman

People's Power and Light, Kat Burnham

Acadia Center, Erika Niedowski

Natural Gas Vehicles for America (NGVAmerica), Daniel J. Gage

ChargePoint, Kevin Miller

Caroline Karp, Brown University

Timmons Roberts, Brown University- Director the Climate and Development Lab

All comments will be made available to the public on:
http://www.dem.ri.gov/programs/air/vwsettle.php

Callahan, Allison (DEM)

From: Sara Enochs <sara@saraenochs.com>
Sent: Thursday, May 10, 2018 1:01 PM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Comments for the VW Settlement from The Hydrogen Association

The Hydrogen Association's world symbol depicts the classical hydrogen proton with an endlessly orbiting electron as the energy carrier for cleanly and healthfully achieving sustainable prosperity in every community on Earth.

May 10, 2018

Greetings,

Every year we release 36 billion tons of carbon into the atmosphere and that has accumulated to 36 gigatons of carbon. That's too much carbon!

The Hydrogen Association completely recommends developing a new fuel that would stop releasing carbon into the atmosphere! **Net-Liquid Hydrogen Fuel!** And start collecting carbon out of the atmosphere with smart plug technology.

A unique opportunity has been presented to the United States of America through the 2.7 Billion Remediation VW Settlement to improve the quality of the air. **With this VW Settlement fund each state could work together to create sustainable economic development with Hydrogen and Carbon-reinforced equipment.** By driving with net-hydrogen liquid fuel we can convert cars to become "vacuum cleaners" to clean up the existing air pollution in our cities. Instead of burning the carbon in gasoline, diesel and jet fuel, we can use carbon to produce many more jobs profitably making durable goods. Please watch the following video for an overview: http://youtu.be/qOL2fEzeuyc. If the link does not work, please go to YouTube and look up Metrol by David Vasquez. It's important and it does matter! **The video explains everything.**

By converting to net hydrogen liquid fuel, called Metrol, we will cleanly energize our current infrastructure and companies, by creating new jobs that will **coexist** with our current jobs.

Nobody needs to go out of business and we will create new jobs! The US can lead the world to ultimately convert the current 1.3 billion engines in transportation, electricity generation, farming and mining applications to overcome local pollution and reverse global warming.

The United States truly has been given the VW Settlement funding to make this happen, but each state needs to help expand the economy and overcome pollution of the air, water, and soil. **What I am asking for today is that we put our differences aside and come together to help our planet and provide a better future for generations to come.**

Please ask your economic development consultant to contact us. We would like to have business partners in Rhode Island ready to produce Metrol and/or the smart plugs when the funds are assigned. The time for this conversation is now.

We look forward to submitting a proposal.

Every day that goes by more carbon is being added to the atmosphere that could be used to make something profitable. Carbon is too valuable to be burned once!

Thank you for your consideration,
Sara Enochs

Here are some additional thoughts to consider:

We call Metrol Liquid Fuel, Hydrogen 2.0, because it fixes a lot of the earlier issues. With Metrol, we can use existing fueling pumps, it can be transported like regular fuel, we don't have to add additional storage tanks to the vehicle, it works with all engines including fuel cells, and the best part, we won't put anyone out of business; we can use existing companies to produce Metrol and the smart plugs.

For more information, please call Roy McAlister, the founder of the Hydrogen Association. The phone number is 602-931-2867.

Or you can email Roy at remcalister@gmail.com. For more information and the white paper on Metrol, please visit Metrol-hydrogen-fuel.com.

Callahan, Allison (DEM)

From: Pete Sancianco <p.sancianco@rockspotclimbing.com>
Sent: Thursday, May 10, 2018 4:00 PM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Charging station location requests

Hi Allison,

I just read that RI is planning to build up our electric infrastructure and I was curious about the process for determining where electric charging stations will be located.

The reason I ask is that I would like to request stations be placed by our climbing gyms.

The climbing community is very conscious of the environment and most climbers hang out for a couple hours while they're climbing. A charging station would make it more viable for climbers to own electric vehicles.

Our company has introduced more Rhode Islanders to the sport in our 20 year history than any other company on the east coast and with our 5th location opening up later this year in Providence, we'll have 3 RI locations where a lot of Rhode Islanders and out of state vacationers visit throughout the year. We have always tried to make climbing more accessible to more people and having a charging station for our communities would make it even more accessible.

I understand the decision is not yours to make and I'm sure there is a long process before this is even discussed, but please let me know if there's anything we can do to increase the possibility of this happening. Also, if you or your family are ever interested in trying climbing out, let me know!

Best regards,

--
Peter Sancianco
Director of Marketing
Rock Spot Climbing

Mobile: 401-595-5246

Specials & Events
www.rockspotclimbing.com

Coming soon to Providence, RI in 2018!

Callahan, Allison (DEM)

From: J S <drjon222@gmail.com>
Sent: Friday, May 11, 2018 8:44 AM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Volkswagen Settlement Comments

Follow Up Flag: Follow up
Flag Status: Completed

Thank you for the opportunity to comment.

The Volkswagen settlement is a penalty that was paid for historic corporate malfeasance regarding emissions from personal vehicles. I am disappointed to see that the vast majority of the settlement money is going to supplement state transit funds to buy buses. It will pay to electrify the bus fleet, yes, but most of the money also will save the state capital costs to replace and service the bus fleet that it would normally have to pay for anyway. The financial case for large bus fleet electrification is already there - given the low operating costs of electric buses, they are already cheaper than gas buses, and incentives are not needed to drive this conversion. The CO2 impact of the nation's bus fleets is nothing compared to that of personal vehicles which is where the real CO2 emissions problem can be found.

The state's DRIVE RI program was implemented years ago to provide rebates to incentivize electric vehicle purchases, something that was identified as a priority for the state. This money, which was funded by a previous settlement with a promise to try to obtain future funding, ran out of money in July 2017. It is amazing that $10 million is now available to the state, specifically for private vehicle emissions, and yet nothing is being done to re-fund the DRIVE RI program to provide $2500 rebates for electric vehicle purchases. While RI seems to care about the transition to electric vehicles, investing in charging infrastructure, it is now falling far behind its neighbors and for now has one of the lower EV adoption rates in the country.

Rhode Island is now the odd duck out when it comes to regional efforts to spur clean electric vehicles. CT ($3,000), MA ($2,500) and NY ($2000 with 50% rebate on charging infrastructure) are all encouraging EV adoption with tax credits. RI has an unfunded $2500 rebate which cannot be claimed, and taxes that penalize EV drivers for the high up-front costs of EV purchases by taxing that expensive battery at 6% every year. The EV rebate program was not cancelled, it just ran out of money. I haven't seen much discussion of this and wanted to make sure it moves to the front burner. EVs are ready to go mainstream, but cost savings from economies of scale have not yet made EVs as cheap as gas cars - but we are close. Tax credits allow this important process to continue. The DRIVE RI program funding needs to be restored, and a substantial portion of the settlement funds need to be for that purpose.

Thank you,
Jonathan Season
Providence, RI

Callahan, Allison (DEM)

From: J S <drjon222@gmail.com>
Sent: Friday, May 11, 2018 5:36 PM
To: Callahan, Allison (DEM)
Subject: Re: [EXTERNAL] : Volkswagen Settlement Comments

Thanks for your reply - that's a great reason! Electric buses and EV infrastructure are still great, so I look forward to seeing them. Hopefully the state converts all of its buses to electric - they're cheaper than diesel if you include operating costs: See one municipality's experience at http://www.govtech.com/fs/transportation/Electric-Buses-Are-Gradually-Replacing-Older-Fossil-Fuel-Models.html - "Even though the electric buses cost more up-front, we project a total lifetime — 10 years with 500,000 miles — savings of $340,000 per bus due to reduced maintenance and operating cost," said Adam Fischer, director of transportation in Greensboro, in an email. The city operates about 50 buses and plans to eventually replace its entire diesel fleet with electric vehicles.

Might I submit another comment in light of your helpful information:

Any EV charging infrastructure program should include some key concepts of successful EV charging infrastructure implementation:

First, EV chargers are least effective when they are unreliable, and the biggest problem with reliability is being "ICEd" or having a gas (Internal Combustion Engine - ICE) car park in the charging stall. EV charging spots should be the worst spaces in the lot that are farthest from the business to assure that they are available rather than being the best spots in the lot, as is commonly done. They should say "EV parking only" rather than "EV parking preferred" and have colored paint on the road to discourage gas car parking. Enforcement of EV-only parking at chargers is also important.

Second, most EV drivers use the airport and need to be plugged in when parked for a prolonged period, especially when it's extremely cold outside. They for the most part do NOT need fast charging at airport long-term lots, and 110V "Level" 1 charging is more than sufficient. Many Level 1 (110V 15-20A) chargers is far superior to the few Level 2 (240V 30+Amp) chargers commonly installed at airports. See what Portland, OR did here: https://www.greencarreports.com/news/1099635_portland-airport-adds-42-electric-car-chargers-at-120-volts-heres-why and the professional guide to airport EV parking available here: http://www.trb.org/Publications/Blurbs/170689.aspx

Thank you,
Jonathan Season

Callahan, Allison (DEM)

From: mike major <mk.major@hotmail.com>
Sent: Saturday, May 12, 2018 10:00 AM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Beneficiary Mitigation Plan

Follow Up Flag: Flag for follow up
Flag Status: Completed

I fully support the Beneficiary Mitigation Plan. It is a great and effective use of the 11.5 million dollars RI received from VW. Kudos Governor Raimondo!

Mike Major
Class of 87'

Callahan, Allison (DEM)

From: Tracy Miller <tracy_miller@alumni.brown.edu>
Sent: Sunday, May 13, 2018 10:36 PM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Electric buses

Follow Up Flag: Flag for follow up
Flag Status: Completed

Sounds great!

Public comments, which will be accepted through June 11 on the proposed mitigation plan for Rhode Island's $14.4 million share of the federal Volkswagen settlement, can be submitted via email to Allison.Callahan@dem.ri.gov

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Tracy Miller, MPA '12
e: tracy_miller@alumni.brown.edu
ph: 401.275.3240

PROTERRA

May 17, 2018

Rhode Island Department of Environmental Management
Attn: Allison Callahan
Allison.Callahan@dem.ri.gov

RE: Proterra Comments on Rhode Island's Proposed Beneficiary Mitigation Plan ("BMP")

Dear Ms. Callahan:

Proterra, the leading U.S. manufacturer of electric, zero-emission transit buses, appreciates the opportunity to provide comments on the proposed BMP, which describes Rhode Island's overall intentions and plan for spending ~ $14 million of Rhode Island's VW allocation funding.

The proposed BMP makes clear that the State's mitigation plan is rightfully focused on expediting the development and widespread adoption of zero emission vehicles. Further, there is considerable statewide support for using the trust funds to promote public transportation. This is precisely why the State has decided to use ~ 75% of the VW funds to replace 20 older, higher-polluting transit buses with new all-electric zero-emission transit 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.

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. In a four-month period the electric fleet 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 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.

Consistent with these sentiments, Proterra strongly supports the proposed allocation of $10M for the RIPTA Bus Replacement Project. We agree with the statewide program goals to: (i) achieve "significant and sustained reductions" in diesel emissions; (ii) reduce overall NOx emissions in the State; (iii) remove barriers to the adoption of zero-emission transit vehicles; and (iv) promote the development of zero-emission technologies by advancing the electrification of the state's transportation sector. We wholeheartedly agree that, while funds do allow for investments in diesel and natural gas projects, "neither will provide the same benefits to [Rhode Island] that electrification will."

PROTERRA

Thank you for the opportunity to provide comments on the draft BMP. 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 Rhode Island*. 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.

Schacht & McElroy

Michael R. McElroy
Leah J. Donaldson

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May 17, 2018

Allison Callahan
Senior Air Quality Specialist
Mobile Sources (EV's and Diesel)
Department of Environmental Management
135 Promenade Street
Providence, RI 02908

Re: Proposed Volkswagen Environmental Beneficiary Mitigation Plan ("BMP")

Dear Allison:

This office represents the Interstate Navigation Company d/b/a the Block Island Ferry. The Block Island Ferry runs 365 days a year and has been the lifeline ("the bridge to Block Island") for 85 years. The Block Island ferry carries hundreds of thousands of passengers per year to Block Island from Galilee (Washington County) and Newport (Newport County).

The purpose of this letter is to request that DEM consider making ferries eligible for at least a portion of the $14,368,858 in VW settlement funds. A few points to consider:

- The goal of the VW settlement is to reduce NOx emissions. DEM lists other pollutant reductions in the BMP. While they are an excellent co-benefit, they are not the primary evaluation criteria.

- DEM's draft mitigation plan does not go into any detail as to how it was decided to focus only on transit buses and charging stations. We believe that eligibility should go through an evaluation process that compares different strategies on a best value basis.

    - Any time emissions reduction grant funding is evaluated, one of the most important evaluation criteria is $/ton of pollution reduced, or "bang for your buck."

    - DEM should consider an array of different project types on a best value basis to determine whether there are alternatives such as ferries that can make meaningful impacts.

- DEM's draft mitigation plan identifies emission reductions of NOx in the range of 12-30 tons annually and PM2.5 in the range of 0.5-2.5 tons annually. However, these emission reductions won't occur for quite some time.

    - For the first 3 years, RIPTA will only lease 3 electric buses and then over the next 7 years, purchase more electric buses to bring the total to 20.

    - Therefore the full benefit of this program probably will not be felt until 2025 or later. This is a long time to wait to realize emission reductions benefits in Rhode Island, especially when there are other strategies that can be considered that will supplement the electric transit buses and help realize more immediate emission reductions.

- One area that can provide significant emission reductions is the marine sector. The VW funds can be used to fund diesel mitigation projects for ferries.

    - Looking at one recent example of a ferry engine replacement project that was funded by the EPA Diesel Emission Reduction Act (DERA) program, significant annual NOx (12.7 tons) and PM (0.7 tons) emission reductions are estimated in Washington County. This is Interstate Navigation's ferry project – but just for one vessel – the M/V Carol Jean. This project started less than 6 months ago and is scheduled to be complete in 2019.

    - This single marine ferry repowering is going to achieve all of the low-end emission reductions estimated for the transit bus project. One or more ferry projects like this can easily surpass the emission reductions from the buses, and would not significantly impact RIPTA's ability to deploy electric buses.

    - An engine replacement on a ferry would consume an estimated $500,000 of the VW funding, given that the program allows up to 40% reimbursement just like the EPA DERA program. Even if only 2 ferry projects were implemented, it would still leave more than 90% of the VW funds for other projects like the electrified transit buses.

- Right now there is an open Notice of Funding under the FTA (Federal Transit Administration) Low or No Emission Competitive program that provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required support facilities.

    - Under the Fixing America's Surface Transportation Act (the FAST Act), $55 million per year is available until fiscal year 2020. This current round of funding is for FY18, so there are 2 more rounds totaling $110 million available.

    - While this program is typically oversubscribed (i.e., they get applications for more funds than they have), the VW funds can be used to 'buy down' FTA participation cost and therefore make both pools of funding stretch further.

- Right now, the program will pay for up to 85% of a bus and 90% of related equipment and facilities. Rhode Island can use the VW funds to buy this down to something closer to 50% and make their application to FTA much more attractive and as a result, not need as much of the VW funds for the 20 buses contemplated.

- DEM does say in the draft mitigation plan that it will leverage the VW funds with Federal and State funds designated for public transit vehicle acquisition.

- Figures B-1 and B-2 of the draft mitigation plan seem to skew the emission benefits to Providence and Kent counties, with particular focus on the City of Providence. While urban emission reductions within Providence are valuable from a public health perspective, it appears that Washington and Newport counties will not receive nearly the same benefit. These two counties make up the majority of commercial marine emissions in the state – in fact 39% of NOx emissions in Newport County are from commercial marine vessels and that rises to 54% for Washington County. While overall in the state commercial marine vessels account for only 19% of the NOx emissions, targeting the marine sector in Washington and Newport Counties can make a significant impact.

