HB-832 Senate Version FINAL.pdf
Uploaded by: Alexander, Peter
Position: FAV

Bill No. HB-0832

Name: Peter Alexander, PhD

Position: Favorable

RE: Testimony before the Senate Finance Committee

Date: March 30, 2021

Madame Chair, Mr. Vice Chair, and members of the Committee,

I represent the 700+ members of Indivisible Howard County MD. I am writing in support of HB-0832, Public Utilities – Electric School Bus Pilot Program, which would establish through the Public Service Commission (PSC) a three-to-five-year program allowing certain electric companies to offer electric buses to interested school districts. This program will complement several other electric vehicle programs currently being considered by the Maryland General Assembly.

Transportation is Maryland's number one generator of greenhouse gas emissions which are causing global climate change, and tailpipe emissions which contribute to ozone pollution result in failure to meet federal clean air standards for more than 80% of Maryland residents.

Compared to conventional diesel buses, each zero-emission bus, can eliminate almost 1,700 tons of carbon dioxide, ten tons of nitrogen oxides, and 350 pounds of diesel particulate matter over a 12-year period.

Fossil fuel-powered and hybrid electric buses, are significant sources of pollutants other than greenhouse gases. Diesel exhaust contains more than 40 toxic air contaminants that in some cases can lead to decreased lung function and can cause and/or worsen diseases such as asthma and cancer. The concentration of these contaminants inside and surrounding school buses can be higher because of the diesel fuel they use, meaning that school children and bus drivers are almost constantly exposed to these air-borne toxins while waiting for, waiting in, and riding/driving diesel school buses.

Electric buses are more cost-efficient in the long term than diesel buses because of their lower operational and maintenance costs. Electricity that must be generated to charge electric bus batteries increasingly is coming from renewable wind and solar power sources, and the percent of clean, renewable energy generated will continue to increase over time.

We urge a favorable report.

Peter Alexander, PhD
Indivisible Howard County
Columbia, MD

BGE Testimony - HB832ElectricSchoolBusPilotProgram
Uploaded by: Black, Allyson
Position: FAV

An Exelon Company

Position Statement

SUPPORT
Senate Finance Committee
03/30/2021

House Bill 832 – Public Utilities - Electric School Bus Pilot Program

Baltimore Gas and Electric Company (BGE) strongly supports *House Bill 832 – Public Utilities - Electric School Bus Pilot Program.* House Bill 832 would establish an electric school bus pilot program, administered by the Maryland Public Service Commission (Commission) , which would jumpstart the use of electric school buses by providing incentives to offset costs borne by school systems to deploy electric school buses and would also allow the energy stored in school bus batteries to be deployed to meet regional electricity demands when the buses are not in use for transportation needs.

Electric vehicle deployment contributes to many of the state's environmental and transportation goals and deployment on school buses is among the most obvious platforms to advance the technology as these buses are usually located in centralized fleet locations where charging infrastructure can be effectively installed. Secondly, school buses have very defined routes with predictable usage and return to the central location on an established schedule, easing the ability to recharge the onboard batteries. Lastly, school buses are idle much of the time and the energy stored in their batteries can be deployed during times of electricity shortages or other emergencies. This is particularly true during extreme weather events in any season, when the buses likely will not be in use to transport students.

The program to be established by House Bill 832 will enable Investor Owned electric companies to apply to the Commission to implement an electric school bus program which would provide rebates to participating school systems and also would allow the utility to use the energy stored in the school bus batteries when the buses are not in use during potential power outages and certain emergencies.

The Electric School Bus Pilot program will advance the use of electric vehicles, provide a benefit to participating school systems, and provide for additional electricity to be available to mitigate potential power outages. For these reasons, subject to the two proposed limited enhancements, BGE supports House Bill 832 and requests a favorable committee report.

Sandy Grace | Charles Washington | Allyson Black | 410.269.5281

HB832 Sponsor Testimony-Senate_Finance.pdf
Uploaded by: Fraser-Hidalgo, David
Position: FAV

DAVID FRASER-HIDALGO
Legislative District 15
Montgomery County

Environment and Transportation Committee
Chair
Motor Vehicle and Transportation Subcommittee

The Maryland House of Delegates
6 Bladen Street, Room 223
Annapolis, Maryland 21401
410-841-3186 · 301-858-3186
800-492-7122 *Ext.* 3186
David.Fraser.Hidalgo@house.state.md.us

THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

Sponsor Testimony in Support of HB832
Public Utilities-Electric School Bus Pilot Program
Testimony by Delegate David Fraser-Hidalgo
March 30, 2021- The Senate Finance Committee

There are just over 7,000 school buses in Maryland. These buses are required to be replaced every 12 to 15 years. HB832 establishes an electric school bus pilot program run by the Public Service Commission that will last a minimum of three years and a maximum of five years, and will authorize eligible electric companies to apply to the Commission to implement the pilot program.

I would like to present three areas in which electric school buses are a better choice than diesel.

Health & Welfare of Children and Bus Drivers: Diesel school buses emit aerosol contaminant particles that concentrate around the exterior as well as in the cabin. Our students are subjected to air pollution almost everywhere, but the concentration of contaminants surrounding school buses can be higher because of the diesel fuel they use. Repeated exposure to diesel can lead to decreased lung function, aggravation of asthma, and even development of some types of cancer. This is why the United States Environmental Protection Agency under the Obama Administration pushed to have local school systems limit the amount of idling that their school buses do on a daily basis.[i] In addition to air pollution, children and bus drivers alike are subjected to high levels of sound pollution, which can lead to hearing loss and other negative health consequences for those who are regularly exposed, according to NIH.[ii] Zero-emission school buses would provide a solution to both of these pollution problems.

