HB1451_IndivisibleHoCoMD_FAV_MichaelLoll
Uploaded by: Deutschman, Richard
Position: FAV

HB1451 – School Bus Purchasing – Zero–Emission Vehicle – Requirement

Testimony before House Ways & Means Committee

March 4, 2020

Position: Favorable

Madame Chair, Mr. Vice Chair and members of the committee, my name is Michael Loll and I represent the 700+ members of Indivisible Howard County. We are providing written testimony today in ***strong support of HB1451*** which would require school districts to purchase zero emission buses by a designated deadline.

According to the medical journal CMAJ, "Diesel fuel produces exhaust components that tend to form into spherical, respirable particles about 0.1–0.5 µm in diameter. These particles consist of an inert carbonaceous core with a large surface area that is ideal for adsorbing heavy metals and organic compounds". This report went on to state that inhaling diesel exhaust exacerbates asthma, and is a known risk for lung cancer. In addition, children riding in a diesel school bus may be exposed to exhaust levels four times higher than individuals riding in a car ahead of the bus. Riding in a school bus 1-2 hours a day, 180 days a year for 10 years could produce 23-46 additional cancer deaths per million children, not to mention the short-term potential to trigger asthma attacks.

Given the ongoing risk to children posed by diesel buses, **we strongly urge a favorable report.**

(1) Weir, E. “Diesel exhaust, school buses and children's health.” *CMAJ/JMAC*. 3 Sep 2002 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC121970/

HB 1451_MoCo_Elrich_SUPPORT
Uploaded by: Elrich, Marc
Position: FAV

OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich
County Executive

March 4, 2020

TO: The Honorable Anne R. Kaiser
Chair, Ways and Means Committee

The Honorable Kumar P. Barve
Chair, Environmental and Transportation Committee

FROM: Marc Elrich
County Executive

RE: House Bill 1451 – *School Bus Purchasing – Zero-Emission Vehicle – Requirement* – Support

---

I support House Bill 1451 because it requires local school systems to begin purchasing zero-emission school buses beginning on October 1, 2023. According to the U.S. Environmental Protection Agency, the transportation sector accounted for 29 percent of greenhouse gas emissions in 2017, the largest share of all the economic sectors in the nation. Every level of government must take all possible steps to address climate change and move to clean, renewable energy. Removing diesel buses from the road is an achievable objective and will also assist the State and counties in reaching their climate goals.

In Montgomery County, our transportation department received two federal grants to purchase 14 electric buses and chargers for its Countywide Ride On program. The first four electric buses have been delivered and are ready for service. The County has installed two charging stations in support of the initial four buses and is currently installing charging stations to increase its charging capacity at its Silver Spring Bus Depot. The Department anticipates that each bus will have a range of approximately 120 miles between charges. The County will continue to purchase electric buses, with the goal of adding 70 electric buses to its fleet in the next few years with an eventual goal of a 100% electric fleet. In addition, through the use of a public-private partnership, the County will develop new infrastructure that will include a microgrid comprised of solar canopies, chargers, and battery storage. By using this business model, we can truly green our future transit fleet. Likewise, House Bill 1451 has the potential to do the same for school bus fleets across the State which carry approximately 650,000 children on a daily basis.

For the foregoing reasons, I respectfully request a favorable Committee report on House Bill 1451.

cc: Members of the Ways and Means Committee
Members of the Environmental and Transportation Committee

HB 1451_MoCo_Elrich_SUPPORT
Uploaded by: Elrich, Marc
Position: FAV

OFFICE OF THE COUNTY EXECUTIVE

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cc: Members of the Ways and Means Committee
Members of the Environmental and Transportation Committee

HB1451_PHI_FAV_Lanier
Uploaded by: Lanier, Ivan
Position: FAV

An Exelon Company

An Exelon Company

March 4, 2020

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

FAVORABLE - House Bill 1451
School Bus Purchasing – Zero–Emission Vehicle – Requirement

Potomac Electric Power Company (Pepco) and Delmarva Power & Light Company (Delmarva Power) support **House Bill 1451 School Bus Purchasing – Zero–Emission Vehicle – Requirement**. House Bill 1451 requires that by 2023 school buses purchased by a county board must be a zero-emission vehicle. The bill further requires that by 2026 school buses contracted for use by individuals from a county board to provide transportation must be zero-emission vehicles.

