

Timestamp	City	County	Zip	Choose all that apply:	Comments:
2017/09/07 7:39:55 AM MDT	Suncity	Happy	81134	Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Freight Switchers; Class 4-7 Local Freight Trucks; Forklifts; Diesel Emission Reduction Act Option	My proposed activity would be to permanently disable all diesel powered vehicles and replace with horses
2017/09/07 7:44:58 AM MDT	Youber Tube r	Stash	84321	Airport Ground Support Equipment; Forklifts; Light Duty Zero Emission Vehicle Supply Equipment	Horses are the answer. And mules. That would solve all our problems. We can use the feces for fuel. Grind the old animals up to feed our pets. Use the bones for personal decorations.
2017/10/31 3:58:29 PM MDT	Provo	Utah	84606	Airport Ground Support Equipment; Light Duty Zero Emission Vehicle Supply Equipment; Vehicles/equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-miig-compar-2017-01.pdf)	Not sure what you mean by title and affiliation
2017/10/31 7:54:45 PM MDT	kearns	salt lake	84118	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Airport Ground Support Equipment; Forklifts; Light Duty Zero Emission Vehicle Supply Equipment	Use the max allowable to fund electric vehicle charging both level 1 and 2 at Traa ride share and Front Runner stations. Funding for pre-heaters in all school buses and shuttle buses that serve the Wasatch front should be the next priority. Older large freight trucks should be looked at to be repowered or replaces. Electric forklifts and airport ground support equipment should be the rest of the funds.
2017/11/01 8:21:47 AM MDT	Lindon	UT	84042	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Light Duty Zero Emission Vehicle Supply Equipment	No money should go to Transit alternatives whatsoever. UTA already gets a disproportionate amount of money, and has a proven track record of fraudulent and wasteful spending. Their proposed cost per unit is absurd, compared to the actual CO2 reduction by retrofitting their locomotives and buses. UTA should get 0 Volkswagen money.
2017/11/03 10:57:20 AM MDT	Saratoga Springs	Utah	84045	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	Please put the majority towards local school buses followed by city and county vehicles in the above categories. None to UTA.
2017/11/06 8:56:32 AM MST	Salt Lake City	UT	84102	Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Light Duty Zero Emission Vehicle Supply Equipment	As an owner of one of the VW settlement vehicles, I am disappointed in DAQ's proposed plan. The majority of the funding (52%) goes to one of the lowest ratios possible in cost/ton of NOx reduced instead of focusing funding on alternatives that have higher return values. I wish to see how DAQ's plan shows the most "bang for buck" for emissions, health, economic and population exposure by the majority of the funding going towards one of the least effective replacement categories. I also have severe asthma health problems and my asthma is wildly out of control in the winter months due to the Salt Lake Valley's air quality. I fail to see how Utah's fuel neutral position helps locals health and exposure. The State has the opportunity to take advantage and reduce fossil fuel dependency, but instead chooses to propose plans that simply replace old diesel freight trucks with new diesel trucks, which still pollute our local air. This is a chance for Utah to fund emerging technologies, local schools with new school buses, invest in transit, and light duty zero emission vehicles. Is DAQ factoring in lost work productivity due to limited travel, sick days, and higher long term uninsured health care costs during poor air quality days into their economic analysis of supporting diesel replacement vehicles? How is the State taking advantage of this opportunity to leverage local funds to help our air quality to maximum, e. installing additional stations to match increasing number of ZEV?
2017/11/13 4:24:13 PM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	Funding should be targeted to the public/municipal fleets for the following reasons: 1) Replacing Class 8 and Class 4-7 which yields the highest cost/benefit reduction in terms of reduced emissions. 2) If the funds are targeted to public fleets, not only to citizens get the benefit of reduced emissions, but their city fleet will get a new free or reduced cost vehicle resulting in savings to taxpayer. Also with public fleet we know the vehicle will stay in the area with an air quality problem (this may not be the case if the funds are used for private fleets). 3) There are plenty of older dirty heavy duty vehicles in the public fleet that are good candidates for replacement.
2017/11/14 7:26:34 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Forklifts; Vehicles/equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-miig-compar-2017-01.pdf)	We have several high emissions vehicles in our fleet that would be good candidates for replacement.
2017/11/14 9:45:59 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Vehicles/equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-miig-compar-2017-01.pdf)	I strongly support the use of the funds for replacement of city-owned trucks. This provides a benefit to the public and assures that the vehicles will be used in the areas where they were originally purchased.
2017/11/14 10:10:31 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Light Duty Zero Emission Vehicle Supply Equipment	November 14, 2017 Utah Department of Environmental Quality ATTN: Lisa Burr, Division of Air Quality 195 North 1350 West Salt Lake City, UT 84114
2017/11/14 10:37:27 AM MST	Sacramento	Sacramento	95814	Light Duty Zero Emission Vehicle Supply Equipment	Subject: GM Comments on Utah's VW Environmental Mitigation Trust (EMT) Fund and Advisory Committee Recommendations General Motors LLC (GM) appreciates the opportunity to provide input on the use of funding in the state's Environmental/Beneficiary Mitigation Plan and would like to encourage Utah to use the maximum allowed 15% of the fund (requiring to approximately \$5 million) to increase the availability of critically-needed electric vehicle (EV) charging stations. There are currently over 4,000 EVs registered in Utah, and in order to grow the EV market and attract even more advanced transportation technologies to the state, such as self-driving EVs, Utah needs to invest in a charging infrastructure network that addresses consumer and industry concerns. 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" & Green Car Journal's "Green Car of the Year". The Bolt EV is the industry's first affordable, long-range EV with an
2017/11/14 11:18:10 PM MST	Wellsville	Cache	84339	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	
2017/11/14 7:40:55 PM MST	Lewiston	Cache	84320	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf)	The point of the settlement is to reduce NOx in a targeted way. Cache Valley has extremely bad air quality in the winter time and Logan city is currently running a lot of model year 2009 and older class 8 trash trucks that are putting out sickening amounts of NOx. I feel to have the best return on the settlement money and to have the most tangible effect it should be used to replace older diesel powered refuse trucks in the cache valley area with newer cleaner trucks.
2017/11/14 2:48:37 PM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Freight Switchers; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Airport Ground Support Equipment; Forklifts	
2017/11/14 3:57:36 PM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf); Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	I think the funds should be used mostly for replacing public and municipal vehicle fleets since this seems to give us the biggest bang for our buck for improving air quality in our counties.

2017/11/14 4:44:48 PM MST	Richmond	Cache	84333	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf)	As a small City with limited funds to upgrade and replace old equipment we would request that the funds are utilized for public/municipal fleets. We currently operate plow trucks that are around 20 years old and contribute to Cache Valley's poor air quality. These funds should especially be targeted to locations throughout the state, such as Cache County, that have the poorest air quality. Most public municipal corporations will utilize the equipment obtained for many years where as placing the money in the private sector there is not guarantee the equipment will stay with in the state or location believed to have improved. By concentrating the moneys to public and municipal fleets the equipment stays where the money was intend to make a positive impact on the air quality.
2017/11/15 4:25:03 PM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	There is tremendous need in municipal fleets to replace the older trucks with newer and cleaner trucks. In Logan alone we have 40 Class 8 trucks that are between 1992 and 2009. I am sure the private sector also has many opportunities to replace older trucks. I would suggest a funding approach that provides opportunities for both municipal and private vehicles to access this funding to replace the worst vehicles.
2017/11/16 3:40:40 PM MST	Salt Lake City	Salt Lake	84115	Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/fine-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mil-q-compar-2017-01.pdf)	
2017/11/17 12:00:58 AM MST	Logan	UT	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/fine-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mil-q-compar-2017-01.pdf)	Don't give it to private company's they can pay for their own freight trucks upgrades. Snow plows seem like the best option for Utah.
2017/11/17 8:52:12 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	
2017/11/17 9:20:56 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	Due to the fact that we service the entire Cache Valley area, this would be the best 'bang for the buck' to help with the air quality in the valley that I can think of.
2017/11/17 11:13:36 AM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf)	
2017/11/20 12:09:51 PM MST	Salt Lake City	Salt Lake County	84115	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Light Duty Zero Emission Vehicle Supply Equipment; Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/fine-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mil-q-compar-2017-01.pdf)	
2017/11/20 2:02:02 PM MST	Sandy	Salt Lake	84070	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Light Duty Zero Emission Vehicle Supply Equipment	
2017/11/20 2:26:16 PM MST	Park City	Summit	84098	Class 4-8 School Buses, Shuttle Buses, or Transit Buses	1.) Install equipment at freeway entrances to monitor emissions from passing vehicles. On acceleration, poorly tuned, defective or "chipped" vehicles will emit a cloud of exhaust. Analysis is instant. Take a picture and bring the offending vehicle in for compliance work. Selective enforcement of this nature will catch far more automotive clean air offenders (at minimal cost). 2.) Create more roof top solar (not less, as contemplated by the most recent solar compromise ratified by Utah's PSC). A distributed grid is a resilient grid. We need more, not less. People willing to pay for a system to create clean energy should be rewarded not punished with a lower rate of return. They invest THEIR money in Utah's over-all health instead of leaving it to a big utility. Find ways to use excess capacity to store energy (perhaps by pumping water to storage tanks and then releasing it to drive turbines when the sun is not shining). Surely we can't be so short-sighted as to limit the number of roof tops with solar. 3.) Encourage battery (or any other alternative energy storage) technology development contests at local schools and universities or to backyard developers. It is amazing what good people can do in their garage. 4.) Invest in STEM. Encourage math and engineering skills in schools.
2017/11/20 3:48:32 PM MST	Salt Lake City	Salt Lake	84108	Light Duty Zero Emission Vehicle Supply Equipment	DAQ should use the full 15% of its allocation to help expand Utah's EV charging infrastructure. DAQ should prioritize funding that replaces existing diesel vehicles with electric vehicles, including heavy duty trucks, delivery trucks, transit buses, and school buses. I suggest that the state allows and encourages vehicle replacement and repowering to encourage a shift to electric vehicles wherever electric options are available in the market. DAQ should allocate a modest, but sufficient amount of the funding to effectively administer this program, so as not to detract from its other important responsibilities. I encourage at least 8% to 10%.
2017/11/20 3:55:51 PM MST	Logan	Cache	84341	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Light Duty Zero Emission Vehicle Supply Equipment	
2017/11/21 9:03:15 AM MST	Clearfield	Davis	84015	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Freight Switchers; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf); Light Duty Zero Emission Vehicle Supply Equipment	47% Class 8 Local Freight (diesel), 15% School Buses (diesel), 10% Freight Switch Locomotives (diesel), 10% Class 4-7 Local Freight Delivery Trucks (diesel), 8% Administrative Costs, 5% Shuttle Buses (diesel), 5% Light Duty Zero Emissions Vehicle Supply Equipment (electric).
2017/11/21 2:06:23 PM MST	Logan	Cache	84321	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	Focus on the vehicles that are more likely to remain in this state long term.
2017/11/21 4:41:28 PM MST	Los Angeles	Los Angeles	90064	Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Light Duty Zero Emission Vehicle Supply Equipment	These funds should be targeted to municipal, county, and state owned fleets. This will provide a benefit to all tax payers since this will help defray costs to these jurisdictions that will otherwise have to be covered by taxes. Also, by targeting these government owned fleets, the emissions benefits will be contained to the jurisdictional boundaries of those entities where the emission problems are. Comments of Evgo Services, LLC Volkswagen Settlement Proposed Beneficiary Mitigation Plan Utah Department of Environmental Quality (DEQ) Submitted November 21, 2017 Thank you for the opportunity to comment on the State of Utah's Volkswagen Environmental Mitigation Plan Advisory Committee's recommendations. As a charging infrastructure leader with the largest public fast charging network in the country, EVgo continues to believe that any and all additional funding for fast charging infrastructure is welcome and vital to help make electric vehicle (EV) adoption more accessible for Utah residents. Transportation electrification necessitates a robust charging infrastructure to unlock its benefits for Utah. Below are EVgo's comments and recommendations for the Environmental Mitigation Plan: Light Duty EV Supply Equipment (EVSE) EVgo recommends the max 15% utilization of total settlement funds allotted to light duty EV Supply equipment. While the Advisory Committee has recommended 11%, EVgo believes that ZEV charging infrastructure investments are critical to bringing needed ZEV driving capabilities to communities across the state. This settlement provides the opportunity for a large injection of additional capital into ZEV infrastructure, and EVgo views this as necessary and beneficial for Utah drivers, EV deployments, and existing charging industry participants. Accordingly, we have been
2017/11/22 7:47:38 AM MST	Hyde Park	Cache	84318	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf)	Our city has four older diesel trucks used in all aspects of maintaining the infrastructure of the city. It is more beneficial to support local municipalities and counties than the private community.
2017/11/24 6:05:34 AM MST	Salt Lake City	Salt Lake	84108	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	
2017/11/27 10:52:01 PM MST	SIC	Salt Lake	84102	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses; Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf)	

2017/11/29 9:57:34 AM MST	Salt Lake City	Salt Lake	84105	Class 4-8 School Buses, Shuttle Buses, or Transit Buses	This money would be effectively spent by subsidizing the switch out of our local public fleets. By upgrading buses we help decrease the impairment to health of the large population of riders and decrease pollution within the cities.
2017/11/30 5:40:24 AM MST	Louisville	Kentucky	40245	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Light Duty Zero Emission Vehicle Supply Equipment	Thank you for the opportunity to provide comments on Utah's Settlement Mitigation Plan. UPS was founded almost 110 years ago as messenger service and has turned into one of the largest package delivery companies in the world. We currently operate in 220 countries and deliver over 4.7 billion packages each year. With a fleet of over 110,000 vehicles, efficiency is key to our operational success. At the same time, UPS is committed to reducing greenhouse gas emissions. UPS began with electric vehicles in New York City in the 1930s. We have now grown to over 8,000 alternative fuel vehicles that run on compressed natural gas, liquefied natural gas, propane, electric and even e-bicycles. To date our alternative fueled vehicles have driven over 1 billion miles. These vehicles don't just reduce greenhouse gas emissions but ensure UPS is being more efficient, thus, more sustainable. The VW Settlement provides an opportunity for UPS and other carriers to make an investment in alternative fuel technologies because the funds will help drive down the cost differential for the equipment. While equipment prices have come down some, natural gas and electric vehicles are sometimes two or three times the cost of a gasoline or diesel vehicle. This is why the VW Settlement Funds will provide much needed incentives to those wishing to switch to a cleaner burning vehicle. UPS recommendations on Utah's VW Settlement Mitigation Plan: Recommendation #1: Funding for government entities should be the same as those for non-government entities. UPS believes that states can have a bigger impact, dollar for dollar, by deploying as many low emitting vehicles on the road as possible. If government entities use all of the funds, the impact will be muted as opposed to allowing more cost-share and maximizing vehicles deployed. Recommendation #2: While the VW Settlement states electric vehicles can receive up to 75% reimbursement and 25% for natural gas, that doesn't mean it can't be negotiated. UPS and other carriers who can make a large impact on air quality and have the capital to deploy large quantities of vehicles should have the ability to negotiate with the state of Utah on an arrangement that benefits the state and the private companies wishing to make the investment. For example, a company that wants to deploy both natural gas vehicles and electric vehicles could negotiate with the state for 20% reimbursement on electric vehicles and a 20% reimbursement for natural gas or some other variation. This would allow for the Commonwealth to fund
2017/11/30 9:08:05 AM MST	Centerville	Davis	84014	Class 4-8 School Buses, Shuttle Buses, or Transit Buses	I have also submitted more detailed information directly to Director Lisa Burr. Thank you for the opportunity to participate in this program.
2017/11/30 11:11:19 AM MST	West Valley	Salt Lake	84120	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Freight Switchers, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Airport Ground Support Equipment, Forklifts, Light Duty Zero Emission Vehicle Supply Equipment, Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf)	November 30, 2017 Re: Public Comments on Utah's Proposed Environmental Mitigation Trust program
2017/11/30 11:16:37 AM MST	West Valley	Salt Lake	84120	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Freight Switchers, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Airport Ground Support Equipment, Forklifts, Light Duty Zero Emission Vehicle Supply Equipment, Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf)	The purpose of this letter is to provide Cummins' comments on Utah's proposed Environmental Mitigation Trust program. We appreciate the opportunity to provide the Utah Department of Environmental Quality with our suggestions on the most cost-effective methods to reduce NOx emissions in the state through the \$35.4 million in funding provided by the Volkswagen Environmental Mitigation Trust (VW Settlement). We at Cummins would like to lobby the Utah Department of Environmental Quality decision makers to keep the settlement money open to all technologies; and not to favor one technology over another. This allows the state greater flexibility to meet the air quality needs of the diverse communities and diesel equipment operators. Taking the stance as if technology neutral will also allow Utah to analyze each application based on both merit and cost-effective use of the funds for maximum reduction of NOx emissions across the state. We believe the quickest and most effective manner for the state of Utah to administer funds related to the VW settlement is to utilize the existing infrastructure related to the Diesel Emissions Reduction Act (DERA). DERA has a proven track record for helping communities remove older diesel engines and vehicles from local communities and replacing them with clean diesel and natural gas products with substantially lower emissions. Between 2008 and 2013, more than 73,000 older diesel vehicles and pieces of equipment were upgraded to the latest emissions standards under
2017/11/30 11:16:37 AM MST	West Valley	Salt Lake	84121	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Freight Switchers, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Airport Ground Support Equipment, Forklifts, Light Duty Zero Emission Vehicle Supply Equipment, Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf)	November 30, 2017 Re: Public Comments on Utah's Proposed Environmental Mitigation Trust program
2017/11/30 1:35:23 PM MST	Salt Lake City	Salt Lake	84111	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Forklifts, Light Duty Zero Emission Vehicle Supply Equipment	~5% for electric forklifts. These demonstrate the highest NOx reduction for the most realistic price for a private company to invest in. By scrapping this type of equipment, a private company will be more interested in newer technology because an electri
2017/11/30 2:18:40 PM MST	Campbell	Santa Clara, CA	94041	Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Light Duty Zero Emission Vehicle Supply Equipment	November 30, 2017 Alan Matheson, Executive Director Utah Department of Environmental Quality 195 North 1950 West Salt Lake City, UT 84114 Re: Comments on Utah DEQ's Development of an Environmental Mitigation Plan for the Volkswagen Environmental Mitigation Trust Dear Mr. Matheson, Thank you for the opportunity to provide comments on the Environmental Mitigation Trust funding allocated to the State of Utah under Appendix D of the VW Settlement. ChargePoint is the largest electric vehicle (EV) charging network in the world, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town and on the road. With nearly 43,000 independently-owned charging spots and more than 7,000 customers nationwide, ChargePoint drivers have completed more than 29 million charging sessions, saving upwards of 28 million gallons of gasoline and driving more than 687 million gas-free miles. In addition, there are currently 275 ChargePoint charging spots in the State of Utah. Background on VW Settlement
2017/11/30 4:21:49 PM MST	Washington DC		20001	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Freight Switchers, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf)	Please see previously submitted comment letter.
2017/11/30 4:33:00 PM MST	Salt Lake City	Salt Lake	84152	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Light Duty Zero Emission Vehicle Supply Equipment, Vehicles/Equipment eligible through the Diesel Emission Reduction Act (e.g., commuter rail/line-haul locomotives, non-road diesel equipment) (https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-eligible-mitig-compar-2017-01.pdf)	To: Ms. Lisa Burr and Mr. Bryce Bird, Utah Division of Air Quality From: Ashley Miller, Breathe Utah Re: Volkswagen Settlement Environmental Mitigation Plan Date: November 30, 2017 Dear Ms. Burr and Mr. Bird, Thank you for the opportunity to provide comments on this important issue. Breathe Utah believes this funding will be a critical opportunity to reduce NOx emissions and help transition the transportation sector within Utah to a cleaner fleet. Having participated in the Advisory Committee, our recommendations fall in line with those provided by the Committee, with a few differences discussed below. Administrative Costs The Division of Air Quality should allocate up to the allowed 15% of the funding for administrative costs. We appreciate that successfully implementing the programs that are developed by this funding will require significant DAQ staff time. We are supportive of what the Division determines to be necessary. To: Ms. Lisa Burr and Mr. Bryce Bird, Utah Division of Air Quality From: Tammie Bostick-Cooper, Utah Clean Cities Dr. Royal DeGagne, Chairman of the Board Re: Volkswagen Settlement Environmental Mitigation Plan Date: November 30, 2017 Dear Ms. Burr and Mr. Bird, Thank you for the opportunity to provide comments on this important issue. Utah Clean Cities has been working for clean air strategies for over 25 years in Utah. We have worked closely with the Governor's Office of Energy Development, Salt Lake City, Utah cities, businesses and private enterprises along with the national network of the Department of Energy Clean Cities programs. Utah continues to be the nation on numerous clean fuel initiatives with alternative fuel corridors, alternative fueling and electric charging stations along with the alternative fueled fleets for businesses and governments. We offer the latest technical assistance, grant support, and funding opportunities for our members statewide. The mission of Utah Clean Cities is to advance the energy, economic, and environmental security of the United States by supporting local decisions to adopt practices that reduce the use of petroleum in the transportation sector. We believe the VW mitigation plan is an opportunity to stimulate the transformation of commercial fleets within our state towards zero and near-zero emission vehicles.
2017/11/30 9:12:09 PM MST	Salt Lake City	Salt Lake County	84001	Class 8 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012046.pdf), Class 4-8 School Buses, Shuttle Buses, or Transit Buses, Class 4-7 Local Freight Trucks (https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/vw-settlement/DAQ-2017-012045.pdf), Light Duty Zero Emission Vehicle Supply Equipment	Please see comments submitted on behalf of the Utah Sierra Club to lburr@utah.gov and bbird@utah.gov



Submitted via email to lburr@utah.gov

November 29, 2017

Lisa Burr
Division of Air Quality
(801) 536-4000

RE: ADOMANI Comments on Utah's Use of Volkswagen Settlement Funds

Dear Ms. Burr –

The Environmental Mitigation Trust (EMT) and the \$35.2 million it will yield for Utah represents an unprecedented opportunity to support long-term investments toward a zero-emission transportation sector while simultaneously prioritizing children and clean air.

As the President and CEO of ADOMANI, Inc. (ADOMANI), I have outlined recommendations that addresses how Utah can support innovative and transformative all-electric vehicle projects, which will reduce nitrogen oxide (NOx) and greenhouse gas (GHG) emissions, deliver air quality benefits to disadvantaged communities and areas disproportionately affected by diesel pollution, and reduce our dependence on petroleum fuels. Specifically, we commend the Volkswagen Environmental Mitigation Plan Advisory Committee on its proposed allocation of 7 percent of state funds for school, shuttle, and transit bus projects. However, for the reasons outlined below, we recommend that the state increase this amount in order to better address localized air quality and environmental justice issues in priority counties.

ADOMANI manufactures the zero-emission All American RE electric bus chassis for the Blue Bird Corporation, which is part of our premier product line of medium- and heavy-duty all-electric vehicles. Our All American RE school bus offers battery capacities between 100 kWh and 150 kWh, with an expected 80- to 100-mile range on a single charge. ADOMANI has demonstrated experience in the new and conversion markets, the latter of which helps our customers cost-effectively repower to all-electric or hybrid drivetrains. As a testament to our team's long-standing industry leadership, ADOMANI takes pride in our relationships with trusted service partners to address customers' specific needs.

While the EMT gives Utah the flexibility to fund a variety of conventional and alternative fuel on- and off-road vehicle projects, **we believe that all-electric school bus projects will provide the most comprehensive suite of benefits.** This includes zero emission vehicle operations in direct proximity to sensitive receptors and disadvantaged communities, reduced operating costs for budget-constrained school districts, no need for diesel fuel storage or procurement, and improvements to public health, particularly among children.

The market for advanced transportation technologies has grown steadily in recent years and we hope to support Utah continue this trend with the deployment of all-electric vehicles. Our recommendations below outline how your state can do just that and we look forward to working with your team to ensure a successful roll-out of funds.

Help Yellow Go Green!™



The EMT Provides Utah with the Opportunity to Fund Innovative and Transformative Transportation Projects

The medium- and heavy-duty diesel transportation sector is the leading source of mobile source NOx emissions from vehicles in Utah, accounting for 71 percent of the total.¹ By directing funds towards projects that reduce these emissions sources, Utah can most effectively mitigate these emissions' harmful air quality and health impacts.

While aging diesel-fueled vehicles generate the most mobile source NOx emissions, some medium- and heavy-duty fleets have turned to gaseous fuels, such as compressed natural gas (CNG) and propane autogas, to help mitigate NOx emissions. These, however, are temporarily solutions – President Barack Obama, in his 2014 State of the Union address, referred to natural gas as a “bridge fuel.”² Fortunately, there are now commercially available all-electric and hybrid-electric medium- and heavy-duty vehicles on the other side of the bridge. Recent technology advancements in the electric vehicle technology market have allowed technology providers heretofore unprecedented access to these markets and fleets can now select from an increasing array of zero-emission and hybrid options.

States across the U.S. have taken strides to fund the advancement of clean transportation solutions. Incentive programs, such as California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) and the New York Truck – Voucher Incentive Program (NYT-VIP), catalyze the growth of the electric vehicle market, while providing significant air quality and climate benefits. ADOMANI encourages Utah to recognize the merits of these programs and recommends that you support their proliferation by creating a similar program with your state's allocation of Volkswagen funds.

All-Electric School Buses Improve Air Quality and Public Health for Children and Adults via Unparalleled NOx Reductions

By supporting the conversion of school bus fleets to all-electric operations, ADOMANI will support your state's efforts to dramatically reduce NOx emissions. ADOMANI's school buses deliver immediate NOx and GHG emissions reductions, thus improving air quality for child passengers and adult vehicle operators, which are otherwise exposed to respiratory irritants on a regular basis.

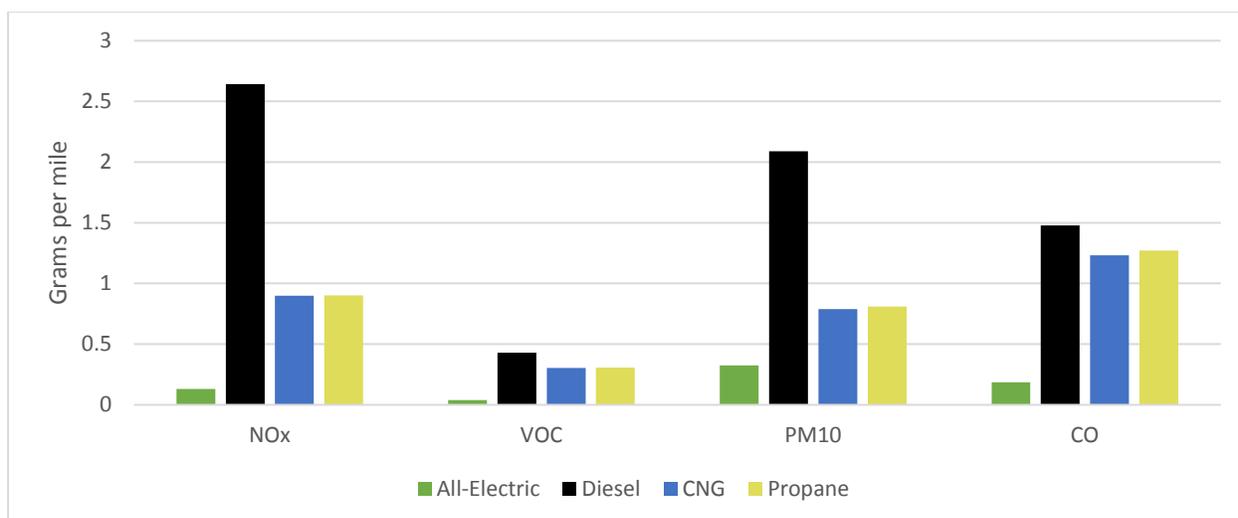
Most relevant to the Volkswagen funds, we find it important to first focus on the settlement's main objective: reduce NOx emissions. Figure 1 below compares the performance of various fuel types in heavy-duty school buses, which makes clear that electric vehicle technologies should be a top priority.

¹ “2014 National Emissions Inventory (NEI) Data”. United States Environmental Protection Agency. <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>.