Environmental Benefits: Transportation is the single largest contributor of greenhouse gas emissions in the United States, making up 28% of all greenhouse gas emissions every year.[iii] To break our dependence on fossil fuels and meet our CO2 reduction commitments, we must transition to zero-emission vehicles. If we were to

replace all diesel buses in the United States with electric buses, it would cut a staggering 2 million tons of GHG emissions.[iv] What's more, school buses are on a perfect schedule for electric power because their routes are generally relatively short, which allows them time to charge.

Positive Economic Impact: Even though the upfront cost of an electric school bus is more than a traditional diesel bus, there are many factors to look at to measure the economic impact of transitioning to electric school buses. In addition to the reduced maintenance and fuel costs, they can provide stability to the power grid, and produce extra power to store or sell via a Vehicle to Grid system.

Likewise, the electric motor is maintenance free, eliminating downtime and costs associated with maintenance. That means:

- No engine oil changes
- No engine air filter changes
- No smog check/testing
- No spark plugs, glow plugs or coil replacements
- No degradation of the air intake/vacuum system
- No fluid check or change associated with transmission
- Brake pad change interval increases
- Fewer coolant changes needed

As a result, the costs associated with transitioning to electric school buses could actually be far cheaper than those required by diesel buses in the long-term. According to one study conducted by US Public Interest Research Group (PIRG), the lifetime savings in fuel and maintenance costs would be about $140,000 per school bus.[v]

In light of these long-term benefits, many states are using mitigation and settlement funds to offset the short-term upfront costs. We are also seeing utility companies stepping up to the plate. Because Maryland consumes five times as much energy as it produces and it has very limited fossil fuel reserves to tap into, purchasing electricity would keep dollars in Maryland.

The physical, environmental, and economic health of state are on the line. That is why I have introduced and urge the passage of HB832.

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[i] Why Idle Reduction Matters – EPA
[ii] Noise Pollution and Impact on Children Health – National Library of Medicine, NIH
[iii] Carbon Pollution from Transportation – EPA
[iv] ELECTRIC BUSES IN AMERICA – US PIRG
[v] Paying for Electric Buses Financing Tools for Cities and Agencies to Ditch Diesel – US PIRG

types-of-electric-school-buses.pdf
Uploaded by: Fraser-Hidalgo, David
Position: FAV

Electric School Buses Available for Purchase

veic.org/electric-school-buses

VEIC

Type A Electric School Buses

VEIC

Manufacturer	TransTech	Lion	Blue Bird	Collins
Body	TransTech	Lion	MicroBird – Girardin	Collins
Chassis	Ford E-450	Lion	Ford E-450	Ford E-450
Powertrain	Ford eQVM approved Motiv All-Electric Powertrain	TM4 / Dana	Ecotuned	Ford eQVM approved Motiv All-Electric Powertrain
Battery Manufacturer / Chemistry	FIAMM Sodium Nickel	Lithium Ion NMC	Lithium-ion	FIAMM Sodium Nickel
Standard Battery Size / Capacity *(Optional Larger Batteries)*	106 kWh	Up to 160 kWh	89 kWh	106 kWh
Passenger Capacity *(Without Wheelchair Lift)*	25	Up to 24 passengers; wheelchair lift available	Up to 30	25
Approximate Range Standard Battery *(Optional Larger Battery)*	Up to 100 miles	Up to 150 miles	Up to 100 miles	Up to 100 miles
Top Speed	65 mph	65 mph	65 mph	65 mph
Gradeability	17%	Up to 20%	12%, likely steeper	17%
Cabin Heating System	All-Electric Heating Available	Auxiliary Heater Available	All Electric Webasto System	All-Electric Heating Available
Charge Systems Voltage and Power	J1772 208/240V Single Phase 15 kW	208/240 V single phase power 19.2 kW - requires 80 amps	J1772 65A/240V	J1772 208/240V Single Phase 15 kW
Vehicle-to-Grid Capability	V2G Capable	Optional: Bidirectional (V2G)	Optional: Unidirectional flow (V1G)	V2G Capable
Compatible Charging Manufacturers	Any brand using J1772	Clipper Creek (and other brands using J1772)	2x 6.6 kW Level 2	Any brand using J1772
Estimated Charging Time *(50%)*	2.5 hours	2 - 4.5 hours	3.5 hours	2.5 hours
Estimated Charging Time *(0% to 100%)*	8 hours	4-9 hours	7 hours	8 hours
Approximate Price	Local Dealers Provide Quote	$265,000 - $335,000	Local Dealers Provide Quote	Local Dealers Provide Quote
Deployed in the U.S.	New York, California	Taking Orders	Taking Orders	New York, California