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 1451 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 1451.

Contact:
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Senior Legislative Specialist
202-872-3050
Kathryn.lanzarotto@exeloncorp.com

Ivan K. Lanier
State Affairs Manager
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MLLC_Fav_HB1451
Uploaded by: LATINO CAUCUS, MD
Position: FAV

MARYLAND LEGISLATIVE LATINO CAUCUS

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TO: Delegate Anne R. Kaiser, Chair
Delegate Alonzo T. Washington, Vice Chair
Ways and Means Committee Members

Delegate Kumar P. Barve, Chair
Delegate Dana Stein, Vice Chair
Environment and Transportation Committee Members

FROM: Maryland Legislative Latino Caucus (MLLC)

RE: HB1451 School Bus Purchasing – Zero–Emission Vehicle – Requirement

The MLLC supports HB1451 School Bus Purchasing – Zero–Emission Vehicle – Requirement.

The MLLC is a bipartisan group of Senators and Delegates committed to supporting legislation which improves the lives of Latinos throughout our state. The MLLC is a voice in the development of public policy affecting the Latino community and the state of Maryland. Thank you for allowing us the opportunity to express our support of HB1452.

As Maryland advances to decrease the greenhouse gas emission statewide, reducing the dependency of fossil fuels is possible with zero-emission vehicles. Polluted environments cause detrimental health impacts that effect low-income and marginalized communities. Largely populated Latino communities are subject to air pollution regularly. Studies find Latino and low-income minority children have an increased risk of developing respiratory illnesses due to the high pollution in their environment. Transitioning away from fossil fuel use will aid the air quality for all Marylanders.

Diesel school buses emit aerosol particles that concentrate around the exterior of buses, as well as inside the vehicle. Diesel fueled buses are used all over the state, contaminating the air for our Maryland children every day. Additionally, older school buses that transmit higher levels of fossil fuel emissions run primarily in black, Latino, and low-income communities. It is critical to transition to electric school buses to assist communities who are disproportionally subjected to the negative environmental health risks.

HB1451 will begin the transition of Maryland's school bus fleet from diesel to electric. This bill allows counties to phase into purchasing zero-emission buses by setting benchmarks in 2023 and 2026. We take our children's education and health seriously. In advocating for clean energy and air, the State can prioritize Maryland children's health.

The MLLC supports this bill and urges a favorable report on HB1451.

HB 1451 testimony Earth Justice

Uploaded by: Palencia-Calvo, Ramon

Position: FAV

EARTHJUSTICE
BECAUSE THE EARTH NEEDS A GOOD LAWYER

Committee: Ways and Means
Support HB 1451 School Bus Purchasing – Zero-Emission Vehicle - Requirement
Hearing Date: March 4, 2020

On behalf of our supporters, Earthjustice writes in support of HB 1451: School Bus Purchasing – Zero-Emission Vehicle. This bill would require county school boards to purchase zero-emissions school buses starting in 2023, and require transportation contracted by county school boards to be zero emissions starting in 2026. Earthjustice applauds Delegates Fraser-Hidalgo, Barve, Charkoudian, Healey, Lierman, Luedtke, Moon and Stein for their leadership on this important issue. Diesel-fueled school buses emit harmful air pollutants known to impact children's health. Shifting to electric buses eliminates this pollution source and improves air quality. In addition, the economics of electric buses continue to improve, and reports already recognize savings over the total cost of ownership of electric buses compared to diesel. By passing HB 1451, Maryland can become a leader in electric bus adoption, reduce air pollution impacts on children across the state and contribute to the growing electric bus economy.