² “President Barack Obama's State of the Union Address”. The White House, Office of the Press Secretary, January 28, 2014. <https://obamawhitehouse.archives.gov/the-press-office/2014/01/28/president-barack-obamas-state-union-address>.



Figure 1: Emissions Benefits (grams per ton) of All-Electric Heavy-Duty School Bus vs. Other Fuel Types³



These emissions reductions correlate directly with air quality and public health benefits. According to the EPA’s Diesel Emissions Quantifier, the replacement of just one diesel school bus with an all-electric model will generate \$20,000 in public health benefits each year.⁴ These benefits represent the dollar value of health benefits generated from reducing the population’s exposure to PM2.5 emissions and include the reduction of premature mortality, chronic bronchitis, asthma attacks, non-fatal heart attacks, and other health problems. In school bus applications, these emissions reductions are particularly important, given that children’s exposure to harmful air pollutants may be 5-15 times higher inside the bus.⁵

A recent study by the University of Delaware evaluated the costs and benefits associated with a V2G-capable electric school bus compared to a traditional diesel school bus.⁶ The study looked at a variety of data points and metrics to compare the fuel types in a school bus application and found that diesel school buses created public health costs of \$0.08 per mile. This is 800% more expensive than the public health costs of an all-electric bus, which is just \$0.0149 per mile.

Utah Should Prioritize Projects that Deliver Total Cost of Ownership Benefits to State School Districts

All-electric school buses deliver total cost of ownership benefits that far exceed any of its conventional and alternative fuel competitors. We have provided the infographic below to demonstrate these benefits.

³ Figure 1 contains the best available current data from seventeen different studies and air emission analyses, including emissions data reported by the U.S. Environmental Protection Agency, U.S. Department of Energy, and Argonne National Laboratory.

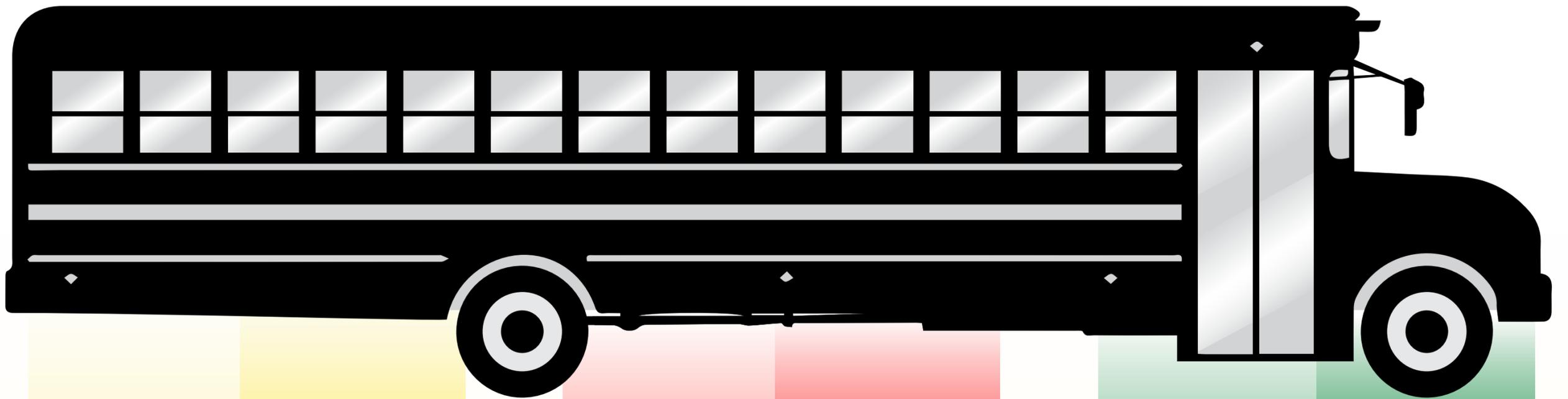
⁴ “Diesel Emissions Quantifier.” U.S. Environmental Protection Agency, <https://www.epa.gov/cleandiesel/diesel-emissions-quantifier-deq>. Analysis assumes MY 2000 diesel school bus; annual diesel fuel consumption of 1,360 gallons, annual VMT of 14,084, and 107 idling hours per year (these are EPA DEQ default values).

⁵ “Electric School Buses Feasibility in Vermont”. Vermont Energy Investment Corporation, May 2016. <https://www.veic.org/docs/resourcelibrary/veic-electric-school-bus-feasibility-study.pdf>, page 6.

⁶ Noel, L. and McCormack, R. “A Cost Benefit Analysis of a V2G-Capable Electric School Bus Compared to a Traditional Diesel School Bus”. University of Delaware, 2014. <https://www1.udel.edu/V2G/resources/V2G-Cost-Benefit-Analysis-Noel-McCormack-Applied-Energy-As-Accepted.pdf>.

ADOMANI

ALL-ELECTRIC SCHOOL BUSES



PURCHASE

	ALL-ELECTRIC*	DIESEL**
o MSRP (including 8% tax)	\$347,750	\$139,100
o VW Settlement Incentive Amount (at Incremental Cost)	(\$208,650)	N/A
o Customer Cost	\$139,100	\$139,100

\$0

Additional Investment Required
(for Zero-Emission Buses)

OPERATIONS

	ALL-ELECTRIC*	DIESEL**
o Maintenance	\$1,770	\$9,075
o Diesel Fuel	N/A	\$5,930
o Battery Power	\$2,714	N/A
o Cost of Ownership (Annual)	\$4,484	\$15,005

\$10,521

Annual Zero-Emission Savings
(Versus Diesel)

SAVINGS

	ALL-ELECTRIC*	DIESEL**
o Cost of Ownership (Over 15 Years)	\$67,260	\$225,075
o New Battery (at Year 8)	\$45,600	N/A

\$112,215

Zero-Emission Savings
(Over 15-year Lifetime Versus Diesel)

Your state can provide the incentives required to deploy all-electric vehicles at no additional cost to consumers, which will generate substantial annual and full-life total cost of ownership benefits

* Blue Bird All American RE Electric Bus

** Conventional Diesel Bus



As shown above, Utah has the opportunity to provide incentive funding capable of generating tremendous annual cost savings for school districts throughout the state. In other words, for every dollar invested in all-electric school buses, Utah can mitigate public health concerns for the most susceptible of disadvantaged communities, generate cost savings for budget-constrained school districts, and support the advancement of innovative clean transportation technologies.

Utah Should Account for the “Beyond Transportation” Benefits of All-Electric and Hybrid-Electric Vehicles

All-electric vehicles provide benefits beyond emissions reductions and safe transportation. These vehicles’ battery systems serve as a valuable and reliable energy resource that can be exported from the vehicles. In other words, ADOMANI’s all-electric vehicles can provide utilities and homeowners with access to power during emergencies or peak demand. Indeed, recent research has shown that vehicle-to-grid (V2G) systems can decarbonize transportation, support load balancing, and increase revenues for electricity companies and create new revenue streams.⁷ V2G and other strategies, including vehicle-to-load and off-grid storage, will play a key role in your state’s energy infrastructure future. We hope to support that future with ADOMANI’s all-electric and hybrid vehicle technologies.

Conclusion – Prioritize our Children and Clean Air

The market for all-electric and hybrid vehicles has grown steadily in recent years due to technology advancements and greater private sector involvement. Furthermore, production costs continue to decrease and battery capabilities have improved.⁸ We anticipate that the demand for these vehicles will continue to grow as further advancements continue to drive down prices.

ADOMANI works closely with industry leaders to develop technologies that meet consumer needs and exceed their expectations. The team behind the design, development, and deployment of our vehicles has decades of experience in the school and transit bus and commercial vehicle industries.

Importantly, we have relationships with key school and electric utility officials in Utah, which will allow the ADOMANI team to work hand-in-glove with local school transportation officials to ensure their drivers and maintenance personnel are fully trained on the successful operation and ownership of these technologically advanced vehicles. We are also able to work with the local electric utility to advise on any needed vehicle charging infrastructure. Our goal is nothing less than 100% satisfaction for our customers and a seamless integration of these vehicles into local fleets.

Recognizing the need for Utah to reduce NOx emissions, generate economic benefits, and deliver environmental justice benefits while also providing fleets with total cost of ownership benefits, ADOMANI

⁷ Sovacool, B. et al. “The Future Promise of Vehicle-to-Grid Integration: A Sociotechnical Review and Research Agenda”. Annual Review of Environment and Resources, Volume 42, 2017. <http://www.annualreviews.org/doi/abs/10.1146/annurev-environ-030117-020220>.

⁸ Schlosser, N. “Can Electric School Buses Go the Distance?” School Bus Fleet, May 23, 2016. <http://www.schoolbusfleet.com/article/713421/can-electric-school-buses-go-the-distance>.



recommends that you create competitive funding opportunities for all-electric and hybrid-electric vehicles.

We offer our support in the rollout of the Environmental Mitigation Trust funds and, towards that end, we request the opportunity to meet with you to discuss our recommendations further. Should you have any follow-up questions please contact me at (949) 200-4613 or via email at jim.r@adomanielectric.com.

Sincerely,

A handwritten signature in black ink that reads "Reynolds". The signature is written in a cursive style and is positioned above a horizontal line.

Jim Reynolds
President & CEO
ADOMANI, Inc.
620 Newport Center Drive, Suite 1100
Newport Beach, CA 92660
(949) 200-4613 / jim.r@adomanielectric.com



Submitted via email to lburr@utah.gov

November 30, 2017

Lisa Burr
Director of Legislative and Government Affairs
Division of Air Quality
Utah Department of Environmental Quality

Re: Using Utah's Volkswagen Settlement Funds for propane-fueled school buses

Dear Director Burr,

The U.S. Department of Justice has finalized one partial settlement and will soon enter into another with Volkswagen, which will result in Utah receiving approximately \$35.2 million in funding that must be used to implement projects that reduce smog-forming nitrogen oxide ("NOx") emissions. This represents a tremendous opportunity to accelerate the clean-up of older, dirtier diesel buses in Utah, especially in communities that have been disproportionately burdened by these vehicles.

As the General Manager for Bryson Sales & Service Inc. and the Vice President of Sales & Marketing of ROUSH CleanTech,¹ we submit the following comments to support the state in its efforts to fund cost-effective and sustainable transportation projects. More specifically, we commend the state on its \$7.87 million set-aside for school bus replacement projects and further urge you to implement programs that increase the use of propane school buses because they offer a cost-effective strategy to reduce NOx emissions and improve public health.

Using Utah average pricing to run the AFLEET model developed by Argonne National Laboratory, propane school buses are shown to be at least 34% more cost effective than diesel school buses and 68% more cost effective than electric school buses at reducing NOx emissions.² If ten percent (\$3.5 million) of the Utah trust settlement were used to fund a propane school bus pilot program, the state could replace 138 diesel school buses with cleaner, alternative fuel versions, as well as replace 9% of the pre-2009 diesel fleet, reduce over 74 thousand pounds of NOx over the service life of the buses and also reduce 3.7 million gallons of petroleum use.³

Bryson Sales & Service was founded in Utah in 1969 and, as an authorized Blue Bird dealership, is committed to alternative fuel vehicle operations. We have deployed over 100 propane-fueled school buses across Utah, Nevada and Idaho and are seeking to expand with the support of Blue

¹ ROUSH CleanTech is an industry leader of alternative fuel vehicle technology focused on developing innovative and reliable propane fuel systems for fleets across North America.

² Calculations assume the average Utah cost to deploy the cleanest commercially available Type C buses for each fuel type based on emission calculations from the 2016 ANL AFLEET Tool.

³ Assumptions include a \$3.5 million investment in a school bus program, with a 25% rebate and a 75% local match scenario. Model also assumes replacement of a 2007 diesel school bus with a 2018 model year diesel, propane and electric school bus using Utah average pricing. Service life is assumed to be 15 years and 12,600 miles per year.



Bird and ROUSH. We are always looking for ways to go green with a resolute determination to provide safe and reliable transportation options.

ROUSH CleanTech (ROUSH) is an industry leader of alternative fuel vehicle technology focused on developing innovative and reliable propane fuel systems for fleets across North America. With the assistance of our national network of Blue Bird dealerships, including Utah-based Bryson Sales & Service, ROUSH has helped deploy over 10,000 Blue Bird propane-fueled buses in more than 750 school districts nationwide.

Propane-fueled school buses exist today that are much cleaner than even the cleanest diesel school buses. In fact, ROUSH's model year 2017 propane school buses recently received its California Air Resources Board certification at 0.05 grams NOx per brake horsepower-hour (g/bhp-hr).⁴ This means that ROUSH's new propane engine is 75% cleaner than today's cleanest diesel bus and 99% cleaner than the oldest, pre-2007 buses operating in many school districts.⁵

These cleaner buses will significantly reduce our student's exposure to emissions that are associated with pre-2007 diesel buses, including increased asthma emergencies, bronchitis, and school absenteeism, especially among asthmatic children.⁶ Propane school buses effectively eliminate diesel particulate matter emissions that are associated with cancer and thousands of premature deaths nationwide every year. These vehicles are also a safe transportation solution because propane is non-toxic, non-carcinogenic and non-corrosive, and because their vehicle fuel tanks are 20 times more puncture-resistant than gasoline or diesel tanks.⁷

Propane school buses can be a smart investment for Utah as well as they can yield tremendous fiscal benefits, including fuel cost reductions of 60 percent per gallon and operations and maintenance savings of \$0.37 per mile, as compared to diesel.⁸ Propane school buses can thus support the state's efforts to achieve cost-effective NOx emissions reductions, as well as provide districts with a sustainable and cost savings alternative fuels program after the funding is exhausted.

Bryson Sales & Service and ROUSH CleanTech would like to work with you and your team to ensure the most cost-effective and environmentally beneficial use of Utah's Volkswagen Settlement Funds. Towards that end, we request a phone or in-person meeting with the most appropriate member of your staff to discuss propane's opportunities further.

⁴ "Executive Order A-344-0074". California Environmental Protection Agency, Air Resources Board, May 15, 2017. https://www.arb.ca.gov/msprog/onroad/cert/mdehdehdv/2017/roush_hdoe_a3440074_6d8_0d05_lpg.pdf.

⁵ For model year 1998 to 2003 diesel engines, EPA established a NOx emission standard of 4.0 g NOx / bhp-hr. Please refer to EPA's [summary table](#) of diesel engine exhaust emission standards for further detail.

⁶ Adar, S. et al. "Adopting Clean Fuels and Technologies on School Buses. Pollution and Health Impacts in Children." *ATS Journals*, Volume 191, Issue 12. <http://www.atsjournals.org/doi/abs/10.1164/rccm.201410-1924OC#.WA-HINUrJhE>, June 15, 2015.

⁷ "Propane Autogas – Safe and Reliable." Blue Bird. <https://www.blue-bird.com/blue-bird/Propane-is-safe.aspx>.

⁸ "Propane Testimonials." Blue Bird. <http://www.blue-bird.com/blue-bird/propane-testimonials.aspx>.



Thank you for considering our request. We look forward to continued dialogue with you and your team, and to a future collaboration that will help Utah meet its air quality goals.

Sincerely,

Brandon Bryson

Brandon Bryson
General Manager
Bryson Sales & Service Inc.
brandon@brysonsales.com / 801.295.1875

Todd A. Mouw

Todd Mouw
Vice President of Sales & Marketing
ROUSH CleanTech
todd.mouw@roush.com / 734.466.6522



Submitted via email to lburr@utah.gov

November 30, 2017

Lisa Burr
Senior Research Analyst
Division of Air Quality
Utah Department of Environmental Quality

Re: BYD Comments on Utah's Use of Volkswagen Settlement Funds

Dear Ms. Burr:

BYD America ("BYD") appreciates the opportunity to submit the following comments that align with and build upon the Volkswagen Environmental Mitigation Plan Advisory Committee's recommendations to cost-effectively incentivize emerging technologies that generate air quality benefits in priority counties.

We find that achieving broad, multi-sector deployments of zero-emission vehicles will most effectively take advantage of the Volkswagen settlement's unprecedented opportunity to reduce mobile source emissions and, in particular, provide both near- and long-term nitrogen oxide (NOx) emissions reductions in areas that bear a disproportionate share of the state's air pollution burden.

BYD is a global company that is changing what is possible in zero-emission transportation. Our commitment to "solve the whole problem" has made BYD an industry pioneer and leader in not only the transportation sector, but also high-efficiency energy storage, solar power, LED lighting, and information technology. BYD and its shareholders, including Warren Buffett, see these environmentally and economically forward products as the way of the future.

BYD would like to take this opportunity to provide additional information on the availability of all-electric medium and heavy-duty vehicles. Our recommendations for Utah fall into three categories:

- Maximize the cost-effectiveness and cost of ownership benefits by ensuring that the maximum amount of Utah's \$35.2 million allocation be dedicated to all-electric vehicles;
- Provide support for transformative transportation technologies in areas disproportionately burdened with air pollution; and
- Leverage Volkswagen funds by aligning projects with other state initiatives to yield economic, emissions, and energy benefits.

BYD urges the Department of Environmental Quality to take these recommendations into consideration, which will enable Utah to most efficiently and effectively make the most of its allocation of Volkswagen funds.

Electric Vehicles Maximize Total Cost of Ownership Benefits

BYD commends the Volkswagen Environmental Mitigation Plan Advisory Committee’s recommendations to prioritize funding for Class 4-8 freight trucks and Class 4-8 buses. Electrified on-road trucks and buses generate total cost of ownership benefits for the vehicle owners and operators, in addition to the zero-emission benefits that support the state’s air quality goals.

As evidence of this, BYD’s Class 5, 6, and 8 truck models create additional benefits for the environment and operators alike shown in Table 1 below. Each of these models presents customers with a basic chassis readily available for customization. BYD works with top outfitters and upfitters to meet customer specifications; thus, each of our chassis can be outfitted into a dry box, flatbed, stake bed, refrigerated unit, refuse body, and bucket truck version.

Table 1: What Sets BYD’s On-Road Trucks Apart

Vehicle Type	Models¹	Battery Performance	CO2 Reduced per Truck (tonnes)	Annual Fuel Savings	Annual Maintenance Savings
<u>Class 5 Medium-Duty Truck</u>	5D, 5F	155-mile range	430	\$ 8,500	\$ 4,000
<u>Class 6 Medium-Duty Truck</u>	6B, 6D, 6F, 6R	124-mile range	520	\$ 10,000	\$ 5,300
<u>Class 8 Heavy-Duty Truck</u>	8TT, 8R, 8TS, and 8TT	92-mile range	1,500	\$ 32,000	\$ 11,500

Specific to transit vehicles, BYD’s product line of transit and coach buses, ranging from 23’ coach buses to 60’ articulated transit buses, are American Disabilities Act and Buy America-compliant. They are therefore eligible to help transit agencies in Utah reduce fuel costs and minimize maintenance expenses, increasing reliability and performance.

Transit buses, by virtue of their high mileage, see even more substantial maintenance and fuel savings than other on-road vehicles. For example, BYD’s standard 40’ bus can generate yearly savings on the order of \$45,000 per bus. Over a 15-year vehicle lifetime, that can add up to \$675,000 in reduced maintenance and fuel costs. Further, BYD’s recyclable battery technology enables these vehicles to operate as much as 200 miles on a single charge, all while producing zero emissions.

¹ “B” stands for “Bucket.” “D” stands for “Delivery.” “F” stands for “Forward / Cab Forward.” “R” stands for “Refuse.” “TS” stands for “Tractor Single.” “TT” stands for “Tractor Tandem.”

In other words, for every dollar invested in all-electric transit buses, Utah can generate tremendous savings for public transit agencies and their customers while also accomplishing the Environmental Mitigation Trust's goal of reducing emission-caused public health concerns. With these added savings, transit agencies have the option to offer increased services for riders, providing more alternatives to private transportation and thereby further displacing vehicle emissions.

Short-Haul Freight Truck and Transit Bus Projects Generate Health Benefits in Areas Disproportionately Burdened by Diesel Pollution

Utah's air quality issues have led to the state's prioritization of Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber counties. By directing funding to all-electric zero-emission freight trucks and transit buses operating in these areas, Utah can immediately reduce harmful NOx emissions, thereby generating environmental, health, and economic benefits. One such funding strategy is to electrify transit buses and freight trucks operating in Utah's population centers or along key corridors, such I-15, I-70, I-80, and I-84.

As the world's largest producer of battery electric buses, BYD has demonstrated experience and established customer delivery and deployment processes in similar cases. Indeed, BYD has deployed more than 27,000 zero-emission buses internationally and has received orders for over 20,000 additional buses. These buses have accumulated more than 200 million miles of service, saved over millions of gallons of diesel, and reduced hundreds of millions of pounds of greenhouse gases (GHGs).

Leverage Volkswagen Funds by Aligning Projects with Other State Initiatives to Yield Economic and Energy Benefits

Simply replacing existing diesel vehicles with new (but still conventionally fueled) technology may yield limited benefits, but it will do very little in leading the state towards a cheaper, cleaner, and more reliable energy future with greater energy independence. Electric vehicles, however, offer the means to achieve energy security and environmental sustainability while simultaneously creating a driver for economic growth.

Electric vehicle deployments will also increase domestic energy security by offering drivers and operators a choice of fueling options. According to the Electric Drive Transportation Association, domestically produced grid electricity, on average, can power plug-in vehicles at the equivalent of \$1 a gallon of gasoline. Importantly, this pricing structure is stable as it is insulated from the global volatility that impacts diesel.²

Utah has already created initiatives, such as the Qualified Heavy-Duty Alternative Fuel Vehicle (AFV) Tax Credit and the Regional Electric Vehicle (REV) West Plan, to tackle the need for electric vehicle deployments and dedicated charging infrastructure. The state can ensure that different funding and incentive programs work together by funding electric

² "Why Electric Drive?" Electric Drive Transportation Association. <http://electricdrive.org/ht/d/sp/i/27103/TPL/LandingPageTechIss/pid/27103>.

vehicle projects to complement new charging infrastructure. BYD stands ready to align with and further support those initiatives.

Closing Remarks

The economic, emission, and energy-specific benefits of electrified equipment are clear – all-electric vehicles generate no tailpipe emissions while deliver a lower total cost of ownership over the lifetime of the vehicle than conventional petroleum fuels and natural gas. Further, the commercial-scale heavy-duty electric transportation market is rapidly maturing, as demonstrated by the price reduction of more than 20% in our bus products over the last five years. This Volkswagen opportunity represents a unique chance to create immediate emission and economic benefits for Utah’s residents, as well as build the groundwork for a sustainable electric transportation marketplace.

While the Volkswagen settlement provides Utah the flexibility to fund a variety of conventional and alternative fuel on- and off-road vehicle projects, BYD believes early-market incentive funding is critical to achieving more favorable upfront economics and that increasing sales will lead to cost-competitive purchase prices of all-electric vehicles. We have committed to and successfully delivered substantial price reductions from our first generation of products. We hope to continue this progress and support Utah address a broad spectrum of environmental issues, resiliency and sustainability chief among them.

BYD thanks Utah for the opportunity to submit these recommendations. We would like to work with you and your team to ensure an efficient and effective rollout of your Environmental Mitigation Trust funds.

Towards that end, we request an in-person meeting to discuss our recommendations further. We look forward to future collaboration that will help Utah meet its environmental, fiscal, and social justice goals.

Sincerely,

A handwritten signature in black ink, appearing to read 'Zachary S. Kahn', with a stylized flourish at the end.

Zachary S. Kahn
Director of Government Relations
BYD America

Date: Tue, Oct 31, 2017 at 2:57 PM
Subject: Suggestion
To: lburr@utah.gov

I see you wanted input from citizens on how to spend the VW money to reduce the harm done by the diesel cheating scandal. I was the owner of a VW tdi, which i sold back to VW after driving it for three years and feel responsible for my share of the pollution.

I'm also an avid bike rider and have noticed young diesel pickup owners "rolling coal" as they call it. With modifications to their computers they can overload the motor with fuel, blowing huge clouds of soot onto passing bikers, etc. Maybe we should target these guys and the businesses that modify their vehicles for them with some of the VW money. It's an egregious and flagrant abuse of our clean air.

Thank you,

From: **alan keele** <akeele@gmail.com>
Date: Tue, Oct 31, 2017 at 2:57 PM
Subject: Suggestion
To: lburr@utah.gov

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Thank you,

Dr Alan Keele
Orem



Utah Department of Environmental Quality
Alan Matheson

Re: Environmental Mitigation Trust Fund Allocation – ZEV Infrastructure

The Alliance of Automobile Manufacturers (Alliance)¹, is writing to recommend Utah apply for Environment Mitigation Trust (EMT) funds from the Volkswagen settlement funding and then allocate 15 percent of that funding to electric vehicle charging stations.

As part of their settlement agreement, Volkswagen established a \$3 billion irrevocable trust (paid over 3 years) under Appendix D. Each state receives its proportional share of the \$3 billion based on sales of non-compliant vehicles in that state. Utah is eligible to receive \$35,177,506. This funding is available and requires no matching funding from the Utah budget now or in the future.

Of the several funds established as a result of the Volkswagen settlement, only the EMT allows states to determine how the funding is allocated among 10 different eligible projects specified in Appendix D-2. However, to claim the EMT funding, state governors must first appoint a “Lead Agency” (typically the agency responsible for air quality), and then that “Lead Agency” must formally apply for the funds within 60 days of the trust effective date. The application, in Appendix D-3, is a 5-page form. **Missing this 60-day deadline will permanently exclude the state from receiving any Appendix D funding now or in the future.**

Once it has applied for the funding and received approval, the state has sole discretion over how it is allocated among the 10 eligible projects identified in Appendix D-2. Of particular importance, Appendix D-2 Project #9 allows each state to use up to 15 percent (approximately \$5,276,625) of its allocation for electric vehicle fueling stations.

Automakers have made enormous investments to promote electric vehicle technologies, spending tens of billions of dollars on research and development, assembly plant modifications, production and promotion of plug-in hybrid electric vehicles and battery electric vehicles (hereafter referred to collectively as “plug-in electric vehicles”).

Automakers currently offer 29 different electric vehicle models in the United States, and over 70 models are expected by 2021. Plug-in electric vehicles are offered in all different shapes and sizes – mini-compacts, two-seaters, subcompacts, compacts, midsize and large sedans, station wagons, SUVs, mini-vans – with both two-wheel drive and six different all-wheel drive options.

¹ The Alliance is a trade association representing twelve of the world’s leading car and light truck manufacturers, including BMW Group, FCA US LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America (VWGoA), and Volvo Car USA. Together, Alliance members account for roughly 70% of the cars and light duty trucks sold in the United States.

However, customer acceptance to date suggests product offerings alone will not suffice to build a self-sustaining, robust, and growing plug-in electric vehicle market. Among other vital complementary policies, adequate infrastructure to fuel the vehicles is absolutely essential for long-term growth of this market.

Survey after survey reveals that lack of infrastructure is one of the number one reasons for not considering an electric vehicle purchase. For example, a survey of 2,500 consumers by Altman Vilandrie & Company in the summer of 2016 found the top reasons customers gave for not wanting to purchase a plug-in electric vehicle was a perceived lack of charging stations (85%) and uncertainty over the range (74%).² Simply put, consumers do not buy vehicles they cannot refuel.

Public charging infrastructure for plug-in electric vehicles not only relieves “range anxiety,” but also raises consumer awareness of the technology. Like all states, Utah’s infrastructure is currently falling behind current vehicle offerings and in desperate need of a kick-start. For perspective, Utah has 1,254 gasoline stations (and vastly more “pumps”), but only has 120 public electric charging stations. To advance the electric vehicle market, Utah must invest in the infrastructure, and the EMT funding is available for this infrastructure and does not require the state to commit any funding from the general budget.

EVs are important for a state’s economy, energy security, and environmental sustainability. And infrastructure is vital to enabling this EV market now and in the future. The Alliance and our members recommend Utah apply for funding under Appendix D of the EMT Fund, and allocate 15 percent toward electric vehicle infrastructure. We will continue working with Utah’s Department of Environmental Quality, legislature, and Governor to secure appropriate and sufficient infrastructure.

Sincerely,

A handwritten signature in blue ink that reads "Amy Brink". The signature is fluid and cursive, with a stylized "A" and "B".