- A recent article published in *Marine Link* on March 27, 2018, makes the case for the inclusion of the marine sector:

> **Maritime to Get Biggest Bang for VW Settlement Bucks**
> Source: Marine Link, March 27, 2018
>
> With $2.9 billion available, tug and ferry engine upgrades are best bet for NOx reductions
>
> * * *
>
> From the state's perspective, there is no better use of the funds than to clean up marine diesel engines . . . calculating that in terms of tonnage of NOx reduction for dollars spent, the cleaning up of marine diesel engines is the most cost-effective by virtue of the number of hours they operate, the amount of fuel consumed and the emissions profile of the engines currently in use.
>
> * * *
>
> . . . the Volkswagen MTF is narrowly focused on cutting PM and nitrogen oxide (NOx) emissions, which contribute to smog, and in the case of the maritime sector, only available to two specific vessels – which must operate solely in U.S. waters – tugs, tow boats and ferries.
>
> 'The marine sector still has the dirtiest engines out there. It should have a great shot at mitigation funds,' says Elena Craft, a public health scientist focused on air pollution for the Environmental Defense Fund.

* * *

> . . . a rough approximation of the total tons reduced and equivalent trucks replaced and cars removed from the road by going to Tier 3 instead of Tier 4, 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 is far more cost-effective for states than upgrading a fleet of city busses . . . Which means the achievable emission reductions from upgrading buses won't come anywhere close to what's achievable with a marine project, while also taking longer and being more work to manage, since each bus would be a separate project. With so many states eying this option, the fact that there is only so much bus manufacturing capacity in the U.S. per year, would make even a 25-bus fleet overhaul a multi-year project, adding even more time onto the wait for a lesser overall emission reduction . . .

* * *

> . . . a handful of marine projects is cheaper to fund, easier to manage and track. There is simply no comparison in terms of the cost-effectiveness, speed and NOx reduction impact of upgrading diesel clunkers on ferries . . . .

Please strongly consider amending this BMP to make ferries eligible for the VW funds.

Very truly yours;

Michael R. McElroy

MRMc/tmg

cc: Susan E. Linda, President

GENERAL MOTORS

Britta K. Gross Director
Advanced Vehicle Commercialization Policy
Environment, Energy & Safety Policy

General Motors Global Headquarters
MC: 482-C30-C76
300 Renaissance Center
Detroit, MI 48265-3000

11 June 2018

Rhode Island Department of Environmental Management (DEM)
Office of Air Resources
235 Promenade St
Providence, RI
Allison.Callahan@dem.ri.gov

Subject: GM Comments relative to the Rhode Island Draft Beneficiary Mitigation Plan

General Motors LLC (GM) appreciates the opportunity to provide input on the proposed use of funding in the state's Draft Beneficiary Mitigation Plan and though we appreciate the state's proposal to allocate 10% of the funds to state-wide EV charging infrastructure, we would never-the-less encourage Rhode Island to allocate the maximum allowed 15% of the fund (equating to roughly $2mil) to increase the availability of critically-needed electric vehicle (EV) charging stations that will drive a forward-looking technology and mobility strategy for the state. Such a vision will be required to attract EVs and even more advanced transportation technologies to the state, such as self-driving EVs in shared mobility applications, that are key to future mobility. There are over 1,400 EVs registered in Rhode Island today, yet only 6 DC industry-standard fast-charging stations in the state, and in order to grow the EV market and attract increasingly advanced mobility solutions, we agree that Rhode Island should commit to developing a strategy for EV charging deployment across the state, and commit to a corresponding investment in this charging infrastructure network that will address consumer and industry concerns.

EV charging infrastructure today has not attracted sufficient investment to establish a compelling foundation of EV charging stations. This market will become more viable and competitive over time, but this early market currently requires additional investment to close the infrastructure gap and establish a network of charging stations that is highly visible to consumers and drives consumer-confidence in the ability to drive EVs anywhere in the state. According to NREL's National PEV Infrastructure Analysis* (September, 2017), Rhode Island could be home to an estimated 43,000 plug-in EVs by 2030, requiring 70 DC fast-charging stations (industry-standard), 1,300 workplace chargers, and 800 additional public Level 2 charge stations. This need requires an up-front strategy and firm investment plan to ensure that Rhode Island is prepared for the mobility transformation. The ability to introduce and grow these advanced electric mobility services relies on a robust foundation

of EV charging infrastructure, especially DC fast-charging.

We suggest that Rhode Island develop a state-wide vision for EV charging infrastructure that ensures that the resulting EV charging infrastructure is as effective and visible to consumers as possible. It's important to recognize that the quality of infrastructure placement is generally more important than the quantity of EV stations deployed. This means it is key to establish an overall vision and strategy for the placement of EV charging infrastructure, based on sound expert stakeholder input, that will result in an overall compelling "story" that will change consumers' perceptions and convince them that EV charging infrastructure is everywhere it needs to be.

Automakers have made enormous investments in the electrification of transportation – GM alone has invested billions of dollars to develop electrification technologies, including the state-of-the-art Chevrolet Volt and Chevrolet Bolt EV, which has swept the industry's most prestigious car awards, including North America Car of the Year, Motor Trend's® 2017 Car of the Year, MotorWeek's 2017 Drivers' Choice "Best of the Year" Award, and Green Car Journal's Green Car of the Year. The Bolt EV is the industry's first affordable, long-range EV with an EPA estimated range of 238 miles-per-charge, and is available now at Chevrolet dealers across Rhode Island. This advanced technology will require more widespread charging infrastructure to convince consumers that EVs can be driven anywhere they need to go. Thus, the urgency to rapidly expand EV charging infrastructure in Rhode Island.

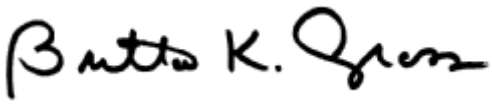
While the majority of all EV charging today is done at the home, there are still critical infrastructure needs not met by single-family home charging. And to maximize the impact of limited state funds, it is important to invest strategically. GM would prioritize today's key infrastructure needs as follows:

1. **Highway corridor DC fast-charging** most visibly inspires consumer confidence in the driving range, and practicality, of EVs. A 2016 survey of 2,500 consumers by Altman Vilandrie & Company found the top reason customers gave for not wanting to purchase a plug-in electric vehicle was a perceived lack of charging stations (85%). Highly visible corridor EV charging (SAE industry standard) can help address this consumer perception issue.
2. **Workplace EV charging** creates an EV "showroom" that very effectively grows EV awareness among corporations, and employees of these corporations. According to US DOE data, workplace charging results in employees 6X more likely to purchase an EV than employees at companies not offering workplace charging.
3. **Multi-unit dwelling EV charging** provides an important opportunity to expand EV adoption to consumers residing in townhomes, condominiums, and apartments, who may not have access to a "home" charger every evening. This is currently an untapped segment of potential EV buyers. This need can be met by Level 1 or Level 2 charging directly at the multi-unit dwellings, or by neighborhood DC fast-charge hubs that can serve these residents.
4. **Public EV charging at key destinations** is also important to increase the practicality of EVs and the number of places an EV can go, with a special focus on destinations typically outside a consumer's normal daily driving patterns (e.g. airports, beaches, hotels, resorts, etc.).

EV charging infrastructure is vital to the growth of the EV market and will lead to long-lasting emissions reductions that increase over time as the market expands. In addition, electricity prices in Rhode Island are very stable, and thus electricity provides a very compelling business case for both consumers and fleet operators in Rhode Island. And fuel savings will translate into consumer spending on other local goods and services, which means that electric vehicles are an important economic driver for Rhode Island. Note, that Rhode Island can significantly increase the impact of infrastructure investments by directly engaging electric utilities in the strategic planning of EV infrastructure to ensure the most cost-effective and grid-responsible EV charging solutions.

The VW Environmental Mitigation Trust is an opportunity to invest in forward-looking infrastructure that lays a much-needed foundation for EV market growth and will help attract even more advanced transportation technologies to Rhode Island. GM greatly appreciates Rhode Island's commitment to support the strategic transition to transportation electrification and all efforts to help drive this emerging market.

Sincerely,



Britta K. Gross, Director
Advanced Vehicle Commercialization Policy
britta.gross@gm.com
(586) 596-0382

* NREL National PEV Infrastructure Analysis (Sept 2017) -- https://www.nrel.gov/docs/fy17osti/69031.pdf

Department of Health

Three Capitol Hill
Providence, RI 02908-5097

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June 11, 2018

Ms. Allison Callahan
Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence RI 02908
Allison.Callahan@dem.ri.gov

Re: Draft Beneficiary Mitigation Plan Volkswagen Environmental Mitigation Trust Agreement.

Dear Ms. Callahan:

The Rhode Island Department of Health (RIDOH) is pleased to provide these comments on the *Draft Beneficiary Mitigation Plan Volkswagen Environmental Mitigation Trust Agreement*.

Promoting health equity and addressing the socioeconomic and environmental determinants of health – two of RIDOH's leading priorities – requires interagency cooperation and a health-in-all-policies approach across our state government. I am grateful for Rhode Island Department of Environmental Management's (DEM) partnership in supporting these priorities through this draft plan. Additionally, RIDOH supports DEM's plan to invest in electrification over diesel or natural gas projects. As stated in the plan, electrification not only reduces NOx and particulate matter, but greenhouse gases as well, helping our state to reach its climate mitigation goals.

Category 1 – RIPTA Bus Replacement Project: The draft plan calls for spending $10 million to replace approximately 20 diesel powered transit buses with new all-electric zero-emission vehicles, as well as to install charging infrastructure for the buses. RIDOH strongly supports this plan, as well as DEM's commitment to consider traffic density, air quality and the location of environmental justice areas when prioritizing routes for placement of the electric buses.

RIDOH also strongly supports the use of health disparity data in the prioritization process. As discussed in DEM's proposal, exposure to diesel-related air pollutants, notably particulate matter, is associated with a variety of health effects, including the exacerbation of asthma and other lung diseases. People with additional risk factors, such as poverty, poor housing and underlying disease, are particularly vulnerable to those effects. The RIDOH Asthma Program has developed maps of asthma hotspots, using Medicaid data (see Appendix). DEM staff have

indicated that they plan to use that data to inform the route selection. We look forward to working with DEM to support the use of this and other relevant health data when selecting bus routes, in order to aid in the reduction of health disparities in the State.

Additionally, RIDOH notes that the report does not identify the specific protocol through which DEM and RIPTA will select the routes receiving electric buses. I encourage DEM and RIPTA to provide the public and sister agencies with updates on the procedures that will be used for route selection as they are developed and deployed and to seek their input during that process. The Executive Coordinating Committee on Climate Change (EC4) and the RIPTA Board of Directors meetings may be suitable venues, with the support of input from collaborative community partners like the Rhode Island Health Equity Zones.

Category 2 – Light Duty Zero-Emission Vehicle Supply Equipment Projects: The draft plan calls for allocating $1.5 million to the acquisition, installation, operation and maintenance of light duty electric vehicle supply equipment (EVSE) located in public places. As the plan notes, this infrastructure investment would expedite the deployment of zero emission vehicles and help mitigate the second largest source of mobile NOx emissions in Rhode Island.

In selecting the charging station locations, I encourage the Office of Energy Resources and DEM to give added weight to the communities identified under the Category 1's analysis, that is, those adversely affected by dense traffic, poor air quality, health disparities, and other environmental justice issues.

RIDOH appreciates this strong plan to use the Volkswagen settlement funds in ways that address sources of health disparity in our state. We look forward to supporting DEM and other sister agencies during the implementation process.

Sincerely,

Nicole Alexander-Scott, MD, MPH
Director
Rhode Island Department of Health

Appendix: Asthma Rates for Medicaid-Enrolled Children in Rhode Island

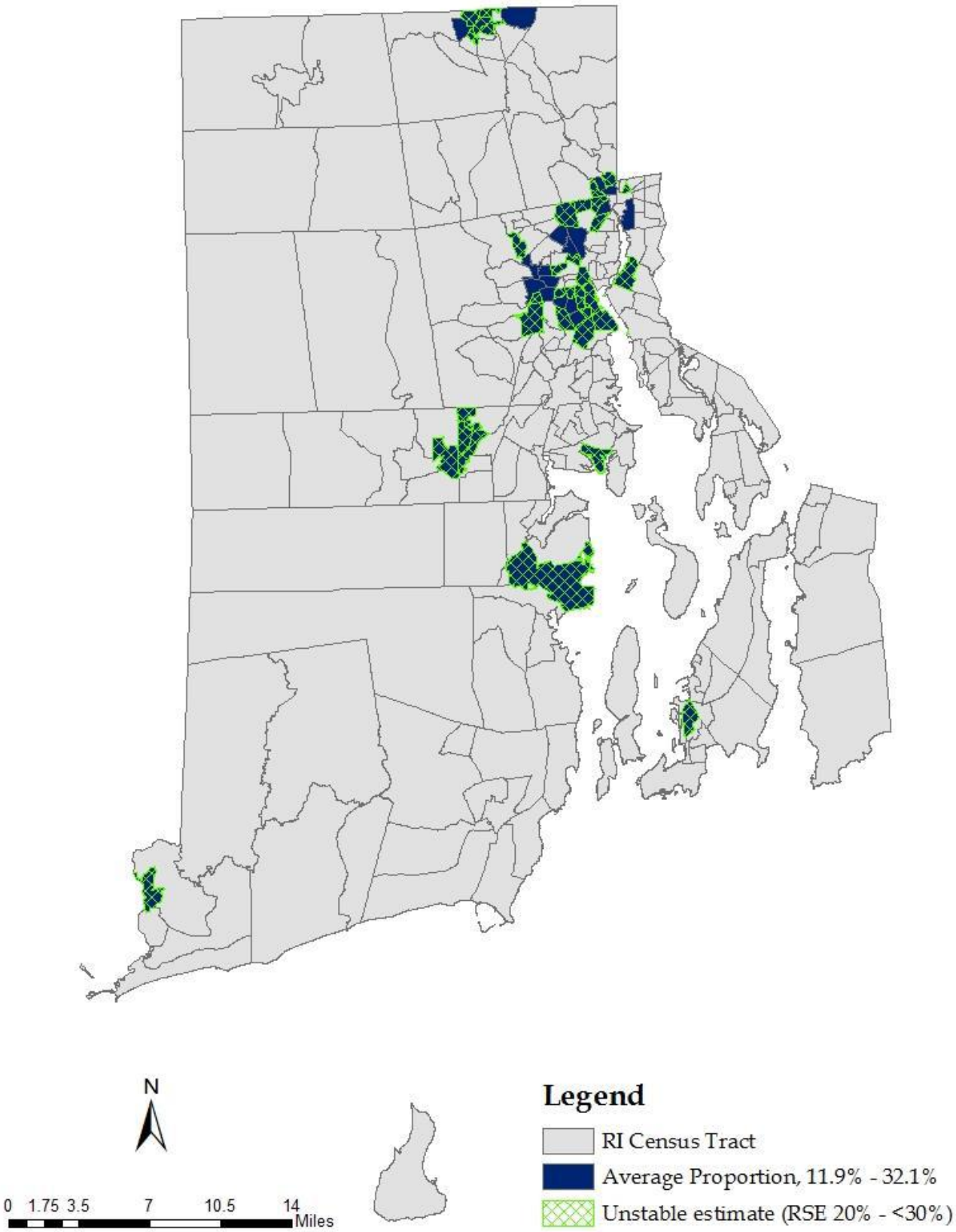
Data source: Claims data for all children age 0-17 enrolled in Medicaid in Rhode Island between 2013 and 2016 were analyzed. Any emergency department (ED) or inpatient (IP) claim with an asthma diagnosis in any field (ICD-9-CM 493 or ICD-10-CM J45) was coded as asthma-related.