A 2002 study published by Environment and Human Health, Inc. found that "nearly 600,000 school buses transport 24 million students to school daily." [1] Most of these buses are diesel-fueled even though diesel is a known pollutant and a probable carcinogen. Diesel combustion leads to emissions of fine particulate matter as well as 40 hazardous air pollutants. Children are particularly susceptible to this pollution because their rate of respiration is higher per unit of bodyweight. Moreover, the Environment and Human Health study found that "children were exposed to airborne particulate concentrations in tested buses that were sometimes 5-15 times higher than background levels of PM2.5." In other words, the continued use of diesel school buses means we are repeatedly exposing some of our most vulnerable breathers to extremely elevated concentrations of known toxic pollution. By switching from diesel to electric buses, school boards will immediately reduce air emissions from transportation in the state. This reduction in pollution will benefit children's health as well as local air quality.

A significant barrier to broader adoption of electric buses is the upfront cost. The economics of these buses have improved and early studies have shown the gap in total cost of ownership closing and electric buses becoming increasingly cost competitive. Because they do not have an internal combustion engine, electric buses have fewer maintenance requirements. *Research and Markets* reported in September 2019 that electric buses "offer life cycle-cost advantages" and are "less complicated" leading to easier maintenance.[2] As the Blue Bird bus company writes on its website, "Less parts mean less maintenance."

A 2018 Bloomberg New Energy Finance (BNEF) report[3] found that "E-buses have much lower operating costs and can already be cheaper on a total cost of ownership basis than conventional buses today." As battery costs continue to decline these upfront costs will only decline. BNEF noted that battery prices have fallen by 24% since 2016 and 79% since 2010.

Thank you for considering this testimony. We urge the committee to pass this bill.

For information, please contact Jessica Ennis, jennis@earthjustice.org, 202-745-5202.

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[1] http://www.ehhi.org/reports/diesel/diesel.pdf
[2] https://www.researchandmarkets.com/reports/4912399/u-s-electric-bus-market-by-vehicle-type-by?utm_source=dynamic&utm_medium=CI&utm_code=trnvsz&utm_campaign=1348301+-+United+States+Electric+Bus+Market%3a+Size%2c+Share%2c+Development%2c+Growth+and+Demand+Forecast+(2015-2024)&utm_exec=joca220cid
[3] https://c40-production-images.s3.amazonaws.com/other_uploads/images/1726_BNEF_C40_Electric_buses_in_cities_FINAL_APPROVED_%282%29.original.pdf?1523363881

HB1233_MdSierraClub_FAV
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

7338 Baltimore Ave
Suite 102
College Park, MD 20740

Committee: **Environment & Transportation**
Testimony on: **HB1233 "State Vehicle Fleet - Conversion to Zero-Emission Electric Vehicles"**
Position: **Support**
Hearing Date: **March 5, 2020**

The Maryland Sierra Club strongly supports HB1233. The bill would significantly accelerate the process for converting the state vehicle fleet to zero emission vehicles by requiring the state, beginning in fiscal year 2022, to only purchase or lease zero emission vehicles for the fleet.

In 2018, the Department of Budget and Management indicated that the state fleet consists of approximately 8,900 vehicles, including approximately 2,200 for the Maryland Department of Transportation and 7,550 non-law enforcement light-duty vehicles. The state purchases about 750 new vehicles each year and spends approximately $1,000 on gasoline for each regular light-duty sedan each year.

Transportation is the number one source of climate-disrupting carbon pollution in Maryland. Our state's latest Greenhouse Gas Inventory indicates that gasoline and diesel vehicles account for 89% of this pollution. Tailpipe emissions from vehicles also are hazardous to human health, and contribute to cancers, heart disease, asthma, emphysema, and other respiratory diseases. In 2013, Maryland joined seven other states in signing a Memorandum of Understanding committing to have 300,000 zero emission passenger vehicles on the road by 2025. Currently there are only approximately 24,000 zero emission vehicles registered in Maryland.

New Jersey, Rhode Island, and Vermont have established legislative or executive targets for including more zero emission vehicles in new fleet purchases. A bill that passed this year in New York requires its transit agency to purchase an all zero-emission bus fleet by 2032 and develop a plan to electrify medium and heavy-duty vehicles (like port trucks and delivery vans) by the end of this year.

In summary, converting the state fleet to zero emission electric vehicles is necessary to meet our climate targets and protect public health. This bill would also generate savings for vehicle purchases by cutting fuel and maintenance costs. We urge a favorable report on HB1233.