Amy Brink
Vice President, State Government Affairs

² Hanley, Steve (2017, January 1), *60% of Americans Unaware Electric Cars Exist*, retrieved from <http://gas2.org/2017/01/01/60-americans-unaware-battery-cars-exist/>



Utah Department of Environmental Quality
Alan Matheson

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Amy Brink
Vice President, State Government Affairs

² Hanley, Steve (2017, January 1), *60% of Americans Unaware Electric Cars Exist*, retrieved from <http://gas2.org/2017/01/01/60-americans-unaware-battery-cars-exist/>



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BREATHEUTAH.ORG

To: Ms. Lisa Burr and Mr. Bryce Bird, Utah Division of Air Quality
From: Ashley Miller, Breathe Utah
Re: Volkswagen Settlement Environmental Mitigation Plan
Date: November 30, 2017

Dear Ms. Burr and Mr. Bird,

Thank you for the opportunity to provide comments on this important issue. Breathe Utah believes this funding will be a critical opportunity to reduce NOx emissions and help transition the transportation sector within Utah to a cleaner fleet.

Having participated in the Advisory Committee, our recommendations fall in line with those provided by the Committee, with a few differences discussed below.

Administrative Costs

The Division of Air Quality should allocate up to the allowed 15% of the funding for administrative costs. We appreciate that successfully implementing the programs that are developed by this funding will require significant DAQ staff time. We are supportive of what the Division determines to be necessary.

Light Duty EV Infrastructure

Utah recently joined seven other states in a **Regional Electric Vehicle Plan for the West** memorandum of understanding, committing the states to collaboratively develop the Intermountain West Electric Vehicle Corridor through the electrification of 5,000 miles of interstate highways, including Interstates 15, 70, 80 and 84.

In order to reach the ambitious goals outlined in this plan, Utah should allocate the entire 15% allowed to implement a light duty zero emission vehicle-charging network. Investing in Utah's EV corridors is essential to robust adoption of electric vehicles. Ensuring a network of fast charging stations, workplace charging, and multi-family housing charging will aid in overcoming range anxiety that has been a barrier to EV adoption.

Breathe Utah believes that the Advisory Committee's recommendation of 11% for EV infrastructure will not be sufficient and urges the Division to consider allocating the full 15% as allowed under the settlement decree.

Percentages should be determined after the request for information phase

With the above mentioned increases in allocations for both administrative costs and EV infrastructure, some adjustments within the Advisory Committee's recommendation may need to be made to meet the required NOx reduction of 230.1 tpy. We feel that this should be determined after the request for information phase identifies potential projects for funding. Once some



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projects are identified, the Division should prioritize projects that will have the greatest air quality benefit.

In summary, Breathe Utah recommends the Division include the following eligible vehicle and equipment categories in the final Environmental Mitigation Plan:

- Class 8 Local Freight Trucks
- Class 4-7 Local Freight Trucks
- Class 4-8 School Buses, Shuttle Buses or Transit Buses
- EV Infrastructure

Thank you for the opportunity to participate in the Advisory Committee and to make further recommendations through this public process. We greatly appreciate all you do to improve air quality in Utah.

Best regards,

Ashley Miller
Policy Director, Breathe Utah

Director Burr,

Attached is a letter and short presentation that will show the value of using Utah's Volkswagen Settlement funds for propane-fueled school buses.

Although UDEQ is a fuel-neutral agency, this will show that given the chance, Utah's school districts will have very good options for NOx reductions that may not be available in the other eligible mitigation action categories.

Bryson Sales & Service Inc. is a school bus dealer that deals strictly in Blue Bird school buses of all fuel types. Blue Bird offers the highest quality, safest, and cleanest school buses available.

Thank you for your consideration,

Mark Turner

New Bus Sales

Bryson Sales and Service inc.

[801-335-8887](tel:801-335-8887) office

[801-860-6455](tel:801-860-6455) cell

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Mark Turner

New Bus Sales

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[801-860-6455](tel:801-860-6455) cell

Hello Lisa,

We filled out the online form but wanted to follow-up with the letter we prepared. Also we noticed that you are in the process of developing a RFI for private and public fleet owners to submit specific vehicle/equipment replacements for agency evaluation. Will there be a RFI or an opportunity for EVSE companies like ChargePoint to engage and provide input on the refueling infrastructure associated with the medium and heavy-duty vehicle replacements and also on how to spend the 11% that has been allocated to light-duty EVSE?

We'd love the opportunity to meet and discuss in person if you are open to that. I manage all of our grant operations and Anthony is our Policy Director for Utah. Thanks for the opportunity to provide comments!

Sincerely,

John Schott

Sr. Grant Operations Manager

ChargePoint | [chargepoint.com](https://www.chargepoint.com)

+1.669.237.3406 mobile

ChargePoint, Inc. | 254 E. Hacienda Avenue | Campbell, CA 95008 | USA



ChargePoint, Inc.
254 East Hacienda Avenue | Campbell, CA 95008 USA
+1.408.841.4500 or US toll-free +1.877.370.3802

November 30, 2017

Alan Matheson, Executive Director
Utah Department of Environmental Quality
195 North 1950 West
Salt Lake City, UT 84114

RE: Comments on Utah DEQ's Development of an Environmental Mitigation Plan for the Volkswagen Environmental Mitigation Trust

Dear Mr. Matheson,

Thank you for the opportunity to provide comments on the Environmental Mitigation Trust funding allocated to the State of Utah under Appendix D of the VW Settlement. ChargePoint is the largest electric vehicle (EV) charging network in the world, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town and on the road. With nearly 43,000 independently-owned charging spots and more than 7,000 customers nationwide, ChargePoint drivers have completed more than 29 million charging sessions, saving upwards of 28 million gallons of gasoline and driving more than 687 million gas-free miles. In addition, there are currently 275 ChargePoint charging spots in the State of Utah.

Background on VW Settlement

In 2016, Volkswagen entered into a consent decree with the federal government and the State of California to resolve damages, penalties, and mitigation actions associated with 2.0- and 3.0-liter vehicles involved in "Dieselgate". Appendix D establishes a \$2.9 billion trust for environmental mitigation, the funds of which will be allocated to all 50 states in amounts proportionate to each state's number of VW diesel vehicles involved in the case. On October 2, 2017, parties to the Settlement filed trust agreements with the Court, establishing Environmental Mitigation Trust effective date. In Utah's case the State will receive nearly \$35 million.

Within 60 days of the trust effective date (by December 1, 2017), each state may designate and certify a beneficiary agency, an entity charged to oversee program implementation and funds. The State of Utah has indicated that the Department of Environmental Quality (DEQ) will be the lead agency and act on behalf of the trust for the State.

Recommended Eligible Mitigation Projects in Utah

Appendix D-2 of the VW Settlement Consent Decree details how each beneficiary agency must invest trust allocations in eligible mitigation projects designed to reduce NOx emissions. Importantly, up to fifteen percent (15%) of a state's trust allocation may be put towards deploying new, light-duty electric vehicle supply equipment (EVSE).

ChargePoint recommends that Utah allocate the maximum 15% of its allocation towards electric vehicle charging infrastructure. We believe that this investment in EVSE will significantly support

increased electric vehicle adoption throughout the State. Additionally, we recommend that the following features be included in a light-duty EVSE program, which we suggest be dispersed through a simple rebate and/or grant program:

1. Incentives should be structured simply through rebates, vouchers, or a straightforward grant program;
2. Supports competition and allow multiple vendors and business models to participate in any program;
3. When possible, requires site hosts of charging stations to have “skin in the game” and provide private match, which will stretch the value of the investment and lead to more efficient siting of infrastructure;
4. Encourage data collection that could be shared with state agencies for planning purposes, enabled through the use of networked smart charging stations;
5. Coordinates with other state and utility programs;
6. Seeks to coordinate with neighboring states to establish EV fast charging corridors, including those identified by the FAST Act, as well as prepare for future federal corridor designations; and,
7. Focuses funding on areas of greatest need include workplaces, multifamily housing, and disadvantaged communities.

Additional Appendix D Funding

Beyond the 15% allocation to EV charging infrastructure, ChargePoint encourages the State to allot a significant portion of the remaining 85% to electrification categories over other fuel sources, which will lead to long-term transportation emissions reductions and increased efficiency. For example, Electric buses get the equivalent of 21 miles per gallon (MPG), compared to 4 MPG in conventionally-fueled buses. Every mile driven in an electric bus will save taxpayers about 60-70% of what they would have paid with a diesel engine, per mile. Given currently available technology, ChargePoint suggests Utah prioritize electric buses and medium-duty transit vehicles.

Under the terms of the Environmental Mitigation Trust, funds used for electric buses and medium-duty transit vehicles may cover the cost of the vehicle and associated charging infrastructure. ChargePoint notes that some electric buses and trucks have the ability to charge on standard DC fast charging stations, which may also be used for light-duty vehicles. Investing in those models and associated infrastructure will allow public light-duty fast charging stations to be leveraged for bus charging and other fleet needs. Possible bus electrification programs could support regional, municipal, and school bus fleets.

Thank you for your consideration. If you have any questions, please contact me at anthony.harrison@chargepoint.com or (408) 656-4292.

Sincerely,



Anthony Harrison
Director, Public Policy
ChargePoint

Adam Tamme (nacra88@gmail.com) Sent You a Personal Message <automail@knowwhe.com> 2:48 PM
(26
minutes
ago)

to me

Dear Lisa Burr,

The best use of Utah's Volkswagen funds is for electric vehicle investment. Up to 15 percent of the Volkswagen mitigation funds can and should be spent on electric vehicle charging stations. Remaining funds should be spent on investments like zero-emission transit buses, electric school buses, and freight trucks.

Utah plans to invest the settlement funds to replace or upgrade diesel trucks and buses with newer diesel or compressed natural gas (CNG) technology. Ironically, for a settlement intended to right the wrongs of massive pollution, this would swap one dirty fossil fuel for another.

This is a great opportunity to clean up our air and improve public health, but if we continue to invest in dirty fuels then we are taking two steps backward. Please spend this money on truly cleaner vehicles and do not allow the Volkswagen settlement to lead to more of the same dirty and dangerous natural gas and diesel vehicles.

Sincerely,

Adam Tamme
1794 E Kiera Court
Holladay, UT 84124
nacra88@gmail.com
[\(720\) 933-6252](tel:(720)933-6252)

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Sincerely,

Electric Vehicle Charging Association

455 Capitol Mall, Suite 600

Sacramento, CA 95814

November 29, 2017

Lisa Burr

Utah Department of Environmental Quality

Division of Air Quality

195 North 1950 West

Salt Lake City, UT 84116

RE: Comments on VW Settlement Appendix D Environmental Mitigation Trust

Thank you for the opportunity to provide comments on the Environmental Mitigation Trust funding allocated to Utah under Appendix D of the VW Settlement. The Electric Vehicle Charging Association (EVCA) sees this as unique opportunity for Utah to make a major investment in clean transportation, attracting private investment and improving air quality and public health.

EVCA is a not-for-profit trade organization of ten leading electric vehicle (EV) charging industry member-companies. EVCA's mission is to advance the goal of a clean transportation system in which the market forces of innovation, competition, and consumer choice drive the expeditious and efficient adoption of EVs and deployment of EV charging infrastructure.

A revolution is at hand. In the United States, more than 713,000 new EVs hit the road since 2010—and this is just the beginning. Every major automaker has announced substantial investments in electrification of light duty vehicles. Transit and medium duty vehicle products are now competitive with combustion counterparts and major fleets across the country have announced plans for full electrification. Anticipated benefits to taxpayers and utility ratepayers are substantial, as are the economic benefits of domesticating consumer spending that is now going to overseas petroleum interests.

Transportation electrification necessitates a robust charging infrastructure to unlock its benefits for Utah.

Light Duty EV Supply Equipment (EVSE)

Appendix D of the VW Settlement allows Utah to invest up to 15% of its \$35.1 million allocation of Trust Funds on costs for the acquisition, installation, operation and maintenance of new light duty EV charging infrastructure. Utah now has 32 EVs on the road per level 2 public charging station installed, and 34 per DC public charging station.

EVCA is encouraged by Utah's Volkswagen Environmental Mitigation Plan Advisory Committee's recommendation to allocate 11% of the Trust Funds toward EVSE, but recommends going further to commit the full 15% allowance of \$5.3 million.

Experience shows that from the time funding is available to having actual charging stations operational runs 12-24 months. Thus, it is critical that this infrastructure investment be committed as soon as possible.

EVCA members report the following best practices in structuring an EV charging infrastructure deployment program:

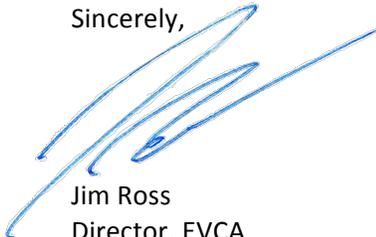
- Incentives should be structured through rebates, grants, and/or competitive programs;
- Promote public-private partnerships that support industry competition and allow a variety of business models to participate in the program;
- And seek a balanced approach between the various dwell-time use cases for EV charging, such as highway or urban DC-Fast Charging, and residential and public Level 2 charging infrastructure.

Non-EVSE Appendix D Funding

For the remaining 85% of Environmental Mitigation Trust funding available, **EVCA encourages Utah to prioritize electrification over other alternative fuel sources**, as it will provide the greatest relief for transportation greenhouse gas (GHG) emissions. Focusing on transitioning public transit (i.e. buses, medium duty transit vehicles) into an electric fleet will yield major reductions in GHG emissions. Possible projects include regional, municipal and school bus fleets. Markets have spoken and electrification has been the choice. As battery costs decline, there will be continued benefits from choosing the path of electrification for state residents and businesses.

Thank you for considering our recommendations. As you work toward finalizing the Beneficiary Mitigation Plan, please consider EVCA as a resource for insight into both the EV charging industry and the broader EV industry. We offer a continuing partnership to usher in an era of transportation innovation in Utah.

Sincerely,



Jim Ross
Director, EVCA

jim@evassociation.org

P: (415) 824-0582

HEAL Utah

November 30, 2017

Bryce Bird
Director, Utah Division of Air Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820

Lisa Burr
Research Analyst, Utah Division of Air Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820
via email at lburr@utah.gov

Dear Mr. Bird and Ms. Burr,

Thank you for the opportunity to provide comments on the allocation of the \$35 million provided by the Volkswagen Settlement funds. We believe this is a critical opportunity to reduce air pollution and help begin transitioning the statewide fleet away from the use of fossil fuels and towards electrification. It is also an opportunity to reduce emissions outside of the current State Implementation Plan process or other regulatory means.

Our recommendations largely fall in line with those provided by the Volkswagen Advisory Committee, with a few notable differences.

- 1) Allocate the maximum amount of funding to the development of electric vehicle infrastructure (15% of total settlement). Given that 48% of emissions within the nonattainment areas come from vehicles, it is imperative we do all that we can to reduce emissions from cars and trucks on our roads. While Tier 3 fuels will help to significantly reduce emissions in the valley, this is an opportunity to begin to prepare the Wasatch Front for wider adoption of electric vehicles going forward. The electric vehicle market share in Utah is 0.62% (average of 2013-17), and is increasing every year (as of August, market share was 0.76% for 2017, up from 0.44% in 2013)¹. Additional EV infrastructure would help to alleviate the 'range anxiety' that prevent many from buying EVs. Data have shown that as EV infrastructure is built, more people are more willing to buy electric vehicles².

¹ Auto Alliance. 2017. U.S. Light-Duty Zero Emission Vehicle (ZEV) Market Share (2013-2017), for Utah. Accessible at: <https://autoalliance.org/energy-environment/zev-sales-dashboard/>

² U.S. Department of Energy. 2015. EV Everywhere Workplace Charging Challenge Mid-Program Review: Employees Plug In. DOE/GO-102015-4836. Accessible at: https://www.afdc.energy.gov/uploads/publication/wpcc_mid-program_review.pdf

- 2) Allocate 50% of the settlement money to replacing Class 8 Local Freight Trucks. Class 8 trucks include Combination Long-haul and Combination Short-haul trucks, two of the highest-emitting sources of NO_x within our current inventory (see Table 1). In addition, reducing these sources could improve PM_{2.5} direct emissions as well. Class 8 Trucks are considered to be one of the most cost-effective replacements, as the second-lowest cost/ton behind Forklifts³.
- 3) Allocate 20% of the settlement money to replacing Class 4-7 Freight Delivery Trucks. These trucks include Single Unit Long-Haul and Single Unit Short-Haul Trucks, as well as Refuse Trucks. We recommend focusing on Single Unit Short Haul Trucks, as they are one of the larger sources of NO_x emissions of the eligible options to replace with the VW settlement money (Table 1). Class 4-7 Trucks are also relatively cost-effective, falling in the middle of the range for options assessed by the Division of Air Quality³.
- 4) Allocate 5% of the settlement money to replacing School Buses or Transit Buses. While buses have some of the highest cost/ton estimates, replacing school buses, in particular, would help reduce exposure of children to harmful air pollutants that exacerbate asthma and other respiratory problems. In addition, this funding would supplement funds already committed from other parts of the VW settlement.
- 5) Allocate 10-15% of settlement funding to administrative costs. Successfully implementing the programs that arise from this funding will require significant DAQ staff time, and it is appropriate that this money help to offset these costs to taxpayers. Ideally, the full 15% would be allocated to administrative costs; however, with the proposed cost allocation, the goal of reducing 230 tons of NO_x per year goal would not be met. Depending on which projects ultimately get funded by the settlement money, there may be some flexibility to allocate the full 15% and still hit the 230 tons/year NO_x reduction target.

The vehicles recommended for replacement comprise of a total of 21.10% of NO_x emissions and 5.79% of PM_{2.5} emissions for the Salt Lake Nonattainment Area, and 30.28% of NO_x emissions and 12.10% of PM_{2.5} emissions for the Provo Nonattainment Area (Table 1).

It's important to note that these recommendations are based on diesel-diesel changeouts, though we believe even greater emissions reductions can be achieved with alternative fuel vehicles, and electric vehicles in particular. While alternative fuel vehicles, such as CNG, LPG, or electric, are more expensive than diesel, they could provide significant air quality improvements over their lifetime. These lifetime emissions reductions should be a key consideration when determining the tradeoffs between upfront costs of replacing a vehicle and the overall reductions achieved. We recognize that diesel technologies have improved and are much cleaner than they used to be, thus replacing an old diesel with a new diesel will yield

³ Utah Division of Air Quality. 2017. VW Settlement Vehicle and Equipment Replacements Annual Cost per Ton of NO_x Emissions Reduced. Accessible at: <https://deq.utah.gov/ProgramsServices/programs/air/volkswagen-settlement/index.htm#cost>

significant emissions reductions. However, it is worth looking at the full incremental costs of replacing a diesel vehicle with an alternative fuel vehicle when making decisions on how to allocate funds.

Our understanding is that the funds will ultimately be allocated based on the interest and need of the fleets that apply to use the trust funds. We recommend there be resources to help fleet managers better understand all of their options – including transitioning to alternative fuel or electric vehicles – to be able to make informed decisions that work best for their fleet.

We see the VW settlement money as a rare opportunity to create, or at least lay the groundwork for, transformative change among our transportation sector. Air pollution from vehicles will continue to be a problem for the urban areas of Utah as population grows. Addressing the root causes of these problems, beginning with public and private fleets, is a positive step towards reimagining a future transportation system, and for increasing public awareness and acceptance of new technologies. This money presents an opportunity to educate fleet managers and encourage them to take action in a way that supports their business, a growing economy, and a healthy environment.

Sincerely,

Jessica Reimer
Policy Associate, HEAL Utah

Scott Williams
Executive Director, HEAL Utah

Table 1: Percent of total NOx emissions for different vehicle types in the Salt Lake and Provo PM2.5 nonattainment areas, based on the 2014 Emissions Inventory provided by the Division of Air Quality. Vehicle types were taken from options considered by the Volkswagen Advisory Committee. The “Other Options” category lists vehicles considered eligible in the settlement, but were not recommended by the committee. They are included for comparative reasons. All vehicles listed are assumed to burn diesel gas, except for those noted.

SALT LAKE			
Class Type	Vehicle Type	NOx (%)	PM2.5 (%)
Class 8, Class 6-7	Combination Long-Haul	12.46	3.12
Class 8, Class 6-7	Combination Short-Haul	3.46	0.93
Class 4-5	Single Unit Long-Haul	0.24	0.09
Class 4-5	Single Unit Short-Haul	3.31	1.18
Class 4-5	Refuse Truck	0.37	0.12
-	School Bus	0.43	0.16
-	Transit Bus	0.44	0.08
-	Transit Bus (CNG)	0.03	0.00
-	Intercity Bus	0.36	0.11
TOTAL		21.10%	5.79%
OTHER OPTIONS	<i>Air Ground Support Equipment</i>	<i>0.13</i>	<i>0.03</i>
	<i>Yard Locomotives</i>	<i>0.82</i>	<i>0.12</i>
	<i>Forklifts</i>	<i>0.17</i>	<i>0.10</i>
	<i>Forklifts (CNG)</i>	<i>0.04</i>	<i>0.01</i>
	<i>Forklifts (LPG)</i>	<i>0.53</i>	<i>0.12</i>
	<i>Forklifts (gas)</i>	<i>0.01</i>	<i>0.00</i>
PROVO			
Class Type	Vehicle Type	NOx (%)	PM2.5 (%)
Class 8, Class 6-7	Combination Long-Haul	14.79	6.01
Class 8, Class 6-7	Combination Short-Haul	5.72	1.87
Class 4-5	Single Unit Long-Haul	0.48	0.18
Class 4-5	Single Unit Short-Haul	7.24	3.35
Class 4-5	Refuse Truck	0.72	0.25
-	School Bus	0.61	0.26
-	Transit Bus	0.40	0.08
-	Transit Bus (CNG)	0.03	0.00
-	Intercity Bus	0.29	0.10
TOTAL		30.28%	12.10%

OTHER OPTIONS	<i>Air Ground Support Equipment</i>	<i>0.02</i>	<i>0.00</i>
	<i>Yard Locomotives</i>	<i>0.16</i>	<i>0.03</i>
	<i>Forklifts</i>	<i>0.13</i>	<i>0.09</i>
	<i>Forklifts (CNG)</i>	<i>0.03</i>	<i>0.01</i>
	<i>Forklifts (LPG)</i>	<i>0.39</i>	<i>0.10</i>
	<i>Forklifts (gas)</i>	<i>0.01</i>	<i>0.00</i>

Utah Department of Environmental Quality
Ms. Lisa Burr Division of Air Quality
Beneficiary Mitigation Plan for Volkswagen Settlement
Comments: October 8, 2017

Use of Volkswagen settlement funds for Medidocks to advance Ambulance/Emergency Vehicle Idle Reduction: Idling of ambulances is a significant contributor to air pollution, particularly as the majority of the idling occurs adjacent to healthcare facilities with their sensitive populations exposed. Reducing this idling provides a direct air quality improvement. Problematic to not idling the ambulance is the fact that interior temperatures and medical equipment must be maintained in a state of readiness, requiring power. My firm's product, the Medidock, provides a real solution to this problem by allowing an ambulance to remain 'mission-ready' without idling.

Our system is a kiosk, installed at Emergency Departments and other medical facilities and at remote locations where ambulances are 'posted' to improve response times and improve air quality. The Medidock requires no special equipment to be installed onboard the vehicle – any & all ambulances can use it. In addition to electrical power for the onboard emergency medical equipment it also provides vehicle interior climate control - without the need to run the engine. Our units ease of operation encourages EMT's to actually use the machines, resulting in fuel and maintenance savings for the vehicle operators and environmental benefits for everyone. On our website www.medicare.net you will find a study done by the Ozone Transport Commission (OTC) which indicates a significant NOx reduction as noted from sites in VT & NH.

Medidocks are presently successfully operating in northern New England and locations in the Midwest. While vehicle idle reduction is not specifically indicated in the settlement, augmentation of DERA is, allowing a pathway for funding this important public health/air quality improvement.

I urge you to consider earmarking funding for the Medidock in the final Beneficiary Mitigation Plan. Thank you for your consideration.

Frank Podgwaite
MedicAire, LLC
Medidock
North Haven, CT 06473
[203-887-0209](tel:203-887-0209) cell
frank@medicare.net
www.medicare.net

"The ambulance idle reduction solution"
"Exclusive Distributors of the Medidock"

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Ms. Lisa Burr Division of Air Quality
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I urge you to consider earmarking funding for the Medidock in the final Beneficiary Mitigation Plan. Thank you for your consideration.



November 10, 2017

Lisa Burr
Utah Department of Environmental Quality
195 N 1950 W
Salt Lake City, UT 84114

Re: Penske Comments on VW Funding Planning

Dear Ms. Burr:

Penske would like to thank the Utah Department of Environmental Quality (DEQ) for the opportunity to provide comments on the Volkswagen settlement funding plan for the state. The Utah DEQ has consistently provided an opportunity for stakeholder engagement and feedback to shape and refine programs to ensure they are meeting their intended purposes—a process we strongly respect and admire.

Penske remains committed to reducing vehicular emissions and accelerating deployment of cleaner vehicle technology and can be a natural partner with the state in achieving some of its goals to reduce emissions from transportation. Penske's average customer size is between 8 and 12 trucks and is able to provide comprehensive vehicle services to companies that do not have the financial capital and necessary experience to purchase and maintain alternative fueled vehicles. Leasing with Penske provides the following benefits to fleets:

- No upfront purchase costs and concerns about vehicle residual/resale
- No costs to modify maintenance facilities
- No maintenance training costs and investment in special tools
- No fueling anxiety as Penske will help with vehicle routing and fueling contracts
- 24/7 Roadside assistance & nationwide service network
- Cost savings from Penske's purchasing power for fuels and vehicles that can be passed onto customers

In order to provide alternative fuel vehicles at competitive rates with their diesel and gasoline counterparts, Penske leverages incentives, such as grant programs and tax credits. Since Penske accesses these programs throughout the U.S., we have come to understand the programs that work best to incentivize clean vehicle deployment for small, mid-sized and large fleets alike. We are providing this insight to you so that you may consider it as you work to create funding programs from the VW settlement but also in your efforts to create future incentive programs to deploy cleaner and more advanced vehicle technology within the state. Specifically, we would recommend the following:

1. **Treat vehicle leasing like any other financing mechanism and allow fleets the opportunity to have equal access to program funding regardless of the financing mechanism.** Programs can be created in ways that allow you to achieve your objectives in terms of the certain number of years in operation; requirements to hold onto the vehicle for a certain length of time; and targets on mileage/area operation. This can all be done with leasing—just like it can be done with vehicle loans directly by the fleet. We would encourage that you develop programs that do



not differentiate between the financing mechanisms used and instead focus on the specific objectives you are trying to achieve, regardless of the financing mechanism utilized to get there.

2. **Create a priority list** versus a wait list that will allow for you to rank projects that achieve better emissions reductions through replacement of vehicle miles travelled of traditional diesel or gasoline.
3. If you do create a waiting list mechanism for an ongoing program, **provide waiting list and application funding transparency**. Funds for clean vehicle programs frequently become oversubscribed almost immediately upon program opening for popular funding programs. A simple email list that lets people know weeks before the date it will open will allow for transparency in the program.
4. **Ability to move between weight classes and increase number of vehicles** once awarded. From the period of application to award, things change. Maintaining programmatic flexibility while ensuring that projects are still held to their allocated dollar amount and program effectiveness (e.g., meeting emissions requirements) is key.
5. **Simple contracting mechanisms** are key to ensure faster deployment. We have seen that purchase order formats with terms and conditions in a 1-2 page format on the back of a purchase order, such as that in Colorado, work really well and are easy to understand and follow.
6. **Simple reporting templates** are key to encourage and receive timely reporting. We recommend 2-4 times a year and have it specific to fuel use, mileage and listing of any project challenges encountered.
7. **Quick payment periods** are essential, especially for smaller fleets, so they do not have to carry expenses for too long without reimbursement.
8. **Scrappage alternatives** are very helpful as frequently companies will see this as a barrier to entry. Many fleets know that their 10 year old truck, for example, carries more value than what can be achieved when just sending it to a dismantler and collecting scrap value. Yet we recognize the state might not want these vehicles to reenter the state. Allow for flexibility here to dispose of the vehicles in ways other than outright scrappage—perhaps an export option like that allowed in Texas or even the opportunity to sell the vehicle to a fleet who has much older units in operation as a 10 year diesel vehicle would be cleaner than a 20 or 30 year old unit that is in operation. Another key opportunity area is to provide a way for an entity like Penske to apply for the funding but for the end user (the actual fleet) to turn in one of their vehicles.