Approach: For each child, asthma-related claims were totaled for each claim year and then recoded as any versus none. Data were aggregated to the census tract. Counts of children enrolled in Medicaid in each tract and those with any ED or IP claim were computed. Four-year average rates per 1000 enrollees were then computed. Estimates for these rates that have a relative standard error (RSE) of 30% or greater are considered statistically unreliable and are not released. Estimates that have an RSE of 20-<30% are considered statistically unstable and need to be interpreted with caution. Census tracts with unstable estimates are shown in the maps with green cross-hatching. All census tracts with stable estimates are showing in dark blue.

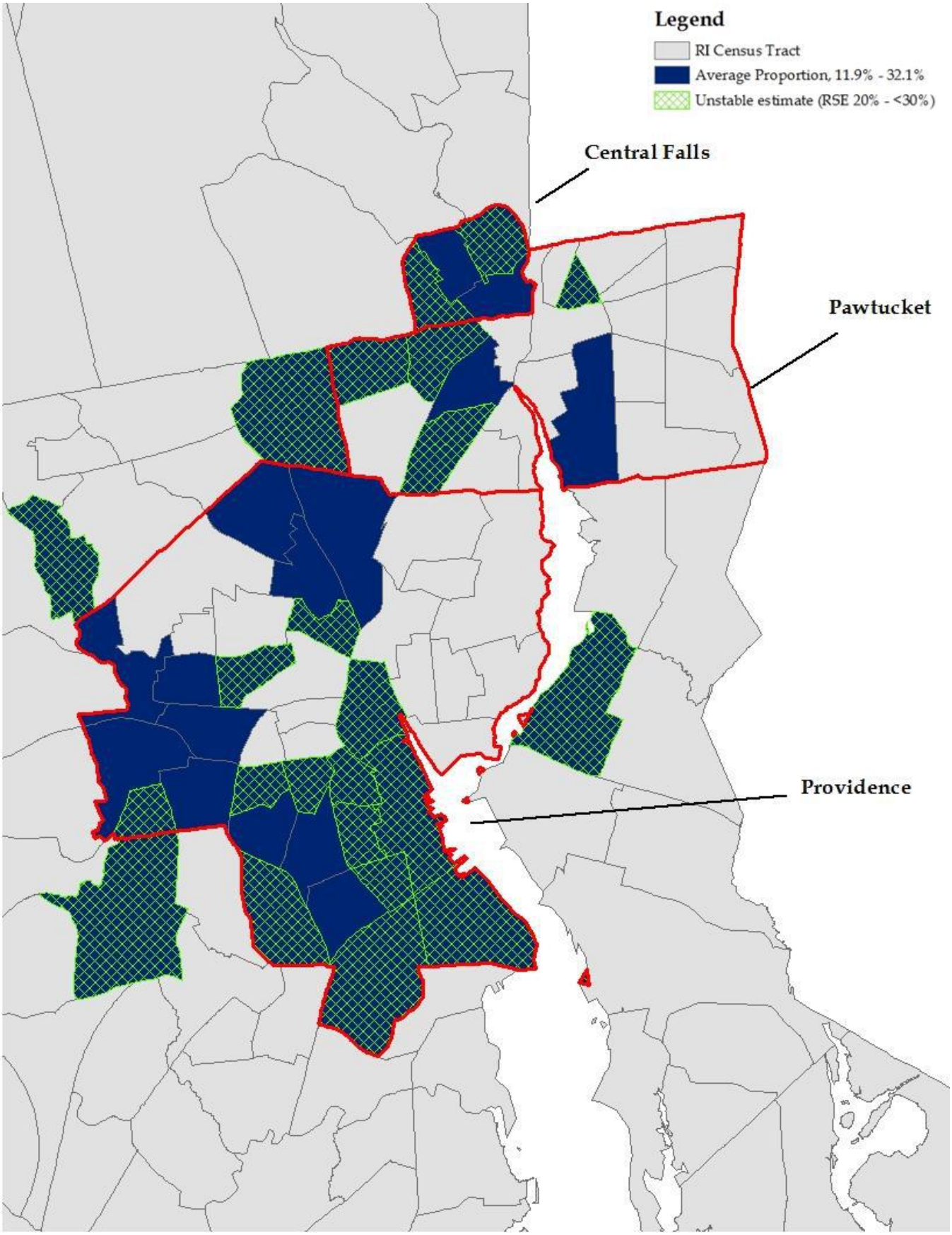
Results: There are 241 census tracts in Rhode Island containing children enrolled in Medicaid. The four-year average rate per 1000 Medicaid enrollees age 0-17 with one or more asthma-related emergency department or inpatient visits for the state is 13.71. The stable and unstable tract-level rates (n=17 stable, n=37 unstable) are shown in the maps below. The bus routes that run through the census tracts with stable estimates are listed in the table below.

For data files and more information contact Julian Drix, RIDOH Asthma Program Manager at julian.drix@health.ri.gov

Rate per 1000 Medicaid enrollees age 0-17 with one or more asthma-related emergency



Department or inpatient visits, four-year average by census tract



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June 11, 2018

Rhode Island Department of Environmental Management
Attn: Allison Callahan
235 Promenade Street
Providence, RI 02908

Via email: Allison.Callahan@dem.ri.gov

To Whom It May Concern:

Clean Energy Works appreciates the opportunity to provide specific feedback to the Rhode Island Department of Environmental Management (DEM) on the Draft Beneficiary Mitigation Plan to be funded under the Volkswagen (VW) Environmental Mitigation Trust.

Clean Energy Works is a non-profit organization that provides advisory services to policy-makers, public interest groups, and companies interested in rapidly scaling up investment in clean energy. The Global Innovation Lab for Climate Finance has specifically recognized our work on financing solutions for clean transport as one of the top ideas of 2018 to mobilize needed investment for low-carbon development, and our work prioritizes attention to clean transit buses, which already have a strong business case compared to all other electric vehicle types.

Comment Summary

To ensure limited state grant funds for bus transit fleet transformation are used with maximum capital efficiency both now and in the future, the Draft Beneficial Mitigation Plan should be be revised to specify grant funding for the *incremental total cost of ownership* of electric transit buses compared to diesel.

Using limited grant funds to pay for the full *incremental upfront cost* disregards the fact that the *incremental total cost of ownership* for an electric transit bus is far lower. The difference between those two figures can be financed cost-effectively with capital through any of at least three options - a lease, a loan, or a utility service agreement. The result is vastly more efficient deployment of limited state grant funds for the benefit of

communities that DEM has prioritized in the development of its Beneficial Mitigation Plan.

Multiple financing options are available to RIPTA through partners including its electric utility, bus manufacturers, or the Rhode Island Infrastructure Bank. Any of these options would help RIPTA meet the larger capital requirements for full fleet transformation over the next decade and avoid the cost of future stranded assets related to early retirement of diesel buses that could be incurred if 90% of the fleet is still diesel-based in 2024.

Making the case for more efficient use of limited grant funds

Clean Energy Works joins other stakeholders in expressing support for the decision of DEM to use the majority of the funds to replace diesel transit buses owned by RIPTA with new all-electric zero-emission vehicles. The decision is well-founded for all the reasons set forth in the plan and the same analysis is also important for regulators of the state's only utility to take into consideration as they chart a course for grid modernization, which includes the role of Rhode Island's electric utility in accelerating electrification of transportation.

The Draft Beneficial Mitigation Plan calls for granting RIPTA more than $10 million to help pay the full *incremental upfront cost* of 20 electric buses, implying that an electric bus will cost an estimated average of $500,000 more per electric bus than the average cost of a diesel bus. **Funding the *incremental total cost of ownership* for an electric transit bus is a far more efficient use of limited grant funds than paying for the full *incremental upfront cost* of an electric bus.** The difference between those two figures, which can exceed $300,000 per bus, can be financed cost-effectively with capital from multiple sources, including leases offered by bus manufacturers and service agreements that could be offered by RIPTA's electric utility. This shift in approach would result in a vastly more efficient deployment of limited state grant funds for the benefit of communities that DEM has prioritized in the development of its Beneficial Mitigation Plan.

Accompanying this comment, we provide a memo sharing the analysis prepared for a transit agency that lays out the differences in these approaches and also quantifies the larger benefits that can be accomplished. Applying the same approach in Rhode Island, DEM could ensure that RIPTA is able to leverage cost-effective financing with VW funds to procure as many as 200 electric transit buses over five or more years in order to advance a fleet transition plan that otherwise would accomplish procurement of only 20 electric buses through 2024. With this approach, the Beneficial Mitigation Plan could accomplish 10 times the positive health benefits for the same amount of funding.

Multiple imperatives to achieve greater public benefit with limited grant funds

The State of Rhode Island faces two important imperatives for maximizing the impact of VW Settlement funds for transitioning the state's bus transit fleet to zero-emissions technology. The first is delivering public health benefits to communities that are disproportionately affected by the hazards of diesel pollution. The interests of these communities are also important in the development of policies to achieve carbon emission reduction policies being considered by multiple Northeast and Mid-Atlantic states, in consultation through the Transportation Climate Initiative. Missing an opportunity to vastly reduce diesel emissions with VW Settlement funds ultimately drives up the overall cost of mitigation through other policy actions.

The second public policy imperative to deploy grant funds in a more capital-efficient way. The Mayors of Providence and Pawtucket have both pledged that their cities will stay on course for carbon emission reductions consistent with the international climate agreement signed in Paris. As a point of reference, C40 Cities commissioned McKinsey & Co. to analyze the climate actions that would be required for its network's 96 mayors on climate actions that would allow them to keep on course to meet Paris Accord commitments. The resulting analysis showed that every city in the network would need to achieve a zero-emission transit fleet by 2030. While RIPTA's status as a state agency prevents it from falling under the management of any city in Rhode Island, elected officials in cities with a strong commitment to climate action are important representatives and champions for the interests of riders that RIPTA serves.

The Federal Transit Administration requires RIPTA and other agencies that use federal funds for bus procurement to keep each bus in service for 12 years or pay penalties for early retirement or disposal. To avoid the cost of stranded assets while still achieving a zero-emission fleet within 12 years (2030), transit agencies in the United States would need to end procurement of fossil fueled buses *this year*.

Although Rhode Island may ultimately choose a later target for achieving a 100% clean transit fleet, the Draft Beneficial Mitigation Plan implies that Rhode Island would have diesel buses in its fleet through at least 2037. By then, the state would either be trailing leading cities in the field of clean transit by several years or facing additional costs to achieve its policy objectives. Once those potential costs are taken into account, sustainability planning for fleet transformation in Rhode Island may indicate that procurement of more than 20 electric transit buses would be warranted in the next five years, further underscoring the need for efficient use of limited grant funds. As an added benefit, an established path to leveraging funding to mobilize low cost financing for electric transit buses would help RIPTA achieve greater certainty about how the state will meet the capital requirements for full fleet transformation.

Recommendation: Use limited grant funds for electric buses to pay for the incremental total cost of ownership for electric buses, leveraging more capital through mechanisms that can finance the portion of incremental upfront cost that is cost-effective.

We encourage the State of Rhode Island to revise the Draft Beneficial Mitigation Plan to incorporate a combination of funding *and* financing for electric transit buses in order to dramatically increase the extent of public benefits achieved by the one-time opportunity presented by the VW Settlement.

We welcome the opportunity to confer further with stakeholders on this approach, including how it can be implemented using policies that are consistent with other state policy objectives such as grid modernization and demonstrating leadership by example. Through a call hosted by the Transportation Climate Initiative earlier this year, we have introduced this option to representatives of multiple state agencies in Rhode Island, and we would welcome the opportunity to continue the dialogue in support of ambitious clean air and climate policies with reduced reliance on state grants or ratepayer funding.

Respectfully submitted,

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Sample Integrated Findings from Fleet Assessment and Financial Analysis

Prepared by Clean Energy Works
March 2018

Scope of Analysis

Lake City Transit, a pseudonym for a real transit agency, sought a financial analysis of the cost of procuring electric buses over the next five years as part of a longer-term fleet transformation. Clean Energy Works, a non-profit organization with expertise in innovative utility financing for clean energy solutions including transport electrification, worked with the transit agency as well as Meister Consultants Group (MCG) to explore the capital requirements for the fleet transformation.

MCG considered how the lifecycle cost of buses for different fuels could change over time, and it analyzed the benefits of purchasing on-board batteries and charging stations through a service agreement with their electric utility, reducing Lake City Transit's reliance on highly uncertain government grant funds. This memo presents preliminary findings drawn from the financial analysis in the full reports delivered to Lake City Transit, along with recommendations for next steps.

Findings from MCG's Financial Analysis

1. ***Battery-electric buses have the lowest total cost of ownership starting in 2020.***

   Among the alternatives to new diesel buses, battery-electric buses have the lowest total cost of ownership when assuming a mid-range estimate for savings on maintenance. MCG looked beyond current conditions to analyze financial requirements for procuring transit buses in future years. Assuming a mid-range estimate for savings on maintenance, MCG found that battery-electric buses purchased in 2020 or later would have a lower total cost of ownership than new diesel or CNG.

   MCG used well-cited data sources and consistent input assumptions supplied by or affirmed by Lake City Transit in order to model the total cost of ownership for diesel, CNG, and battery-electric buses. MCG focused attention on future procurements using a diesel fuel price outlook that is published annually by the U.S. Energy Information Administration.

2. ***The total upfront cost premium would be $20 million if Lake City Transit's planned procurements for the next five years were all battery-electric buses.***

   Financing the 50% upfront cost premium of battery-electric buses remains a challenge. MCG calculated that the *total incremental upfront cost* of purchasing 56 zero emission battery-electric buses in the next 5 years would be $20 million. Because Lake City Transit faces competing financial requirements to meet demands for more service on more routes, the upfront cost to do so may present a daunting challenge.

3. ***Using a combination of funding and financing, the highest leverage for grant funds is achieved when paying for the difference in total cost of ownership compared to diesel, rather than paying the full zero emission bus or the full incremental upfront cost of the bus.***

   MCG identified that Lake City Transit has a timely opportunity to leverage funds from the Volkswagon (VW) settlement allocated through the state's Beneficial Mitigation Plan for reducing pollution. Lake City Transit could seek VW settlement funding to help overcome some fraction of the cumulative upfront cost barrier of $20 million. However, MCG concluded that VW settlement funds could go much further and help fund many more buses if Lake City Transit only requested as much as would be necessary to bridge the difference between the *total cost of ownership* for zero emission battery-electric buses and diesel. When compared to a new diesel bus, the incremental total cost of ownership for an electric bus with a mid-range estimate for maintenance savings is less than $100,000 (less than 10% of the total cost of ownership), and MCG projected the gap would fall to zero within five years.

4. ***Working with Lake City Transit's utility to establish tariffed terms of service for the on-board battery and charging station of a zero emissions bus could drop the upfront capital cost requirement for procurements planned for the next five years by 90%.***

   To address the remaining upfront cost premium of the zero emission battery-electric buses, MCG explored the business case for an opt-in tariff that their utility could offer Lake City Transit. This approach is similar to tariffed on-bill programs approved by utility commissions in multiple states for financing energy efficiency upgrades in buildings, without obligating the utility customer to take on a new debt obligation or a future liability on its balance sheet. In short, the utility would make an investment in the on-board battery and charging station and then recover its cost through a monthly charge on the bill tied to a meter at the depot. MCG found that on those terms, Lake City Transit could buy 56 battery-electric buses with no net increase in the total cost of ownership if it were able to secure $1.5 million in additional funding from the VW settlement funds or other sources.

   Taken altogether, the fleet assessment and financial analysis indicate that Lake City Transit could introduce zero emission buses over the next five years with an upfront cost premium that is 90% lower if their utility would offer a tariffed on-bill investment program. The remaining 10% could be supported with funds from the VW settlement or another source.