Brian Ditzler
Transportation Chair
Brian.Ditzler@mdsierra.org

Josh Tulkin, Chapter Director
Josh.Tulkin@mdsierra.org
Lindsey Mendelson,
Transportation Lead

HB1451 CHISPA Package

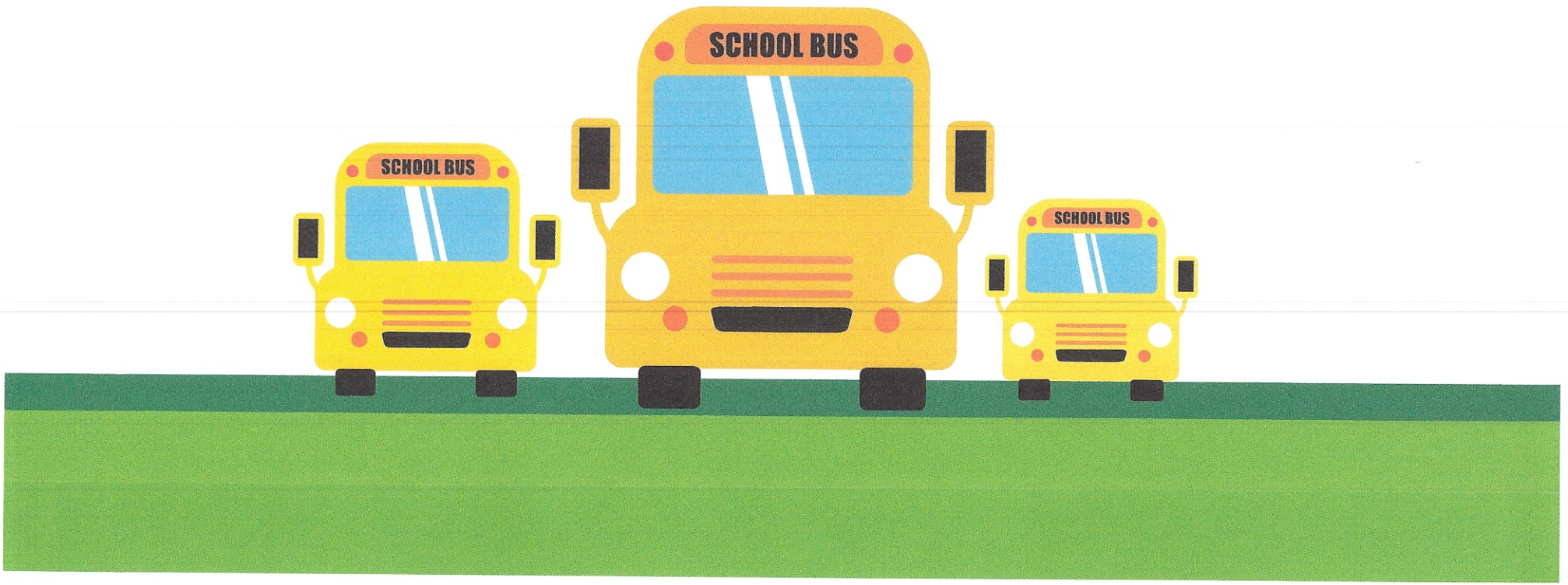
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

AVAILABLE ELECTRIC SCHOOL BUSES

	SAFE-T-LINER C2 JOULEY	eLionC	STARCRAFT QUEST XL	STARCRAFT QUEST XL	STARCRAFT QUEST XL
Type	Thomas Built Buses (Daimler)	Lion	Starcraft	Trans Tech	IC Bus (VW)
Chassis & Powertrain	Type C	Type A	Type C	Type A	
Battery Type	700ev from EDI	TM4 Sumo MD	Ford F-59	Ford E-450	
Battery Capacity	Proterra	LG Chem - Lithium-ion (NMC)	Sodium-Nickel-Chloride	Lithium-ion	
Passenger Capacity	100 and 160 kW	220 kW	180 kW	260 kW	260 kW
Range with Standard Battery	81	54-72	39-47	42	
Top Speed	120 miles	65 / 100 /125 / 155 miles	85 miles	120 miles	120 miles
Gradeability	65 mph	60 mph	60 mph	60 mph	
Cabin Heating System		20%	20%		
Charger		2 x 80,000 BTU			
Charging System		19.2 kW	208v / 25kW		
Estimated Charging Time	J1772	J1772	208/240V 3-phase		
Approx Price	6-8 hours	4-6 hours	8 hours	6-10 hours	
Deployed in US					
GVWR	MA, CA	CA, NY, MN, MA		New York	
		up to 30,000 lbs			
		Other			
		Fast-charging, wheelchair lift, AC			