We are eager to work with you and your team to advance cleaner vehicle technology and to reduce emissions in the state. When fleets choose Penske for their clean vehicle needs, it is analogous to hiring an experienced in-house alternative fuel team, and the fleets we work with in your state are eager to replace some of their older vehicles with cleaner and more fuel efficient, less polluting options.

Sincerely,

Dean Stapleton, Senior Manager of Alternative Fuels
Penske Truck Leasing



November 30, 2017

Utah Department of Environmental Quality
ATTN: Alan Matheson

Re: Proterra's Comments on Advisory Committee's Recommendation for Utah's Volkswagen (VW) Environmental Mitigation Plan

Dear Mr. Matheson:

Proterra, the leading U.S. manufacturer of electric, zero-emission transit buses, appreciates the opportunity to respond to the Advisory Committee's recommendation for Utah's VW Environmental Mitigation Plan, which identifies the initial funding percentage recommendations for the VW eligible mitigation actions.

As background, Proterra designs and manufactures the world's most fuel-efficient battery electric bus and features on-route, fast-charge technology that offers functionally unlimited range, as well as an extended range version that enables transit agencies to travel up to 350 miles on a single charge. Proterra's CATALYST™ bus achieves 21+ MPGe performance, 500%+ better than diesel and CNG buses, eliminating toxic diesel particulate matter and reducing carbon emissions by 70% or more compared to CNG or diesel buses. In addition, the cost of maintenance differential is substantial in comparison to fossil fueled buses. Using the APTA average of 36,000 miles per year and the FTA required 12-year life, a Proterra bus will save a transit agency over \$200,000.00 per bus on average compared to a fossil fuel transit bus. This is a big reason why Park City Transit recently purchased 6 electric transit buses from Proterra. <https://www.proterra.com/press-release/park-city-taps-proterra-for-utahs-first-zero-emission-battery-electric-mass-transit-fleet/>. And just last month the Federal Transit Administration awarded Park City Transit an additional grant of \$500,000 to purchase seven new electric buses. <https://www.deseretnews.com/article/865690505/Park-City-awarded-500K-grant-for-electric-buses.html>

Our mission is simple: to deliver clean, quiet transportation to all communities by replacing heavy-duty, fossil-fueled transit buses with zero-emission public transit buses. The harmful effects of vehicle exhaust from medium and heavy-duty trucks are on the rise and have been for years. The EPA reports that medium and heavy-duty vehicles account for 20% of GHG emissions and oil use in the United States' transportation sector, but represent only 5% of the vehicles on the road. Similarly, GHG emissions from heavy duty vehicles across the globe are growing rapidly and are expected to surpass emissions from passenger vehicles by 2030. There is thus a strong need not only to mitigate past criteria pollutant emissions, but to continue to reduce toxic air pollutants in the medium and heavy-duty sector.

The Volkswagen settlement provides a much-needed opportunity to address this growing environmental concern and further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including the reduction of NOx and the elimination of GHG and criteria emissions. Replacing diesel buses with electric buses is simply one of the best investments the state can make to help electrify public transit.

Consistent with these goals, Proterra strongly supports the allocation of Utah's VW settlement dollars for battery electric, zero emission transit buses. But it urges the DEQ to consider increasing the funding percentage for transit buses from 7% to no less than 50%. Additionally, we suggest that the state pay 110% of only the incremental costs of the buses and required charging infrastructure, much like the state of Colorado has proposed in its draft mitigation plan. This



approach will help spur the adoption of a greater number of electric buses among transit agencies, airports and universities.

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

We propose that Utah adopt two specific funding programs that have significantly accelerated the adoption of heavy duty EVs and, as a direct result, helped reduce NOx and GHG emissions.

First, we urge the DEQ to adopt the competitive funding programs in place in California and at the federal level. The CA Zero-Emission Truck and Bus Program is a competitive funding program that allows all manufacturers of zero-emission technology to partner with transit agencies and compete for project funding. It is very much modeled after the highly competitive Federal Transit Administration's Low or No Emission Program, which has helped fund the purchase of zero-emission transit buses across the US and in the state of Utah. The CA program is important in that it allows newcomers to receive funding for not only buses, but also chargers. Proterra estimates that a 10-bus EV bus deployment, including 10 plug-in chargers, would cost ~ \$8.12 million (and significantly less if the state would only cover the incremental cost of a new electric bus and associated charging infrastructure). Further, the cost effectiveness of a 10-bus EV bus deployment tilts heavily in favor of more funding for EV transit buses. The total cost effectiveness of GHG emission reductions for a 10-bus deployment is ~ \$726.4/metric tons of CO₂e. And the total cost effectiveness of Criteria Pollutants for 10 buses is ~\$1,714,222.2/metric tons of weighted criteria pollutants (NOx is included in the criteria pollutants and comprises most of those pollutants). See Exhibit A for a 10-bus project proposal.

Second, we request the DEQ to adopt the successful voucher/incentive programs that are helping to accelerate the adoption of heavy-duty EV buses. California's Hybrid & Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) is a pool of money that is used by transit agencies on a first come, first served basis to bridge the gap between purchasing a fossil fuel vehicle and a zero-emission vehicle. For example, the transit bus OEM can receive a voucher for up to \$160,000 per EV vehicle, which amount is then deducted from the cost of the bus. New York City (New York Truck Voucher Incentive Program) and Chicago (Drive Clean Truck Voucher Program) have implemented similar programs. These programs have proven valuable in allowing agencies (and commercial properties) to grow their fleets of zero-emission buses.



Your Office has indicated the importance of using the VW funding to see “measurable reductions of NOx emissions” and to “support activities that will have long-term air quality benefits.” To achieve that primary goal, Proterra encourages the DEQ to promote the adoption of zero-emission technology, and not “near-zero” technology. Nationally, 7,461,458 tons of NOx, or 55% of the 13,489,110 tons of NOx emitted derive from mobile sources; 35% attributable to on-road sources.¹ In the state of Utah, 81,648 tons of NOx, or 47% of the 172,798 tons of NOx emitted are from mobile sources.² On this basis alone, we urge DEQ to use 50% of its funds to advance the electrification of transit buses in those areas disproportionately impacted by the VW diesel vehicle emissions. By doing so, Utah will help achieve its program goals, including the reduction of NOx, greenhouse gases and other pollutants.

Thank you for the opportunity to provide comments on the draft EMP. Please feel free to contact me directly at 864-214-2668 or emccarthy@proterra.com.

Sincerely,

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

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

² <https://www3.epa.gov/cgi-bin/broker? service=data& debug=0& program=dataprog.state 1.sas&pol=NOX&stfips=49>

The Public Transit Electrification Project: Sustainable Mobility for Utah

Project Application Information

Proterra Inc.

Eric J. McCarthy

Private Corporation (Non-Government)

1 Whitlee Court, Greenville, SC 29607

864-214-2668

emccarthy@proterra.com

PROJECT SUMMARY

Zero-emission public transit buses are ripe for immediate scaling and investment from the Environmental Mitigation Trust to help carry out the goals of Utah's mitigation plan to achieve significant and sustained reductions in diesel emissions and expedite deployment and widespread adoption of zero-emission vehicles. The *Public Transit Electrification Project* will initially deploy 10 zero-emission, battery-electric transit buses and 10 multi-use depot charging stations at one or more Utah municipalities to provide electric mobility for all Utah residents and serve as a strong spark to accelerate the deployment of ZEVs, reduce diesel emissions and eliminate toxic air pollutants. The size of the project, however, can easily scale to accommodate other interested transit agencies and/or airports.

Proterra, the leading U.S. provider of zero-emission, all-electric transit solutions, designs and manufactures the world's most fuel-efficient battery electric bus and features on-route, fast-charge technology that offers functionally unlimited range, as well as an extended range version that enables transit agencies to travel 350 miles on a single charge. Proterra's CATALYST™ bus achieves 22+ MPGe performance, 500%+ better than diesel and CNG buses, eliminating toxic diesel particulate matter and reducing carbon emissions by 70% or more compared to CNG or diesel buses. To date, Proterra's buses have logged 3+ million miles of service in cities across the United States. With over 38 transit customers and over 400 buses on order, Proterra has become the zero-emission technology provider of choice for transit agencies nationwide.

Proterra will manufacture and deploy the commercial zero-emission buses and depot charging stations and will work closely with the participating Utah municipality or municipalities to successfully implement *the Project*. *The Public Transit Electrification Project* will demonstrate the economic and environmental benefits of accelerating the transition to commercially available ZEV technology, increase ZEV access and education, and eliminate toxic diesel exposures – achieving the goals of Utah's mitigation plan to improve and protect ambient air quality.

The Public Transit Electrification Project: Sustainable Mobility for Utah

The goals of this Project are to:

- Reduce NOx emissions to improve air quality and provide health benefits.
- Launch a zero-emission public transit bus pilot project to demonstrate concepts of sustainable mobility in one or more municipalities.
- Increase zero-emission vehicle awareness and access.
- Accelerate scaled zero-emission vehicle deployment.
- Demonstrate the economic and environmental benefits of accelerating the transition to commercially available zero-emission technology to a large cluster of transit routes.
- Provide zero-emission buses to benefit those areas and vulnerable communities that bear a disproportionate share of the State's air pollution burden, eliminating toxic emissions and providing zero-emission miles.
- Lead the transformation and technology transfer for a wide range of commercial fleets.
- Help drive down per-vehicle zero-emission bus costs with the Project's scale.

The objectives of this Project are to:

- Deploy 10 zero-emission, battery-electric transit buses and 10 multi-use depot charging stations to show that commercially available battery electric transit buses better serve communities' transit needs, substantially reduce greenhouse gas emissions, and provide substantial localized air quality benefits for disadvantaged communities.
- Reduce greenhouse gas emissions by up to ~ 1,062 metric tons CO₂e/year.
- Eliminate ~ .45 tons/year of weighted criteria pollutants and PM emissions.
- Provide scalable lessons learned to drive additional deployments of zero-emission heavy-duty technologies throughout Utah.
- Deploy Proterra buses that charge using the J 1772 CCS standard.

PROJECT DETAIL

The *Public Transit Electrification Project* will deploy 10 zero-emission, battery-electric transit buses and 10 multi-use depot charging stations at the participating Utah municipality or municipalities. To this end, Proterra is in discussions with some of the largest transit agencies in Utah. These agencies are located in areas that receive a disproportionate quantity of air pollution from diesel fleets and from diesel NOx.

The VW settlement provides a much-needed opportunity to further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including the reduction of diesel emissions and the elimination of criteria emissions.

The Public Transit Electrification Project: Sustainable Mobility for Utah

Proterra – Technology Manufacturer and Project Coordinator

Proterra’s zero-emission, battery-electric technology is being deployed in revenue service throughout the nation. Transit agency early adopters, such as Foothill Transit and San Joaquin RTD in California, have demonstrated the technology readiness of Proterra’s battery all-electric solutions on urban as well as mixed suburban routes – and now major metropolitan agencies such as SEPTA (Philadelphia) and King County Metro (Seattle) are placing larger orders - 25 and 73 buses respectively. Nevertheless, there is a need for more deployments to demonstrate the economic, performance and lasting environmental benefits of deploying commercially available, cost-saving, zero-emission battery electric buses. The *Public Transit Electrification Project* will accelerate the deployment and adoption of commercially viable, immediately scalable zero-emission public transit buses in similar fleets throughout Utah and beyond.



For the proposed project, Proterra will offer its extensive experience and expertise in manufacturing, deploying, operating, and maintaining commercial zero-emission buses and infrastructure – working closely with one or more participating transit agencies. To date, Proterra’s buses have logged 3+ million miles of service in cities across the United States. Proterra has zero-emission buses operating in revenue-generating service in the following cities: San Joaquin RTD in Stockton, CA, Foothill Transit in Pomona, CA, VIA Metropolitan in San Antonio, TX, University of Montana in Missoula, MT, WRTA in Worcester, MA, TARC in Louisville, KY, LexTran in Lexington, KY, Nashville MTA in Nashville, TN, PVTA in Springfield, MA, Star Metro in Tallahassee, FL, King County Metro, WA, RTC in Reno, NV, Jones Lang LaSalle in Chicago, IL, CATBus in Seneca, SC, **Park City Transit, Park City, UT**, Sportran in Shreveport, LA, DDOT in Washington, DC and soon at MTA in New York, NY and SEPTA in Philadelphia, PA.

The battery-electric buses and charging infrastructure for this project will be manufactured at Proterra’s manufacturing facility in Los Angeles, CA. The close proximity to the transit agency partner will ensure collaboration and ease of maintenance for any needed repairs to the vehicles and charging infrastructure during the 12-year vehicle lifespan.

Eligible Technologies to be Implemented

- **Battery-Electric Bus:** Proterra will replace Class 8, diesel heavy-duty transit buses at one or more transit agencies with 10 Proterra E2 battery-electric buses. Proterra is proposing its 40-foot Catalyst E2 battery-electric bus. The proposed Catalyst E2 bus has a total of 440kWh of on-board energy storage; more than 25% more capacity than other 40’ battery electric

The Public Transit Electrification Project: Sustainable Mobility for Utah

buses on the market. Importantly, the Catalyst was designed from the start exclusively as an electric vehicle. It delivers remarkable route flexibility and has a stellar track record in operational performance. The bus body is made with advanced carbon composites that are extremely light, durable, and resistant to corrosion. The bus body is then paired with an advanced, scalable energy storage system and the most efficient drivetrain on the market. With its durability and corrosion resistance, this platform is designed to safely and to quietly withstand nearly two decades of service. The curb weight of the vehicle is 29,849 lbs. and the Gross Vehicle Weight is 39,050 lbs. The maximum speed is 65 mph (6000 RPM).

- Plug-In Charging System: Proterra is proposing 10 62.5 kWh depot chargers that can be combined to charge a Catalyst E2 440kWh bus from 0% to 100% State of Charge (SOC) in ~ four (4) hours.

Management/Implementation Capacities

Proterra will work directly and collaboratively with a municipality to ensure the successful planning, manufacturing, deployment, operation, and maintenance of the zero-emission public transit buses and charging infrastructure throughout the Project. Proterra will provide significant executive staff resources and a dedicated maintenance employee to ensure a successful deployment of zero-emission vehicles and charging infrastructure and proper training for all existing service and maintenance employees.

The Proterra team members have extensive backgrounds in project management, manufacturing, vehicle deployment, vehicle maintenance and operations, vehicle and infrastructure training, and permitting and other on-site operational needs. The Proterra team will ensure this project is on time and within budget.

Project Objectives and Work Plan

The Project will demonstrate that zero-emission technologies can achieve significant and sustained reductions in diesel emissions in areas that receive a disproportionate quantity of air pollution from diesel fleets - perfectly capturing one of the primary goals of Utah's mitigation plan. The Project will also help accelerate the deployment and increase the awareness of electric vehicles, as well as provide the opportunity for all state residents to ride in an electric vehicle. It will serve as a major component of a citywide ecosystem that increases awareness of the many options for zero-emission mobility. In turn, this Project will significantly accelerate the adoption of zero-emission vehicles that will reduce greenhouse gas emissions, eliminate criteria pollutants, and provide the opportunity for all residents to go electric today and realize the many associated health benefits.

The Project tasks are divided into four major phases that are necessary to prepare for and conduct the proposed *Public Transit Electrification Project*: 1 – Project Kick-Off, 2 – Production and Delivery, 3 – Entry into Service, and 4 – Reporting and Feedback. Each phase is described below and in further detail, including identifying the entity is performing each task.

The Public Transit Electrification Project: Sustainable Mobility for Utah

Phase 1 – Project Kick-Off [9 months]

Phase 1 lays the foundation for the success of the *Public Transit Electrification Project*, which includes finalizing all necessary documents and agreements and attending the kick-off meeting and pre-production meetings with end-users.

Phase 2 – Production and Delivery [up to 12 months]

In Phase 2 the zero-emission buses are manufactured and delivered and the charging infrastructure are ordered, delivered, and installed. This includes the site design, permitting, production and installation of each charging station, as well as the status report of the vehicle production and delivery.

Phase 3 – Entry into Service [3 months]

In Phase 3, Proterra will initiate the customer launch process that ensures that the buses are effectively and efficiently received, inspected, accepted and deployed with confidence. About 6 weeks before the delivery of the first bus, Proterra initiates the launch process, which includes providing an overview of the vehicle, the end-user training, and coordination to ensure the end-user to ready for delivery and deployment of the vehicles into service.

Phase 4 – Reporting and Feedback [ongoing]

Throughout the Project, Proterra will provide quarterly status reports to the state and the transit agency. Each vehicle is equipped with an on-board data logger that provides data on bus performance and Proterra will ensure that all necessary data is compiled and reported to both entities.

Project Vehicles, Equipment and Service

Proterra will work directly with a transit agency to ensure a successful execution and completion of the project – including vehicle operation, charging, vehicle maintenance and repair, and data collection. Proterra has worked with multiple transit agencies across the United States. This vast experience will ensure successful implementation.

Proterra will install on-board data loggers in each vehicle to provide performance data on a quarterly basis. Data will include, but not be limited to: fuel/electricity consumption, fueling/charging times, state of charge, battery and odometer readings, relevant telematics, GPS data, hours of operation, temperatures, etc.

Proterra has developed extensive driver and maintenance technician training to ensure successful execution and completion of the proposed pilot project – including, but not limited to, training for vehicle operation, charging, vehicle maintenance and repair, and data collection. The training for both drivers and maintenance technicians includes classroom instruction and hands-on/in-the-seat training. The training will be performed at each end-user location with the appropriate materials available to the participants. The training includes tests that are administered after each classroom session and a certificate of completion after the participants have successfully finished the course. All drivers, maintenance technicians, and transit managers for this proposed project will receive classroom instruction and hands-on training. In addition, Proterra has created a series of “YouTube” style videos that provide an easy reference tool and more background on procedures – such as

The Public Transit Electrification Project: Sustainable Mobility for Utah

docking the bus successfully, towing the bus safely, using the diagnostic tool, and high-voltage safety.

The Proterra battery-electric bus and charging infrastructure that will be used in the *Public Transit Electrification Project* is the Catalyst E2 extended-range, battery electric vehicle for use on all routes. The Catalyst E2 vehicle, which offers energy capacity of 440 kWh and a nominal range of ~ 250 miles per charge, uses a 62.5 kWh Plug-in Depot Charger that is commercially available with dual charging connectors. Proterra is the only EV bus manufacturer to invest in the standard SAE J1772 CCS for depot charging. This unique offering allows transit agencies to charge their fleet of light duty electric vehicles or offer public charging when the transit buses are not utilizing the chargers.

Using a sophisticated computer model, Proterra can analyze each transit route to ensure that the infrastructure and vehicles are designed and engineered to match the specific minimum charging needs of the 10-bus fleet. The inputs to the route simulation tool include: route distance, speed, stops, layovers, duration, and grade, as well as passenger loading, ambient temperature/HVAC loads, and other accessory devices that use power for the safe and efficient operation of the vehicles. This simulation provides information on charging station needs and location planning, route performance, gradeability and feasibility, fuel savings/cost of operation evaluation, route schedule, and harmful emission reduction calculations.

Proterra has extensive experience installing depot chargers, securing necessary permits with local entities, and addressing electrical needs and grid impacts throughout the country. Proterra will work directly with the end-user in the *Public Transit Electrification Project* and associated utility to ensure that the participating municipality obtains all permits and approvals necessary for the infrastructure, as well as address any grid impacts or electrical needs at the charging location.

Potential Emission Reduction Benefits/Expected Proposed Project Benefits

At Proterra, we're continually refining designs and looking for innovative ways to reduce impact on the environment. Proterra buses produce zero tailpipe emissions and decrease dependency on fossil fuels. Emissions are reduced by an astounding ~ 200,000 lbs. of CO₂ annually each time a dirty diesel vehicle is replaced by a zero-emission bus. Particulate matter from traditional transit buses contains numerous harmful gases and upwards of 40 cancer-causing substances.

A typical diesel bus emits ~ 200,000 lbs. of greenhouse gases annually, while a CNG bus emits ~ 175,000 lbs./year and a diesel hybrid emits ~140,000 lbs./year. A switch to zero-emission buses, which emit no tailpipe pollution, presents a critical opportunity to cut pollution, reduce oil dependence and make Earth a better place.

The Public Transit Electrification Project: Sustainable Mobility for Utah

Annual Tailpipe Emissions

Emission (lbs/bus/yr)	Proterra	CNG	Hybrid	Diesel
CO	0	1,822	20.59	41.18
CH4	0	792	4.11	4.03
CO ₂	0	169,488	140,976	198,000
GHG (CO₂e)	0	190,080	141,083	198,105
NO _x	0	46.73	92.66	92.66
VOC	0	3.82	3.82	3.82
PM (2.5+10)	0	3.52	3.52	3.52
BC	0	0.15	0.15	0.15

<https://greet.es.anl.gov/>

Assumes 36k miles driven per bus per year.

The well-to-wheel GHG emissions avoided for 10 zero-emission transit buses is approximately 1,062 metric tons CO₂e/year. Based on a conservative 12-year lifespan of the zero-emission, battery-electric buses – the project’s lifetime well-to-wheel GHG emissions avoided is up to 12,746 metric tons CO₂e (for a 10-bus deployment).

All the vehicles in the proposed project are zero-emission battery-electric vehicles that do not have any tailpipe emissions; therefore, there are no additional NO_x, ROG or PM₁₀ emissions associated with the project. The total tailpipe emission reduction for 10 zero-emission transit buses is .42 tons NO_x/year, 0.0173 tons of ROG/year and .01596 of PM₁₀/year. Combined tailpipe weight emission reductions for criteria pollutants is 0.45 tons/year and 5.44 tons over the lifetime of the project. That reduction more than doubles when well-to-wheel criteria pollutants are considered, reducing ~ 1.0 tons/ year and 11.59 tons over the lifetime of the project.

The estimated cost-effectiveness of the total project dollars per ton of combined criteria pollutant and weighted PM emissions reduced, and dollars per ton of GHF emissions reduced during a 12-year operation for all 10 vehicles are the following:

- Total Cost Effectiveness of GHG Emission Reductions
 - (Capital Recovery Factor x Project Cost)/Annual GHG Emission reductions
 - (.095 x \$8,120,000)/1,062 metric tons of CO₂e = \$726.4/metric tons of CO₂e

The Public Transit Electrification Project: Sustainable Mobility for Utah

- Total Cost Effectiveness of Criteria Pollutants¹
 - $(\text{Capital Recovery Factor} \times \text{Project Cost}) / \text{Annual criteria pollutant emissions reductions}$
 - $(.095 \times \$8,120,000) / .45 \text{ metric tons weighted criteria pollutants} = \$1,714,222.2 / \text{metric tons of weighted criteria pollutants}$

Proterra used the Carl Moyer Program Guidelines for the cost calculations.

<https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>.

Economic and Environmental Benefits

The *Public Transit Electrification Project* is both located within and provides direct economic and environmental benefits to one or more municipalities. The proposed project addresses common economic needs of communities, including increasing job readiness and career opportunities, improving transit service, and creating further quality jobs. Proterra will provide on-the-job training and certifications for driver and maintenance technicians to operate, maintain and repair zero-emission heavy-duty vehicles. This will increase job readiness and career opportunities in the growing electric vehicle market and further career opportunities. In addition, Proterra's state-of-the-art zero-emission public transit vehicles will eliminate toxic diesel and other criteria pollutant exposures to passengers – improving transit service within communities. The *Project* will increase quality jobs – including a dedicated Proterra employee to oversee the project, construction jobs to deploy the electric charging stations and other indirect jobs from vehicle component suppliers.

By combining performance, efficiency and design, Proterra's zero-emission, battery-electric transit buses offer the lowest total cost of ownership as compared to conventional diesel transit buses. Proterra's zero-emission transit buses operate with fewer moving parts – reducing maintenance costs associated with oils, filters, fluids, particulate filters, and brakes. In addition, electricity is much less expensive and less volatile than traditional diesel or other petroleum fuel – helping to reduce costs and provide more certainty for operating costs. Proterra's buses have significantly higher fuel efficiency, an average of 1.7 kWh/mile or 23.4 mpg equivalency, which also helps provide significant economic benefits for the participating municipality.

These operational advantages yield at least \$135,000 savings in maintenance costs and \$290,000 in fuel savings as compared to diesel fuel. Therefore, the economic benefits are over \$400,000/bus in savings during the 12-year Federal Transit Agency (FTA) mandated lifetime of the vehicle for the transit agency or agencies participating in the *Public Transit Electrification Project*.

Lastly, we estimate that, over 12 years of operation, the 10 Proterra buses will reduce ~ 1M gallons of diesel fuel. On a per bus basis this equates to 100,000 gallons of diesel saved each year in typical transit operation (e.g., ~36,000 miles per year).

¹ NOx is included in the criteria pollutants and comprises the majority of those pollutants.

The Public Transit Electrification Project: Sustainable Mobility for Utah

Estimated Project Cost

The estimated total project cost for 10 zero-emission, battery-electric transit buses and 10 multi-use depot charging stations is **\$8,120,000**.² Funding is needed now to further demonstrate that commercially available zero-emission technologies have the lowest cost of ownership, improved maintenance and performance, and better serve a diverse range of communities' public transit needs, including the reduction of GHG and the elimination of criteria emissions.

<u>Item</u>	<u>Cost</u>	<u>Quantity</u>	<u>Subtotal</u>	<u>Taxes</u> <u>0%</u>	<u>Total</u>
Proterra Bus	\$749,000.00	10	\$7,490,000.00		\$7,490,000.00
Depot Charger	\$50,000.00	10	\$500,000.00		\$500,000.00
Regional Service Representative and fringe benefits	\$130,000.00	1	\$130,000.00		\$130,000.00

The recipient of the VW funds would largely be the municipalities. Therefore, Proterra anticipates that 100% of the cost of the vehicles and chargers would be covered by the state, subject to whatever local match funds the municipalities could contribute.

Increase ZEV Awareness and Education

To increase the exposure of the vehicles in the *Public Transit Electrification Project*, Proterra will develop project-specific webpages that will provide information on emission savings, vehicles deployed and funding sources to showcase the environmental and air quality benefits of the *Project* as a model deployment for other regions throughout Utah and across the nation. Additionally, Proterra will work with the transit agency or agencies to customize bus wraps to include messages that highlight the zero-emission technology and acknowledging the funding sources for the successful deployment.

In addition, Proterra will work directly with any participating municipality and its transit agency to implement an outreach strategy to the community to help raise awareness and education about the health, air quality and other benefits of zero-emission technology. In conjunction with the end-users, Proterra will launch a direct mail and email marketing campaign to generate awareness about the zero-emission transit bus technology in their communities. In addition, Proterra will provide a demonstration bus to circulate prior to the project deployment to help raise awareness and provide education about the vehicle technology. At the launch of service, Proterra will work with the local transit partner to execute a local public relations strategy – including press releases, media outreach

² This cost may vary slightly depending on the applicable tax rate, if any, and how the buses are configured and optioned by the participating transit agency. Finally, installation costs for the depot chargers are not included as they vary widely.

The Public Transit Electrification Project: Sustainable Mobility for Utah

and a launch event. Proterra will also offer an option to publicly display emissions savings and environmental benefits information on the transit agency's website.

Other

In addition to the above, Proterra strongly recommends that Utah direct 23% of the VW settlement funds to incentivize the deployment of zero emission, battery electric transit buses and medium duty vehicles to help reduce NOx and GHG emissions and vehicle miles traveled, as well as provide other health and associated benefits throughout Utah. We also recommend that Utah dedicate the 15% towards EV charging infrastructure.