Type C Electric School Buses

VEIC

Manufacturer	Starcraft	Lion	Thomas Built Buses	Blue Bird	IC Bus
Body	Starcraft eQuest XL	Lion	Saf-T-Liner C2	Blue Bird Vision	IC Bus
Chassis	Ford F59	Lion	Freightliner Custom	Blue Bird (BBCV)	IC Bus
Powertrain	Ford eQVM approved Motiv All-Electric Powertrain	TM4 / Dana	Proterra ProDrive	Cummins	Dana / TM4
Battery Manufacturer / Chemistry	BMW Lithium Ion	Lithium Ion NMC	Proterra Lithium-ion NMC	Li-NMC-G (Lithium-Nickel-Manganese-Cobalt-Gel)	Lithium-Ion
Standard Battery Size / Capacity *(Optional Larger Batteries)*	127 kWh	up to 220 kWh	up to 220 kWh	155.4kWh	107, 214 & 321 kWh
Passenger Capacity *(Without Wheelchair Lift)*	48	Up to 72	Up to 81	Up to 77	Dependent on wheelbase
Approximate Range Standard Battery *(Optional Larger Battery)*	105 miles	Up to 155 miles	Up to 119 miles	Up to 120 miles	50-90 miles, (90-170 miles), (170-250 miles)
Top Speed	65 mph	65 mph	65 mph	Up to 60 mph programmable	65 mph
Gradeability	20%	Up to 20%	19%	21% (11 mph speed)	20%
Cabin Heating System	All-Electric Heating Available	Auxiliary Heater Available	Electric	Electric	TBD
Charge Systems Voltage and Power	J1772 208/240V Single Phase 15 kW	208/240 V single phase 19.2 kW - requires 80 A	Input - 480VAC 3 Phase Output - 60kW - 270-875VDC Or: 25kW Level 2 Charger	Input: 208-240 VAC,100 amps, single-phase, 60 hz; Output: 208-240 VAC, 80 amps	208/240 V single phase 19.2 kW - requires 80 A DC Fast charge (special equipment required)
Vehicle-to-Grid Capability	V2G Capable	Optional: Bidirectional (V2G)	Optional: Bidirectional (V2G)	Optional: Unidirectional flow (V1G)	Optional
Compatible Charging Manufacturers	Any brand using J1772	Clipper Creek (and other brands using J1772)	Most SAE Combo (CCS) DC Fast Chargers; and Level 2 J1172 brands	Clipper Creek	Multiple AC & DC charger manufacturers
Estimated Charging Time *(50%)*	2.5 hours	2 – 5.5 hours	Up to 2 hours	3.6 hours	2.1, 4.2 & 6.5 hours on AC (depending on battery) Less than 1 hour on a DC fast charger
Estimated Charging Time *(0% to 100%)*	8 hours	4 – 11 hours	3 hours with 60kW charger	7.3 hours	4.3, 8.5 & 13 hours on AC (depending on battery) Less than 2 hours on a DC fast charger
Approximate Price	$300,000	$305,000 - $395,000	$320,000 - $400,000	Quote from local dealer	Quote from local dealer
Deployed in the U.S.	CA	CA, MA, NY, MN	Taking Orders	CA, ND, NJ & NY	Taking limited orders

Type D Electric School Buses

VEIC

Manufacturer	Lion	Blue Bird
Body	Lion	Blue Bird All American
Chassis	Lion	Blue Bird (T3RE)
Powertrain	TM4 / Dana	Cummins
Battery Manufacturer / Chemistry	Lithium Ion NMC	Li-NMC-G (Lithium-Nickel-Manganese-Cobalt-Gel)
Standard Battery Size / Capacity *(Optional Larger Batteries)*	up to 220 kWh	155.4 kWh
Passenger Capacity *(Without Wheelchair Lift)*	Up to 83	Up to 84
Approximate Range Standard Battery *(Optional Larger Battery)*	Up to 155 miles	Up 120 miles
Top Speed	65 mph	Up to 60 mph programmable
Gradeability	Up to 20%	21% (11 mph speed)
Cabin Heating System	Auxiliary Heater Available	Electric
Charge Systems Voltage and Power	208/240 V single phase 19.2 kW - requires 80 A	Input: 208-240 VAC,100 amps, single-phase, 60 hz; Output: 208-240 VAC, 80 amps
Vehicle-to-Grid Capability	Optional: Bidirectional (V2G)	Optional: Unidirectional flow (V1G)
Compatible Charging Manufacturers	Clipper Creek (and other brands using J1772)	Clipper Creek
Estimated Charging Time *(50%)*	2 – 5.5 hours	3.6 hours
Estimated Charging Time *(0% to 100%)*	4 – 11 hours	7.3 hours
Approximate Price	$345,000 - $410,000	Quote from local dealer
Deployed in the U.S.	Taking Orders	CA, ND, NJ & NY

2021 PHI HB 832 Public Utilities – Electric School

Uploaded by: Lanzarotto, Kathryn

Position: FAV

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March 30, 2021

112 West Street
Annapolis, MD 21401
410-269-7115

FAVORABLE - House Bill 832
Public Utilities – Electric School Bus Pilot Program

Potomac Electric Power Company (Pepco) and Delmarva Power & Light Company (Delmarva Power) support **House Bill 832 Public Utilities – Electric School Bus Pilot Program**. House Bill 832 would establish the Zero Emission School Bus Pilot program beginning in October 2023 for a period of three to five years for the deployment of not less than 25 electric school buses with rebates that do not exceed $50 million. The bill also permits investor owned electric utilities to utilize the storage batteries of the electric school buses in order to access the stored electricity through vehicle to grid technology when the school buses are not in use. Furthermore, it allows the investor owned electric utility to deploy, own and operate electric charging infrastructure capable of supporting vehicle to grid operations in order to meet the charging requirements to support electric school buses deployed in the program.