Looking Ahead

The results of the financial analysis commissioned by Lake City Transit may open new doors of opportunity in its pursuit of funding and financing. Some of the potential next steps to gain the most value from the analytic findings include:

- Engage their utility to explore the option to introduce tariffed on-bill financing, providing a path to unprecedented leverage for federal and state grant funds.
- Conduct a similar fleet assessment and financial analysis for neighboring agencies within the utility service area to explore any economies of scale that may emerge in fleet transformation planning.
- Strengthen the Lake City Transit application for a federal Low/No Emission grant program, which will open and close its doors for applications in the next 90 days.
- Prepare to compete for state funds distributed for mitigation of diesel pollution through the VW settlement.
- Explore additional operational considerations for integration of battery-electric buses into the fleet to complement the financial planning.

Federal Transit Administration rules for financing transit buses effectively require that new buses remain in service for 12 years. With that in mind, Lake City Transit would either need to begin procuring zero emission buses 12 years in advance of achieving a full zero emissions fleet or be willing to incur an additional cost of stranded assets. For example, to achieve a zero emissions fleet by 2030, Lake City Transit's procurement plan for the next five years would need to be focused on zero emissions buses starting this year. Building on the strong business case for clean transit, prompt action to arrange funding and financing will help keep options open for achieving Lake City Transit's strategic objectives at the lowest cost.

SAMPLE FINANCIAL ANALYSIS OF TRANSIT BUS FLEET TRANSFORMATION

1. INTRODUCTION

Lake City Transit provides bus service to the Lake City area with a fleet of over 85 diesel transit buses. In 2017, the transit agency applied for a Low or No Emission (LoNo) grant from the Federal Transit Administration to purchase electric buses. The LoNo program is highly competitive and oversubscribed, with nearly 90% of grant funds requested being declined in the last two years. Although Lake City Transit did not receive a grant in the most recent awards, its statements in a press release expressed confidence that electric buses would work well for their agency and that they will continue to look for additional funding and finance opportunities.

Lake City Transit plans to buy 56 new buses between 2020 and 2023, enough to replace the majority of the existing fleet with buses that would operate through at least 2032. As the agency and its partners consider changing fuel for the new fleet, the forecast total cost of ownership for different fuel types is an important metric for decision-making. Meister Consultants Group has undertaken that analysis using data and assumptions selected in consultation with key decision-makers to reflect the current outlook and conditions in the agency's service area. One key assumption is that the availability of government grants is highly uncertain. Therefore, the analysis does not depend on grant funding, and it does explore financing options. This memo describes analysis that:

- **Compares the projected total cost of ownership over time** for new buses of different fuel types, accounting for anticipated reductions in battery costs and ongoing increases in costs for conventional buses. This analysis also models changes in operating costs from maintenance and fuel over time to inform the subsequent financing analysis.
- **Analyzes the use of an innovative utility financing solution** for the upfront cost premium of the on-board battery and charging station for an all-electric bus that connects it to the grid. This analysis shows results for the transit agency with the benefit of cooperation from a utility that offers tariffed on-bill financing on terms similar to Pay as You Save® (PAYS®) programs for financing building energy upgrades in other parts of the state.

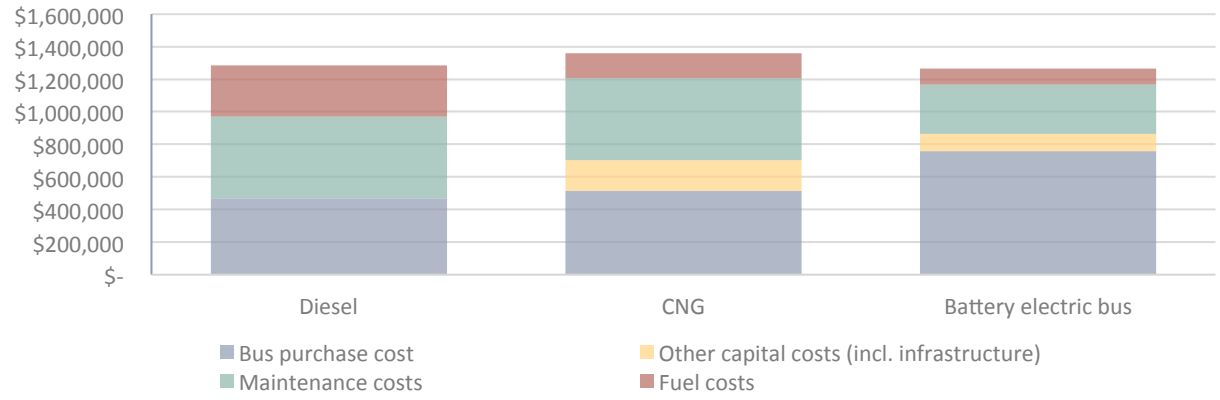
As a next step, MCG will discuss potential options for tariffed on-bill financing of electric buses with the agency and other stakeholders, and will then conduct any additional analysis needed to explore potential financial impacts of these options.

2. PROJECTED TOTAL COST OF OWNERSHIP FOR DIFFERENT TRANSIT BUS TECHNOLOGIES

Total cost of ownership (TCO) for transit buses is a financial metric that takes into account factors that affect upfront capital costs as well as operation, maintenance, and fuel costs over the life of the bus. The model used to estimate and forecast total cost of ownership for procurements over time is built based on transit bus lifecycle cost models developed by federal research agencies such as the Transit Cooperative Research Program and by agencies with expertise in electric buses such as the California Air Resources Board's Innovative Clean Transit initiative. Section 4 documents the sources of all inputs to the model used to estimate total cost of ownership.

For procurements in 2019, diesel buses are anticipated to have a slightly lower total cost of ownership over their 12-year anticipated lifetime than electric buses, and then starting in 2020, procurements of battery electric buses are anticipated to have a lower total cost of ownership than both diesel and CNG buses. Any amount of grant funding from federal or state sources for zero emission buses (e.g. Low/No Emission grant or VW Settlement funds) would reduce the total cost of ownership for battery electric buses. The potential for accessing those government resources reinforces the finding that in 2019 the electric bus option would have the lowest estimated TCO.

Figure 1: Total cost of ownership by cost category and bus fuel type in 2019 (discounted)



Sources of savings:

This analysis considers the cost for a 40' electric bus with a 440 kwh battery that provides an estimated range of 163 miles per charge based on analysis by the university research center in the area. For the transit agency, electricity costs for battery electric buses under their utility's Medium General Service tariff would be approximately 1/3 of diesel costs, while battery electric buses would see more modest fuel savings relative to CNG buses. It is estimated that the agency would be able to remain on the lower cost Medium General Service tariff until a substantial share of its fleet is electrified. With strategic charging management to mitigate peak demand, the agency may be able to remain eligible for the Medium General Service tariff even with an all-electric bus fleet.

Electric buses have lower maintenance costs compared with conventional buses due to having a simpler drive train, fewer parts to maintain, and less brake wear due to regenerative breaking. Empirical studies from the National Renewable Energy Laboratory (NREL) of Foothill Transit's fleet of early model battery electric buses found a 21% cost per mile maintenance savings compared with CNG, while a more recent 2017 NREL study of King County's fleet found a 59% per mile maintenance cost savings compared with diesel buses of the same age[1]. While battery electric buses have significant infrastructure costs, they are estimated by the university research center to be less than the fueling and facility upgrade costs for CNG buses. Figure 2 highlights a simple comparison for a single bus procured in 2019 for each technology by cost type, including first year capital costs and average annual costs over 12 years.

Figure 2: Cost comparison summary for a single bus procured in 2019

	Diesel	CNG	Battery-electric bus
First year costs	**$466,000**	**$703,500**	**$865,000**
Bus purchase cost	$466,000	$516,000	$757,000
Fueling infrastructure and other capital costs	-	$187,500	$108,000
Average annual costs	**$80,400**	**$64,800**	**$39,700**
Fuel	$30,100	$14,500	$9,500
Maintenance	$50,300	$50,300	$30,200

Change over time:

Projections over the next decade for both bus purchase cost and fuel cost are expected to increase the cost advantage of battery electric buses. Under the referenced inputs and assumptions in Section4, battery electric buses would have a lower total cost of ownership than CNG buses beginning in 2018, and a lower total cost of ownership than diesel buses beginning in 2020. Based on the anticipated retirement schedule for the agency, most procurements would occur in 2020 or after. The savings from electric buses are anticipated to grow for future procurements due to the anticipated decline in battery costs reducing the capital costs for electric buses. The California Air Resources Board's Innovative Clean Transit Initiative has undertaken extensive total cost of ownership modeling for electric buses and other technologies, and has published forecasts of future bus prices by technology, which anticipates the cost of batteries for heavy duty vehicles will fall from $720/kWh in 2016 to $230/kWh by 2030[2]. Additionally, the U.S. Energy Information Administration's Annual Energy Outlook Reference Case projects higher growth in prices for diesel fuel than electricity or natural gas, which this analysis uses to scale current energy prices for future years.

[1] Eudy, L., & Jeffers, M. (2017). King County Metro Battery Electric Bus Demonstration: Preliminary Project Results, U.S. Department of Transportation, Federal Transit Administration.
Eudy, L., Prohaska, R., Kelly, K., Post, M., Eudy, L., Prohaska, R., … Post, M. (2016). Foothill Transit Battery Electric Bus Demonstration Results. National Renewable Energy Laboratory, (January), 60.

[2] California Air Resources Board Innovative Clean Transit Program. (2016). Battery Cost for Heavy-Duty Electric Vehicles.

Figure 3: Discounted total cost of ownership per bus for procurements between 2018-2032

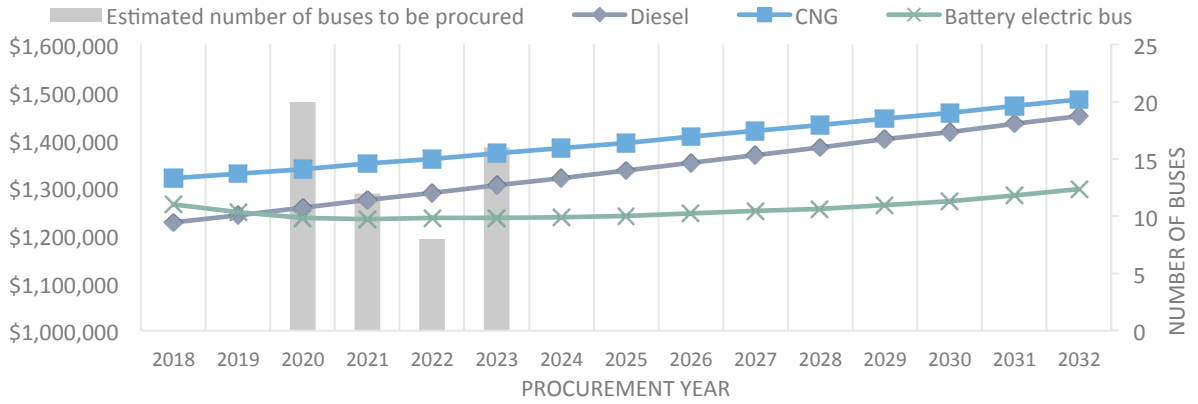


Figure 4 highlights how the incremental upfront and lifetime costs of a battery electric bus relative to a diesel bus change over time between 2018 and 2023. The incremental lifetime costs included in Figure 4 utilize a diesel price input that scales the current state fuel contract price of $2.31/gallon by the Energy Information Administration's Annual Energy Outlook Reference Case for diesel over the bus lifetime. Electricity prices are also scaled by the Reference Case forecasts for commercial electricity prices in the region. If diesel prices are assumed to be constant over the life of the bus, the total cost of ownership difference relative to diesel in 2019 is estimated to be $49,200.

Figure 4: **Difference in total cost of ownership between battery electric bus and diesel, 2018-2023**

	Procurement years					
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Incremental upfront cost of battery electric bus relative to diesel bus (incl. infrastructure costs)	$426,000	$399,000	$375,000	$361,000	$350,000	$339,000
TCO difference of battery electric bus relative to diesel bus (12-yr warranty)	$38,000	$6,200	-$21,400	-$40,000	-$52,600	-$67,500
Number of buses to be replaced	-	-	20	12	8	16

Sensitivity analysis:

While empirical data from NREL and other researchers are beginning to provide documented evidence of anticipated maintenance savings, the exact savings that the agency would realize for battery electric buses compared with diesel buses in their fleet remains uncertain. That uncertainty is difficult to resolve, in part, because the field data for maintenance savings is recorded for earlier model buses, whereas the agency would be buying newer model buses, which also incorporate other improvements.

To explore whether this uncertainty is significant for decision-making purposes, a sensitivity analysis is used to examine the comparative total cost of ownership across the low to high per mile maintenance savings range reported by NREL of 21% and 59%, with 40% established as a midpoint used in the rest of this analysis.

Figure 5: Maintenance cost savings sensitivity analysis

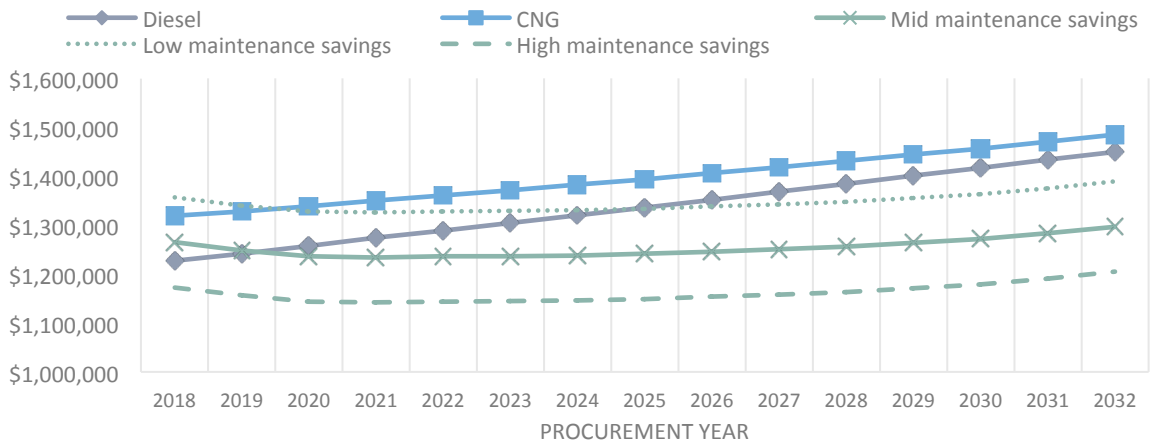


Figure 5 shows that under the most conservative maintenance savings assumption, battery electric buses would not become cost competitive with CNG until 2020, and with diesel until 2025. The agency could manage the risk that maintenance savings would be lower than 40%, which is the midpoint among the best available studies, by making a slightly more conservative assumption about expected savings (e.g. 30%) until more field data is available that validates or refutes the figure near 60% that was most recently reported in King County, Washington.

3. FINANCIAL ANALYSIS OF A TARIFFED ON-BILL OPTION FOR ELECTRIC BUSES

Considering utility terms of service for on-board storage and charging stations:

This analysis models the cost profile of a battery electric bus for the agency its utility offers a service agreement that covers the cost of the on-board battery and charging station. The utility can define the terms of service in an opt-in tariff, which allows the utility to make investments in cost-effective upgrades on the customer's side of the meter at a specific site and recover those costs with a charge on the bill for service at that site. The charge persists over the warrantied life of the equipment (12 years) until the utility's costs are recovered, at which point the battery and charging station are owned by the transit agency. For this preliminary analysis, the tariffed charge is capped at 85% of the projected annual savings in the first year, yielding a positive cash flow for the transit agency that is 15% of the estimated savings from switching to an all-electric bus.