Beyond this specific project, we propose that Utah adopt two specific funding programs that have significantly accelerated the adoption of heavy duty EVs and, as a direct result, helped reduce NOx and GHG emissions. First, we urge Utah to adopt the competitive funding programs in place in California and at the federal level. The CA Zero-Emission Truck and Bus Program – administered through the Air Resources Board - is a competitive funding program that allows all manufacturers of zero-emission technology to partner with transit agencies and compete for project funding. It is very much modeled after the highly competitive Federal Transit Administration's Low or No Emission Program, which has helped fund the purchase of zero-emission transit buses across the US. The CA program is important in that it allows newcomers to receive funding for not only buses, but also chargers. Second, California's Hybrid & Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) is a pool of money that is used by transit agencies on a first come, first served basis to bridge the gap between purchasing a fossil fuel vehicle and a zero-emission vehicle. For example, the transit bus OEM can receive a voucher for up to \$160,000 per EV vehicle, which amount is then deducted from the cost of the bus. New York City (New York Truck Voucher Incentive Program) and Chicago (Drive Clean Truck Voucher Program) have implemented similar programs. These programs have proven valuable in allowing agencies (and commercial properties) to grow their fleets of zero-emission buses.

Conclusion

The *Public Transit Electrification Project* will deploy 10 zero-emission, battery-electric transit buses and 10 multi-use depot charging stations at one or more municipalities to provide electric mobility and serve as a successful pilot project to accelerate the deployment of electric vehicles, reduce NOx emissions, improve air quality and provide health benefits. Proterra is excited to increase zero-emission vehicle awareness and eliminate toxic diesel exposures to both transit riders and non-transit riders throughout Utah and beyond.

ROUSH[®]
CLEANTECH



BLUE BIRD[®]

School Bus Replacement: A Cost Effective Solution to NOx Reductions



800.59.ROUSH

ROUSHcleantech.com



A Growing Trend

OVER
10,000
SCHOOL
BUSES



OVER
750
SCHOOL
DISTRICTS



BLUE BIRD



UT Propane School Bus Deployments

OVER

30

SCHOOL
BUSES



OVER

9

SCHOOL
BUS FLEETS



June 7th 2017 ROUSH CleanTech announces achievement of very low NOx with the 6.8L V10 Engine.

- For the 2017 MY RCT LPG Blue Bird Buses are now certified to **0.05 g/bhp-hr NOx**.
- This is achieved with **no extra hardware or increased variable cost**.
- The low NOx levels were achieved through careful, significant calibration changes and a CSSR (cold start spark retard) approach.

Standard Changes for NOx

Vehicle Model Year	NO _x Standard (in g/bhp-hr)	ROUSH CleanTech 6.8L V10 3V propane engine (certified to NO _x level of .05 g bhp-hr)
1998	4 	99% cleaner 
2002	2.5 	98% cleaner 
2007	1.2 	95% cleaner 
2010 - current	0.2 	75% cleaner 

Blue Bird Vision Propane

The Most Cost-Effective Solution to Reduce NOx Emissions from School Buses

School buses transport 25 million children across the U.S. to and from school each year. Because of the stop-and-go driving conditions, diesel buses emit increased exhaust emissions filled with tiny soot particles and toxic gases. Using the Volkswagen Environmental Mitigation Trust (EMT) to fund propane buses enables states to meaningfully reduce this harmful exposure, which benefits our nation's children.



PROPANE

Purchase price: \$95,000
NOx reduced: 537 lbs.
Cost per pound of NOx reduced: \$177



DIESEL

Purchase price: \$90,000
NOx reduced: 331 lbs.
Cost per pound of NOx reduced: \$272



ELECTRIC

Purchase price: \$300,000
NOx reduced: 583 lbs.
Cost per pound of NOx reduced: \$506

35%
more cost-effective
than diesel school buses

65%
more cost-effective
than electric school buses



*Vehicle purchase price may vary by state. Calculations assume the full cost to deploy the cleanest commercially available Type C buses for each fuel type based on emission calculations from the 2016 ANL AHEET tool.



750+
School transportation
fleets in operation

10,000+
School buses in
service across
North America

The Union of Economic and Environmental Sustainability

The Blue Bird Vision Propane offers an unmatched ROI for school transportation fleets. States can feel confident that the investments made with the Volkswagen EMT funds will lay the foundation for schools to continue deploying low-emission buses.



Low-Emission Engine

The ROUSH CleanTech engine is certified to the optional low NOx level 0.05 g/bhp-hr, making it 75% cleaner than the EPA's current emissions standard.



Best Total Cost of Ownership

By switching from diesel to propane, fleets can lower their fuel costs up to 50% and enjoy increased up-time with reduced maintenance.



Uncompromised Safety

The Blue Bird Vision Propane is noticeably quieter than a diesel bus, enabling the driver to remain focused on both the children and the road ahead.



Clean American Energy

Propane autogas burns far cleaner than diesel. And, because it is domestically sourced, fleets are protected from the fuel price fluctuations that frequently occur with diesel.

“With today's tight school budgets, using a transportation fuel like propane autogas that saves taxpayers' money, keeps the environment clean, and keeps jobs within our national borders is a win-win for everyone.”

— William Schofield, Superintendent
Hall County Schools, Gainesville, Georgia

For more information on how to successfully develop a clean school bus program in your state, contact:

Chelsea Jenkins
Executive Director of Government Affairs
chelsea.jenkins@roush.com
734.812.1965.

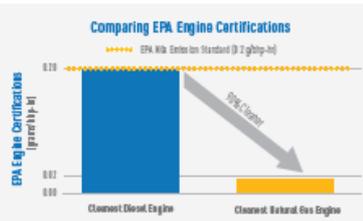
Certification versus Reality?

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE | CE-CERT
ULTRA-LOW NOx NATURAL GAS VEHICLE EVALUATION
FACT SHEET

A report released by the University of California Riverside's College of Engineering-Center for Environmental Research and Technology (CE-CERT), found that new ultra-low NOx natural gas heavy-duty vehicles met and exceeded their certification standards during a full range of duty cycles. This finding is in stark contrast to previously released CE-CERT data of heavy-duty diesel trucks that emitted higher levels of NOx than their certification standards in the same duty cycles. With the near-zero emission factors demonstrated for natural gas vehicles, it is expected that these vehicles could play an important role in providing much needed emissions reductions required for the South Coast Air Basin and California to reach federal air quality attainment standards.

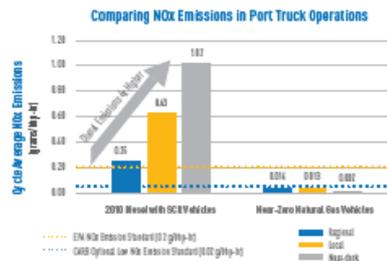
Key Facts:

- ▶ The current EPA NOx emission standard is 0.2 g/bhp-hr¹
- ▶ The cleanest heavy-duty diesel engine available today is certified at 0.2 g/bhp-hr
- ▶ The cleanest heavy-duty natural gas engine available today is certified by CARB at 0.02 g/bhp-hr, 90% cleaner than the EPA NOx emission standard



In-use testing results of heavy-duty trucks in port applications round:

(The data has been pulled from UCR CE-CERT test results of the Cummins Westport ISL B near-zero natural gas engine and 2010 diesel engines with selective catalytic reduction (SCR) emission control systems.)



- ▶ **Natural gas vehicles emitted lower NOx:**
The ISL G natural gas engine emitted lower NOx emissions than its EPA certification standard. Emissions decreased as the duty cycles decreased (i.e., slower speeds, idling, stop-and-go traffic, etc.).
- ▶ **Diesel vehicles emit up to 4x higher NOx:**
2010 diesel engines with SCR emitted up to 4 times higher NOx emissions than its EPA certification standard. Emissions increased as the duty cycles decreased.

While port applications are illustrated in the figure above, UCR CE-CERT also tested refuse and transit applications and found that they provided similar comparative results. These duty cycles represent a significant majority of heavy-duty vehicle trips in the South Coast Air Basin and in other urbanized areas.

¹g/bhp-hr is an abbreviation for grams per brake horsepower-hour, which is a standard measurement used by the EPA to measure a gram of emissions per unit of work (one horsepower in one hour).

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Blue Bird Vision Propane

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School buses transport 25 million children across the U.S. to and from school each year. Because of the stop-and-go driving conditions, diesel buses emit increased exhaust emissions filled with tiny soot particles and toxic gases. Using the Volkswagen Environmental Mitigation Trust (EMT) to fund propane buses enables states to meaningfully reduce this harmful exposure, which benefits our nation's children.



PROPANE

Purchase price: \$85,000
NOx reduced: 894 lbs.
Cost per pound of NOx reduced: \$106



DIESEL

Purchase price: \$90,000
NOx reduced: 67 lbs.
Cost per pound of NOx reduced: \$1,330



ELECTRIC

Purchase price: \$300,000
NOx reduced: 1,119 lbs.
Cost per pound of NOx reduced: \$268



*Vehicle purchase prices may vary by state. Calculations assume the full cost to deploy the cleanest commercially available Type C buses for each fuel type based on emission calculations from the 2017 ANL AFLEET Tool with diesel in-use adjustment.

92%

more cost-effective than diesel school buses

60%

more cost-effective than electric school buses



750+

School transportation fleets in operation

10,000+

School buses in service across North America

2017 AFLEET Changes

Standard Argonne AFLEET Emissions Outputs				
Fuel	Purchase Price	NOx Reduced	\$/lb	Cost Effectiveness vs. Propane
Propane	\$ 95,000	537.0	\$ 177	
Diesel	\$ 90,000	330.5	\$ 272	-35%
Electric	\$ 300,000	593.4	\$ 506	-65%

Argonne AFLEET 2017 w Diesel In-Use Multipliers				
Fuel	Purchase Price	NOx Reduced	\$/lb	Cost Effectiveness vs. Propane
Propane	\$ 95,000	893.7	\$ 106	
Diesel	\$ 90,000	67.7	\$ 1,330	-92%
Electric	\$ 300,000	1,119.0	\$ 268	-60%

10% of UT Funding for School Buses

10% of UT Funding / 25% Rebate Scenario	TOTAL
Total Buses Operating in State (# Units)	3,532
Est. Pre-2009 Buses in Operation (# Units)	1,600
Est. Cost of 2019 Model Year Diesel Bus (\$)	\$95,000
Est. Cost of 2019 Model Year Propane Bus (\$)	\$102,000
Est. Cost of 2019 Model Year CNG Bus (\$)	\$120,000
Est. Cost of 2019 Model Year Electric Bus (\$)	\$350,000
Clean School Bus Incentive (% of bus cost)	25%
Total Utah VW EMT Allocation (\$)	\$35,140,644
School Bus, Ten Percent Funding Allocation Scenario (\$)	\$3,514,064
Propane Bus Incentive (\$), Based on 25% of Total Bus Cost	\$25,500
CNG Bus Incentive (\$), Based on 25% of Total Bus Cost	\$30,000
Electric Bus Incentive (\$), Based on 25% of Total Bus Cost	\$87,500
Number of Estimated Bus Replacements, Propane Scenario	138
Number of Estimated Bus Replacements, CNG Scenario	117
Number of Estimated Bus Replacements, Electric Scenario	40
% of pre-2009 bus fleet, propane scenario	8.61%
% of pre-2009 bus fleet, CNG scenario	7.32%
% of pre-2009 bus fleet, electric scenario	2.51%

10% of GA Funding for School Buses

10% of UT Funding / 25% Rebate Scenario	TOTAL
Total Buses Operating in State (# Units)	3,532
Est. Pre-2009 Buses in Operation (# Units)	1,600
Est. Cost of 2019 Model Year Diesel Bus (\$)	\$95,000
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Electric Bus Incentive (\$), Based on 25% of Total Bus Cost	\$87,500
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% of pre-2009 bus fleet, propane scenario	8.61%
% of pre-2009 bus fleet, CNG scenario	7.32%
% of pre-2009 bus fleet, electric scenario	2.51%



10% Funding Scenario	
<i>Assumptions: 138 school buses replaced, 2007 average model year replaced with 2019 model year vision propane bus, 15 year service life, 12,600 miles per year</i>	POTENTIAL IMPACT
# of Propane School Bus Replacements	138
% of Total UT Bus Fleet Replaced	9%
Total Funding Proposed: One-Quarter of UT VW Allocation (\$)	\$3,514,064
Total NOx Reduction (lbs)	74,007
Petroleum Reduction (gallons)	3,720,774



9% of total UT pre-2009 school buses could be replaced with cleaner and economical propane school buses under this proposal!

Standard Argonne AFLEET Emissions Outputs				
Fuel	Purchase Price	NOx Reduced	\$/lb	Cost Effectiveness vs. Propane
Propane	\$ 102,000	537.0	\$ 190	
Diesel	\$ 95,000	330.5	\$ 287	-34%
Electric	\$ 350,000	593.4	\$ 590	-68%
CNG	\$ 120,000	518.3	\$ 232	-18%



THANK YOU

Chelsea Jenkins
chelsea.jenkins@roush.com
734.812.1965

Dear Lisa Burr,

Utah can be a leader in renewable energy and move away from the dirty fossil fuels that plague our cities year round. We need to move in the right direction and invest in clean renewable energy and be a leader in moving away from dirty polluting sources.

The best use of Utah's Volkswagen funds is for electric vehicle investment. Up to 15 percent of the Volkswagen mitigation funds can and should be spent on electric vehicle charging stations. Remaining funds should be spent on investments like zero-emission transit buses, electric school buses, and freight trucks.

Utah plans to invest the settlement funds to replace or upgrade diesel trucks and buses with newer diesel or compressed natural gas (CNG) technology. Ironically, for a settlement intended to right the wrongs of massive pollution, this would swap one dirty fossil fuel for another.

This is a great opportunity to clean up our air and improve public health, but if we continue to invest in dirty fuels then we are taking two steps backward. Please spend this money on truly cleaner vehicles and do not allow the Volkswagen settlement to lead to more of the same dirty and dangerous natural gas and diesel vehicles.

Sincerely,

Russell Wagstaff
2147 S 2300 E
Salt Lake City, UT 84109
russw@markmiller.com
[\(801\) 652-9115](tel:(801)652-9115)

Dear Lisa Burr,

Utah can be a leader in renewable energy and move away from the dirty fossil fuels that plague our cities year round. We need to move in the right direction and invest in clean renewable energy and be a leader in moving away from dirty polluting sources.

The best use of Utah's Volkswagen funds is for electric vehicle investment. Up to 15 percent of the Volkswagen mitigation funds can and should be spent on electric vehicle charging stations. Remaining funds should be spent on investments like zero-emission transit buses, electric school buses, and freight trucks.

Utah plans to invest the settlement funds to replace or upgrade diesel trucks and buses with newer diesel or compressed natural gas (CNG) technology. Ironically, for a settlement intended to right the wrongs of massive pollution, this would swap one dirty fossil fuel for another.

This is a great opportunity to clean up our air and improve public health, but if we continue to invest in dirty fuels then we are taking two steps backward. Please spend this money on truly cleaner vehicles and do not allow the Volkswagen settlement to lead to more of the same dirty and dangerous natural gas and diesel vehicles.

Sincerely,

sara Hobson <sarajo078809@gmail.com>

Nov 2
(4 days
ago)

to me

I think we should pour some of the money to the Utah school system throughout the state

Sent from my iPhone

to me

Dear Lisa Burr,

With recent announcements from Tesla, it would be hard for anyone to deny that electric vehicles are our future and fossil fueled vehicles will be as obsolete as a typewriter.

The best use of Utah's Volkswagen funds is for electric vehicle investment. Up to 15 percent of the Volkswagen mitigation funds can and should be spent on electric vehicle charging stations. Remaining funds should be spent on investments like zero-emission transit buses, electric school buses, and freight trucks.

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I think we should pour some of the money to the Utah school system throughout the state

Sent from my iPhone



November 30, 2017

Utah Department of Environmental Quality
ATTN: Lisa Burr, Division of Air Quality
Bryce Bird, Division of Air Quality Director
195 North 1950 West,
Salt Lake City, UT 84114

Submitted via google survey form and email to: lburr@utah.gov

Re: Comments of the Sierra Club's Utah Chapter on the Volkswagen Environmental Mitigation Plan Advisory Committee's recommendations for Utah's Volkswagen Environmental Mitigation Plan

Dear Ms. Burr and Dir. Bird,

The Sierra Club's Utah Chapter appreciates the opportunity to comment on the recommendations developed by the Volkswagen ("VW") Environmental Mitigation Plan Advisory Committee and proposed by the Department of Environmental Quality ("DEQ") for the state's Environmental Mitigation Plan ("Proposed Plan"). We thank DEQ for leading a careful, transparent stakeholder process to determine best uses of the Environmental Mitigation Trust ("EMT") funds, and respectfully submit these comments on behalf of our over 20,000 supporters in the State of Utah.

Our overarching aim is to ensure that investments pursued and made by DEQ through the EMT are forward looking, transformative, and cost-effective over vehicles' useful lives, while meaningfully reducing NOx and other polluting emissions from Utah's transportation sector. We appreciate that the VW Advisory Committee recommended similar criteria for use of the EMT funds. Given those shared objectives, we offer the following recommendations to improve the Proposed Plan and maximize the impact of EMT funds:

- DEQ should prioritize the use of electric technologies over alternate-fueled options in order to meaningfully contribute to the transformation of Utah's transportation sector;
- DEQ should use the full 15 percent of the available EMT funds for investment in light-duty electric vehicle charging infrastructure;
- DEQ should focus remaining funds on electrification of medium- and heavy-duty vehicles, as demonstrated, market-ready electric technologies are available for each of

the targeted vehicle segments and electrification;

- In particular, DEQ should pursue electrification of transit buses, which offer superior emissions reductions benefits relative to other technologies, and have a lower total cost of ownership, allowing for agencies to reinvest savings and further expand their clean bus fleets;
- To ensure that DEQ has the necessary support to oversee the program, the Department should increase the funding percentage for its administrative costs.

We explain each recommendation in more detail below.

I. The EMT presents Utah with a unique opportunity to transform its transportation sector; the State should seize that opportunity.

As DEQ recognizes, the EMT presents Utah with a unique opportunity to reduce NO_x and other polluting vehicle emissions, to improve the health of all Utahans, and to accelerate the transformation of our transportation sector, which is necessary to meet our air quality and climate goals.

We appreciate that the VW Advisory Committee recommends weighing whether projects deliver “bang for the buck,” “incentivize emerging technologies,” and have “impact in nonattainment areas.” However, we are concerned that the plan carried out by the Department may not ultimately meet these objectives. The NO_x calculator developed by DEQ does not consider electric technologies outside of light-duty vehicle charging, and the explicitly “fuel-neutral” nature of the Proposed Plan is likely to result in replacement of vehicles and emissions reductions that would have occurred without the EMT funds. While this approach may yield short-term benefits, the State will make limited long-term gains.

We therefore recommend that DEQ prioritize use of electric technologies in order to lock in long-term emissions benefits and to transform the market. Not only do demonstrated, market-ready technologies exist for the majority of the vehicle types eligible for replacement, in some key cases (e.g. transit buses) the total cost of ownership is lower, allowing reinvestment in additional clean vehicles. Moreover, in all cases the emissions benefits are superior. These benefits exist with Utah’s current generation mix, and will only improve as the generation mix becomes cleaner.

In addition to allocating the full 15% for light-duty vehicle charging infrastructure, DEQ can move electric technologies forward by weighing electrification as a plus-factor in applications for use of the funds, setting incentive levels that will stimulate the market, or, at minimum, carving out a significant portion of the funds for transformative projects.

II. DEQ should allocate the full 15% of available EMT funds to light-duty vehicle charging infrastructure in order to meet State goals and complement current EV infrastructure programs.

To enable and drive EV adoption, it is critical for would-be drivers to have access to charging infrastructure that comprehensively meets their needs. The evolving paradigm for charging infrastructure that fully meet the needs of EV drivers is to provide Level 1 or Level 2 charging in places where people naturally park for extended periods (e.g., the home and the workplace) and to supply DC fast charging along travel corridors to enable extended travel.

In recently joining the Regional Electric Plan for the West—a commitment to collaboratively develop an Intermountain West Electric Vehicle Corridor covering 5,000 miles of I-15, I-70, I-80 and I-84—Utah has recognized the importance and need for DC fast charging across the state. Such a network is not only critical to enable inter-city or distance travel, but consumer research indicates that a “lack of robust DC fast charging infrastructure is seriously inhibiting the value, utility, and sales potential” of EVs.²

Given this ambitious goal and the high cost of deploying DC fast charging infrastructure, Sierra Club urges DEQ to allocate the full 15% allowable to light-duty electric vehicle charging infrastructure, and to focus much of it on a state-wide fast charging network. Sierra Club also supports deployment of charging at multi-unit dwellings, workplaces, and public locations. However, of those locations, we recommend that DEQ prioritize those “long dwell time” locations where cars are most often parked and where access to charging is critical for EV ownership—the home and the workplace.³ In particular, EMT money would be well spent on improving access to EV charging at multi-unit dwellings, where residents face unique challenges to the installation of EV charging.⁴

In administering this mitigation action, the Department may benefit from modeling the program on Rocky Mountain Power’s \$10M EV incentive program being implemented pursuant to the Sustainable Transportation and Energy Act or its \$4M DOE WestSmart EV Project—two important projects that are moving the needle on electrification, but, even in combination with the full 15% of the EMT funds, will not support the State’s infrastructure needs under current EV growth projections.

Lastly, to further stretch the funds and maximize station deployment, DEQ may consider using EMT funds for charging station purchase and installation, and allowing the utilities to deliver power to the site or directly to stations. In many cases, the cost of installing supporting infrastructure and delivering power to charging stations is much higher than the cost of the charging station and its installation.⁵ DC fast charging stations, in particular, are more likely to

² PlugShare, New Survey Data: BEV Drivers and the Desire for DC Fast Charging (March 2014).

³ National Research Council of the National Academies of Sciences, *Overcoming Barriers to the Deployment of Plug-in Electric Vehicles*, the National Academies Press at 9 (2015) (characterizing home charging as a “virtual necessity”; for all EVs, of Douglas describes how the value of a workplace charging station is “highly dependent on the location of the workplace”); ELPC at 28-29, Docket No. U-17990, Michigan Public Service Commission (filed July 2016).

⁵ See, e.g., *Joint Motion for Adoption of Settlement Agreement by Pacific Gas & Electric Company et al* at 65, Case No. A.15-02-009 (filed March 21, 2016), California Public Utilities Commission; DOE, *Costs Associated With Non-*

require new or upgraded electrical service given the high power requirement and greater likelihood of installation at more remote sites along highways. At minimum, “[i]t is important to work with the utility early in the process to minimize costs, optimize the electrical design, and eliminate scheduling bottlenecks.”⁶

III. DEQ should prioritize the demonstrated, market-ready electric technologies available for the eligible vehicle categories over alternate-fueled options, with a particular focus on transit.

Among the eligible mitigation actions, DEQ proposes to use EMT funds on transit, school and shuttle buses, as well as Class 4-7 and Class 8 local freight trucks. To ensure the program is impactful and transformative, Sierra Club urges DEQ to prioritize electric technologies within these categories, or, at minimum, to carve out a significant portion of funds for electrification.

We make this recommendation because demonstrated electric technologies exist for the majority of the vehicle categories targeted by the program, the immediate NO_x reductions of electric vehicles are superior to alternate technologies, and a transition to electric technologies is critical in the long-term to meet federal air quality standards. The EMT should spark that transition.

California’s Air Resources Board (“CARB”), in formulating a strategy to accelerate broader transportation electrification, called for a focus on “deploying zero-emission vehicles in heavier applications that are currently well-suited for broad market development, such as transit buses, airport shuttles, and last mile delivery [trucks]”²⁷ in addition to continued electrification of light-duty passenger vehicles. CARB’s various technology assessments have also found that these categories are ripe for electrification.²⁹

In particular, switching transit buses to electric fuel is more cost-effective on a total cost of ownership basis, and the resulting operations and maintenance (“O&M”) savings allow for additional investment in clean buses while driving down costs. Below, we detail the benefits of transit buses, and also explain how electric trucks and school buses can deliver NO_x emissions reductions and share in the same lifetime O&M cost savings as electric transit buses.

a. Electric Transit Buses

Residential Electric Vehicle Supply Equipment: Factors to consider in the implementation of electric vehicle charging stations at 17 (November 2015).

⁶ DOE, *Costs Associated With Non-Residential Electric Vehicle Supply Equipment: Factors to consider in the implementation of electric vehicle charging stations* (November 2015).

²⁷ ARB, “Revised Proposed 2016 State Strategy for the State Implementation Plan” at 83.

²⁹ See, e.g., ARB, “Draft Technology Assessment: Medium- and Heavy-Duty Battery Electric Trucks and Buses” (Oct. 2015) (noting availability of electric buses and last mile delivery trucks)

(https://www.arb.ca.gov/msprog/tech/techreport/bev_tech_report.pdf); ARB, “Technology Assessment: Mobile Cargo Handling Equipment” (Nov. 2015) (https://www.arb.ca.gov/msprog/tech/techreport/che_tech_report.pdf) (noting availability of electric forklifts and other cargo handling equipment, including rubber tire gantries in particular).

Switching transit buses to electric fuel is more cost-effective on a total cost of ownership basis, and the resulting operations and maintenance (“O&M”) savings allow for additional investment in clean buses while driving down costs. At the same time, electrifying bus fleets will also work to advance and transform the market, thereby contributing to already sharply falling battery and electric bus costs. Moreover, electric buses offer the most cost-effective NOx reductions.

i. Electric buses already have lower comparative lifetime costs than diesel buses and CNG buses—and costs continue to fall sharply.

As discussed below, even today the lifetime cost of an electric bus is significantly lower than that of a new diesel or alternative fuel bus, though the upfront cost is higher. Moreover, as EV bus manufacturing scales up, and as battery costs—the most expensive part of an EV—plummet over time, electric bus prices will fall rapidly as well.

a. Electric buses have a lower total cost of ownership.

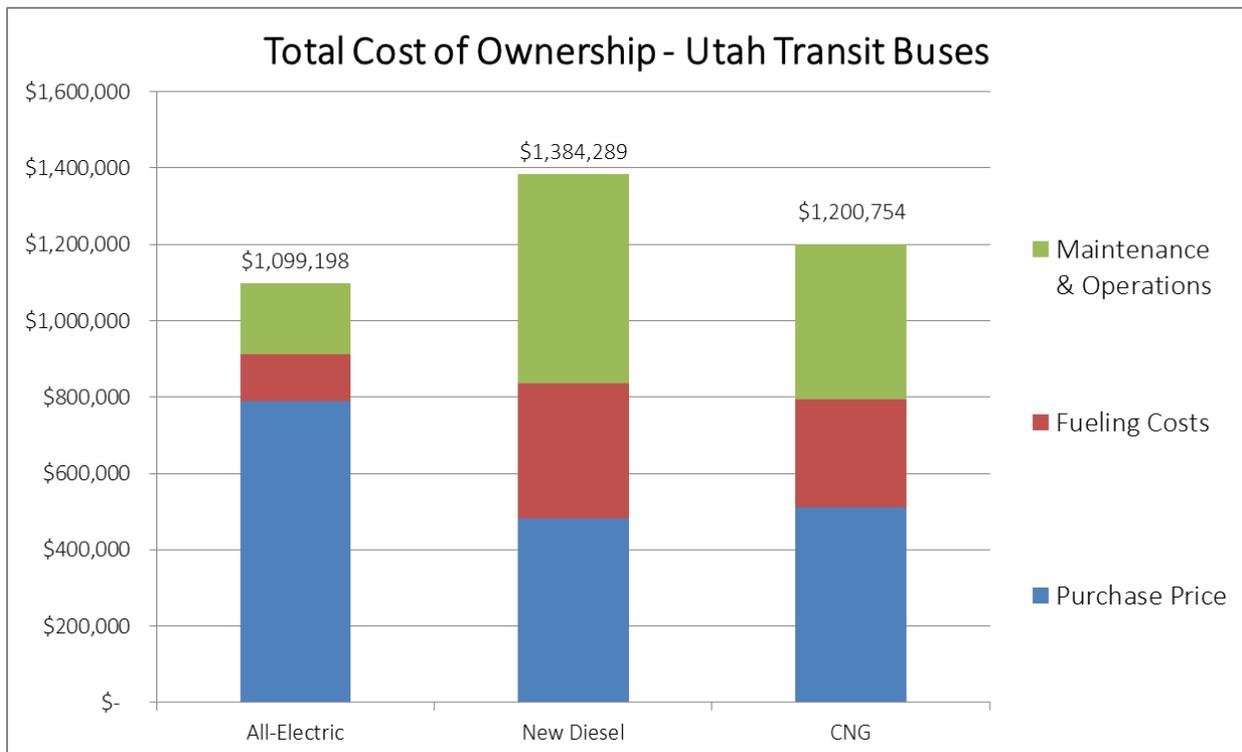
To be sure, there is an up-front cost premium to purchasing an electric bus over a diesel, CNG bus or hybrid bus. For example, in 2017, a Proterra electric bus costs approximately \$789,000, a hybrid bus costs \$673,693, a CNG bus costs \$542,378, and a diesel costs \$483,155.