In 2013, along with nine other states, Maryland signed a memorandum of understanding (MOU) on Zero-Emission Vehicle programs. The MOU sets forth a target of 300,000 zero-emissions vehicles in Maryland by 2025. More recently, on January 16, 2019, the Maryland Public Service Commission (PSC) approved a five-year electric vehicle (EV) charging infrastructure pilot program that will be implemented by four of the state's largest electric utilities. Pepco and Delmarva Power are implementing this pilot program through our EVSmart Program which will help Maryland progress to the state's Air Quality and Chesapeake Bay goals. The EVSmart Program provides rebates, tools and information to help customers make more informed decisions when it comes to making the transition to a cleaner transportation option. House Bill 832 will ensure that Maryland's counties transition their school bus fleets to zero-emission vehicles in a timely manner.

Encouraging the expansion of public-school transit EV options is critically important because transportation is the largest contributor to greenhouse gas emissions in Maryland. For the above reasons Pepco and Delmarva Power respectfully requests a favorable report on House Bill 832.

Contact:
Katie Lanzarotto
Senior Legislative Specialist
202-428-1309
Kathryn.lanzarotto@exeloncorp.com

Ivan K. Lanier
State Affairs Manager
202-428-1288
Ivan.Lanier@pepco.com

HB0832_school bus electrification_fav_TPMEC_3.30.2
Uploaded by: McGilvray, Laurie
Position: FAV

TAKOMA PARK MOBILIZATION

Environment Committee

Committee:	**Finance Committee**
Testimony on:	**HB0832 - Public Utilities – Electric School Bus Pilot Program**
Organization:	**Takoma Park Mobilization Environment Committee**
Submitting:	**Laurie McGilvray**
Position:	**Favorable**
Hearing Date:	**March 30, 2021**

Dear Mr. Chairman and Committee Members:

Thank you for allowing our testimony today in support of HB0832. The Takoma Park Mobilization (TPM) is a grassroots organization based in Takoma Park, Montgomery County and focused on state and local climate change issues. The TPM Environment Committee urges you to vote favorably on HB0832. The bill will establish an electric school bus pilot program; authorize electric utility companies to apply to the Public Service Commission to implement the program; authorize electric companies to recover certain costs; and require participating electric companies to submit an annual report. School systems in each utility service area will be eligible to purchase zero-emission electric buses at no additional cost, because participating investor-owned electric utilities will cover the incremental cost. These utilities will provide rebates for a minimum of 25 electric buses not to exceed $50 million during the pilot program.

Transportation, Climate Change, and Health

Transportation comprises one of the largest sources of greenhouse gas (GHG) emissions (e.g., 42% in Montgomery County). Electrification of buses is a key strategy for Maryland to meet its GHG reduction goals and for Montgomery County to meet its even more ambitious goals of 80% GHG emission reduction by 2027 and 100% by 2035. Electrification of the Maryland's approximately 7,200 school bus fleet (1,300 school buses in Montgomery County alone) is an essential strategy in achieving necessary GHG emission reduction. Additionally, most school buses are diesel-powered. Diesel fuel is more polluting than gasoline, thus exposing children and communities to even more toxic emissions and exacerbating rates of asthma, especially among children.

Benefits of School Bus Electrification

Some electric school buses are already being deployed in several Maryland counties (e.g., Montgomery, Frederick, Howard, and Prince George's Counties) as they work to electrify their school bus fleets. We are very excited about the deployment of over 300 electric buses in Montgomery County alone. HB0832 provides the opportunity to accelerate these efforts and to expand the benefits of electric school buses to every school system in Maryland within the territory of an investor-owned utility. The proposed pilot program will ensure there are no capital, administrative, or operational costs to school systems. Additionally, each participating school system can expect to see cost savings each year from electric buses and can use these dollars for educational programs, teachers, and students.

For these reasons we urge a favorable vote for HB0832.

HB832_school bus electrification_fav_MLC CJW_3.30.
Uploaded by: McGilvray, Laurie
Position: FAV

Committee: **Finance Committee**
Testimony on: **HB0334 - Public Utilities – Electric School Bus Pilot Program**
Organization: **Climate Justice Wing of the Maryland Legislative Coalition**
Submitting: **Laurie McGilvray**
Position: **Favorable**
Hearing Date: **March 30, 2021**

Dear Mr. Chairman and Committee Members:

Thank you for allowing our testimony today in support of HB0832. The Maryland Legislative Coalition's Climate Justice Wing, a statewide coalition of over 50 grassroots and professional organizations, urges you to vote favorably on HB0832. The bill will establish an electric school bus pilot program; authorize electric utility companies to apply to the Public Service Commission to implement the program; authorize electric companies to recover certain costs; and require participating electric companies to submit an annual report. School systems in each utility service area will be eligible to purchase zero-emission electric buses at no additional cost, because participating investor-owned electric utilities will cover the incremental cost. These utilities will provide rebates for a minimum of 25 electric buses not to exceed $50 million during the pilot program.

Transportation, Climate Change, and Health

Transportation is one of the largest contributors of greenhouse gas (GHG) emissions in Maryland. In order to reduce the impacts of climate change, Maryland must rapidly reduce its GHG emissions. Electrification of the approximately 7,200 school bus fleet is an essential strategy in achieving necessary GHG emission reduction. Additionally, most school buses are diesel-powered. Diesel fuel is more polluting than gasoline, thus exposing children and communities to even more toxic emissions and exacerbating rates of asthma, especially among children.

Benefits of School Bus Electrification

Some electric school buses are being planned or already being deployed in Montgomery County, Frederick County, Howard County and Prince George's County as the counties work to electrify their school bus fleets. HB832 provides the opportunity to accelerate these efforts already underway and to expand the benefits of electric school buses to every school system in Maryland within the territory of an investor-owned utility. The proposed pilot program will ensure there are no capital, administrative, or operational costs to school systems. Additionally, each participating school system can expect to see cost savings each year from electric buses and can use these dollars for educational programs, teachers, and students.