A tariffed on-bill program does not involve the utility making a loan to the customer, but it does allow the customer to benefit from upgrades without facing an upfront cost premium that is often a barrier to

investment. Assuming a 3.5% discount rate, reflective of the utility's typical corporate bond yields, the utility would be able to recover the full incremental upfront cost of an electric bus compared with a diesel bus through tariffed terms beginning in 2024. Prior to then, such a financing approach could be feasible with the use of an upfront copayment, which allows the transit agency to buy down the upfront cost of an all-electric bus to the point at which the utility investment incremental upfront cost of the on-board battery and charging station would be cost effective.

Figure 6 illustrates an example of the use of tariffed on-bill financing to procure an electric bus in 2019 from the agency's perspective. The agency would commit the same amount of capital as it would for a diesel bus ($466,000), drawing from the same combination of federal and local funds typically used to finance new buses. The agency's utility would agree to pay the incremental upfront cost of an electric bus that would be cost effective ($321,000), provided that the agency agrees to pay a monthly tariffed charge for cost recovery that is capped at 85% of the estimated savings from switching to electricity ($2,770). The charge would span the warranty period of the bus (12 years), at which point the agency would own the equipment and enjoy 100% of the annual savings.

Figure 6: Potential terms for a tariffed on-bill financing program for a 2019 procurement

Total electric bus capital costs	**$865,000**
Total diesel bus capital costs	**$466,000**
- 80% federal match for a diesel bus	$372,800
- 20% local match for a diesel bus	$93,200
Full incremental upfront cost for an electric bus	**$399,000**
Cost of capital	3.5%
Years of cost recovery on tariffed terms (warranty period)	12
Cap on estimated annual savings committed to cost recovery	85%
Monthly tariffed cost recovery charge	$2,770
Incremental upfront cost that is cost effective on tariffed terms	$321,000
Remaining upfront cost covered with a copayment	**$78,000**
Ratio of upfront copayment to full incremental upfront cost	**1:5**

The remaining incremental upfront cost for the electric bus would be the responsibility of the agency as a copayment ($78,000), which could be covered by any source of capital including a grant from the federal or state government (e.g. Low/No Emissions grant or VW Mitigation funds). In this sample year, the copayment would leverage enough capital through the terms of the tariff to buy 5 new battery-electric buses instead of one. Based on projected estimates for the future cost of battery electric and diesel buses as well as their respective costs for fuel, operation, and maintenance costs, Figure 7 shows that a copayment for a tariffed on-bill investment would be needed through 2024. At that point, 100% of the incremental upfront cost would be cost effective for a utility tariffed on-bill investment that is recovered within the warranty period of the equipment (12 years), and the cost recovery period for the utility would be shorter for each subsequent model year of bus procurement.

Figure 7: Projected years of tariffed on-bill charges needed to recover the full incremental upfront cost of a battery electric bus procurements between 2018 and 2032

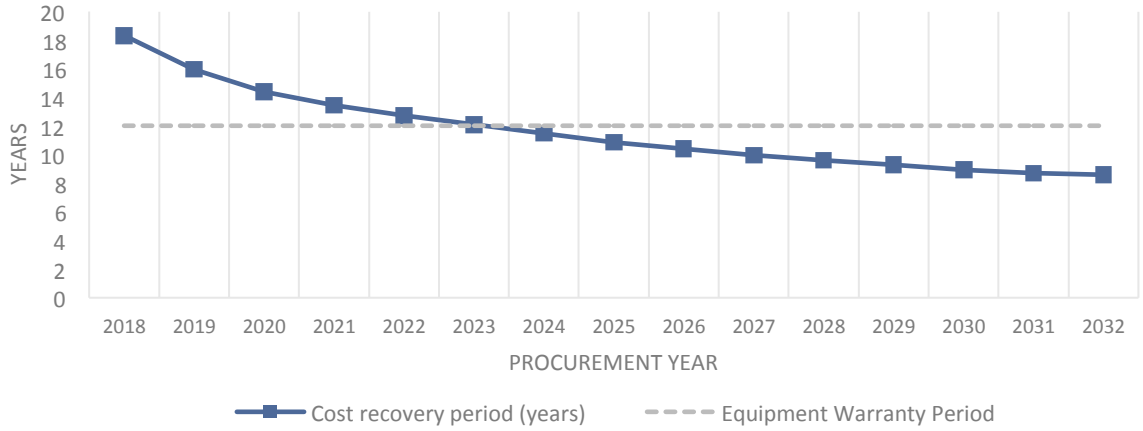
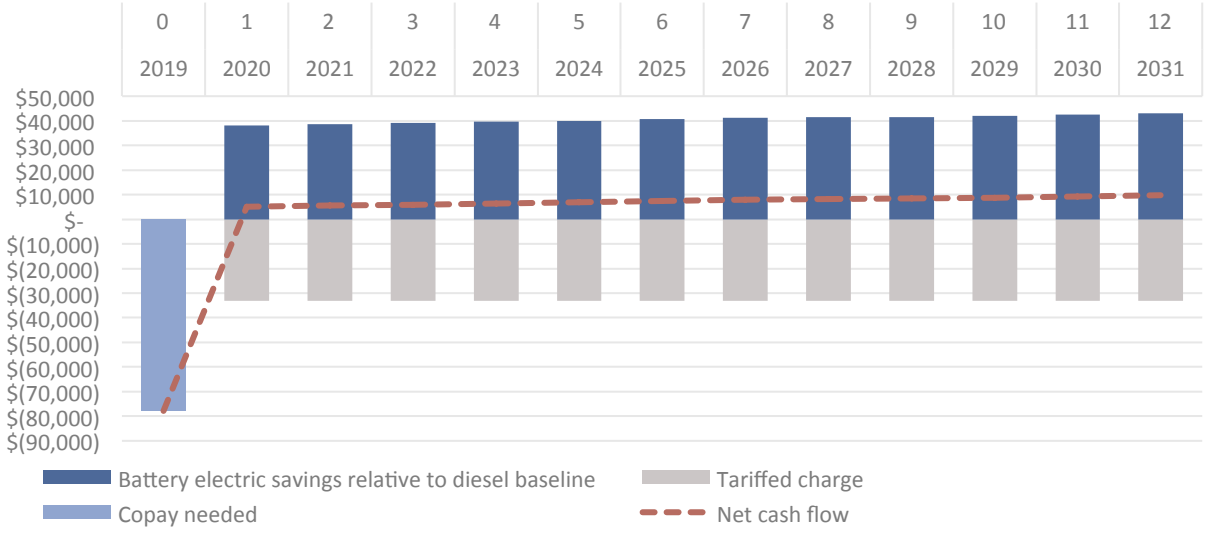


Figure 8 models the cash flows for the agency for utilizing tariffed on-bill financing to procure an electric bus in 2019. Over the 12 years, the annual savings relative to a diesel bus would rise from an estimated $38,200 to $43,000, and the net present value (NPV) of the net savings for the transit agency relative to a diesel bus after paying the tariffed charge for cost recovery to the utility is estimated to be $70,300. The estimated value of this net savings stream is on par with the copayment amount ($78,000), leaving a balance ($7,600) that is 1% of the total incremental upfront cost of a battery-electric bus. From that perspective, the agency could make a business case for paying the copayment with another source of capital even if no grant funds were available.

Figure 8: Transit agency cash flow for a single battery-electric bus procured in 2019 with a utility's tariffed on-bill investment program



Further leveraging VW settlement or other grant funds:

To leverage investment through a utility's tariffed on-bill program, upfront copayments needed in the next few years could be covered by VW Mitigation Funds or other grant funding. Figure 9 shows the full incremental cost of an electric bus relative to a diesel bus and compared with a copayment to illustrate the leveraged use of grant funds. For the sample procurement year 2019, a grant of $400,000 could help the agency buy one battery-electric bus with the range sought for its fleet, or the same amount of grant money could instead cover the copayments for five electric buses if the utility offers a tariffed on-bill program. Similarly, for the same $1 million in grant funds needed to pay for the full incremental cost of 3 battery electric buses year 2020, the agency would be able to leverage available grant funds 8:1 with capital deployed through its utility, procuring all 20 new buses planned for that year without adding new diesel bus to the fleet.

Figure 9: Use of grant funds for full incremental upfront cost of a single bus & charger compared to copayments in a tariffed on-bill program

	Procurement years				
	2019	2020	2021	2022	2023
Full incremental upfront cost	$399,000	$375,000	$361,000	$350,000	$339,000
Incremental upfront cost that meets PAYS threshold for cost effectiveness	$321,000	$325,700	$329,100	$332,800	$336,400
Copayment needed (from VW Settlement or other)	$78,000	$49,300	$31,900	$17,200	$2,600
Ratio of Copayment to Full Incremental Upfront Cost	5:1	8:1	11:1	20:1	132:1

Figure 10 shows that if the utility offered a tariffed on-bill program for on-board batteries and charging stations, a total of $1.5 million to fund copayments would allow the agency to transform its planned procurement of 56 buses from diesel to all-electric with no additional net cost. Using VW Settlement or other grants to cover copayments in a tariffed on-bill program over the next five years would leverage more than 10 times more capital than grant funds alone.

Figure 10: Estimated cost for fleet transformation (2019-2023)

	Procurement years					
	2019	2020	2021	2022	2023	Total
Number of buses procured	-	20	12	8	16	56
Total incremental upfront cost	-	$7.5 M	$4.3 M	$2.8 M	$5.4 M	$20 M
Total PAYS investment	-	$6.5 M	$3.9 M	$2.6 M	$5.4 M	$18.5 M
Total funds needed for copayment (from VW Settlement or other)	-	$986,000	$382,800	$137,600	$41,600	$1.5 million

4. INPUTS AND ASSUMPTIONS

The following table documents the inputs, assumptions, and key sources that informed the total cost of ownership and financial analysis above.

Figure 11: Modeling inputs and assumptions

CAPITAL COSTS	INPUTS AND ASSUMPTIONS	SOURCES
Base bus costs (2018)	$456,000 (diesel) $506,000 (CNG) $661,000 (diesel hybrid) $774,000 (440 kWh depot charge 40' bus)	CARB Innovative Clean Transit Total Cost of Ownership Assumptions (2017)[3] (CARB TCO Assumptions) for 2018-2032 forecast costs
12-year battery warranty	$55,000	Client assumption
Electric bus infrastructure costs	$38,000 (depot charger, assumed one bus per charger)	Client assumption
Charger installation	$15,000 (depot charger)	Client assumption
CNG infrastructure costs	$2,500,000 (CNG fueling infrastructure) $1,250,000 (CNG facility upgrades) $125,000 (CNG infrastructure per bus) $62,500 (CNG facility upgrade per bus)	Client assumption
OPERATING INPUTS	**INPUTS AND ASSUMPTIONS**	**SOURCES**
Annual miles driven	52,500	Client assumption
Average speed	22 mph	2016 average speed reported to NTD
Estimated fuel economy (MPDGE)	4.7 (diesel) 4.1 (CNG) 1.93 (battery electric - kwh/mile)	Based on methodology from TCRP Report 132 that utilizes in-service diesel and CNG fuel economy figures from different fuel types under different duty cycles, and accounts for speed and auxiliary loads. Electric bus fuel economy/speed data from CARB[4]
Fuel costs in 2018	$2.31/gallon (diesel) (first year) $2.66/gallon (diesel) (lifetime average) $1.16/DGE (CNG)	Fuel costs scaled based on EIA Reference Case

[3] Innovative Clean Transit. (2017). Total cost of ownership assumptions, Zero emission bus options. Retrieved from https://arb.ca.gov/msprog/ict/meeting.htm

[4] Clark, N. N., Zhen, F., & Wayne, W. S. (2009). TCRP Report 132: Assessment of Hybrid-Electric Transit Bus Technology. Transit Cooperative Research Program

California Air Resources Board. (2017). Battery Electric Truck and Bus Energy Efficiency Compared to Conventional Diesel Vehicles. Retrieved from https://www.arb.ca.gov/msprog/actruck/docs/HDBEVefficiency.pdf

Electricity tariff	Medium General Service **Maximum draw at full electrification would be ~4,400 kw; with multiple depots, may be able to stay on Medium General Service for several years into fleet electrification, and with active charging management, maybe permanently.*	Agency's utility Electricity costs scaled based on EIA Reference Case
Maintenance costs ($/mile)	$0.96 (diesel) $0.96 (CNG) $0.57 (battery electric)	Based on methodology from TCRP Report 132 that incorporates speed, warranty years. **Assumes 40% maintenance savings for battery electric compared with diesel, based on NREL reports*[5]
Charger assumptions	50 kw	Client assumption
Charging assumptions - % of peak load by time period	75% of potential peak load **Medium General Service does not vary by time for demand or energy charges*	Assumption based on potential to manage/stagger charging overnight
FINANCIAL ASSUMPTIONS	**INPUTS AND ASSUMPTIONS**	**SOURCES**
Discount rate	3.5%	Based on a range from CARB TCO Assumptions and an electric bus feasibility analysis from LA Metro[6]
Interest rate	3.5%	Assumption based on typical utility corporate bond yields between 3-4% (FINRA)
Savings percentage	15%	Assumption
Baseline bus	Diesel	Assumption
Bus warranty period (years)	12	Assumption based on FTA useful life, bus manufacturer extended warranty period

[5] Eudy, L., & Jeffers, M. (2017). King County Metro Battery Electric Bus Demonstration: Preliminary Project Results, U.S. Department of Transportation, Federal Transit Administration. Retrieved from https://www.afdc.energy.gov/uploads/publication/king_county_be_bus_preliminary.pdf

Eudy, L., Prohaska, R., Kelly, K., Post, M., Eudy, L., Prohaska, R., … Post, M. (2016). Foothill Transit Battery Electric Bus Demonstration Results. *National Renewable Energy Laboratory*, (January), 60.

[6] Ramboll Environ; M.J. Bradley & Associates. (2016). LA Metro Zero Emissions Bus Options. Retrieved from http://metro.legistar1.com/metro/attachments/140a441a-fb64-4fbd-9612-25272b858f07.pdf

5. FOR FURTHER EXPLORATION

This analysis can be adjusted to further explore the impacts of key sources of uncertainty in projecting the actual total cost of ownership for different transit bus technologies in the transit agency's context. A sensitivity analysis using this model found that the most sensitive inputs are, in order:

1. **Utilization (annual miles driven per bus)** – the current analysis assumes 52,500 miles per year, which is the figure used by the agency.
2. **EIA fuel price scenario** – the analysis applies the EIA Reference Case to diesel, CNG, and electricity prices, in which diesel is anticipated to grow much more quickly than electricity or CNG. Other EIA scenarios or a simple cost escalator assumption could also be modeled.
3. **Speed** – this model reflects the impacts of slower speeds on maintenance costs as well as fuel economy, reflecting research by CARB and TCRP that has found electric buses to have a much greater advantage over other technologies at slower speeds. This analysis uses the NTD average speed for the agency, rather than the speed of particular routes.
4. **Assumed maintenance cost savings relative to a conventional bus** – the current analysis assumes 40% maintenance savings relative to a diesel bus, which is the midpoint between the two empirical NREL studies of 21% savings (Foothill) and 59% savings (King County).
5. **Electricity costs**– the analysis assumes the agency would remain on the Medium General Service tariff, though other tariffs' demand and energy charges can also be modeled.
6. **Charging management (% of potential peak load)** – the model assumes some degree of staggered charging to reduce the monthly demand charges, which could be adjusted.

This model could also be used to explore sensitivity to different terms affecting the financial analysis, including the assumed bus lifetime of 12 years, the interest rate, and the savings percentage. Additionally, this analysis also does not consider the value of a second life battery from removed from a transit bus and deployed as stationary storage. It also does not consider the potential value of ancillary grid services that a large amount of storage connected to the depot location could provide. These additional cash flows would further increase the value proposition of battery electric buses.