Nonetheless, even factoring in the cost premium, electric buses are already a cheaper, more cost effective vehicle. As the Argonne National Laboratory’s AFLEET model demonstrates³⁰ that zero emission electric buses have a **total cost of ownership 21% lower than new diesel buses**. Maintenance costs for electric buses are between 70% and 79% lower than for compressed natural gas (CNG) and new diesel buses respectively, contributing to significant cost savings over the lifetime of a bus. Based on currently reported data, each all-electric bus will save Utah’s transit agencies over \$200,000 as compared to a new diesel bus purchase.

Moreover, as this electric bus technology continues to develop, all-electric bus up-front capital costs will continue to drop, whereas CNG and diesel bus capital cost trends are continually increasing.³¹ In addition, although reliable, current publicly available data on hybrid diesel-electric buses are lacking, a lifecycle analysis using data compiled by the California Air Resources Board in 2016 shows that hybrid diesel-electric buses have a total cost of ownership of \$1,909,847, over \$700,000 greater than an electric bus.

³⁰ AFLEET is a tool developed by Argonne National Lab to examine light-duty and heavy-duty vehicles’ petroleum use, greenhouse gas and air pollutant emissions and costs of ownership.

³¹ California Air Resources Board. (2016) *Total Cost of Ownership to Advance Clean Transit*. Presentation Prepared for the 4th Meeting of the Advanced Clean Transit Working Group. <https://www.arb.ca.gov/msprog/bus/4thactwgmtng_costs.pdf>



Source: Argonne National Laboratory's AFLEET Model (2017); fuel and electricity costs adjusted for Salt Lake, UT

The total cost of ownership is derived from Argonne National Laboratory's AFLEET Model (2017). Fuel prices are adjusted for the Salt Lake, Utah region. Model inputs are populated using averages of fuel economy and maintenance costs reported directly by transit agencies from the years 2014 to 2017 (See Appendix A: AFLEET Inputs and Sources).

Maintenance and fueling expenses typically account for a significant portion of transit bus's lifetime costs. An investment in zero-emission vehicles will dramatically reduce this figure. As highlighted above, all-electric bus maintenance and repair costs are 79 and 70% lower than the maintenance and repair costs for new diesel and CNG respectively.³² Moreover, all-electric buses are fueled by regionally generated electricity, which has demonstrated far more reliable pricing as compared to diesel oil and natural gas.³³

	Fuel Economy (MPGDE)	Maintenance & Repair (\$/mi)
Electric	19.44	\$0.17
Diesel	4.16	\$0.80
CNG	3.87	\$0.56

In short, EMT funds are available to meet the higher capital requirements of an electric bus fleet, allowing a transit agency to then lock in the lower lifetime costs of EV buses. Lifetime savings

³² Metrics derived from Argonne National Laboratory's AFLEET Model (2017) and ZEB transit studies

³³ <https://www.afdc.energy.gov/fuels/prices.html>

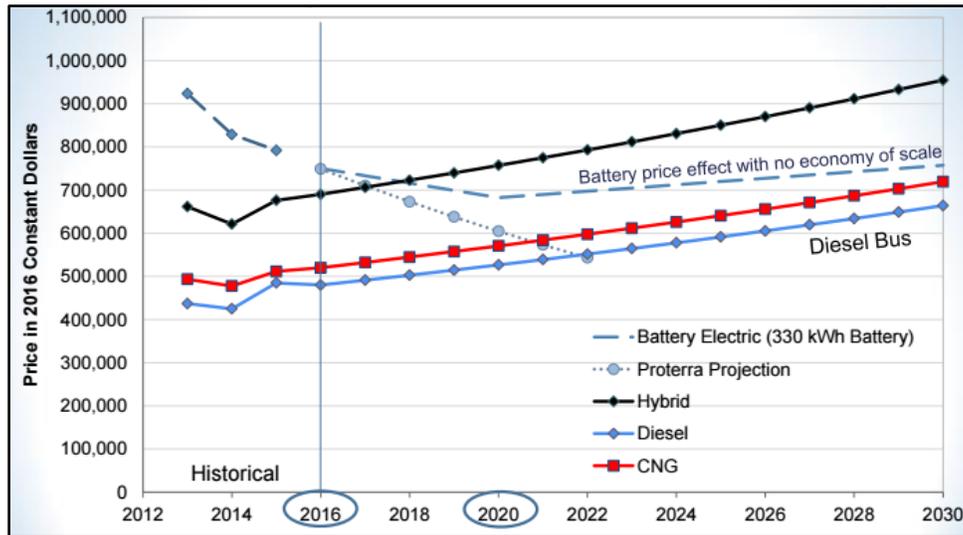
can be re-invested into additional purchases of electric buses, creating a positive economic cycle, where a transit agency can continue to electrify its bus fleet, and further drive down operational costs as electric buses replace the entire fleet. This virtuous cycle improves as battery costs fall.

b. Battery costs and electric bus costs are dropping rapidly.

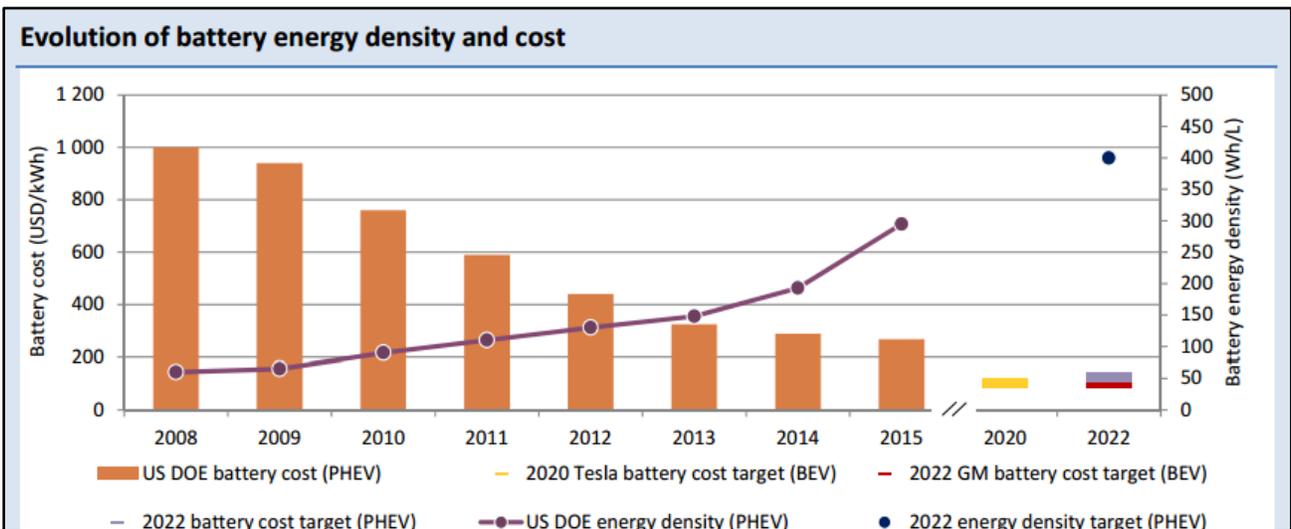
The cost premium of electric buses is dropping quickly. As manufacturing scales up, and as battery costs—the most expensive part of an EV—plummet over time, ZEB prices have and will continue to fall rapidly.

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

Bus Price Projections (Source: Total Cost of Ownership to Advance Clean Transit, CARB 2016)



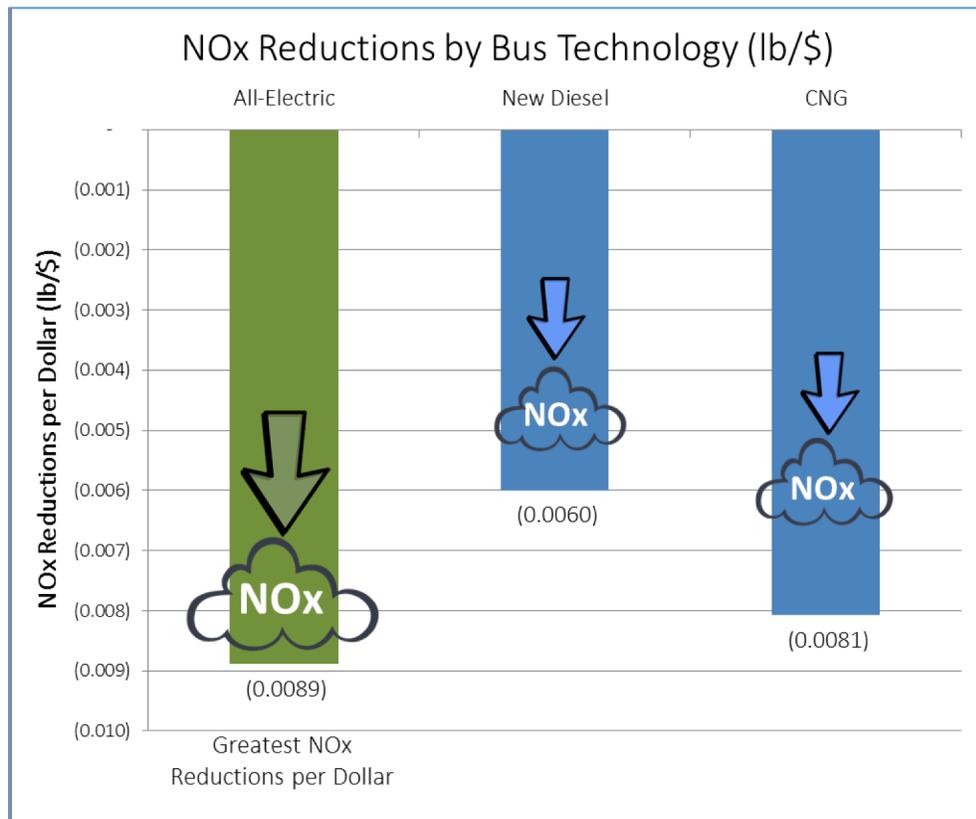
In just three years we have already seen a significant decrease in cost, and by 2022, Protterra and other electric bus companies project that battery costs will decrease by over 30 percent. Cheaper battery costs plus \$40,000 in savings per year as compared to diesel buses and \$57,000 per year



as compared to hybrid buses make electric technology a truly cost-effective option.

- i. On a total cost of ownership basis, investing in transit buses is the cost-effective choice for NOx emissions reductions.**

Under the VW EMT, administering agencies must report the anticipated NOx reductions from use of the EMT funds. Many agencies are in search of the investment that results in the greatest NOx lb/\$ ratio, but they are only considering the upfront purchase costs in these calculations. If the total lifetime costs are considered, the **bus technology with the greatest NOx lb/\$ ratio is a zero-emission bus.**



b. Electric Trucks

Similar to electric buses, electric trucks are a smart option for Mitigation Trust funds and have the opportunity to provide great NOx emissions reductions for the state of Utah. Electric medium duty trucks (Class 4-6) are widely used and in active service on the road today. With plummeting battery costs, heavy duty and long haul (Class 7 and higher) electric vehicles are already in pilots and on their way to market. Class 4-7 diesel trucks are eligible for Mitigation Trust funds. These trucks weigh between 14,001 and 33,000 lbs. and include, but are not limited to, delivery trucks, box trucks, beverage distribution trucks, rack trucks, and refuse vehicles.³⁴

³⁴ The Partial Consent Decree allows funding for Class 4-7 Local Freight Trucks with model years 1992-2006 unless state regulations already require upgrades to 1992-2006 model years. For a description of truck classes see Oak

i. Electric trucks are already in use by businesses across America.

Staples, Frito-Lay, FedEx, UPS, and Coca-Cola are a few of the private firms that have successfully integrated on-road medium size electric trucks into their fleets. Electric medium trucks are available from Smith Electric, ZeroTruck, Boulder Electric Vehicle, EVI-USA, and Freightliner Customer Chassis Corp.³⁵ These companies offer a number of configurations, primarily for localized/urban (so-called “last mile”) delivery and goods/refuse hauling.³⁶ Because of limited battery range --typically a 100-mile maximum--today’s electric medium duty trucks are most effectively deployed in urban or short haul settings.³⁷

Larger auto manufacturers are also developing these technologies to meet both growing market demand and environmental regulations. Mercedes recently unveiled its Urban eTruck concept³⁸ as well as its first fully electric heavy-duty truck.³⁹ Tesla has similarly indicated its intention to apply its all-electric technology to the heavy-duty truck market.⁴⁰ Both companies are focusing on larger Class 7/8 Heavy Duty trucks, meaning that the technology may become available within the ten-year lifespan of the Mitigation Trust.

ii. Electric trucks save money compared to their diesel counterparts.

Converting to electric medium trucks makes economic sense. A 2013 study placed the total cost savings of electric versus diesel truck ownership at 22%.⁴¹ That study assumed a cost premium of \$25,000 to \$37,000 for electric compared to diesel trucks. Notably, since that study was published, battery prices have dropped from \$625/kWh, the value used in the study, to under \$200/kWh.⁴² Because the up-front cost of an electric truck is significantly influenced by the cost

Ridge National Lab, 2015 Vehicle Technologies Market Report, Chapter 3: Heavy Trucks at 109 *available at* http://cta.ornl.gov/vtmarketreport/pdf/2015_vtmarketreport_full_doc.pdf.

³⁵ Sean Lyden, *The State of All-Electric Trucks*, Green Fleet, Jan/Feb 2014, 22 *available at* http://zerotruck.com/wp-content/downloads/GRN_medium.pdf.

³⁶ *See e.g.*, ZeroTruck, *Specs*, <http://zerotruck.com/our-fleet/> (last visited Oct. 18, 2016); Smith Electric, *Models and Configurations*, <http://www.smithelectric.com/smith-vehicles/models-and-configurations/> (last visited Oct. 18, 2016); Boulder Electric Vehicle, *Models*, <http://www.boulderev.com/models.php> (last visited Oct. 18, 2016); EVI-USA, *Vehicles*, <http://www.evi-usa.com/PRODUCTS/Vehicles.aspx> (last visited Oct. 18, 2016).

³⁷ *Id.*

³⁸ Stephen Edelstein, *VW e-Crafter, Mercedes Urban e-truck concept: electric vans for Europe*, Green Car Reports, Sep. 28, 2016 http://www.greencarreports.com/news/1106348_vw-e-crafter-mercedes-urban-e-truck-concept-electric-vans-for-europe.

³⁹ Danielle Muoio, *Mercedes-Benz just revealed its first fully electric truck*, Business Insider, Sep. 21, 2016 <http://www.businessinsider.com/mercedes-electric-urban-truck-photos-2016-9>.

⁴⁰ Joseph White & Paul Lienert, *Musk ‘master plan’ expands Tesla into trucks, buses and car sharing*, Jul. 20, 2016 <http://www.reuters.com/article/us-tesla-masterplan-idUSKCN1002Q4>.

⁴¹ Dong-Yeon Lee, et al., *Electric Urban Delivery Trucks: Energy Use, Greenhouse Gas Emissions, and Cost-Effectiveness*, Environ. Science & Tech. 47, 8022 (2013).

⁴² John Voelcker, *Electric-car battery costs: Tesla \$190 per kwh for pack, GM \$145 for cells*, Green Car Reports, Apr. 28, 2016, http://www.greencarreports.com/news/1103667_electric-car-battery-costs-tesla-190-per-kwh-for-pack-gm-145-for-cells. The decreases have not been as significant for larger electric vehicles which rely on a different battery chemistry than electric passenger vehicles. *See* California Air Resources Board, *Technology Assessment: Medium and Heavy-Duty Battery Electric Trucks and Buses*, Draft, V-3 (Oct. 2015).

of the battery pack, the study likely understates current lifetime cost savings of switching to electric trucks.

Electric delivery trucks also offer significant savings in fuel and maintenance costs as compared to diesel vehicles. Fuel cost savings from switching to electric trucks are tremendous. For example, diesel costs between \$2-3 per gallon⁴³ and “last mile” diesel vehicles are extremely inefficient: the average fuel economy ranges from 4.6 MPG to 9.6 MPG depending on route characteristics.⁴⁴ Electricity prices average approximately \$1.29 per gallon of diesel equivalent, though prices vary by region and electric utility provider. Electric delivery trucks average between 16.7 MPGe and 34.3 MPGe for those same routes.⁴⁵

These improvements in efficiency add up to significant real world savings in fuel and maintenance costs. EVI estimates that the owner of an electric Class 6 truck should expect to spend only \$2,022 per year on electricity while the owner of a similar model diesel vehicle would spend \$6,036 on diesel at current prices. Over a projected ten-year lifespan, the cost savings are even greater with an electric vehicle requiring only \$17,901 of electricity versus \$144,632 spent to fuel a diesel truck.⁴⁶

Electric trucks also save significant maintenance costs over their lifetime. For example, a diesel “last mile” truck registers maintenance costs around \$0.22/mile.⁴⁷ These costs include oil changes, break repairs, belt replacements, and regular inspections. An electric delivery truck, by contrast, costs only \$0.056-\$0.111/mile.⁴⁸ Electric trucks simply have fewer parts to replace and repair. Additionally, electric drive trains and regenerative braking reduce wear and tear on remaining parts like brake pads. Because delivery trucks make frequent stops and travel in congested urban areas, brakes are historically one of the most frequent and expensive costs. With electric drive trains break repairs can be reduced by 20-30%.⁴⁹

iii. Electric trucks reduce air pollution.

Diesel powered class 4-7 trucks emit, on average, between 4.35 and 7.47 grams of NO_x per mile traveled.⁵⁰ Electric vehicles have zero tailpipe emissions. Converting to electricity therefore has a significant impact on local air pollution. Additionally, from a well-to-wheels perspective, electric delivery trucks can reduce greenhouse gas emissions by 27-61%, and they keep improving their environmental performance as our electricity grids get cleaner and cleaner.⁵¹

⁴³ Average national price as of October 3, 2016 was \$2.389/gallon, but varies greatly with underlying crude oil prices, see <http://www.eia.gov/petroleum/gasdiesel/>.

⁴⁴ Electric Urban Delivery Trucks, *supra* note 9 at 8027.

⁴⁵ *Id.*

⁴⁶ Cost estimates from First Priority GreenFleet assuming national average diesel price of \$2.57/gallon and electricity \$0.12/kWh.

⁴⁷ *Id.* at 8025.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ U.S. EPA Office of Transportation and Air Quality, *Average In-Use Emissions from Heavy-Duty Trucks*, Oct. 2008, 5 <https://www3.epa.gov/otaq/consumer/420f08027.pdf>.

⁵¹ Electric Urban Delivery Trucks, *supra* note 9 at 8028-29. This variation depends on the operational characteristics of the diesel truck being replaced. If a diesel truck runs a small route and uses less fuel/day then there are less GHGs to reduce. *Id.*

Lots of pollution from class 4-7 trucks stems from their unique operational requirements. Many of these vehicles register significant idling times, during which they continue to pollute without any additional vehicle miles traveled. A diesel truck uses between 0.40 and 0.85 gallons of diesel per hour of idling.⁵² This costs operators money and contributes to air pollution. To address this issue from long-haul trucks states have electrified truck stops.⁵³ However, this has not addressed the issue of idling in the local freight and parcel delivery fleets. It is important to address these emissions because they have a tendency to occur in populated urban and suburban settings. Electric vehicles can idle without emitting, and have more efficient start-up/shut-down abilities that may further reduce the need to idle.

c. Electric School Buses

Electric school buses present a unique and practical opportunity to reduce NOx emissions. Regrettably, children are often the most exposed and most vulnerable to diesel emissions from school buses. Children are exposed to diesel fumes while riding and getting on and off diesel school buses. Asthma,⁵⁴ which diesel pollution exacerbates, is now the most common chronic condition among U.S. children, affecting 1 in 10 in the United States.

Eliminating school bus tail pipe emissions by going electric can help reduce both children's risk of developing debilitating respiratory diseases and being subjected to exacerbations of chronic lung disease like asthma.⁵⁵ These buses are also a practical end use for transportation electrification: electric school bus pilot projects currently underway in Massachusetts suggest additional cost saving opportunities such as the ability to serve as a backup source of power (vehicle-to-building technology)⁵⁶ and to sell electricity back to the grid when the vehicles are not in use, as school buses generally sit idle during the peak demand hours of the day and throughout the summer (vehicle-to-grid technology).⁵⁷

The purchase price of electric school buses is currently about three times that of conventional buses (\$300,000 versus \$100,000). However, as with electric transit buses, the purchase price of these buses will continue to fall in future years as vehicle and battery prices drop. Moreover, present-day O&M savings are not exclusive to transit buses. Electric school buses are in use by a number of municipalities throughout the country⁵⁸ and are ideal fits for electrification. Buses typically operate two shifts each day, once in the morning and again in the afternoon. Down time

⁵² Oak Ridge National Lab, 2015 Vehicle Technologies Market Report, Chapter 3: Heavy Trucks at 123 *available at* http://cta.ornl.gov/vtmarketreport/pdf/2015_vtmarketreport_full_doc.pdf.

⁵³ *Id.* at 124.

⁵⁴ http://www.lungchicago.org/site/files/487/54230/212503/755739/Asthma_in_Chicago_.pdf

⁵⁵ A landmark US study has also linked diesel exhaust exposure to lung cancer.

<https://www.ncbi.nlm.nih.gov/pubmed/22393207>

⁵⁶ <https://www.boston.com/cars/cars/2016/11/30/concorde-electric-school-bus-is-leading-the-clean-energy-charge>

⁵⁷ <http://www.hybridcars.com/lion-bus-unveils-electric-school-bus-blue-bird-to-follow/>

⁵⁸ See e.g., James Ayre, *Massachusetts Puts \$1.4 Million into Electric School Bus Pilot Program*, Aug. 16, 2016, <https://cleantechnica.com/2016/08/16/massachusetts-puts-1-4-million-electric-school-bus-pilot-project/>; Nicole Schlosser, *Can Electric School Buses Go the Distance?* May 23, 2016, <http://www.schoolbusfleet.com/article/713421/can-electric-school-buses-go-the-distance> (providing an overview of state and local pilot projects); Larry Hall, *Tech: The Yellow School Bus Is Going All Electric*, Clean Fleet Report, Mar. 26, 2016, <http://www.cleanfleetreport.com/tech-yellow-school-bus-going-electric/>.

between shifts allows buses to fully recharge. In King County, California, two electric school buses were estimated to save roughly 16 gallons of fuel per bus per day. This amounted to an annual fuel saving of over \$11,000 per bus.⁵⁹

IV. DEQ should ensure that it dedicates sufficient funding for program administration as part of its environmental mitigation plan.

The VW Advisory Committee proposes to dedicate five percent of the EMT funds to the administration of Utah's Environmental Mitigation Plan. The terms of the EMT permit an administering agency to claim up to 15 percent of funds for administrative overhead, in combination with that incurred by third party contractors.

We appreciate that the recommendation has been made to limit administrative costs to five percent, but encourage DEQ to closely assess its potential needs, including technical support, to ensure the Department has the necessary capacity to oversee the program, particularly one that includes management of grants for newer vehicle technology types, EV charging infrastructure, and the creation of superior off road and non-road vehicle emissions inventories, which we strongly urge DEQ to pursue. We believe that the DAQ should be entrusted to spend up to the 15% funding available for administrative oversight at their discretion.

V. Conclusion

Sierra Club thanks DEQ for the opportunity to submit these comments. We look forward to continued work with the Department and other stakeholders to support forward-looking, transformative, cost-effective use of the Volkswagen EMT in Utah that meaningfully reduce NOx and other polluting emissions from Utah's transportation sector.

Respectfully submitted,



Ashley Soltysiak
Director, Utah Sierra Club
Tel: 801-467- 9294 ext. 102 Cell: 616-485-8290
E-mail: ashley.soltysiak@sierraclub.org

⁵⁹ Larry Hall, *Tech: The Yellow School Bus Is Going All Electric*, Clean Fleet Report, Mar. 26, 2016, <http://www.cleanfleetreport.com/tech-yellow-school-bus-going-electric/>.

Appendix A: AFLEET Inputs and Sources for Transit Bus Analysis

	Maintenance (\$/mi)		Fuel Economy (MPDGE)		Purchase Price (\$)	
	Average	Source(s)	Average	Source(s)	2015 Value	Source(s)
Electric	\$0.17	Foothill Transit Battery Electric Bus Demonstration (2017) Electric Buses at Stanford (2015) King County Metro Battery Electric Bus Demonstration (2017)	19.44	Foothill Transit Battery Electric Bus Demonstration (2017) Proterra Catalyst Performance Spec Sheet (2017)	\$789,000	Foothill Transit Battery Electric Bus Demonstration (2017)
Diesel	\$0.80	CARB Literature Review on Transit Bus Maintenance Cost (2016)	4.155	Zero Emission Bay Area (ZEBAs) Fuel Cell Bus Demonstration Results: Fourth Report (2015)	\$483,155	CARB Total Cost of Ownership to Advance Clean Transit (2016)
CNG	\$0.56	CARB Literature Review on Transit Bus Maintenance Cost (2016)	3.87	American Fuel Cell Bus Project Evaluation: Second Report (2015) Foothill Transit Battery Electric Bus Demonstration (2017)	\$509,756	CARB Literature Review on Transit Bus Maintenance Cost (2016) American Fuel Cell Bus Project Evaluation: Second Report (2015)

Steven Duncan (duncste@comcast.net) Sent You a Personal Message <automail@knownd.com> 2:42 PM
(30
minutes
ago)

to me

Dear Lisa Burr,

With recent announcements from Tesla, it would be hard for anyone to deny that electric vehicles are our future and fossil fueled vehicles will be as obsolete as a typewriter.

The best use of Utah's Volkswagen funds is for electric vehicle investment. Up to 15 percent of the Volkswagen mitigation funds can and should be spent on electric vehicle charging stations. Remaining funds should be spent on investments like zero-emission transit buses, electric school buses, and freight trucks.

Utah plans to invest the settlement funds to replace or upgrade diesel trucks and buses with newer diesel or compressed natural gas (CNG) technology. Ironically, for a settlement intended to right the wrongs of massive pollution, this would swap one dirty fossil fuel for another.

This is a great opportunity to clean up our air and improve public health, but if we continue to invest in dirty fuels then we are taking two steps backward. Please spend this money on truly cleaner vehicles and do not allow the Volkswagen settlement to lead to more of the same dirty and dangerous natural gas and diesel vehicles.

Sincerely,

Steven Duncan
1125 E Brickyard Rd Apt 1606
Salt Lake City, UT 84106
duncste@comcast.net
[\(801\) 968-6082](tel:(801)968-6082)

Location of Responses

- 34.8% of the responses were from Cache County
- 23.9% were from Salt Lake County

Eligible Category selection breakdown:

Class 8 local freight trucks = 71.7%

Class 4-7 local freight trucks = 60.9% + 2.2% = 63.1%

Class 4-8 school buses, shuttle buses, or transit buses = 67.47%

Freight Switchers = 13%

Airport ground support equipment = 13%

Forklifts = 17.4%

Light Duty Zero Emission Vehicle Supply Equipment = 23.9%

DERA = 2.2%

Comments Summary (46 responses online):

Maximum amount to EV charging infrastructure at Trax ride share and Front Runner Stations

Maximum amount to EV charging infrastructure (4)

Replace diesel with electric vehicles

47% to Class 8, 15% to school buses, 10% to freight switchers, 10% to Class 4-7, 8% to administrative costs, 5% to shuttle buses, and 5% to EV infrastructure.