AVAILABLE ELECTRIC SCHOOL BUSES

	ALL AMERICAN REAR ENGINE (RE) ELECTRIC	MICRO BIRD G5 ELECTRIC	VISION ELECTRIC
Type	Type D	Type C	Type A
Chassis & Powertrain	ADOMANI & Efficient Drivetrains, Inc. (EDI)	x	x
Battery Type	Lithium-ion	x	x
Battery Capacity	100 and 160 kW	100 and 160 kW	87 kW
Passenger Capacity	66-84	77	30
Range with Standard Battery	80-100 miles	120 miles	100 miles
Top Speed		65 mph	
Gradeability			
Cabin Heating System	yes		
Charger	19.2 kW	x	
Charging System	SAE J117	SAE J117	SAE J117
Estimated Charging Time	6-8 hours	x	x
Approx Price			
Deployed in US	CA	up to 33,000 lbs	Canada
GVWR	up 36,200 lbs		up to 14,500 lbs



CHISPA
CLEAN BUSES | HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

HEALTH BENEFITS OF ELECTRIC SCHOOL BUSES

TRANSITION TO ELECTRIC

Electric school buses are the cleanest option available. They produce zero tailpipe emissions, and could help school children breathe cleaner air. In a 2019 California study, researchers found that a decrease in nitrogen dioxide was associated with a decrease in the number of asthma cases.

70% LOWER **Electric buses have 70% lower greenhouse gas emissions than diesel and natural gas buses everywhere in the country.**

FEWER TOXINS **This means improved air quality, better health for children and our communities, and fewer toxins harming our environment and worsening climate change.**

SIX MILLION
6 million children across the United States have asthma
Asthma is the #1 chronic illness for children AND the #1 cause of school absences

TWO TIMES **Children living in urban areas have twice as many cases linked to nitrogen dioxide pollutants**

KIDS OF COLOR
Children of color are more likely to ride diesel school buses
Children of color are more likely to live in neighborhoods with unhealthy air
Electric school buses are the ONLY clean, zero-emission model that will help improve air quality and improve children's health

NO MORE DIESEL

Diesel school buses -- the largest form of public transportation in the country -- emit harmful exhaust that hurt kids' developing lungs. In a 2005 landmark study, researchers found that kids riding diesel school buses were breathing in 5 to 15 times more toxins than they would have otherwise.

Diesel school buses also travel thousands of miles through neighborhoods each year, polluting our communities. Diesel exhaust is known to shorten life spans; increase rates for lung, bladder and other cancers; and has been linked to various heart and lung illnesses.

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CLEAN BUSES | HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

HEALTH BENEFITS OF ELECTRIC SCHOOL BUSES

DIESEL & ASTHMA

Diesel can also cause or exacerbate children's asthma. Asthma is the number one chronic illness for children and a top cause of school absences, leading kids to miss school and fall behind in class.

$82 BILLION

In one year, asthma can cost the U.S. economy nearly $82 billion dollars in missed work and school days, deaths, and medical costs. For uninsured and low-income individuals, average costs are even higher.

For the sake of our children and our futures, it's time to transition to a clean, all-electric fleet.

ASTHMA & COMMUNITIES OF COLOR

Asthma disproportionately hurts communities of color. Latino and Black children are more likely to ride school buses than their white peers. That means they are more likely to breathe in diesel toxins and suffer the corresponding health complications, like asthma.