For these reasons we urge a favorable vote for HB0832.

HB832_FAV_Finance_sign-on by 39 groups_03292021_RP
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

Committee: Finance
Testimony: HB 832 Public Utilities - Electric School Bus Pilot Program
Position: FAVORABLE
Hearing Date: March 30, 2021

Dear Chairwoman Kelley and Members of the Committee:

The **39** undersigned groups strongly support HB832 and urge a favorable report. HB832 creates an Electric School Bus Pilot Program implemented and paid for by Maryland's investor-owned utilities. School systems in each utility service area will be eligible to purchase zero-emission electric buses rather than diesel ones at no additional cost to the system. While the utility will cover the "incremental cost" and provide the charging infrastructure, savings from operating and maintaining the buses may be retained by the school system. Each investor-owned utility that implements the program will purchase a minimum of 25 electric buses and can spend up to $50 million during the pilot program, which will run 3-5 years. The utility, in consultation with participating school systems, will provide annual reports on the costs and benefits of the program to the General Assembly, the Governor and the Public Service Commission.

Every day over 650,000 children in Maryland ride to school on one of the State's approximately 7,200 diesel school buses. Every year, school buses in Maryland travel more that 128 million miles. Studies have shown that diesel pollutants concentrate inside a bus cabin, increasing children's exposure. A child riding inside of a diesel school bus may be exposed to as much as four times the level of toxic diesel exhaust as someone riding in a car. Diesel emissions are filled with carcinogens, particulate matter and soot that increases lifetime risk of cancer, incidents of asthma and heart disease. These effects are even more dangerous to children, whose lungs, heart and other organs are still developing.[1]

In Maryland, approximately one in ten children suffer from asthma, and this rate is higher among minority groups.[2] Asthma is a leading chronic illness among children in the United States, and it is also one of the leading causes of school absenteeism. In Maryland, 19.2 percent of parents reported that their child missed 1-2 days of school because of asthma and 9.7 percent said their child missed over seven days due to asthma.[3] Children riding in zero-emission buses experience reduced exposure to air pollution, less pulmonary inflammation, more rapid lung growth over time and lower absenteeism compared to children riding in diesel buses, particularly those with asthma.

Diesel school buses harm the environment in a number of ways. They are a major source of greenhouse gas emissions, each bus emitting about 27 tons of CO_2 per year—6 times as much as an average car. Nitrogen oxide, a major constituent of diesel exhaust, contributes to acid rain, ozone formation and smog.

In the past, the high upfront cost of purchasing electric buses put them out of reach for many school systems. But costs have come down, and recent innovations, such as vehicle-to-grid (V2G) technology, coupled with the lower costs of operating and maintaining electric buses, have made them financially attractive for schools. One estimate puts the cost of operating electric school buses at about 19 cents per mile, compared to the 82 cents per mile cost of diesel buses.[4]

V2G technology uses bus batteries to provide electricity to the grid when it is needed to stabilize imbalances and meet peak demands. School buses are ideally suited for this function, as they are equipped with very large batteries and only operate for small parts of the day. In the summer, when electricity demand is at its highest, most school buses do not operate at all. School bus routes are typically less than 40 miles, whereas today's electric school buses can travel 120 miles or more on a single charge, which for some buses can be accomplished in only three hours.

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[1] National Resources Defense Council Coalition for Clean Air, *No breathing in the aisles — diesel exhaust inside school buses;* https://www.nrdc.org/sites/default/files/schoolbus.pdf, January 2001
[2] Centers for Disease Control and Prevention, *Asthma in Maryland*; https://www.govtech.com/workforce/Electric-Buses-Are-Not-Only-Clean-but-Less-Costly-to-Run.html, 2008
[3] Maryland Department of Health and Mental Hygiene, *Asthma in Maryland 2012*; https://phpa.health.maryland.gov/mch/Documents/Asthma%20in%20Maryland%202012.pdf, 2012
[4] Government Technology, *Electric Buses Are Not Only Clean but Less Costly to Run;* https://www.govtech.com/workforce/Electric-Buses-Are-Not-Only-Clean-but-Less-Costly-to-Run.html, 2018

Electric school buses are already being deployed in Maryland. Montgomery County, Frederick County, Howard County and Prince George's County already own, or plan to own, electric school buses. In Howard County, BGE utility is furnishing the charging equipment and installation.

HB832 provides the opportunity to expand the benefits of electric school buses to every school system in Maryland within the territory of an investor-owned utility. The program ensures there are no capital, administrative or operational costs to the school system. Rather, in addition to the substantial health benefits of the buses, each participating school system can expect to see estimated cost savings of thousands of dollars per year per bus, dollars that can go to educational programs, teachers' salaries and assistance to needy students.

HB832 is a no-lose proposition that would provide substantial health and educational benefits to Maryland's students and improve the environment for all Marylanders.

The undersigned 39 groups urge a favorable report on HB832.