8-10% for administrative costs to not detract from its other important responsibilities.

Focus on vehicles most likely to remain in the state long-term.

Refuse trucks in Cache County.

Funding for pre-heaters in all school buses and shuttle buses in Wasatch Front

No money to transit (UTA) due to record of fraudulent and wasteful spending (2)

Money should go to local school buses.

Public fleets should be targeted. Citizens benefit from reduced emissions and savings as taxpayers. Public fleets are guaranteed to stay in the local areas. There are many public fleet vehicles that are candidates. (7

Class 5 local delivery

Snow plows. No private fleets should be funded.

to me

October 31, 2017

Hello Lisa,

The Rocky Mountain Propane Association is pleased to share a success story where local propane equipment manufacturer and local propane supplier was able to install an 18,000 gallon propane refueling system at Cache County School district bus depot.

The two dispenser system cost \$150,000 completely installed and the propane was supplied at 96 cents per gallon! This will provide an amazing opportunity for Cache County to reduce emissions with their propane powered school busses.

I hope you will allow the members of the Rocky Mountain Propane Association to participate in the VW settlement and I pray that you and your staff can see the low cost infrastructure, low cost fuel and availability of propane powered busses will truly be an honest solution to reduce emissions and be a great opportunity for the VW settlement funds.

Here are some photos from today's grand opening of the new refueling station.

Thank you

Tom Clark <tom@rmpropane.org>

6:58 PM
(12
hours
ago)

to me

October 31, 2017

Hello Lisa,

The Rocky Mountain Propane Association is pleased to share a success story where local propane equipment manufacturer and local propane supplier was able to install an 18,000 gallon propane refueling system at Cache County School district bus depot.

The two dispenser system cost \$150,000 completely installed and the propane was supplied at 96 cents per gallon! This will provide an amazing opportunity for Cache County to reduce emissions with their propane powered school busses.

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Here are some photos from todays grand opening of the new refueling station.

Thank you

November 29, 2017

To: Lisa Burr, Air Quality Policy
Utah Division of Air Quality
lburr@utah.gov

From: Kevin Emerson, Utah Clean Energy
kevin@utahcleanenergy.org, (801) 363-4046

Will Toor, Southwest Energy Efficiency Project
wtoor@swenergy.org, (303) 447-0078

RE: Comments for VW Environmental Mitigation Plan for the State of Utah

These comments are being submitted jointly by Utah Clean Energy and the Southwest Energy Efficiency Project. We appreciate the opportunity to provide comments on this important issue. Below are our three primary recommendations for the Utah Division of Air Quality to consider as it develops a VW Environmental Mitigation Plan for the State of Utah, which we explain in greater detail below:

- 1) Utah should invest its VW settlement funds to support market transformation towards zero emissions vehicles;
- 2) Utah should allocate the maximum amount allowed (15%) of settlement funds for light duty electric vehicle charging; and
- 3) Utah should emphasize electrification of transit buses, school buses and medium and heavy duty trucks with the remaining 85%.

In addition, we provide the following comments below:

- 4) Utah should consider lifetime emissions savings in the distribution of these funds, rather than one-year savings;
- 5) Utah should set incentive levels at the level needed to incentivize agencies to replace diesel vehicles with cleaner vehicles, rather than paying the entire cost of new vehicle; and
- 6) As it develops its plan, Utah should review the plans established by nearby states including Colorado and Nevada.
- 7) We request that the Utah Division of Air Quality provide an opportunity for the public to comment on a draft of the actual plan before it is finalized.

1) Utah's Plan is a One-Time Opportunity to Foster Market Transformation Towards Zero Emission Vehicles

Utah's allocation of \$35 million from the VW Settlement is a unique, one-time opportunity to foster a bold transformation toward zero emission vehicles in Utah. The VW funds should be used to support a fundamental market transformation that

will both reduce emissions today and set us on a pathway towards zero emissions for many years to come.

We recommend that the priority for use of the VW Settlement funds should be given to electric vehicle technologies, in sectors where technology is readily available within the 3-10 year VW settlement funding distribution timeframe.

There are two key advantages of transportation electrification. First, many of the electrical generating plants that serve the Wasatch Front are located outside of the air shed that suffers wintertime inversions and is in violation of the National Ambient Air Quality Standards. Because of this, even with the current electricity generation mix, electric vehicles, both light duty and heavy duty, have an enormous advantage in terms of NOx emissions within the NAAQS area. In particular, light duty EVs have emissions of NOx within the airshed that are [90% lower than a new gasoline vehicle](#) meeting 2017 standards, while electric buses have NOx emissions that are 95% lower than a new diesel bus and 90% lower than a new CNG bus (see Appendix 1).¹

The other big advantage is that emissions of electric vehicles will continue to decrease over time, as Utah's electricity generation mix becomes cleaner as natural gas, solar, wind power replaces coal fired generation. Because of this, the emissions benefit grows over time, and ultimately can approach zero emissions.

Investing funds in replacing older diesel vehicles with newer diesel vehicles will have only limited benefits, as those vehicles will be replaced within a few years even in the absence of these funds. While some such investments may be justified based on the short-term benefits, it is important that the broad portfolio of investments has long-term benefits. The [state of Washington draft plan](#) puts this point well, stating that the plan should "Achieve substantial additional emission reductions—beyond what would already occur, absent trust funding."²

One way to think about this is to imagine looking back twenty years from now, and reflecting on whether one could discern any difference due to these funds. An investment in replacing diesel vehicles in kind will not pass this test, while an investment that builds momentum for large-scale transportation electrification will have lasting impacts.

2) Utah's Plan Should Allocate 15% of Funding for Light Duty Zero-Emission Vehicle Supply Equipment

¹ Southwest Energy Efficiency Project and Utah Clean Energy, *The Potential for Electric Vehicles to Reduce Vehicle Emissions and Provide Economic Benefits in the Wasatch Front*, January 2017: www.swenergy.org/data/sites/1/media/documents/publications/documents/2017_EV_Emissions_Update_Wasatch_Front_Jan-2017.pdf

² State of Washington Department of Ecology, *State of Washington Proposed Volkswagen Beneficiary Mitigation Plan*, October 2017: www.ecy.wa.gov/programs/air/pdfs/FinalDraftVWMitigationPlan.pdf

The VW settlement allows up to 15% of the funds to be used for light duty vehicle charging. This funding may be used for publicly available charging at both publicly and privately owned sites, workplace charging and charging in multifamily housing. The state of Utah recently joined with seven other states in a [Regional Electric Vehicle Plan for the West](#), committing the states to collaboratively develop the Intermountain West Electric Vehicle Corridor through the electrification of 5,000 miles of interstate highways including Interstates 15, 70, 80 and 84.³

In order to achieve the goal outlined in this Plan the state of Utah should allocate the full 15% allowed to deploy a light duty zero emission vehicle charging network. A major focus should be building out the fast charging network across the state, and funds should also be used for other purposes including workplace charging and charging to serve multifamily housing. Investment in Utah's EV corridors is essential to the widespread (and faster) adoption of EVs since build-out of an EV corridor overcomes range anxiety, which is a primary barrier to consumers choosing EVs. The settlement allows up to 15% of a state's trust funds to be allocated to light duty vehicle charging. The full 15% equates to \$5,276,626. The proposed 11% won't get Utah far enough.

The state should also seek to leverage the investments by Rocky Mountain Power, both pursuant to the Sustainable Transportation and Energy Plan (STEP) and the DOE WestSmart EV Project in order to create a more robust, reliable, and comprehensive network.^{4,5} While these investments are very valuable, it is important to realize that the Rocky Mountain Power investments will meet less than 25% of the need for EV charging across Utah. With a midrange projection of EV uptake in Utah, there would be 65,000 EVs on the road by 2025. Serving the needs for fast charging, workplace charging, and charging in multifamily housing would require an investment of approximately \$125 million. Currently, the Rocky Mountain Power STEP funds and WestSmart funds total approximately \$14 million. While these investments will be leveraged with funding from site hosts, even if we assume that this doubles the funding to \$28 million it will meet less than 25% of the need. These calculations are described in Appendix 2 of this document.

Building out a convenient and effective statewide EV charging network is essential to accelerating consumer uptake of zero emission vehicles since range anxiety often precludes consumers from choosing these vehicles. While it is very difficult to accurately estimate the NOx reductions, accelerating widespread electrification of the light duty vehicle fleet is the one route available to near zero NOx emissions from this sector over the long term.

³ Regional Electric Vehicle Plan for the West, <http://energy.utah.gov/governors-sign-mou-plan-regional-electric-vehicle-corridor-west/>

⁴ Rocky Mountain Power Utah Sustainable Transportation & Energy Plan: <https://www.rockymountainpower.net/env/utah-sustainable-energy-plan.html>

⁵ Rocky Mountain Power Award Paves the Way for More Electric Vehicles: https://www.rockymountainpower.net/env/bsre/bsk/forecast/s2017fn/05-17_ev-grant-electric-corridors.html

Two states in the southwest have already published draft beneficiary mitigation plans. Both states are also signatories to the REV West MOU, and both the [Colorado](#) and [Nevada](#) plans allocate the full 15% to light duty charging.^{6,7}

3) Utah's Plan Should Help Electrify Public Transit & Other Medium and Heavy Duty Vehicles

One of the main focuses of the VW settlement is efforts to reduce NOx emissions from the transportation sector. One of the most effective ways to do this (and at the same time reduce VOCs and greenhouse gases) would be to replace existing older, existing heavy duty diesel vehicles with new electric vehicles. In the heavy duty sector, the area where fully electric vehicles currently compete best is transit buses. Due to fixed routes and regular schedules, transit service can be well served by fully electric buses. Recent advances in battery technology give a fully charged electric bus a range between 200 and 300 miles, easily meeting the demands of the vast majority of transit routes.

Transit agencies across the country have been responding to the opportunity to move to vehicles that are cleaner, quieter and have lower total cost of ownership. Already, the nation's second largest transit agency, LA Metro, has [committed](#) to moving to 100% electric buses over its 12-year vehicle replacement cycle.⁸ Colorado's Regional Transportation District has acquired a fleet of [36 electric buses](#) and has expressed interest in acquiring up to 115 electric buses before 2020.⁹ In New Mexico, Albuquerque is acquiring a fleet of electric buses for its new Albuquerque rapid Transit BRT system. In Utah, Park City is [moving](#) to an all-electric bus system.¹⁰ A targeted investment of VW funds could accelerate this transition in Utah.

As battery prices continue to decline, electric options have also become increasingly cost effective in other applications such as school buses and medium duty delivery trucks, and will likely be competitive for some heavy duty truck applications within the 10 year period over which VW funds may be allocated. The consulting firm Navigant is [predicting a surge](#) in adoption of electric trucks over the next decade.¹¹

⁶ Colorado Department of Public Health and Environment, *Proposed Beneficiary Mitigation Plan Volkswagen, Audi, and Porsche Clean Air Act Settlements*, August 28, 2017:

https://www.colorado.gov/pacific/sites/default/files/AP_VW_Beneficiary_Mitigation_Plan.pdf

⁷ Nevada Division of Environmental Protection, *Nevada Draft Beneficiary Mitigation Plan for the Volkswagen 2.0 Liter Partial Settlement*, July 3, 2017: <https://ndep.nv.gov/uploads/air-vwset-docs/draft-beneficiary-mitigation-plan.pdf>

⁸ San Gabriel Valley Tribune, *LA Metro commits to 100 percent electric buses by 2030*, August 30, 2017:

<http://www.sgytribune.com/2017/07/28/la-metro-commits-to-100-percent-electric-buses-by-2030/>

⁹ Regional Transportation District, *RTD Board approves purchase of 36 electric buses for 16th St. Mall*, August 27, 2015: <http://www3.rtd-denver.com/elbert/news/index.cfm?id=7387>

¹⁰ Deseret News, *Park City switches to all-electric bus system*, July 23, 2017:

<https://www.deseretnews.com/article/865683611/Park-City-switches-to-all-electric-bus-system.html>

¹¹ GAS2, *Electric Truck Sales To Surge In Next Decade Says Navigant Research*, December 9, 2016:

<http://gas2.org/2016/12/09/electric-truck-surge-next-decade-navigant/>

Daimler has [introduced a truck](#) that can haul 11 tons for 220 miles on one charge.¹² [Cummins has unveiled](#) a class 7 truck that can haul 22 tons for 100 miles between charging events.¹³ [Tesla also unveiled](#) a prototype 18-wheeler that the company reportedly can haul a 40-ton load with a 500-mile range, at a total cost of ownership lower than a diesel truck.¹⁴ In addition, Frito-Lay [already operates](#) a fleet of hundreds of electric delivery trucks.¹⁵ All of these are enabled by the dramatic reductions in battery prices that are taking place. A 2017 [report](#) from McKinsey found that battery prices had dropped nearly 80% in 6 years, from 41,000/kwh in 2010 to \$227/kwh in 2016.¹⁶ General Motors acquired batteries at [\\$145/kwh for the Bolt](#), and projects battery costs below \$100/kwh by the early 2020's.¹⁷ Since the VW funds may be spent over a 10 year time period, and must be spent over a minimum of 3 years, multiple medium and heavy duty EVs are likely to be cost competitive during this timeframe.

Replacing diesel buses with electric buses is one of the best investments that can currently be made in the heavy duty vehicle sector. Electric buses have rapidly become a cost effective technology that allows transit agencies to reduce their total cost of ownership, while also offering significant air quality benefits. And, as with light duty vehicles, because electricity generation is getting cleaner over time, electrification of heavy duty vehicles offers a pathway towards near zero emissions.

It is important to note that using VW funds for replacing existing diesel medium and heavy duty vehicles with new diesel vehicles has no long-term benefit. These vehicles will be replaced anyway, so the only benefit is a short term benefit during the period of early retirement, whereas investing in electrification is a transformational investment that leads to growing long-term emissions benefits.

We have completed an analysis of the NOx emission reduction benefits of electric buses in the Wasatch Front, comparing electric transit buses to a 1999 model year diesel bus, a 2007 model year diesel bus, and a new 2017 diesel bus. (Full details and results of this comparison are in Appendix 1.) We find that the NOx emissions in the nonattainment area from an electric bus are dramatically lower than for even a new diesel bus meeting current emissions regulations. This is illustrated in the chart below, which shows the emissions on a per mile basis from a new CNG, new diesel,

¹² Bloomberg, *Daimler Steals Tesla's Thunder With Heavy-Duty Electric Truck*, October 25, 2017: <https://www.bloomberg.com/news/articles/2017-10-25/daimler-steals-tesla-s-thunder-with-heavy-duty-electric-truck>

¹³ Charged, *Cummins unveils electric Class 7 truck*, September 4, 2017:

<https://chargedevs.com/newswire/cummins-unveils-electric-class-7-truck/>

¹⁴ New York Times, *Tesla Unveils an Electric Rival to Semi Trucks*, November 16, 2017:

<https://www.nytimes.com/2017/11/16/business/tesla-electric-truck.html>

¹⁵ Charged, *Frito-Lay operates largest US fleet of electric delivery trucks*, August 13, 2012:

<https://chargedevs.com/newswire/frito-lay-operates-largest-us-fleet-electric-delivery-trucks/>

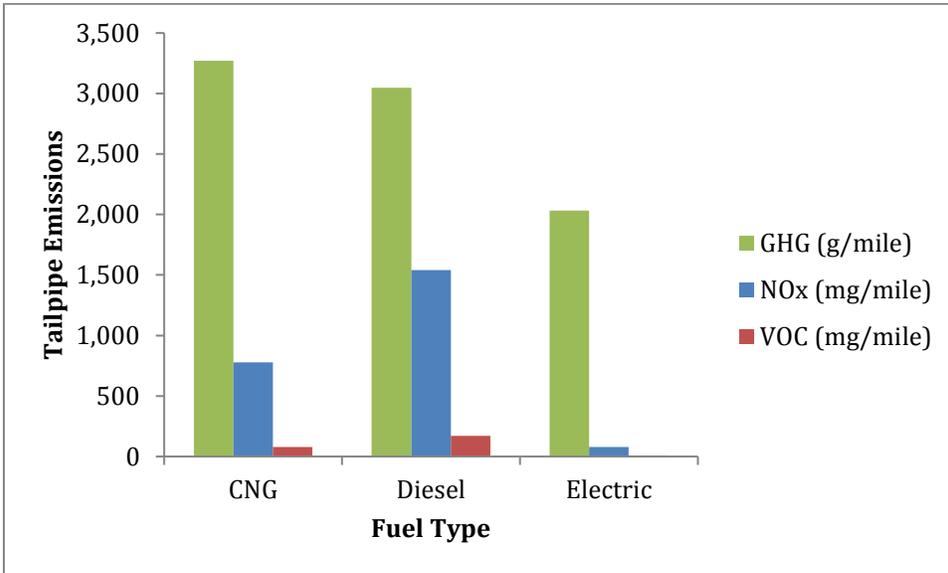
¹⁶ Electrek, *Electric vehicle battery cost dropped 80% in 6 years down to \$227/kWh - Tesla claims to be below \$190/kWh*, January 30, 2017: <https://electrek.co/2017/01/30/electric-vehicle-battery-cost-dropped-80-6-years-227kwh-tesla-190kwh/>

¹⁷ Automotive News, *GM maps route to profitable EVs*, August 20, 2017:

<http://www.autonews.com/article/20171120/OEM05/171129971/gm-maps-route-%20to-profitable-evs>

and electric transit bus. The VOC and NO_x emissions are the emissions within the nonattainment area; the greenhouse gas (GHG) emissions include upstream emissions from electricity generation that takes place outside of the nonattainment area. Note that in order to fit the different types of emissions on one chart, the GHG numbers are shown in grams/mile, while the NO_x and VOCs are shown in milligrams/mile.

Figure 1 – Emissions of New Transit Buses



The methodology for this analysis is described in Appendix 1.

While all three technologies have lower emissions than very old buses (a 2007 diesel would have NO_x emissions in the nonattainment area of about 5,700 mg/mile (or 5.7 g/mile)), electric transit buses emit by far the lowest NO_x emissions and should therefore be prioritized for replacement with the mitigation funds.

4) Utah’s Plan Should Consider Lifetime Cost effectiveness

Investments in transit electrification not only support a market transformation towards near zero emissions, but are also very cost effective uses of the VW mitigation funds. In order to fairly compare different technologies, it is important to recognize that simply doing early replacement of existing diesel trucks only provides a benefit for the short period until that truck would have been replaced anyway, while replacing with an electric bus provides a benefit for the entire lifetime of the vehicle.

This concept is explained as follows in the Nevada draft mitigation plan:

When considering a diesel-for-diesel replacement, the NDEP will consider the remaining useful life of the vehicle being replaced in the calculation of emission reductions; that is, the emission reductions accounted for between when the

replacement/repower would occur versus when the replacement/repower would otherwise occur without Trust funds. When considering a diesel-for-alternative fuel/all-electric replacement, the NDEP will consider the emission reductions associated with the life of the replacement in comparison to a diesel-powered vehicle of the same model year in addition to the remaining useful life of the vehicle being replaced.¹⁸

The modeling tool AFLEET assumes a 15-year lifetime for heavy-duty vehicles. Thus, if a 2004 diesel truck is replaced in 2018, the NOx benefit is really only one year of emissions reductions, while an electric bus replacement would give real NOx reductions over the whole 15-year time horizon.

Here is an example. A 2007 bus is replaced in 2018 with either a new electric bus or a new diesel bus. In year 1, the estimated NOx emissions reductions for the diesel bus will be about .14 tons, while the reductions from an electric bus will be about .19 tons, assuming the bus is driven 35,000 miles a year. However, if we assume a 15 year lifetime, the bus would have been replaced in 2022, so the diesel replacement only gave 4 years of emissions benefits, for a total of $4 \times .14 \text{ tons} = .56 \text{ tons}$. However, the electric bus will continue to have the additional benefit of lower emissions below a new diesel for its entire lifetime, giving a lifetime benefit of $4 \times .19 \text{ tons} + 11 \times .05 \text{ tons} = 1.31 \text{ tons}$.

In addition, investing in transit electrification reduces the fuel and maintenance costs for the transit agency. Over the vehicle lifetime, electric buses have a lower total cost of ownership, which can allow the agency to invest more dollars in transit service, reducing single occupant vehicle trips and thus having additional air quality benefits.

Also, any calculation of cost effectiveness must make an assumption on how much money is needed to induce an agency to replace a vehicle with a cleaner vehicle. Thus, at most the required funding is the incremental cost, which can be \$200,000-\$400,000 per bus. However, it may be less than this. The FAST act allows transit agencies to use battery leases, which can substantially reduce the upfront cost of an electric bus.

The DEQ appears to have used replacement of model year 1999 vehicles for calculating emissions benefits. Replacing a 1999 diesel bus with an electric bus yields savings of 0.52 tons NOx/year. Thus, if, for example, an incentive level of \$100,000 per bus were set, this would yield a cost effectiveness of about \$192,000/annual ton of emissions reduction. And unlike replacing older diesel trucks with newer diesel trucks, there is an ongoing emissions benefit over the entire lifetime of the electric bus.

¹⁸ See note 7, page 25.

In addition, as early investments are made in transit and heavy-duty electrification, the provision of charging infrastructure and the greater experience that agencies gain with electric buses and trucks will both tend to spur additional investment in electric vehicles, leading to further emissions reductions in the future. These benefits are difficult to quantify, but are very real.

5) Comments on Incentive Levels

Funding incentives should be used to offset a percentage of the cost to replace or repower vehicles to help spur adoption of a greater number of vehicles, rather than covering the full cost of repair or repowering for a smaller number of vehicles. The focus should be to incentivize agencies to replace vehicles with the cleanest possible vehicles, rather than simply replacing with a new diesel vehicle. Thus, the cost to be covered should be some fraction of the incremental capital cost of the cleaner vehicle (and associated charging infrastructure).

As an example, the full cost of an electric bus and associated charging infrastructure could easily be \$800,000. However, the incremental cost over a diesel bus will be about half that, or \$400,000. And if the batteries are acquired through a capital lease, the incremental capital cost may be as little as \$100,000. We would suggest that the incentive for electric vehicles be set at 100% of the incremental capital cost (including charging) compared to a diesel vehicle, capped at \$200,000 per vehicle for transit buses and class 8 trucks and at \$100,000 per vehicle for school buses and medium duty trucks.

In addition, in the case of electric buses agencies may be willing to invest even if the entire incremental capital cost is not covered due to the reduction in total cost of ownership over the vehicle lifetime. A reasonable estimate of fuel and maintenance costs for a diesel bus is \$65,000/year, and \$30,000/year for an electric bus. Over the estimated 12 year replacement cycle the operational savings exceed \$400,000.

Setting incentive levels at the amount needed to move the market, rather than at up to the full cost of the vehicle will significantly increase the cost effectiveness of the portfolio of investments.

6) How Utah's Neighbors are Addressing These Issues

Two states near Utah have already released draft Beneficiary Mitigation Plans, Nevada and Colorado. Both have strong commitments to electrification.

The Nevada plan allocates the full 15% to light duty EV charging, with a focus on fast charging along highway corridors. It allocates 5% to DERA projects, and the remaining 80% can be used for class 4-t trucks and buses. It sets out 3 overall goals to guide project selection:

1. To efficiently and cost-effectively reduce NOx emissions from areas of the state that bear a disproportionate share of NOx pollution and potentially, other pollutants;
2. To efficiently and cost-effectively reduce NOx emissions from areas of the state where the vehicles subject to the settlement were, are, or will be operated; and
3. To support long-term investments toward a zero emission transportation sector within the state.¹⁹

Colorado's draft plan also allocates the full 15% towards light duty EV charging, both for fast charging along corridors and for community charging projects. It also allocates 7% to DERA projects, and 7.5% for administration. It allocates 26% for alternative fuel transit buses (electric or CNG), and will pay 110% of the incremental costs of the buses, including charging equipment, compared to a new diesel bus. The plan allocates 26% to an alternative fuel (electric, CNG or propane) trucks and buses category that includes school buses, shuttle buses and trucks. Diesel to diesel replacements are not eligible except for small businesses with 8 or fewer vehicles, only for pre 2001 medium duty trucks. It sets aside 18% as a flex fund to be allocated in the future based on lessons learned and market demand.²⁰

Conclusion

The availability of environmental funds from the VW Settlement offers Utah a unique opportunity to incentivize emerging technology and take a significant step forward on transportation electrification, by maximizing the allowable investment in light duty vehicle charging and emphasizing electrification of medium and heavy duty vehicles. In order to realize this opportunity, we recommend that

- 1) Utah should invest its VW settlement funds to support market transformation towards zero emissions vehicles;
- 2) Utah should allocate the maximum amount allowed (15%) of settlement funds for light duty electric vehicle charging; and
- 3) Utah should emphasize electrification of transit buses, school buses and medium and heavy duty trucks with the remaining 85%.

We request that the Utah Division of Air Quality provide an opportunity for the public to review and provide comments on a draft of the actual plan it develops before finalizing the State of Utah VW Environmental Mitigation Plan.

¹⁹ See Note 7

²⁰ See Note 6

Appendix 1 - Methodology for Estimating Transit Bus Emissions

The emissions analysis in these comments was done using the GREET model developed by Argonne National Lab.²¹ For the electric buses, the electricity mix for 2015 was taken from Rocky Mountain Power’s “Utah Conservation and Respect Report 2016” which showed that in 2015 the utility’s electricity mix was 62% coal, 15% natural gas, 13% renewables and 9% other.²² The new diesel transit bus had a fuel economy of 4.1 MPG in 2016 and the new CNG transit bus had a fuel economy of 3.5 MPGe.

The GREET model calculates the amount of emissions occurring in urban areas to show which emissions would be most likely to contribute to air quality issues. To better represent the impact that electric and gasoline vehicles will have on air quality, SWEEP characterized the transportation energy system in Utah to show exactly what emissions are likely to contribute to the Salt Lake City metropolitan area airshed.

Regarding relevant upstream emissions from electricity, SWEEP has calculated that in 2015, 0% of the state’s coal plant emissions and 60% of natural gas plant emissions take place in the Wasatch Front area and contribute emissions into the region’s airshed.²³ For upstream emissions for gasoline vehicles, 100% of the emissions associated with diesel refining take place around Salt Lake City. The results are:

Transit Bus Emissions in mg/mile

Electric Transit Bus (MY 2017)		
	Total	Urban
NOx	2,425	79.17
VOC	194	6.84
GHG	2,031,951	
HD Bus: Transit CIDI LS Diesel (MY 2017)		
	Total	Urban
NOx	2,282	1,540
VOC	306.8	170
GHG	3,047,415	
MY 2007		
NOx	10,247	5,695
VOC	1,006	516
GHG	3,641,669	

²¹ GREET Model: <https://greet.es.anl.gov/>

²² Rocky Mountain Power, *Utah Conservation and Respect Report 2016*, https://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/Efficiency_Environment/UT_ConservationReport.pdf

²³ Environmental Protection Agency. 2015. eGRID2012 Version 1.0. Retrieved from <https://www.epa.gov/energy/egrid>

MY 1999		
NOx	25,843	15,207
VOC	1,477	803
GHG	3,651,974	

Appendix 2 - Why Utah Needs More Investment in Electric Vehicle Charging Than will be Provided by Rocky Mountain Power

The state of Utah may allocate up to 15% of the environmental mitigation funds received under the VW settlement to light duty electric vehicle charging. Some may question whether this is needed given the fact that Rocky Mountain Power will invest approximately \$2 million a year in EV charging for 5 years through the Sustainable Transportation and Energy Plan, in addition to \$4 million from a United States Department of Energy grant.

However, as demonstrated below, in order to support growth in electric vehicles in Utah during the next decade, far more charging will be needed than the RMP plan will provide. The Rocky Mountain Power plan will meet slightly more than 11% of the need in a moderate growth scenario.

Midrange EV adoption scenario

Utah has approximately 4,000 EVs today, but has a very high growth rate, with 2016 sales 95% higher than 2014 – the highest growth rate in the nation²⁴. There are some factors that may make it hard to maintain this rate (the EV tax credit expired at the end of 2016). The high 2016 sales growth may partially reflect people rushing to buy EVs before the tax credits expire. Utah averaged a 30% growth rate over last 3 years. With the EV policies in the charging and utility arena, and continued efforts working in the Salt Lake City area to create local programs that support EV adoption, it is plausible that 30% annual growth rates could be achievable, leading to 12,000 EVs on the road by the end of 2020, and 65,000 in 10 years.