June 11, 2018

Allison Callahan
Office of Air Resources
235 Promenade Street
Providence, Rhode Island 02908

RE: Beneficiary Mitigation Plan

Dear Allison,

Greenlots appreciates the opportunity to provide the Department of Environmental Management (DEM) with comments on the Proposed Beneficiary Mitigation Plan and recommendations for funds disbursement.

Greenlots is a leading provider of electric vehicle (EV) 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 EV charging loads and respond to local and system conditions.

Greenlots strongly supports DEM's proposal to invest 10% of funds for light-duty EV charging infrastructure, which is critical to supporting EV adoption across the State. Maximizing investment in light-duty EV charging infrastructure complements other State objectives, including public health, economic, and environmental goals. Due to the emissions associated with light-duty vehicles, the 10% light-duty EV charging investment represents a critical step toward enabling long-term emissions reductions of NOx, PM 2.5, and greenhouse gases.

As articulated in the Plan, there is a substantial need for near-term investments in a more robust statewide DC fast charging network, which can facilitate long-distance travel, tourism, and provide drivers with local publicly accessible infrastructure that can help ameliorate range anxiety. The chargers can help meet the needs of EV drivers who need to charge on the go, rather than where the car is parked for more than an hour or two. Level 2 charging will be an important asset for locations with long-dwell times, such as at destination locations, workplaces, or to support fleet charging. Leveraging the Environmental Mitigation Trust funds with other programs (e.g., utilities, interstate corridor planning) can also help maximize funds disbursement.

We also have considerations for DEM on how to structure EV infrastructure funds disbursement. Because of the costs associated with deploying infrastructure – which have thus far proven to be uneconomic for the private sector – DEM has an important role to play in designing an effective proposal process in which Trust funds are appropriately matched to site hosts that are prepared for long-term operation and maintenance of charging infrastructure.

At this early stage of the market, ownership and operation of charging infrastructure is an appropriate and in many respects necessary role for established actors (e.g., utilities, RIDOT) that are best positioned to steward and maintain infrastructure, and are arguably least (or less) sensitive to the financial pressures associated with ongoing operation of charging infrastructure.

Greenlots recommends the following proposal considerations:

- Develop a statewide EV charging infrastructure plan, prior to deploying Trust funds, as the basis for identification of key sites or jurisdictions that can help facilitate the build-out of EV charging. This needs analysis, although ineligible for funding within the Trust, can be a valuable guide for criteria assessment and site selection to ensure that Trust investments are maximized across the state. The RFP could be structured such that the priority investment locations are installed first.
- A proposal should be designed such that individual site hosts do not apply for the funds. Instead, a few program entities should be funded by the State to provide EV charging (either within a turnkey structure or as broader partnerships). Funding one or a few program entities (e.g., utilities, a new RIDOT unit, etc.) can help ensure more adequate statewide coverage (particularly for selecting corridor locations) and that site hosts are properly vetted and considered. Turnkey services by such a program entity could include site acquisition, and the purchase, installation, operation and maintenance of EV infrastructure. Lowest cost of providing EV infrastructure should not be the only consideration of this proposal. DEM should also consider customer service, expertise in developing similar charging programs, ability to integrate with the grid, etc. As the RFP or grant process represents a considerable statewide investment in EV charging, it is vitally important that funds are allocated in such a manner to create a seamless EV driver experience with other EV charging programs and encourage further development of the charging market within the State.
- Require that any EV infrastructure investments adhere to the latest open standards, which can help minimize the likelihood of stranded assets.
- Encourage development of DC fast charging, particularly to facilitate corridor and tourism travel, and Level 2 charging at workplaces and multi-unit dwellings.

For the remaining funds, Greenlots strongly supports the Rhode Island Public Transit Authority (RIPTA) bus replacement project. While electric buses and vehicles have higher up-front costs, they have significantly 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. By investing in transit bus electrification, Rhode Island will be providing direct benefits to populations that may not directly benefit from light-duty EVs or EV charging; bus 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, PM). Furthermore, electrification of transit buses is a natural fit to provide benefits in disadvantaged and environmental justice communities, which often bear the highest burden of emissions exposure.

DEM has outlined a transformative strategy through transportation electrification in the Beneficiary Mitigation Plan, which can lead to long-term emissions reductions. This funding opportunity can be used to catalyze future investments in the state and region to drive emissions reductions.

Thank you for your consideration. Greenlots will be available as a resource to DEM through the finalization and implementation of the Beneficiary Mitigation Plan. Please do not hesitate to contact me should you have any questions.

Sincerely,

Thomas Ashley
Vice President, Policy

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Los Angeles, CA 90064

June 11, 2018

Allison Callahan
Senior Air Quality Specialist, Mobile Sources
Rhode Island Department of Environmental Management
235 Promenade Street, Providence, RI

Re: Draft Beneficiary Mitigation Plan - Volkswagen Environmental Mitigation Trust Agreement

Dear Ms. Callahan,

EVgo appreciates the opportunity to provide written comments on Rhode Island's Draft Beneficiary Mitigation Plan (BMP) for the Volkswagen Environmental Mitigation Trust Agreement. EVgo operates America's largest public EV fast charging network, with over 1050 chargers in 66 metropolitan markets. Using DC fast chargers (DCFCs), EVgo powers EV drivers for more miles than any public charging network in the nation. We provide over 100,000 monthly charges to 50,000+ EV drivers, powering EVs to drive over 5,000,000 miles each month. Currently, EVgo has deployed three fast charging stations in Rhode Island, plus another just outside of Pawtucket, and we welcome the opportunity for further collaboration with the state upon approval of the BMP.

As a charging infrastructure leader, EVgo continues to believe that additional funding for fast charging infrastructure makes electric vehicle (EV) adoption more accessible for Rhode Island residents. Below are EVgo's comments to the proposed BMP as released by the Department of Environmental Management in conjunction with its partner agencies in May 2018.

I. Rhode Island Public Transit Authority (RIPTA) Bus Replacement Project

EVgo commends the Department for its focus on the heavy duty vehicle electrification. By transitioning 20 diesel powered buses to all-electric zero emission vehicles and funding related charging infrastructure, Rhode Island will make strides in its greenhouse gas reduction goals. In addition to public health effects, the electric fleets are also significantly quieter than diesel, which will lead to an important urban quality of life improvement. As battery costs decline, there will be continued benefits from choosing the path of electrification for state residents and businesses.

II. Light Duty EV Supply Equipment (EVSE)

In the draft BMP, the Department proposes to distribute $1.5 million or just 10% of its initial allocation to light duty EVSE. While we commend the Department for its recognition of infrastructure investments as a tool to expedite deployment of zero emission vehicles (ZEVs), **EVgo recommends allocating 15% of total settlement funds for light duty EV charging infrastructure.**

ZEV charging infrastructure investments – particularly public charging – is critical to providing access to communities across the state. Settlement funding is needed to complement private sector investments for ZEV infrastructure, and EVgo views this as necessary and beneficial for Rhode Island drivers and EV deployments. Additionally, while most charging currently takes place at home and the workplace, as we move beyond early adopter stage, public charging will be the primary fueling option for drivers in lower income brackets, including renters and multifamily residents who do not have the option of home charging. Utilizing the full 15% allocation from the Volkswagen settlement will only help the state continue to lead in the deployment of advanced technologies, much like it has done in clean energy.

In addition to utilizing the full 15% allocation, based on our experience owning and operating charging infrastructure across the country, we would recommend that the following best practices be incorporated into Rhode Island's EV

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charging infrastructure deployment program:

- Promote public-private partnerships that support industry competition and allow a variety of business models to participate in the program;
- Complement and safeguard these investments with strategies that enable utilities to create rate structures that enable financially sustainable long-term operating cost structure for DCFC

III. Geography of Project Allocations

The draft BMP says that settlement funds for DCFC deployment will focus on corridor charging on I-95. However, Appendix C settlement funds, which Volkswagen invests in via its Electrify America subsidiary, will already focus on highway charging corridors across the United States. **Therefore, EVgo recommends focusing the Appendix D Environmental Mitigation Trust funding on intra-urban charging stations for multifamily communities.**

Allocating charging infrastructure funding to urban cores would be consistent with the Department's draft recommendations for Priority Project Areas, where the Department specifically cites Rhode Island's core cities – Providence, Pawtucket, Central Falls, and Woonsocket – as being more susceptible to poor air quality and childhood asthma.

Moreover, in urban cores, publicly accessible charging stations helps alleviate the barrier of owning an electric vehicle when home charging is not an option. This ensures that multifamily communities and renters – not just homeowners – are able to charge an EV.

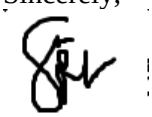
Corridor charging programs across the country have also seen much lower utilization than charging in urban corridors. Based on proprietary information that EVgo has in its national network of 1050+ fast charging stations, we have data showing that charging stations in corridors – even in states with high ZEV sales – often have only a fraction of the utilization as a charger in the urban cores. As a follow-up, EVgo welcomes the opportunity to share this data directly with the Department.

With public fast charging in urban cores, close to high population centers, charging infrastructure is integrated into drivers' daily lives. Customers can pair fast charging with their weekly errands so that when they park their cars, buy groceries, or have lunch, they will return to their EV with nearly a full charge. Rhode Island's public fast charging network will see more utilization – and reach more drivers – if the Appendix D deployment is focused on the urban cores.

IV. Conclusion

EVgo thanks the Department for your consideration of our comments and recommendations. As you work toward finalizing the Beneficiary Mitigation Plan, please consider EVgo as a resource. We offer ourselves as a continuing partner to usher in a new era of transportation innovation in Rhode Island.

Sincerely,



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June 11, 2018

Laurie Grandchamp, P.E.
Chief
Rhode Island Department of Environmental Management
Office of Air Resources
Providence, RI 02908

RE: Volkswagon Settlement Funds

Dear Laurie:

I want to first thank you for the time and consideration that you've given the Rhode Island Trucking Association over the past year – not only with the Clean Diesel initiative, but more recently, by providing us the opportunity to discuss our position concerning the allocation of funds from the settlement of Volkswagon settlement.

During our May 31 meeting, Jeff Flath of eNow and myself expressed our dismay over the lack of consideration our industry received for allocation of grant funding. Since that time, Jeff has furnished you with technical information concerning his technology. He has also set forth a very compelling argument as to how and why its widespread acquisition by and implementation throughout our industry would have far greater benefit to the environment than the funding of a dozen buses at RIPTA.

As Jeff pointed out, eNow technology is a local success story – local entrepreneurship employing Rhode Islanders and paying Rhode Island taxes. An allocation of some portion of funds from the Volkswagon settlement would enable us to promote eNow technology locally and nationally creating a win-win for our environment and our local business community.

In closing, after discussing this with many of my peers in the trucking federation, other states are awarding these monies to small business for environmentally-friendly upgrades. Rhode Island appears to once again be an outlier. It is my sincere hope that your office will consider our position and reconsider the allocation of monies to a program in conjunction with eNow, the Rhode Island Trucking Association and locally-owned businesses operating eligible commercial vehicles.

Thanks, once again, for your consideration.

Very truly yours,

Christopher J. Maxwell
President & CEO
Rhode Island Trucking Association, Inc.

cc: Jeffrey Flath. eNow
Janet Coit, DEM

clf
conservation law foundation

For a thriving New England

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June 11, 2018

Allison Callahan
Senior Air Quality Specialist, Mobile Sources
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908

Re: Comments of Conservation Law Foundation Regarding Proposed Volkswagen Environmental Beneficiary Mitigation Plan

Dear Ms. Callahan:

The Conservation Law Foundation ("CLF") is pleased to offer comments regarding the Proposed Volkswagen Environmental Beneficiary Mitigation Plan ("BMP") for Rhode Island's $14.3 million allocation of the Volkswagen Environmental Mitigation Trust.

Founded in 1966, CLF is a nonprofit, member-supported organization that works to solve environmental problems threatening the people, natural resources, and communities of New England. In the face of global climate change, CLF and its members have a significant interest in solutions to reduce greenhouse gas ("GHG") emissions from our transportation system while improving air quality and mitigating adverse public-health impacts.

The $14.3 million available to the State of Rhode Island through the Environmental Mitigation Trust offers a significant opportunity to accelerate Rhode Island's transition to clean, electrified transportation. CLF commends Rhode Island's decision to use these funds to support transportation-sector electrification to the maximum extent possible, and to accelerate investments in electric vehicles ("EVs") and EV charging infrastructure. Electrifying the transportation sector will be necessary as Rhode Island works to achieve deep reductions in GHG emissions and avoid the worst impacts of climate change.

CLF offers the following suggestions to ensure that all investments achieve maximum reductions in greenhouse gas emissions and reliance on fossil fuels, helping Rhode Island to achieve its GHG emission-reduction targets.[1]

[1] *See* R.I. Exec. Coordinating Council on Climate Change, *Rhode Island Greenhouse Gas Emissions Reduction Plan* (Dec. 2016), *available at* http://climatechange.ri.gov/documents/ec4-ghg-emissions-reduction-plan-final-draft-2016-12-29-clean.pdf.

1. **DEM should make a more robust initial investment into the RIPTA bus replacement project**

CLF applauds the Rhode Island's decision to invest meaningfully in electric buses—including associated charging infrastructure—which will both expand public access to clean transportation and increase the visibility of EVs. These investments are particularly well conceived to achieve the multiple purposes of the VW settlement. They are a highly cost-effective use of VW settlement funds that can yield significant air pollution benefits in overburdened communities, produce transformative change in Rhode Island's transportation sector, and achieve significant GHG reductions.

While reducing harmful air emissions and improving air quality has numerous benefits, emissions reductions are particularly important for transit buses. Polluting transit buses contribute to lower quality of life and increased incidences of illness in higher-population areas, including areas with vulnerable populations. We commend the State's decision to prioritize emissions reductions that benefit vulnerable populations. Zero-emission transit vehicles will have an immediate beneficial impact on lower income Rhode Islanders who rely on public transit in their communities, but who suffer greater levels of asthma and other illnesses as a result of poor local air quality associated with diesel and other emissions from a higher density of mobile sources.

The draft BMP proposes the replacement of approximately 20 diesel powered transit buses with new electric transit buses in two phases. The first phase involves the leasing of three vehicles for 36 months—allowing the State to collect and analyze performance data—with vehicles to be purchased in the second phase.[2]

While CLF recognizes the benefits of phased implementation, including the chance to collect data and the falling cost of electric buses over time, these must be weighed against the cost of delay during a critical period when aggressive decarbonization is essential to forestall the most extreme impacts of climate change. Rapid deployment of EVs will also lead more quickly to savings on lifecycle costs, which are substantially less than those of conventional buses due to lower fuel, operation, and maintenance costs, and which only grow as environmental, climate, and public health benefits are considered. Additionally, postponing replacement of the vast majority of buses for three years creates a risk that the project is altered in the interim.

We therefore encourage Rhode Island to make a more robust initial investment in the RIPTA bus replacement project, increasing the number of replacements made in the initial phase.

[2] R.I. Dep't Envtl. Mgmt., *Draft Beneficiary Mitigation Plan Volkswagen Environmental Mitigation Trust Agreement* 5 (May 2018).

2. DEM should make infrastructure investments that encourage equitable access to EVs

In its description of light duty zero-emission vehicle supply equipment projects, the draft BMP proposes to focus on installation of DC Fast Charging ("DCFC") equipment along the I-95 alternative fuel corridor.[3] While additional DCFC stations along I-95 are desirable, CLF also recommends the installation of less expensive Level 1 or Level 2 charging equipment at "long-dwell" locations such as commuter parking lots and workplaces.