2x **Latinos overall are twice as likely to visit the ER for complications with asthma, while Latino children twice as likely to die from asthma than their white peers.**

3x **Non-Hispanic African-Americans are three times more likely to die from asthma, while Black children are four times more likely to be hospitalized because of asthma than their white peers.**

Communities of color are already more likely to carry the burden of air pollution, living or working near pollution sources or in cities with dirtier air. For low-income communities of color, the inequities are even greater. Poverty is associated with a shortened lifespan due to poor air quality. When coupled with lower health insurance rates, the risks to our health increase.

Dirty air is hurting our communities.

ELECTRIC SCHOOL BUSES IN ACTION
LAKEVILLE, MINNESOTA

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LEAGUE OF CONSERVATION VOTERS

In 2017, Minnesota launched the first electric school bus in the Midwest. Two electric co-ops partnered with a wholesale utility to split the cost of the bus. Running in one of the coldest climates in the country with pre-heating technology, Lakeville's school bus proves that electric buses can operate in all kinds of weather.

The utilities say operating costs are $12,000 lower per year compared with the school district's traditional diesel school buses. The bus takes 3-5 hours to charge overnight and has a 100-mile range, and it's also powered by clean, wind energy.

""We think it represents the future of school buses," said David Ranallo, manager of marketing and member services at Great River Energy.

"It's like what our partner Schmitty & Sons has said — this is everything we hoped for in the future of school buses and it's here today.""

"There are so many innovations that are in this electric bus that aren't part of a standard diesel bus — things as simple as a composite roof so there's not sections and doesn't leak and rust in the future.

There's a built-in trash can, better ergonomics, improved safety."

BUS SPECS

- **Lion**
- **100 mile range**

BUS FINANCING

- **The electric school bus cost $325,000**
- **Funded entirely through 2 electric co-ops and a wholesale energy supplier**

Energy News Network, "Minnesota district to get Midwest's first electric school bus this fall." July 2017.
https://energynews.us/2017/07/11/midwest/minnesota-district-to-get-midwests-first-electric-school-bus-this-fall/

ELECTRIC SCHOOL BUSES IN ACTION MICHIGAN

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LEAGUE OF CONSERVATION VOTERS

In 2018, Michigan devoted $3 million of its Volkswagen settlement funds to invest in electric school buses. In mid-2019, the state announced schools in Ann Arbor and Roseville would receive six electric school buses, using $1.5 million granted through the Volkswagen settlement. The buses will be equipped with vehicle-to-grid technology so the state utility can use the buses as back-up batteries.

The state is also planning to implement educational initiatives around the electric school buses, so students can better learn about the technology powering their ride to school.

"Not only will [the electric buses] help us reduce our carbon footprint, but they will also serve as great educational opportunities for our students," Kment said.

"Our educators will use them to lead discussions on how we can all take steps to integrate cleaner energy into our daily lives."

"We're excited to help bring clean electric transportation to thousands of Michigan students," said Trevor F. Lauer, president and CEO of DTE Electric.

"This partnership and grant fits well with our commitment to advancing both STEM education and Michigan's clean energy future."

BUS SPECS

- **6 ThomasBuilt Jouley buses**

BUS FINANCING

- **Utility provided 70% of the cost for each electric school bus**
- **School district paid one-third of the cost**
- **Each electric school bus cost $325,000**

School Bus Fleet Magazine,"2 Michigan Districts to Receive Funding for Electric School Buses," June 27, 2019.
https://www.schoolbusfleet.com/news/734692/2-michigan-districts-will-receive-funding-for-electric-school-buses

ELECTRIC SCHOOL BUSES IN ACTION MICHIGAN

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LEAGUE OF CONSERVATION VOTERS

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THE MYTH OF "CLEAN DIESEL"

There is no such thing as "clean diesel." That's a lie perpetrated by the diesel industry, the very same industry that said diesel was cleaner than regular gas.

Their lies helped Volkswagen sell 11 million diesel cars that emitted up to 40 times more toxins than permissible, polluting the air we breathe and harming our health. It wasn't until Volkswagen was caught cheating federal emission standards that they admitted diesel isn't, in fact, better and is actually much worse for our health.