Annapolis Green
Elvia Thompson
President

Audubon Naturalist Society
Denisse Guitarra
Maryland Conservation Advocate

Catonsville Indivisibles
Jacqueline Seiple
Lead Organizer

Cedar Lane Environmental Justice Ministry
Lee McNair
Co-Leader

Chesapeake Climate Action Network & CCAN Action Fund
Jamie DeMarco
Federal and Maryland Policy Director

Chesapeake Physicians for Social Responsibility
Gwen DuBois MD, MPH
President

Climate Law & Policy Project
Donald M. Goldberg
Executive Director

Climate Parents of Prince George's
Joseph Jakuta
Lead Volunteer

Climate Reality
Romulo E. Huezo
Activist

Climate Reality Montgomery County
Frances Stewart
Chapter Chair

Climate Xchange
Wandra Ashley-Williams
Regional Director

DoTheMostGood
Olivia Bartlett
Co-Lead, Maryland Team

Echotopia
Diane Wittner
Founder

Elders Climate Action DMV Chapter
Leslie Wharton
Chapter Leader

Environmental Justice Ministry Cedar Lane Unitarian Universalist Church
Nanci Wilkinson
Co-Leader

Glen Echo Heights Mobilization
Doris Nguyen
Founder

Green For All
Shannon Baker-Branstetter
Deputy Director of Policy

Greenbelt Climate Action Network
Lore Rosenthal
Program Coordinator

Howard County Climate Action
Liz Feighner
Steering and Advocacy Committees

Indivisible Central Maryland
Liz Enagonio
Program Coordinator

Indivisible Howard County MD
Peter Alexander

JLM Environmental Consulting
Jennifer L. Macedonia
Principal

Labor Network for Sustainability (LNS)
Elizabeth Bunn
Maryland State Director

Maryland Campaign for Environmental Human Rights
Nina Beth Cardin
Director

Maryland Conservation Council
Paulette Hammond
President

Maryland League of Conservation Voters & Chispa Maryland
Ramon Palencia-Calvo
Deputy Executive Director

Maryland Legislative Coalition
Cecilia Ann Plante
Co-Chair

Maryland Sierra Club
Josh Tulkin
Director

MC-Faith Alliance for Climate Action
Kathryn Gargurevich
Science Educator

MLC Climate Justice Wing
Diana Younts
Co-Chair
Molly Hauck
Justin Gallardo

Montgomery Countryside Alliance
Joyce Bailey
Climate Change Liaison

Nuclear Information and Resource Service
Timothy Judson
Executive Director

Rebuild Maryland Coalition
Wandra Ashley-Williams
Maryland Regional Director

Solutionary Rail
Diane Wittner
Zoomcast Producer & Host

Takoma Park Mobilization Environment Committee
Diana Younts
Co-facilitator

Transit Choices
Robin Budish
Director

Unitarian Universalist Legislative Ministry of Maryland
Phil Webster
Chair, Climate Change Task Force

Voices Maryland
Sarahia Benn
Legislative Executive

WISE
Monica O'Connor
Legislative Liaison

HB0832_Electric_School_Bus_Pilot_MLC_FAV.pdf
Uploaded by: Plante, Cecilia
Position: FAV

TESTIMONY FOR HB0832
PUBLIC UTILITIES – ELECTRIC SCHOOL BUS PILOT PROGRAM

Bill Sponsor: Delegate Fraser-Hidalgo
Committee: Finance
Organization Submitting: Maryland Legislative Coalition
Person Submitting: Cecilia Plante, co-chair
Position: FAVORABLE

I am submitting this testimony in favor of HB0832 on behalf of the Maryland Legislative Coalition. The Maryland Legislative Coalition is an association of activists - individuals and grassroots groups in every district in the state. We are unpaid citizen lobbyists, and our Coalition supports well over 30,000 members.

This bill creates an Electric School Bus Pilot Program that will be paid for by Maryland's utility companies. School systems in each utility service area will be eligible to purchase zero-emission electric buses rather than diesel ones at no additional cost to the school system. While the utility will cover the "incremental cost" and provide the charging infrastructure, savings from operating and maintaining the buses may be retained by the school system. Each utility will allow for purchase a minimum of 25 electric buses and can spend up to $50 million during the pilot program, which will run 3-5 years. The utility, in consultation with participating school systems, will provide annual reports on the costs and benefits of the program to the General Assembly, the Governor and the Public Service Commission.

There are several reasons to do this. One is that school buses produce greenhouse gases, and they should be replaced with zero-emission buses in order to reduce our greenhouse gas emissions in Maryland. Additionally, school bus exhaust pipes are right at nose level for most of the children that take the buses, and they are inhaling all of that exhaust every time they take the bus. This causes health problems for them starting at a very young age. We should work hard to get this situation turned around, and this proposal seems like a very positive way to solve the problem.

We support this bill and recommend a **FAVORABLE** report in committee.

HB832 - Electric School Bus Pilot Program - FIN -

Uploaded by: Tulkin, Josh

Position: FAV

SIERRA CLUB

7338 Baltimore Ave
Suite 102
College Park, MD 20740

Committee: Finance

Testimony on: HB832 – "Public Utilities – Electric School Bus Pilot Program"

Position: Support

Hearing Date: March 30, 2021

The Maryland Chapter of the Sierra Club strongly supports HB832 as amended that would establish an electric school bus pilot program. The ultimate goal of the program is to replace diesel school buses which are less expensive to purchase than electric school buses but are a major source of greenhouse gas and human health-damaging emissions. The innovative program would be funded by an investor-owned electric utility which would, when electric school buses are not in use, be able to access stored energy from bus batteries when energy demand is high.