The VW Settlement allows for funds to be invested in charging infrastructure at workplaces and multi-unit dwellings, as well as public locations.[4] CLF recognizes the importance of expanding the availability of charging infrastructure at workplaces and multi-unit dwellings, as workplaces and homes are the most-utilized locations for EV charging. A federal survey found, for instance, that people are 20 times more likely to drive an EV if they have access to workplace charging,[5] and EV drivers do more than 80% of their charging at home.[6]

EVs benefit everyone through reduced emissions of greenhouse gases (especially in New England, where the power grid is already being transformed by energy efficiency and the transition to renewable energy generation), and engaging businesses and property owners in the effort to expand EV infrastructure to allow expanded, more equitable access to EVs can amplify these benefits. For example, private contributions to the costs of charging infrastructure can combine with public investments to generate greater impacts, and efforts by workplaces and property owners to promote their EV infrastructure can advance public education about EVs – as well as attracting employees and tenants who may already have or be considering acquiring an EV.

Because workplace and residential charging infrastructure can have wide-ranging public benefits, CLF recommends the investment of VW Settlement funds in a well-designed program to promote charging infrastructure at these and other priority locations such as public parks. Any such program should also include an outreach and education component and, at least for workplace charging, incorporate a certain level of private matching funds.[7]

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[3] *Id.* at 6.

[4] *See* Partial Consent Decree, App. D-2, ¶ 9–9(a).

[5] *See* Sarah Olexsak, *Survey Says: Workplace Charging is Growing in Popularity and Impact*, Off. Energy Efficiency & Renewable Energy, U.S. Dep't Energy (Nov. 2014), https://www.energy.gov/eere/articles/survey-says-workplace-charging-growing-popularity-and-impact.

[6] Off. Energy Efficiency & Renewable Energy, U.S. Dep't Energy, *Charging at Home*, available at https://www.energy.gov/eere/electricvehicles/charging-home.

[7] Massachusetts' Electric Vehicle Incentive Program ("MassEVIP") is a useful model of a workplace charging grant program. MassEVIP provides up to 50 percent (up to $25,000) of the hardware costs for employers with 15 or more employees to install Level 1 or 2 charging infrastructure. For more information, *see* https://www.mass.gov/how-to/massevip-workplace-charging.

3. DEM should commit funds to restarting the DRIVE program

As a part of its commitment to transportation-sector electrification, CLF urges Rhode Island to allocate some funds to restarting the Driving Rhode Island to Vehicle Electrification ("DRIVE") program, which was halted in July 2017 due to lack of funds. The number of EVs sold in Rhode Island doubled in 2015 and 2016 when the program was active. Now the State is in a position to bring DRIVE back, with the opportunity to make the program even stronger with the addition of dedicated low-income programs,[8] such as larger rebates and inclusion of used EVs for income-eligible participants, and EV-carsharing programs in underserved communities.

Thank you very much for your consideration of these comments.

Sincerely,

James Crowley
Staff Attorney, CLF Rhode Island
(401) 228-1905

[8] "[T]he purchase price of new EVs remains too high for many low-income consumers, and the secondary market for used EVs is just now starting to develop as the first generation of battery and plug-in electric hybrid vehicles are coming off leases." Northeast Corridor Steering Comm., *Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure* 10 (May 2018), *available at* www.nescaum.org/documents/northeast-regional-charging-strategy-2018.pdf.

June 11, 2018

VIA ELECTRONIC MAIL

Allison Callahan
Rhode Island Department of Environmental Management
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Providence, RI 02908
Email: Allison.Callahan@dem.ri.gov

RE: Comments of the Sierra Club Regarding Rhode Island's Draft Beneficiary Mitigation Plan Pursuant to the Volkswagen Environmental Mitigation Trust Agreement

On behalf of the Sierra Club and its more than 2,900 members in Rhode Island, we respectfully submit these comments regarding Rhode Island's Draft Beneficiary Mitigation Plan (the Plan). As explained below, the Sierra Club strongly supports Rhode Island's prioritization of electrification of transit buses, deployment of light-duty electric vehicle (EV) charging infrastructure, and advancement of environmental justice goals as reflected in the state's proposed investments under the Plan and encourages the state, in rolling the Plan out, to coordinate with other entities developing related charging infrastructure.

The Sierra Club believes that Rhode Island's plan to dedicate 75 percent of its VW settlement allocation to full electrification of approximately 20 Rhode Island Public Transit Authority (RIPTA) buses is a strategic and commendable use of these funds. When total lifecycle costs are considered, the transit bus technology that produces the greatest nitrogen oxide (NOx) reductions per dollar ratio is a zero-emission electric bus. Moreover, as noted in the Plan, electrification of the transportation sector—including electrification of transit buses—will keep money in-state by decreasing the need to purchase out-of-state fuel, save money through lower electricity rates, and significantly reduce NOx, smog, and greenhouse gas levels thereby protecting public health. Importantly, the state is proposing to deploy these electric transit buses within urban, high traffic volume areas and along bus routes that connect with environmental justice communities. A census of near-roadway populations found that around 20 percent of the U.S. population lives near a high volume road, and minorities and low-income households are drastically over-represented in this population.[1] Research done in Rhode Island demonstrates the elevated asthma risk for susceptible populations—such as children—in Rhode Island's major cities due, in large part, to harmful mobile source emissions. By prioritizing the goals of

[1] Gregory M. Rowangould, *A Census of the US Near-Roadway Population: Public Health and Environmental Justice Considerations* (2013), http://www.sciencedirect.com/science/article/pii/S1361920913001107.

environmental justice and equity, Rhode Island has the opportunity to improve the health of environmental justice communities and other vulnerable populations across the state.[2]

The Sierra Club also supports Rhode Island's plan to dedicate 10 percent of the settlement funds to light-duty electric vehicle supply equipment (EVSE), with a focus on direct current fast charging (DCFC) stations. As the Plan recognizes, there are currently several other sources of potential funding for DCFC, requiring a coordinated approach to deployment. For example, Electrify America is installing DCFC in many parts of the country using VW Appendix C funds. In addition, a proposed settlement was filed last week with the Rhode Island Public Utilities Commission in dockets 4770 and 4780 that, if approved, would result in a substantial additional investment in EV charging infrastructure, including additional DCFC at a dozen sites. The Sierra Club encourages the state to coordinate closely with both Electrify America and National Grid in rolling out its proposed network of fast charging stations. In doing so, the Sierra Club encourages the state to consider not only ensuring adequate coverage on alternative fuel corridors such as I-95, but also adequate coverage in neighborhood sites around multi-unit dwellings and in low-income communities and communities of color. These communities are a natural but largely untapped market for EVs.[3] Ensuring that multi-unit dwellings and disadvantaged and environmental justice communities are provided charging infrastructure will help promote more equitable access to electrified transportation while also improving air quality in overburdened communities.

Overall, this is a plan that maximizes the environmental and health benefits of the VW Settlement funds and advances state goals of improving air quality generally and in environmental justice communities. The Sierra Club appreciates the environmental leadership shown by Rhode Island in this Plan and the thoughtful approach for achieving emissions reductions through the purchase of all-electric zero-emission buses.

Respectfully submitted,

/s/

Andrea Marshall
Joshua Berman
Sierra Club
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josh.berman@sierraclub.org

[2] The Plan notes that RIPTA bus routes affecting environmental justice areas account for 14.7 million riders annually.
[3] C.C. Song, *Electric Vehicles; Who's Left Stranded?*, The Greenlining Institute at 4 (August, 2011).

PEOPLE'S
Power & Light

Rhode Island Dept. of Environmental Management
235 Promenade Street
Providence, RI 02908

Re: VW Beneficiary Mitigation Plan Comments

June 11, 2018

Dear Allison Callahan,

This is Kat Burnham, Energy Programs Manager on behalf of People's Power & Light (PP&L). PP&L is a Rhode Island non-profit with a mission to accelerate the transition to a low-carbon economy. We offer a range of services to help consumers reduce emissions and access various benefits of clean energy technologies, including electric vehicles. PP&L offers a discount electric vehicle program known as "Drive Green with People's Power & Light" in both Massachusetts and Rhode Island to help customers find an EV that suits their needs and save on the upfront costs. We also provide comprehensive resources related to EV charging infrastructure, policy support, and more. PP&L attended the public information session hosted by the Department of Environmental Management on May 17th and we have reviewed the VW Beneficiary Mitigation Plan (BMP). After our review, we offer the following comments on the BMP.

We know that emissions from transportation are now greater than emissions from electricity. The electrification of our transportation system will garner economic gains and significant emissions reductions. PP&L agrees with sentiment in the plan that it is in Rhode Island's interest to invest in the public transit system. Regarding Category 1, the RIPTA Bus Replacement Project, PP&L applauds the proposal to allocate funds to eventually replace 20 diesel powered buses with all-electric vehicles. This is a critical step to reach our climate change goals, improve public health, and enhance RIPTA's system.

However, we must say that we believe that the state and RIPTA should:

- Announce a date, say 2025, by which no more diesel buses will purchased.
- Commit to purchasing or leasing significantly more than 20 electric buses on the road by 2027.
- Convert the entire fleet of buses from fossil fuels to electricity by 2035.

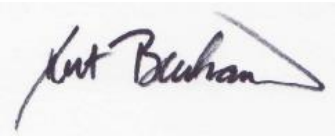
For Category 2, the Light Duty Zero-Emission Vehicle Supply Equipment (EVSE) Projects, PP&L is pleased that the BMP includes investment in charging infrastructure. To increase the proportion of EVs in Rhode Island, appropriate EVSE across the state is essential. Charging infrastructure will support EV driver confidence and charging accessibility. However, this section of the plan does not have a clear timeline or benchmarks of efforts. PP&L would like to see more details in this section outlining how DEM and OER proposes to target EVSE locations, how the EVSE will be selected, and when we can expect installation of EVSE. As part of this category, PP&L recommends that the Department work with the electricity supplier (such as the electric utility, National Grid, or a competitive supplier) to negotiate off-peak pricing for charging for participating stations. Charging vehicles off-peak benefits all ratepayers, even

consumers who do not use EVs. By charging off-peak, users can reduce congestion and strain on the electric grid, and take advantage of cheaper supply. This can lead to greater cost savings and improve the efficiency of the system. PP&L can be a resource in this effort and hopes that off-peak pricing will become part of the BMP effort. It would align this effort with other proceedings that tackle greenhouse gas emissions and system efficiency, notably the Power Sector Transformation efforts currently being settled at the Public Utility Commission in Docket 4780.

Finally, with respect to Category 3, Administrative Expenditures, the BMP notes the requirement to semi-annually report on the action implementation. PP&L appreciates that the Department intends to make these reports publicly available. We would like to emphasize that ongoing public engagement on these efforts will ensure confidence in the plan and allow best practices to be integrated in an ongoing basis.

Thank you for the opportunity to provide comment on the VW BMP. Overall, PP&L is very pleased with the proposals and looks forward to the next steps. RIPTA, DEM, OER, and other leading agencies and stakeholders more broadly have a unique opportunity with the VW Settlement to invest in an electrified transportation system. Clean, reliable public transit will greatly benefit Rhode Island's economy and environment. We look forward to working with you on these efforts.

Sincerely,



Kat Burnham, Energy Programs Manager

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Advancing the Clean Energy Future

Acadia Center

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212.256.1535
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June 11, 2018

Via E-mail

Janet Coit, Director
State of Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908

Comments on Rhode Island's Draft Beneficiary Mitigation Plan pursuant to the Volkswagen Environmental Mitigation Trust Agreement

Dear Director Coit:

Acadia Center thanks the Rhode Island Department of Environmental Management ("DEM") for the opportunity to submit written comments regarding its Draft Beneficiary Mitigation Plan ("Draft BMP") for use of the Environmental Mitigation Trust funds ("Trust" funds") available to the state under the Volkswagen Clean Air Act Settlement. Acadia Center is a non-profit research and advocacy organization committed to advancing the clean energy future. Acadia Center is at the forefront of efforts to build clean, low carbon and consumer friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy and problem solving through innovation and collaboration.

As the Draft BMP states, Rhode Island is eligible to receive nearly $14.4 million of the Trust funds to invest in a cleaner transportation system. Acadia Center has urged the state to use this funding to advance its clean air goals, reduce greenhouse gas emissions, improve health outcomes, and accelerate the transition to a modern, electric transportation system. DEM's proposal to allocate all the program funding to electrification programs is well aligned with these goals. Electric vehicles ("EVs") have zero tailpipe emissions of NOx, which helps improve health outcomes, and they cut greenhouse gas ("GHG") emissions about 75% compared to conventional vehicles, furthering Rhode Island's climate commitments. Investment in electric buses and electric vehicle supply equipment ("EVSE") also facilitates development of the broader consumer electric vehicle market, which is critical in the state meeting its commitment to putting about 43,000 electric vehicles on state roads by 2025.[1]

Acadia Center strongly supports DEM's proposal to use 75% of the Trust funds for transit bus electrification, as it helps address Rhode Island's largest source of NOx emissions, on-road heavy duty vehicles.[2] Adoption of electric transit buses also helps highlight electric vehicle technologies, showcasing them to consumers as options for future vehicle purchases. The BMP's focus on urban, high-traffic corridors or corridors that connect environmental justice

[1] *See* Charging Up by Acadia Center, Sierra Club, and Conservation Law Foundation.
[2] *See* Rhode Island's Draft Beneficiary Mitigation Plan, Volkswagen Environmental Mitigation Trust Agreement

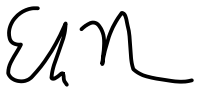
communities ensures that overburdened, underserved populations benefit from the improved air quality that these buses will bring to the state.

Acadia Center also commends DEM for allocating 10% of the Trust funds for EVSE. This funding will help spur consumer adoption of EVs in the state, which will help address the second largest source of NOx emissions, light-duty vehicles. While deploying DC Fast Chargers along the high-traffic I-95 corridor is an important priority, Acadia Center recommends DEM consider using a portion of these funds for a Level 2 charging station program to coordinate with the proposed Power Sector Transformation (PST) settlement currently before the Rhode Island Public Utilities Commission. Effective coordination could reduce the need for ratepayer-funded rebates and either reduce overall revenue requirements or free up funding for other programs. Similarly, the funds dedicated to EVSE should be expended within the first few years of the Volkswagen settlement timeline (3-4 years) to coordinate with the charging station programs under the proposed PST settlement and the broader effort to jumpstart the EV market.

Finally, in siting charging infrastructure, both for consumer EVs and electric transit buses, Acadia Center advises Rhode Island to consider the many potential benefits charging can bring to the electric grid and local electric distribution system, including integration of variable generation and use of off-peak resources.[3] The state should ensure that technologies to promote these benefits are considered in its planning efforts.

Thank you for the opportunity to provide these comments. Acadia Center looks forward to further engaging with DEM as it finalizes the Draft BMP and moves forward with these important electrification projects.

Sincerely,



Erika Niedowski
Policy Advocate, Rhode Island Office
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401.276.0600 ext. 401

[3] *See, e.g.*, Electric Vehicles as Distributed Energy Resources, Rocky Mountain Institute (June 2016), available at https://www.rmi.org/wp-content/uploads/2017/04/RMI_Electric_Vehicles_as_DERs_Final_V2.pdf.

NGVAMERICA
Natural Gas Vehicles for America

400 North Capitol Street, N.W.
Washington, D.C. 20001
ngvamerica.org

June 11, 2018

Ms. Allison Callahan
RI Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

RE: NGVAmerica Comments on the State of Rhode Island Volkswagen Beneficiary Mitigation Plan

Dear Ms. Callahan:

Natural Gas Vehicles for America (NGVAmerica), the national trade association for the natural gas vehicle industry, respectfully submits the following comments to the State of Rhode Island Department of Environmental Management (Department) on its Volkswagen Beneficiary Mitigation Plan (Plan). These comments are in addition to the NGVAmerica comments submitted to the State on May 9, 2017 (attached) regarding NGVAmerica's recommendations on how states can best use the Environmental Mitigation Trust (EMT or Trust) funds that each state will receive as part of the Volkswagen (VW) diesel emission settlement.