How much Electric Vehicle Supply Equipment is needed per thousand EVs?

Answering this question is not straightforward. We now have several years of experience with both plug in hybrid vehicles and with 100 mile range EVs, plus limited experience with longer range EVs through Tesla. The industry is moving towards 200-300 mile range EVs, which will have different charging behavior. The National Renewable Energy Lab has developed a simulation tool that can be used to estimate charging needs for different mixes of EVs, the Electric Vehicle Infrastructure Projection Tool (EVI-Pro). Based on this tool, the estimated need is:

- 6-10 DC fast chargers (DCFC) per 1,000 EV
- 50-340 public Level 2 chargers/1,000 EV
- Workplace charging for about 8%, or 80 plugs/1000 EV
- Home charging for all multi-family residents^{25,26}

²⁴ Auto Alliance, ZEV Sales Dashboard: <https://autoalliance.org/energy-environment/zev-sales-dashboard/>

²⁵ National Renewable Energy Laboratory, *Regional PEV Charging Infrastructure Analysis*, August 15, 2016: <http://www.mass.gov/eea/docs/doer/clean-cities/regional-pev-charging-infrastructure-analysis.pdf>

²⁶ National Renewable Energy Laboratory, *Regional Charging Infrastructure for Plug-In Electric Vehicles: A Case Study of Massachusetts*, January 2017: <http://www.nrel.gov/docs/fy17osti/67436.pdf>

According to US census data, approximately 27% of Utah residents live in multi-family housing; this then implies a need for 270 chargers, L1 or L2, /1000 EV for multifamily.²⁷ The assumption is that single-family residents are able to easily install charging.

How much EV charging is needed to support this midrange level of EV adoption?

If we assume there are 65,000 EVs on the road in Utah in ten years, then the range of charging that is needed is:

- 400-600 DCFC
- 2,500 Workplace plugs (assumes 2 people share one plug, each charging for half the workday)
- 3,000-10,000 Public Level 2 chargers
- 17,550 chargers in multi-family housing

How much will this cost?

The U.S. Department of Energy commissioned an analysis of the costs of installing nonresidential charging in 2015, and found that the cost of a single port charger for workplace or public charging typically varied from \$1700-6,000 for the equipment, and installation costs that averaged \$3,000 and ranged up to \$12,700.²⁸ This gives a total from \$4700-\$18,700 per plug. For DCFC, the cost for equipment and installation can range from \$40,000-\$100,000.

Using the low end estimates for number of chargers needed and for the cost of the chargers, we get a lower bound for cost of:

400 DCFC	\$16 million
2,500 workplace	\$11.8 million
3,000public	\$14.1million
<u>17,550 multi-family</u>	<u>\$ 82.5million</u>
Total	\$124.4 million

Comparing this to the \$14 million available from RMP and DOE, we see that even with low end estimates of numbers of chargers needed and the cost of equipment and installation, the STEP and WestSmart funding only cover about 11% of the need.

²⁷ United States Census Bureau, *Historical Census of Housing Tables*:

<https://www.census.gov/hhes/www/housing/census/historic/units.html>

²⁸United States Department of Energy, *Costs Associated With Non-Residential Electric Vehicle Supply Equipment Factors to consider in the implementation of electric vehicle charging stations*, November 2015:

http://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf

VW Settlement Public Comment Summary

- 61 comments total including email and survey (43 survey, 22 email with 4 duplicates)
- Advocacy groups generally want DEQ to use this opportunity to push new electric technology
- Cache County – many comments in favor of public fleet replacements (from government entities)
- ~10 companies pushing their own technologies
- ~7 advocacy groups, and a handful of citizens wanting to see full 15% used for EV infrastructure



ADDRESS:

**Salt Lake City
& County Building**
451 South State Street
Suite 145
Salt Lake City, Utah 84111

PHONE:

801-535-7736 or
801-580-1922

WEB:

utahcleancities.org

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To: Ms. Lisa Burr and Mr. Bryce Bird, Utah Division of Air Quality
From: Tammie Bostick-Cooper, Utah Clean Cities
Dr. Royal DeLegge, Chairman of the Board
Re: Volkswagen Settlement Environmental Mitigation Plan
Date: November 30, 2017

Dear Ms. Burr and Mr. Bird,

Thank you for the opportunity to provide comments on this important issue. Utah Clean Cities has been working for clean air strategies for over 25 years in Utah. We have worked closely with the Governor's Office of Energy Development, Salt Lake City, Utah cities, businesses and private enterprises along with the national network of the Department of Energy Clean Cities programs. Utah continues to lead the nation on numerous clean fuel initiatives with alternative fuel corridors, alternative fueling and electric charging stations along with the alternative fueled fleets for businesses and governments. We offer the latest technical assistance, grant support, and funding opportunities for our members statewide.

The mission of Utah Clean Cities is to advance the energy, economic, and environmental security of the United States by supporting local decisions to adopt practices that reduce the use of petroleum in the transportation sector. We believe the VW mitigation plan is an opportunity to stimulate the transformation of commercial fleets within our state towards zero and near-zero emission vehicles.

The State of Utah should use the Volkswagen Settlement funds to invest in clean, alternative fuel transportation and the infrastructure to support state-side energy and cleaner fuels

Utah Clean Cities believes greater emissions reductions can be achieved by utilizing alternative fuel technology that is more advanced than ever before and available on today's market. This includes CNG and Autogas (LPG or propane), as well as some electric models. While alternative fuels may have a higher upfront cost than diesel, most analyses can support a return on investment with fuel savings, lower emissions and reduced maintenance costs.

Alternative fuels can also provide significant air quality improvements over the lifetime of the vehicles; especially in the case of the renewable fuels such as Renewable Natural Gas (RNG), or Biogas. Biogases which are considered a "drop in" gas for CNG engines have the potential to provide upwards of 56% of the natural gas in the in the transportation arena¹. The lifetime emissions reductions should be a key consideration when determining the tradeoff between cost and overall reductions achieved. Though we recognize that new diesel technology is a vast improvement to the vehicles being replaced, it is worth looking at the full incremental costs of replacing a diesel with an alternative fuel when making decisions on how to allocate funds.

1. ¹
https://www.afdc.energy.gov/uploads/publication/biogas_potential_in_us.pdf



ADDRESS:

**Salt Lake City
& County Building**
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Salt Lake City, Utah 84111

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Utah's abundance of natural gas, and the fact that propane and hydrogen fuels are additional products of CNG production in our state, makes good sense as to why we should use the cleanest, low-carbon fuel that is undeniably our state-side local fuel².

And finally, the application of zero-emission technologies tie in to all of these efforts to generate cleaner state-side energy, which will make the adoption of electric transportation an essential strategy: simply put, as our electric production becomes cleaner, the footprint of the vehicles that use that energy source will also be improved.

Our recommendations on the eligible types of vehicles fall in line with those provided by the Advisory Committee, with a few differences discussed below

We recommend that the funds be divided between Class 8 local freight heavy duty, Class 4-7 medium duty and transit/shuttle, as well as the full allocation for light duty EV infrastructure and up to 15% for administrative costs as the Division of Air Quality determines to be necessary. The percentages allocated to each should be determined after the request for information phase to determine the needs and interests of the interested parties.

Emphasis should be placed on the highest polluting vehicle class. Class 8, including combination long and short-haul trucks are two of the highest emitting sources of NOx within our current inventory as provided to the Advisory Committee. Reducing these sources appears to be the most cost-effective replacement options.

Class 4-7 local freight, including single unit long and short-haul trucks, as well as refuse trucks are also relatively cost-effective, and we feel like many of our members could apply for funding under this class. With the new Cummins CNG engines at near-zero emissions, we believe the CNG model makes sense for Utah's medium and heavy duty fleets³.

Our members typically fall into the Class 8 heavy duty, and Class 4-7 medium duty vehicles, with a strong presence in transit, shuttle and school buses. Alternative fuels are vigorous in the refuse-hauling sector as well, with most of those fleets running on CNG and a surprising interest in electric models.

We are well situated to help fleet managers and business owners better understand all of the options available on today's market, including transitioning to an alternative fuel, hybrids or full-electric models. We will double our efforts to provide our members with the tools needed to make an informed decision that works best for their business.

Utah Clean Cities urges the Division of Air Quality to allocate 15% of funding for Light Duty Zero Emission Vehicle Supply Equipment.

² https://www.afdc.energy.gov/vehicles/natural_gas_emissions.html

³ <http://www.cumminswestport.com/models/isl-g-near-zero>



ADDRESS:

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& County Building**
451 South State Street
Suite 145
Salt Lake City, Utah 84111

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801-580-1922

WEB:

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Utah recently joined seven other states in a **Regional Electric Vehicle Plan for the West** memorandum of understanding, committing the states to collaboratively develop the Intermountain West Electric Vehicle Corridor through the electrification of 5,000 miles of interstate highways, including Interstates 15, 70, 80 and 84. Utah Clean Cities has worked closely with the Governor's Office of Energy Development throughout this process.

In order to reach the ambitious goals outlined in this plan, Utah should allocate the entire 15% allowed to implement a light duty zero emission vehicle-charging network. Investing in Utah's EV corridors is essential to robust adoption of electric vehicles. Ensuring a network of fast charging stations, workplace charging, and multi-family housing charging will aid in overcoming range anxiety that has been a barrier to EV adoption.

Utah Clean Cities continues as a key partner with the Rocky Mountain Power STEP and Live Electric grants as the primary project lead on the EV Fleet program and Lead Electric Workplace Charging infrastructure development platform. Our work is complimentary in expanding electric vehicle charging infrastructure necessary for wide-spread adoption.

Utah Clean Cities believes the technological advancements in batteries will mature and advance our efforts to create range confidence, reduce emissions in our carbon-constrained world through increasing clean infrastructure with an extensive charging network along Utah's corridors. We will continue to promote the zero-emissions model with sound and reasonable effort and further continue to provide expert industry advice; with economic business strategies that equitably include the absolute importance of air quality.

Thank you for the opportunity to comment on this important issue. We are hopeful that we can play a critical role in encouraging fleet managers and business owners to take action in a way that supports their businesses, economy, and cleaner air in Utah.

Best regards,

Tammie Bostick-Cooper, Executive Director
Dr. Royal DeLegge, Chairman of the Board

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Comments of Western Resource Advocates on Final Volkswagen Environmental Mitigation Plan for the State of Utah

Western Resource Advocates is a regional environmental law and policy organization serving states within the Interior West of the United States. Through its Salt Lake City office, WRA has worked in Utah since 1998. WRA works to protect the land, air and water of the West, and has particular expertise in the environmental impacts of the electric power sector and in assessing measures designed to reduce emissions of criteria pollutants.

WRA sees significant environmental benefits in transitioning to electrification of the transportation sector. The Volkswagen (VW) Settlement funds are an exciting opportunity to spur electrification of transportation, realizing significant reductions in direct emissions of NO_x and PM_{2.5} in emissions of ozone and PM_{2.5} precursors, and in greenhouse gas pollution. WRA believes the best use of VW Settlement funds is focused deployment, targeting programs with the highest probability of success and maximum potential reductions of NO_x and other air pollutants. The level of funding available to Utah is significant, and its impact in terms of setting priorities and shaping air quality could be substantial. WRA advocates a no-regrets approach, focusing funding on those projects with the lowest risk and highest air quality improvement benefits.

WRA has examined the Utah Department of Environmental Quality (DEQ) website¹ announcing its proposed plans for spending VW Settlement funds. As an initial matter, WRA seeks to confirm that this site only represents an initial set of thoughts on the disposition of Settlement funds, as indicated by the characterization of “the advisory committee’s suggestions.” This broadly composed web content lacks the specificity and detail generally expected from a full-fledged draft plan. We hope and expect a full draft mitigation plan will be presented for public comment at a future date. Related, WRA is concerned that the existing website presents no information about DEQ’s future plans for this process.

Rather, DEQ’s website seems to represent a high level outline of a plan more than the actual plan itself. Much information is left unreported, leaving no way for WRA to conduct a thorough analysis or to provide meaningful comments. For example:

- The Advisory Committee members and the organizations they represent are not disclosed.
- The reasoning and rationale for the Advisory Committee’s recommendations is absent.
- The downloadable calculator (Estimated NO_x Emissions and Costs for VW Funds) purports to allow accurate calculation of the effects of various actions Utah could take.

¹ <https://deq.utah.gov/ProgramsServices/programs/air/volkswagen-settlement/index.htm#advcom>

However, there is no documentation regarding its fixed variables. Moreover, the user may manipulate only one input to the calculator – the percentage of total funds to be allocated to a particular category of eligible vehicles or equipment.

- The “DEQ’s Cost-Per-Ton Analysis of Eligible Vehicles/Equipment Replacement Projects” chart also requires explication. It reports that the most cost effective method of NO_x reduction is to replace forklifts, and then the next most effective is to replace Class 8 tractors. However, no data is given to support the estimates of the cost per ton of NO_x reduced for each replacement measure or technique to be applied to each category of eligible vehicles or equipment. In other words, the public is unable to assess or comment upon the most critical determinations that underlie the calculator – the estimates of the cost per ton of NO_x reduction, expressed as “unit cost” – achieved through the allocation of funds.
- In addition, while it is not explicitly addressed, it appears that in some instances, the vehicle/equipment owner may choose which technology/fuel type to adopt. If this is true, then allocations to specific fuel types may be misleading or of little value.
- Other crucial information is missing. For example, neither the website nor the calculator provides details on the number of vehicles that would qualify for replacement technology/fuel. For example, the calculator allows the user to allocate 100 percent of the funds to forklifts with a resulting reduction of 528 tons of NO_x per year. However, there is no reason to believe that this result could indeed be achieved, particularly because the VW Advisory Committee allocates no funds to forklifts, implying that use of funds is not feasible or effective.
- The Advisory Committee recommendation provides no justification for its recommendation to direct only 11% out of a maximum of 15% of Settlement funding towards Light Duty Zero Emissions Vehicle Supply Equipment. Nor does the Committee provide explanation of the reasoning behind how this 11% allotment was reached.
- The Advisory Committee recommends allocating 52% of funding towards Class 8 Local Freight Trucks (large trucks, engine models years 1992-2009) and another 25% towards Class 4-7 Local Freight Trucks (medium trucks, engine model years 1992-2009), yet there is no detail describing *what programs these funds would actually support*. According to the calculator, such funding could be dedicated to replacement engines or measures that would still use diesel fuel or that would use natural gas, but does not address electrifying these vehicles. We urge DEQ to consider the costs of replacing these trucks with electric vehicles.

Because these basic details are absent, WRA is prevented from providing more meaningful comment. WRA hopes DEQ will provide a full reporting on the analysis that supports the calculator and the Advisory Committee recommendations and will again take public comment when this information becomes available. Other states, including Nevada and Colorado, have

provided significantly greater information and detail on which the public could base comments and analysis.

Given the foregoing, there is no way to effectively analyze these recommendations other than to issue a broad critique and discuss how WRA believes the funds would be best applied. WRA therefore provides the following comments on the Volkswagen Environmental Mitigation Plan Advisory Committee's Recommendation.

WRA supports the incorporation of the following points in Utah's Environmental Mitigation Plan:

Maintaining Flexibility in Deployment of Funds

It is prudent to retain flexibility, retaining the ability to respond to changing circumstances. WRA recognizes that the state of electric vehicle (EV) and EV infrastructure technology is rapidly evolving. These are not mature technologies, and they depend heavily on network effects. Moving *too* rapidly in disbursing Settlement funds could result in the deployment of soon-to-be obsolescent technologies. As Jeremy Whaling, Grid Connected Project Manager for Honda, puts it: technology changes so fast that we must engage in "future-proofing," defined as "minimizing risk, not market development..."² Ongoing re-evaluation is therefore both prudent and necessary. WRA recommends that DEQ periodically revisit not only its goals and spending plans, but also its timelines, in order to be able to take advantage of significant technological advances as they arise.

Further, just as WRA recommends additional public participation and transparency in the development of the plan, WRA also believes future adjustments to any public plan should also be open and transparent.

Building out Light Duty ZEV Infrastructure

WRA strongly urges Utah to commit the maximum of 15% of trust funds toward light duty zero emission vehicle (ZEV) infrastructure. Jump-starting the electric vehicle market is the best way to reduce transportation-related emissions. In its draft 2014 inventory, released in support of the Provo and Salt Lake City Serious Non-Attainment Area (NAA) PM_{2.5} State Implementation Plans, the Division of Air Quality estimates that emissions from gasoline and diesel passenger cars and trucks emit 28% of all NO_x emissions in the Salt Lake City NAA and 34% of NO_x emissions in the Provo NAA.³ The transition toward a more substantial percentage of ZEV vehicles will directly address this significant source of NO_x emissions. Such reductions are particularly important as population and vehicle miles traveled increase in these areas.

² <https://chargedevs.com/features/vgi-californias-cooperative-effort-to-capitalize-on-ev-grid-potential/>

³ <https://deq.utah.gov/Pollutants/P/pm/pm25/serious-area-state-implementation-plans/posted-inventories.htm>

Electric power is more efficient and less polluting than internal combustion power. The expansion of renewable sources of electricity generation like wind and solar compounds the environmental benefits of electrification. WRA has significant experience with the power sector in Utah, and can attest to significant reductions in emissions of criteria pollutants, greenhouse gas pollution, and hazardous air pollutants from electricity generation facilities.

WRA recommends and supports a ZEV Supply Equipment Program funded at the maximum level, or 15%. In particular, WRA believes investing in charging infrastructure will provide significant public access which, in turn, will spur EV adoption, grow the zero emissions vehicle industry, and reduce vehicle-related sources of NO_x and other tailpipe pollutants. Electric vehicles represent the cleanest, lowest emitting vehicles possible, and their technology, still in its early stages, is steadily improving, becoming even more cost effective, cleaner and more efficient.

On October 4, 2017, the governors of Utah, Colorado, Idaho, Montana, Nevada, New Mexico and Wyoming jointly signed a memorandum of understanding (MOU) to create a regional electric vehicle plan for the West ([REV West Plan](#)). According to the Governor's Office of Energy Development,⁴ the MOU calls for a coordination group to undertake the following actions:

- Create best practices and procedures that will enhance EV adoption by promoting EV consumer acceptance and awareness by addressing “range anxiety;” coordinate on EV charging station locations to avoid redundancy and to ensure stations are sited at a frequency and locations so as to optimize utilization and to minimize inconsistencies between charging infrastructure in each state; and leverage economies of scale;
- Create voluntary minimum standards for EV charging stations, including standards for administration, interoperability, operations, and management;
- Identify and develop opportunities to incorporate EV charging station infrastructure into planning and development processes, such as building codes, metering policies, and renewable energy generation projects;
- Encourage EV manufacturers to stock and market a wide variety of EVs within the Signatory States; and
- Identify, respond to, and where possible collaborate on funding opportunities to support the development of the Regional Electric Vehicle West EV Corridor.

Devoting 11% rather than 15% of funding toward light duty ZEV infrastructure will significantly hinder attainment of the Governor's stated goals for the REV West Plan. Furthermore, Nevada and Colorado have already committed to funding at a 15% level. Utah, as a coequal participant, should do no less.

⁴ <http://energy.utah.gov/governors-sign-mou-plan-regional-electric-vehicle-corridor-west/>

With respect to deployment of public charging facilities, WRA recognizes a need to be judicious with respect to the application of limited funds in the face of ongoing technological change and rapid obsolescence in a swiftly developing market. As discussed more generally above, programs such as this would benefit from an effort to “future-proof.” Furthermore, if publicly funded charging infrastructure is intended to encourage EV adoption, we must ensure those chargers are available for use by the maximum number of drivers.

Public charging technology is rapidly developing, and is already providing new modes and venues, such as the eebe Smart Technologies streetlight charging stations already deployed in California,⁵ and the Ubitricity units being piloted in London.⁶ These new charging models should be thoroughly considered.

Vehicle Replacement Programs

It is WRA’s understanding that Utah’s EMP, when released, will include specific programs to replace older and more polluting vehicles with newer and cleaner ones, aiming to reduce NO_x emissions and mitigate their other adverse effects. In developing these specific programs, WRA recommends Utah focus on replacing the dirtiest vehicles, where the beneficial impacts of replacement would be strongest.

The Utah Division of Air Quality’s draft 2014 inventory⁷ reveals that on-road mobile sources were responsible for 55% of NO_x emissions in the Salt Lake City NAA and 69% in the Provo NAA, and another 16% and 12% of NO_x emissions were attributable to non-road sources in the two NAAs. On-road diesel vehicles emit 27% of all NO_x emissions in the Salt Lake NAA and 32% in the Provo NAA, in both cases contributing essentially 50% of all on-road NO_x emissions. Excluding aircraft and railroad equipment, non-road diesel vehicles are responsible for almost all non-road NO_x emissions in the Salt Lake and Provo NAAs.

WRA particularly supports focusing on electrification of transit buses. However, based on the calculator, it appears DEQ did not consider utilizing Settlement funds for transit bus electrification. Rather, it appears DEQ only evaluated converting these buses to less polluting diesel or natural gas. Transit buses are ideal candidates for electrification, as they have no tailpipe emissions. Their associated emissions come from electric power generation, which is generally (except in the case of some coal-based power plants) much cleaner. With the economic deployment of renewable resources like wind and solar, those emissions are steadily

⁵ http://www.greencarreports.com/news/1111429_streetlights-that-charge-electric-cars-arrive-in-california-city

⁶ <https://chargedevs.com/newswire/london-street-lamps-retrofitted-as-ev-chargers/>

⁷ <https://deq.utah.gov/Pollutants/P/pm/pm25/serious-area-state-implementation-plans/posted-inventories.htm>

declining. Moreover, transit buses are centrally fueled fleet vehicles, radically simplifying infrastructure concerns.

There are important air quality improvements⁸ associated with electric buses:

- Life cycle global warming emissions from battery electric buses are more than 70% lower than both compressed natural gas (CNG) and diesel buses.
- Battery and fuel cell electric buses have lower life cycle NO_x emissions than diesel and CNG buses (~70% using the California energy mix, and even >35% over CNG buses). This includes CNG buses with soon to be released engine certified to meet California's voluntary low-NO_x standards (0.02g NO_x/brake horsepower-hour).

In contrast, diesel transit buses and intercity buses emit almost 1% of all NO_x emissions in the Salt Lake NAA, while diesel school buses, to which the Advisory Committee plans to dedicate up to 7% of Settlement funds, account for less than .5% of NO_x emissions.⁹ Further, prioritizing public sector vehicles gives DEQ more control over the use of Settlement funds and increases the likelihood that such funds might be matched or otherwise augmented by public revenues, thereby increasing emission reductions and other public benefits.¹⁰

As a 2017 study by Carnegie Mellon University's Scott Institute for Energy Innovation states, "among the choices available to transit agencies, battery electric buses are the best option due to low life cycle agency costs and environmental and health impacts from greenhouse and air pollutant emissions."¹¹ Moreover, moving towards elimination of diesel transit buses would also advance social justice. Mass transit is most commonly utilized by low-income individuals and families who cannot afford personal vehicles. As a result, these vulnerable populations face more exposure buses' harmful diesel emissions. According to a May 2017 joint report by the Union of Concerned Scientists and the Greenlining Institute:

Pollution from heavy-duty vehicles—often in conjunction with other sources of emissions—creates localized hot spots of poor air quality, especially near roads carrying high volumes of traffic (Cal EPA 2016). Due to proximity, low-income communities and communities of color are more likely to feel the negative effects of air pollution.¹²

⁸ *Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California*, <http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf>

⁹ <https://deq.utah.gov/Pollutants/P/pm/pm25/serious-area-state-implementation-plans/posted-inventories.htm>

¹⁰ We note that considerable funds have already been dedicated to replacing school buses and therefore that these settlement funds should be allocated elsewhere where more NO_x emission reductions can be achieved.

¹¹ *Which Alternative Fuel Technology is Best for Transit Buses?* https://www.cmu.edu/energy/education-outreach/public-outreach/17-104%20Policy%20Brief%20Buses_WEB.pdf

¹² *Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California*, <http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf>

In contrast, while new diesel and CNG transit buses offer some NO_x emissions reductions, the most significant emission reductions would come from going to electric transit buses.¹³ And electrifying public transit helps to transform the market, allowing transit to move to near zero emissions over time; neither diesel nor CNG leads towards near zero emissions.

The Los Angeles County Metropolitan Transportation Authority has already committed to go all-electric by 2030, and recently ordered 160 such new vehicles, 60 from BYD and 100 from New Flyer.¹⁴ Additionally, on October 23, 2017, twelve major international cities' mayors pledged to purchase only electric transit buses beginning in 2025, in order to make their cities "greener, healthier and more prosperous." These cities included London, Paris, Los Angeles, Copenhagen, Barcelona, Quito, Vancouver, Mexico City, Milan, Seattle, Auckland and Cape Town.¹⁵ The technology is already here, and is steadily improving, becoming more efficient and affordable.

WRA also supports the deployment of electric medium and heavy duty trucks as alternatives to diesel vehicles. While no such heavy duty vehicles are currently available, Tesla, Cummins, and Daimler (Mercedes) have demonstrated prototypes. Such vehicles can be predicted to see commercial production in the very near future. Walmart has already ordered 15 Tesla trucks, five for the US and ten for Canada. J.B. Hunt, the freight moving company, has also confirmed purchase plans.¹⁶ Medium duty battery electric trucks already exist on the market, and their supply is expanding. No less an iconic truck company than Navistar (formerly IH, or International Harvester) has announced a joint venture with Volkswagen itself to introduce a medium duty platform in North America in 2019.¹⁷ (VW owns 16.6% of Navistar.)

WRA believes merely replacing existing diesel vehicles with newer diesel vehicles is an unwise use of Settlement funds. While this might accelerate vehicle replacements by a few years, ultimately these replacements will occur naturally anyways as vehicles complete their life cycles and age out of service, leading to very limited benefits. As with transit buses, electrification of medium and heavy duty trucks would result in the most significant NO_x reductions and would encourage the proliferation zero emission trucks in Utah's NAAs.

Non-road emissions mitigation programs

WRA further encourages Utah to achieve maximum NO_x reductions by expanding its focus and dedicating Settlement funds to electrifying non-road diesel engines such as construction equipment and engines used in agriculture, mining, or oil and natural gas production. DEQ can

¹³ Any investments that are made in CNG vehicles should be in vehicles that use ultra-low NO_x engine technology.

¹⁴ <https://electrek.co/2017/10/11/los-angeles-100-new-all-electric-buses-new-flyer-xcelsior/>

¹⁵ <https://electrek.co/2017/10/23/electric-buses-12-major-cities-pledge-2025/>

¹⁶ <https://electrek.co/2017/11/17/tesla-semi-walmart-order-new-electric-trucks/>

¹⁷ <https://cleantechnica.com/2017/10/03/navistar-volkswagen-launch-medium-duty-electric-truck-north-america-late-2019/>

look to Colorado's Proposed Draft Mitigation Plan as an example of this type of program. As discussed above, 16% and 12% of NO_x emissions were attributable to non-road sources in the two NAAs. Excluding aircraft and railroad equipment, non-road diesel vehicles are responsible for almost all non-road NO_x emissions in the Salt Lake and Provo NAAs. While frequently overlooked, these diverse sources constitute a significant portion of emissions. Importantly, Utah has no requirement that owners register their non-road vehicles. As a result, it is not possible to accurately estimate emissions from these vehicles or to determine if measures to reduce NO_x from these sources would be feasible or cost effective.

Conclusion

Western Resource Advocates appreciates this opportunity to provide comment on the distribution VW Settlement funds. WRA strongly support electrification of transportation systems in Utah and across the Interior West. As we continue to make significant strides in reducing air pollution from electricity production, electrification will provide compounding benefits for years to come.

Dated November 30, 2017

Respectfully Submitted,

WESTERN RESOURCE ADVOCATES

David R. Effross, Senior Energy Policy Advisor
Joro Walker, General Counsel
Western Resource Advocates
150 South 600 East, Suite 2A
Salt Lake City, UT 84102