The transportation sector is Maryland's number one generator of climate-damaging greenhouse gas emissions. Maryland's large fleet of diesel school buses also is a significant source of toxic air pollution, much of which is emitted around young children whose bodies are more susceptible to its health-damaging properties. Diesel exhaust contains more than 40 toxic air contaminants that can cause or worsen diseases such as cancer and asthma. More than 80% of Marylanders live in counties that do not meet federal clean air standards for ozone, due in large part to vehicle tailpipe emissions. Each zero-emission electric bus, over a 12-year period, can eliminate 1,690 tons of carbon dioxide, ten tons of nitrogen oxides, and 350 pounds of diesel particulate matter, compared to a conventional diesel bus.

The electric school bus pilot program proposed in HB832 would be administered by the Public Service Commission (PSC) and would run for a period of three to five years. The program would involve an investor-owned electric company applying to the PSC to implement an electric school bus pilot program that would involve the deployment of at least 25 electric school buses; total rebates paid to participating schools would be limited to $50,000,000.

The PSC must approve a company's electric school bus pilot program application, the company's selection criteria for choosing school systems to participate in the program, and the company's rate application that would allow it to recover reasonable and prudent program costs.

The rebates that participating school systems would receive from the electric company to purchase electric school buses would be the amount that the costs of purchasing and deploying electric school buses exceed the costs of purchasing and deploying diesel school buses. The rebates also would cover administrative and operating costs incurred by a participating school system in implementing its electric school bus pilot program.

The electric company would provide and install the interconnection equipment and facilities for electric vehicle charging stations, and train school personnel in the proper use of the equipment

7338 Baltimore Ave
Suite 102
College Park, MD 20740

and facilities. The electric company would be able to access stored electricity from the batteries of electric school buses not in use through vehicle to grid technology without compensation to the school system. Being able to access stored electricity would be advantageous to the electric company when there is a power outage or emergency, when energy demand is high, or when renewable energy resources are intermittent.

The bill specifies the electric company would need to begin the electric school bus pilot program on or before October 1, 2023, and provide annual reports thereafter on the costs and benefits of the program to the Governor, the PSC, the House Economic Matters Committee and the Senate Finance Committee.

Electric school buses require less maintenance than standard diesel school buses as they have fewer engine components. Lower maintenance and fuel costs can save school districts money throughout the lifetime of the bus. Electricity that must be generated to charge electric vehicle batteries increasingly is coming from renewable wind and solar power sources, and the percent of clean, renewable energy generated continues to grow. Electric school buses are also much quieter, allowing drivers to communicate more easily with students.

In summary, HB832 proposes an innovative way to help school systems cover the additional up-front cost to purchase electric school buses compared to diesel school buses. It would reduce the climate and health-damaging diesel school bus fumes our children and environment now endure, while providing more electricity to the grid during periods of high energy demand and power outages. We urge the Committee to issue a favorable report on this bill.

Brian Ditzler
Transportation Chair
Brian.Ditzler@MDSierra.org

Josh Tulkin
Chapter Director
Josh.Tulkin@MDSierra.org

Johanna Wermers
Transportation Committee
JohannaWermers@gmail.com

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Position: INFO

Maryland
Department of the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

March 30, 2021

The Honorable Delores G. Kelley, Chair
Finance Committee
3 East
Miller Senate Office Building
Annapolis, Maryland 21401

Re: House Bill 832- *Public Utilities-Electric School Bus Pilot Program*

Dear Chair Kelley and Members of the Committee:

The Maryland Department of the Environment (MDE or the Department) has reviewed House Bill 832- *Public Utilities-Electric School Bus Pilot Program* and would like to provide some information related to this bill.

For more than ten years, Maryland has been a key supporter of reducing school bus emissions. Beginning in 2009, MDE began an aggressive school bus retrofit program. The purpose of this program was to retrofit existing Maryland school buses with new advanced emission technology. These retrofits reduced emissions by over sixty percent. Under this program, MDE retrofitted over two hundred buses with new advanced emission control technology. While these retrofits were the best option for reducing emissions from school buses at the time, technologies have progressed and so has the MDE school bus program. The school bus industry has made significant strides in school bus electrification. This technology has been proven and is ready for use. To reflect these advances, two years ago MDE announced a school bus electrification pilot program. This program is funded with settlement funds received from the Volkswagen and Fiat-Chrysler Settlements. Under this program, MDE is using these settlement funds to implement multiple electric school bus programs throughout the State. These funds cover the incremental cost to purchase an electric school bus and also cover the cost to install the required charging infrastructure. Currently MDE has pilot programs underway with four Maryland counties and is working to develop several more. These types of pilot programs allow counties and schools to gain important "real world" experience with the buses, so when implemented on a large scale, they can make the right purchase decisions and take into account costs, charging infrastructure, and maintenance experience that are important for the long term success of conversion to an electric school bus fleet.

In addition to the school bus electrification pilot program, on July 14, 2020, Maryland signed on to the Medium Heavy Duty zero emission vehicle memorandum of understanding (MHD ZEV MOU). Maryland was one of fifteen states and the District to sign on to this MOU. The goal of the MOU is to work with both private and public stakeholders to identify and address the issues that impact the wide spread electrification of the MHD sector. In addition to this work, the MOU establishes a goal of achieving a 30% sales share of MHD ZEV by 2030, and 100% MHD ZEV sales by 2050. As part of this process, Maryland is working with stakeholders to develop both a regional and Maryland specific Action Plan that will outline how Maryland and the region will achieve the goals of the MOU. Maryland has been conducting webinars and outreach to stakeholders to develop these Action Plans. The goal is to have both the regional and Maryland specific Action Plans completed by the end of the year.