The VW EMT funds provide an extraordinary opportunity for Rhode Island and other states to put significantly cleaner, lower-polluting vehicles on the road in public and private fleets. This funding ($14.36 million) can and should be used by Rhode Island to accelerate the use of cleaner, alternative fuels that offer a cost-effective alternative to funding diesel vehicles.

As shown in our VW Comment Letter submitted on May 9, 2017, NGVAmerica believes that natural gas vehicles (both LNG and CNG) offer the best solutions for the projects that will address the goals of the EMT, to reduce the most nitrogen oxide (NOx) for the least cost. Please see the diesel, electric vehicle and natural gas vehicle comparisons on the attached NGVA VW Flyer for heavy duty trucks, transit buses, refuse trucks and school buses. Note that electric transit buses at $750,000 each would result in the purchase of 14 electric buses (less due to the plan to use these funds for the charging infrastructure), while natural gas transit buses at $360,000 each would result in the purchase of almost 30 natural gas buses (fueling infrastructure could be provided as a match) and therefore would double the reduction of NOx for the funds spent (using 75% of the Rhode Island VW allocation). Further, it costs $569 to reduce one pound of NOx using an electric bus and $273 to reduce one pound of NOx using a natural gas bus.

As currently written, Rhode Island's draft plan misses an opportunity to deliver the most NOx reductions and environmental benefit for the funds allocated. This is the case because Rhode Island's VW Beneficiary Mitigation Plan proposes to use its entire allotment of $14.36 million for only one application – Transit buses that are electric. Heavy duty trucks are the major source for NOx emissions, and they are not considered in the Department's VW Plan. We believe that the intended use of the funding in this manner misses a significant opportunity and represents a significant break with the way other states plan to use their funding.

Funding electric transit buses is not the most cost-effective solution to reduce NOx and is contrary to the approach that we support and that most states are following, which is to award funds to projects that deliver the greatest NOx reductions for the least cost. If other applications are given a chance to compete, Rhode Island would likely benefit from the additional reductions and an increase in the deployment of new, cleaner vehicles. The attached comments previously submitted by NGVAmerica provide an overview of the cost-effectiveness of various applications.

The latest natural gas engines are the only zero emission equivalent or near zero engines that are certified to perform at 0.02 g/bhp-hr of nitrogen oxide (NOx) emissions or better and should not be confused with diesel engines certified to the 2010 EPA standard of 0.2 g/bhp-hr NOx standard.[1] The 0.02 g/bhp-hr NOx standard requires that new engines outperform the federal standard by 90 percent and is the cleanest heavy-duty engine standard today. It also is the lowest level currently recognized under California's Optional Low-NOx Standard (OLNS) for engine. Studies have shown that the near zero engines perform at or better than their EPA tested rating, while new diesel engines may have in use emissions that are up to 5 times higher than their EPA tested rating (see NGVAmerica May 9th Comments).

If renewable natural gas (RNG) is used, life cycle greenhouse gas emissions from NGVs are reduced further. Using RNG also creates a market for energy created from waste water treatment, landfills, animal waste and other methane sources and significantly increases air quality by reducing the amount of methane released.

In addition to the above on-road applications, natural gas also is capable of powering non-road applications such as marine vessels, freight switchers and other locomotives. This natural gas technology effectively provides what would be a Tier 5 emissions freight switcher (labeled Tier 4 until the U.S. EPA puts out the Tier 5 specifications) at Tier 4 diesel freight switcher pricing. We urge the Department to ensure that any future funding opportunities or solicitations concerning rail or marine projects be open to natural gas options.

Deploying new natural gas buses will deliver more emission reductions than electric buses because more buses can be deployed for the same amount of funding, allowing the Rhode Island Public Transit Authority to transport even more customers in new, cleaner buses while taking more, older, dirtier buses off the road. NGVAmerica strongly encourages the Department to expand the categories of eligible projects and allow the use of different types of applications and technologies that will reduce the most NOx.

The VW EMT funds provide an opportunity for Rhode Island to cost-effectively accelerate the transition to cleaner vehicles and lower emissions. Natural gas vehicles are commercially available in all the vehicle classes and offer the best solutions today for addressing the goals of the EMT, delivering the most nitrogen oxide emission reductions for the least cost.

Current State Beneficiary Mitigation Plans

Thirty-three states have released VW Beneficiary Mitigation Plans and NGVAmerica has reviewed these plans and offered comments. NGVAmerica believes the Colorado Plan provides an excellent model for other states that wish to segment their funding, maximize the use of alternative fuels, and provide parity among alternative fuels (https://www.colorado.gov/pacific/sites/default/files/AP_VW_Beneficiary_Mitigation_Plan.pdf).

In allocating its funds, Colorado did not pick a preferred alternative fuel (diesel is excluded except for model years 1992-2001) and provides a relative parity for funding for the various fuels through its choice of percentage funding by fuel type. The funding set aside by Colorado for Alt Fuel Trucks/School and Shuttle Buses funds all alternative fuels at 40% of the vehicle cost for government and public entities, while private vehicles are funded at 25% of the vehicle cost (not the 75% allowed for EVs because that would result in fewer vehicles and less NOx reductions, and there are other sources for EV funding). NGVAmerica requests that the Department consider a similar framework of funding percentages for each vehicle to create "parity" among the vehicle types.

[1] See SCAQMD press release from June 3, 2016 providing details on the petition filed by state authorities urging the U.S. EPA to adopt the 0.02 NOx standard (http://www.aqmd.gov/home/library/public-information/2016-news-archives/nox-petition-to-epa) (*Today's action follows a March 4 vote by the SCAQMD's Governing Board to formally petition the U.S. EPA to adopt a so-called "near-zero" or "ultra-low" emissions standard for heavy-duty truck engines that is 90 percent cleaner than the current standard)*.

Additional Options for Vehicle Scrappage

NGVAmerica also recommends that the Department consider the following vehicle scrappage options in the Plan:

- Increase the options for scrappage beyond a strict replacement of a current fleet vehicle (e.g., allow a fleet to acquire an older vehicle from another fleet or allow a fleet to exchange one of its newer vehicles for another fleets older vehicle that is then scrapped)
- Since the Trust does not specify the fuel of the scrappage vehicle, allow natural gas vehicles that meet the year criteria to be scrapped and replaced with new NGVs

Use the Most Current Emissions and Cost Benefit Calculation Tools – HDVEC created for VW Projects

The Argonne National Laboratory's (ANL) AFLEET tool should be used to calculate vehicle / fuel type emissions since this tool has recently been updated to include current data on all vehicles and fuels including in-use emissions data. The AFLEET Tool 2017 updates include:

- Added low-NOx natural gas engine option for CNG and LNG heavy-duty vehicles
- Added diesel in-use emissions multiplier sensitivity case
- Added Idle Reduction Calculator to estimate the idling petroleum use, emissions, and costs for light-duty and heavy-duty vehicles
- Added well-to-pump air pollutants and vehicle cycle petroleum use, GHGs, and air pollutants
- Added more renewable fuel options
- AFLEET Tool spreadsheet and user manual at: http://greet.es.anl.gov/afleet_tool and tool link is: http://www.afdc.energy.gov/tools

ANL has also just released a new vehicle emissions calculator (HDVEC) to provide state officials and fleet managers with an accurate tool to gauge emissions reductions across various medium- and heavy-duty vehicle project options affiliated with the Volkswagen Environmental Mitigation Trust Settlement. The HDVEC tool is available at: http://afleet-web.es.anl.gov/hdv-emissions-calculator/.

Many states historically have used the U.S. EPA Diesel Emissions Quantifier (EPA DEQ) to calculate emissions reductions. The DEQ tool is not current in its underlying assumptions and data for today's engines and in-use emissions, therefore NGVAmerica recommends that the Department use the ANL HDVEC tool for all applicable categories, since the data is current, easy to use and was created for VW projects. NGVAmerica is available to discuss the operation of this tool and show comparisons between it and the DEQ if DEQ desires to do this.

Summary of NGVAmerica's Recommendations for EMT Funding

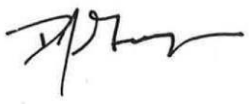
- ✓ Given that the EMT was created because of NOx pollution associated with non-compliant diesel vehicles, we believe that the funding should be set aside for clean, ***alternative fuel*** **vehicle projects that focus on maximizing NOx reduction for the funds spent**
- ✓ Provide a larger incentive and greater overall funding for medium- and heavy-duty engines that deliver **greater NOx reductions than currently required** for new vehicles and engines
- ✓ Target funding for technologies that have demonstrated the ability to deliver actual **lower in-use emissions** when operated in real-world conditions

- ✓ Provide the **highest level of funding to applications that produce the largest share of NOx emissions** (in most regions this means prioritizing for short-haul, regional-haul and refuse trucks)
- ✓ Prioritize funding for **commercially available products that are ready for use**
- ✓ Prioritize funding for **clean vehicles rather than fueling infrastructure**
- ✓ **Scale funding to incentivize the cleanest engines available** – at a minimum, provide parity among alternative fuels by following a version of the Colorado VW Plan that funds non-diesel alternative vehicles in the private sector at 25% of the cost of the vehicle and public sector vehicles at 40%
- ✓ Ensure that funding incentivizes adoption by **both public and private fleets**
- ✓ Prioritize projects that include **partnerships that provide a match** such as a CNG or LNG station being built in locations that will receive the VW funding
- ✓ **Accelerate the funding** in the early years to maximize the NOx reduction benefits
- ✓ Use vehicles emissions measurement tools that reflect current technologies and performance under real world operation duty cycles – **Argonne National Laboratory's AFLEET tool and HDVEC tools** are the most current tools available

Compared to other alternative fuels and to diesel vehicles, natural gas vehicles that are commercially available today, offer the best solution for addressing the goals of the EMT. The Department recognizes the value of cost-effective NOx reductions that NGVs provide, and that these emission reductions can be realized today.

NGVAmerica welcomes the opportunity to provide further information and analysis on the economic and environmental benefits of natural gas vehicles in Rhode Island. Please contact Jeff Clarke, NGVAmerica General Counsel & Regulatory Affairs Director at 202.824.7364 (jclarke@NGVAmerica.org), or Sherrie Merrow, NGVAmerica State Government Advocacy Director at 303.883.5121 (smerrow@NGVAmerica.org) to set up a meeting and for additional information.

Sincerely,



Daniel J. Gage
President

Callahan, Allison (DEM)

From: Kevin Miller <kevin.miller@chargepoint.com>
Sent: Tuesday, June 05, 2018 11:21 AM
To: Callahan, Allison (DEM)
Cc: Cote, Ryan (DOA); Musher, Danny (DOA)
Subject: Re: [EXTERNAL] : RI Beneficiary Mitigation Plan

Follow Up Flag: Follow up
Due By: Wednesday, September 26, 2018 3:00 PM
Flag Status: Flagged

Hi Allison,

Thank you for the insight, and my apologies for my delayed response! Happy to take your recommendation and delay meeting until later in the process. When you believe it is appropriate, I would appreciate the chance to come in with some of my colleagues from our Corridor Deployment Team to share our experience/perspective on key issues to consider when designing fast charging corridor programs.

Hope that all is well, and looking forward to the opportunity to meet.

Best,
Kevin

From: "Callahan, Allison (DEM)" <allison.callahan@dem.ri.gov>
Date: Thursday, May 24, 2018 at 1:27 PM
To: Kevin Miller <kevin.miller@chargepoint.com>
Cc: "Cote, Ryan (DOA)" <Ryan.Cote@energy.ri.gov>, "Musher, Danny (DOA)" <Danny.Musher@energy.ri.gov>
Subject: RE: [EXTERNAL] : RI Beneficiary Mitigation Plan

Hi Kevin,
Thanks for reaching out! The development of our charging infrastructure program will be headed by our colleagues at OER (cc'd). As outlined in the VW Mitigation Plan, OER will focus on DC Fast Charging along I-95 alternative fuel corridor with consideration of geographic diversity. We'd be happy to coordinate a meeting now (before the close of our comment period on June 11th), if you would like to provide plan specific feedback.
Otherwise, I would recommend meeting at a later point in time based off the proposed timeline for EVSE program development.

- 2018/19: consider analysis of preferred locations along major RI corridors; coordinate planned investment with outcomes of Electrify America and National Grid rate case;
- 2019/20: Issue RFP for EVSE installer/provider; commence installation.

If you'd like to meet sooner rather than later, please send along a few more dates/times.
Thanks,
Allison

Allison Callahan, Senior Air Quality Specialist
Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street, Providence RI 02908
401.222.2808 ext. 2035

Allison.Callahan@dem.ri.gov
www.dem.ri.gov

See what's happening on our social sites:
[facebook.com] [twitter.com] [youtube.com]

From: Kevin Miller [mailto:kevin.miller@chargepoint.com]
Sent: Friday, May 18, 2018 11:50 AM
To: Callahan, Allison (DEM) <allison.callahan@dem.ri.gov>
Cc: Cote, Ryan (DOA) <Ryan.Cote@energy.ri.gov>; Musher, Danny (DOA) <Danny.Musher@energy.ri.gov>
Subject: [EXTERNAL] : RI Beneficiary Mitigation Plan

Hi Allison,

I am writing to introduce myself as ChargePoint's Director of Public Policy and to request time to meet with DEM. ChargePoint had been anticipating release of RI's draft Beneficiary Mitigation Plan, and we would appreciate the opportunity to meet and share our perspective on EV charging technology, program design, and deployment issues. Would you happen to have time to meet either next Thursday the 24th (PM) or Friday the 25th? We'd be happy to accommodate your schedule if neither of those days are convenient.

Thank you for your consideration and have a great weekend!

Best,
Kevin

--
Kevin George Miller
Director, Public Policy
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Callahan, Allison (DEM)

From: Karp, Caroline <caroline_karp@brown.edu>
Sent: Monday, June 11, 2018 3:19 PM
To: Callahan, Allison (DEM)
Cc: Stone, Elizabeth (DEM); Coit, Janet (DEM)
Subject: [EXTERNAL] : Comments on DRAFT Beneficiary Mitigation Plan

Follow Up Flag: Follow up
Flag Status: Flagged

Great plan.

I think the State should consider diverting cost of 1-3 buses to:

- C**apitalize a Revolving Loan Fund** to enable cities& towns or regions, e.g., Route 195 along India Point Park and Route 2, and large workplace sites such as Quonset to seek loans to finance small, local bus routes and infrastructure.

- **Monitor (measure as well as model) actual reduction in NOx** and related emissions as a result of investments.

with best regards,

Caroline

Caroline A Karp, Esq.
Senior Lecturer, Emerita
Environmental Studies and International and Public Affairs
Taubman Center for American Politics and Policy
Brown University
Providence, RI 02912

Callahan, Allison (DEM)

From: J. Timmons Roberts <j_timmons_roberts@brown.edu>
Sent: Monday, June 11, 2018 4:22 PM
To: Callahan, Allison (DEM)
Subject: [EXTERNAL] : Further comment on VW settlement

Follow Up Flag: Follow up
Flag Status: Flagged

Hi all,

I made earlier comments about focusing spending on replacing the dirtiest diesels in the most polluted and asthmatic areas. Thanks much for considering equity issues.

Here are a couple more.

1. The $2.15 in administration costs for $13m seems very high. I can see RiPTA having to coordinate with federal and state match, but still seems high.

2. For RIPTA, is the purchase of large buses the most efficient use of the funds? Many routes can run with smaller equipment with fewer seats, and this represents huge savings in battery weight, etc.

Many thanks.
Timmons Roberts
15 Grotto Ave
Providence 02906

--

Timmons Roberts @timmonsroberts
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Director, the Climate and Development Lab www.climatedevlab.brown.edu [climatedevlab.brown.edu]
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