Maryland's ability to expand the use of ZEVs in the MHD sector will play an important role in helping Maryland achieve its climate change and air quality goals. The current Greenhouse Gas Reduction Act (GGRA) was signed into law by Governor Hogan in 2016 and has a goal of a 40% reduction in GHG emissions from 2006 levels by 2030. The transportation sector is the largest source of greenhouse gas (GHG) emissions in Maryland. The transportation strategy in the *2030 GGRA Plan* is to provide Marylanders with reliable clean transportation alternatives to driving single occupancy vehicles, while accelerating deployments of electric and other ZEVs that are powered by increasingly clean Maryland electricity.

Transportation technologies also play a critical role in reducing emissions from the transportation sector that can contribute to air pollution and health problems in communities. Transportation accounts for over fifty percent of all nitrogen oxides (NOx) emissions in the State and the MHD sector is the second largest source of NOx emissions in the State. Maryland is currently in non-attainment for ground level ozone, reducing NOx emissions from the transportation sector, and specifically from the MHD sector, will help Maryland achieve its air quality goals. Converting this sector to electric vehicles will not only achieve significant short-term emission reductions of both GHG and NOx, but also continue to generate deeper reductions beyond the 2030 time-frame.

Thank you for your consideration. We will continue to monitor House Bill 832 during the Committee's deliberations, and I am available to answer any questions you may have. Please feel free to contact me at 410-260-6301 or by e-mail at tyler.abbott@maryland.gov.

Sincerely,

Tyler Abbott

cc: George "Tad" Aburn, Director, Air and Radiation Administration

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Position: INFO

STATE OF MARYLAND

PUBLIC SERVICE COMMISSION

March 30, 2021

Chairperson Delores G. Kelley
Senate Finance Committee
Room 3 East, Miller Senate Office Building
Annapolis, MD 21401

RE: HB 832 – INFORMATION – Public Utilities – Electric School Bus Pilot Program

Dear Chair Kelley, Vice Chair Feldman, and Committee Members:

HB 832 authorizes investor-owned electric companies in Maryland to apply to the Maryland Public Service Commission and implement an electric school bus pilot program, with an initial deployment of at least 25 electric school buses by October 1, 2023. HB 832 would allow an investor-owned electric company to use electric bus batteries to store and access electricity through V2G technology, to provide further resiliency to the electric grid. HB 832 also requires the utility to provide the necessary interconnection equipment and facilities to charge the school buses. These costs are separate from the rebate budget and are not subject to a statutory cost cap. Participating school systems in the utility's service territory will receive rebates to cover their incremental costs for purchasing and deploying electric buses—compared to diesel buses—as well as any incremental administrative and operating costs for implementing the pilot program.

As originally drafted HB 832 directed the $50 million budget to exclusively cover rebates for participating school systems. It was amended in the House to redirect the $50 million budget for total pilot program cost. While the envisioned vehicle-to-grid application may present a potential revenue stream to offset pilot program costs, the pilot's tangible benefits to the distribution grid are limited, particularly when viewed against the costs to ratepayers.

Under the amended legislation, an investor-owned electric utility's total pilot program costs could well exceed $50 million. If the utility reaches the maximum rebate budget and incurs additional program-related costs, such as administrative expenses and capital expenditures for procuring and installing necessary interconnection equipment and facilities, this will have a significant cost impact on ratepayers. While HB 832 requires that the electric school bus pilot program become a rate schedule of the participating utility, the bill does not require the pilot to recover its own costs. Thus, the full costs of the electric school bus pilot program could be collected across rate classes, which would result in pilot participants being subsidized by other ratepayers. Also, the proposed incremental costs to a participating school system—and, therefore, the rebate amount—are uncertain at this time. The costs of fueling, either diesel or

electricity, fluctuate frequency, and the costs of electric school buses are also uncertain as they are an emerging technology.

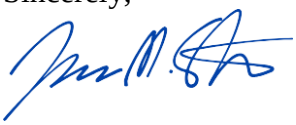
The core purpose of the electric school bus pilot program is to study V2G applications on the utility system—i.e., allowing the electric utility to use the energy stored in the school bus batteries to support the distribution system. In theory, pilot costs may be offset by any revenue the utility receives from providing this "storage" resource to PJM wholesale markets. Additionally, the utility's distribution system costs could be further offset by leveraging the school bus batteries as grid support to increase grid resiliency or defer distribution system investment. However, under the amended bill, the electric school bus V2G technology is only available at specific times. Therefore, the ability for the school bus pilot to provide tangible benefits to the distribution system would be limited. Furthermore, battery storage is typically deployed at specific locations in order to avoid distribution system upgrades. For the electric school bus pilot, it is unclear how the school bus batteries would be deployed in a manner that allows the utility to avoid distribution system upgrades.

Lastly, HB 832 requires the participating electric utility to submit annual reports to the Governor, the Commission, and General Assembly. As amended, the bill now provides that a utility electric school bus pilot program must commence no later than October 1, 2023. However, the original reporting deadline of February 1, 2023, for the first utility report was not revised accordingly. This should be changed to February 1, 2024, to align with the new pilot program start date.

The PSC appreciates the goals of HB 832 and also wishes to ensure that the Committee has information regarding the potentially significant financial costs to utility ratepayers to pay for this pilot program, in light of the House amendments. Although those program costs could be offset by potential revenues from PJM and savings from deferred capital investments, those and other benefits of the pilot programs are not guaranteed.

Thank you for the opportunity to provide informational testimony regarding House Bill 832. Please contact my Director of Legislative Affairs, Lisa Smith, at 410-336-6288, if you have any questions.

Sincerely,



Jason M. Stanek
Chairman