That's why they were forced to pay a $2.7 billion settlement and undertake various types of reparations. And it's not just Volkswagen: other major automakers have been implicated in cheating federal emission tests, too. We can't let them keep getting away with this.

Newer diesel technologies that claim to be cleaner still emit some level of toxins, just fewer. But even limited exposure to diesel toxins can be harmful. As U.S. PIRG points out, "some components of diesel exhaust, like ultrafine particles, pose health threats but remain unregulated."

Diesel remains a dirty, polluting fossil fuel. Like researchers have been saying since 2002: there is NO safe level of diesel exhaust for children to breathe.

ELECTRIC SCHOOL BUSES IN ACTION
TWIN RIVERS, CALIFORNIA

CHISPA
CLEAN BUSES. HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

Twin Rivers Unified School District, right outside Sacramento, Calif., operates 25 electric school buses -- the largest electric school bus fleet in the nation. The school district reports they're saving 80% on maintenance costs and 80% on fuel. Overall, the school district estimates they're saving $15,000 annually.

They are already planning to purchase an additional 10 school buses over the next year, bringing their total to 35 electric school buses, and hopes to reach 70 electric buses within five years.

At least some of the buses will be upgraded to include Vehicle-to-Grid technology, enabling them to send energy back to the grid and release it when demand is highest.

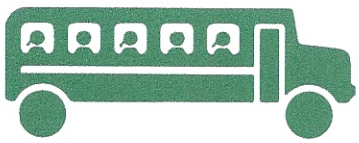
Twin Rivers USD uses 127 schools to transport 5,000 students to 52 different schools. The school buses are operating in the district's "most disadvantaged communities," since nearly 87% of its students qualify for free or reduced lunches.

The electric school buses are also being used for educational opportunities, teaching students about clean energy and partnering with a local college to provide career and technical education courses to future mechanics.

80% SAVINGS IN FUEL AND MAINTENANCE

25 ELECTRIC SCHOOL BUSES CURRENTLY

TWIN RIVERS USD TRANSPORTS 5K STUDENTS SAFELY



BUS SPECS

- **5 Blue Bird All-American Electric**
- **12 Lion Type C buses**
- **8 TransTech eSeries Type A Buses**
- **16 chargers; 6 more expected soon**
- **16 school bus drivers certified to drive the all-electric buses**

ELECTRIC SCHOOL BUS

15-19 cents per mile

VS

DIESEL SCHOOL BUS

82-85 cents per mile

**100 miles range per vehicle

BUS FINANCING

- **State grant provided $7.5 million**
- **SMUD provided $1 million to help fund charging infrastructure**

ELECTRIC SCHOOL BUS TYPE A

$225,000

ELECTRIC SCHOOL BUS TYPE D

$400,000

Each electric school bus ranged from $225,000 for Type A buses to $400,000 for Type D buses

ELECTRIC SCHOOL BUSES IN ACTION
WHITE PLAINS, NEW YORK

CHISPA
CLEAN BUSES | HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

In White Plains, New York, a local utility helped the school district purchase 5 electric school buses by covering a third of the total cost of each bus. Under this partnership, the utility will pay the bus operator to use the buses during the summer as back-up batteries, storing energy and sending it back to the grid when demand is highest -- saving money for every ratepayer. The school district also received a state grant that covered half of the remaining cost, and paid the bus operator approximately $130,000 per bus, what they typically pay for a diesel school bus.

Buses are charged overnight and mid-day, with a full charge taking 4-6 hours and providing a range of 66 miles. White Plains has praised the school buses and their ability to lead the way in sustainability efforts.

White Plains serves more than 7,000 students, 57% who are Latinx and 55% who are "economically disadvantaged," transporting at least 5,000 students each day.

BUS SPECS

- **5 Lion Type C all-electric school buses**
  - **Same body as the diesel Lion 360 with a TM4 SUMO MD electric motor**
- **Operated by National Express, who pays the buses' energy cost**
- **First Priority GreenFleet provides servicing, technicians and driver training**

BUS FINANCING

- **Each electric school bus cost $365,000**
- **Utility provided $100,000 per bus (total of $500,000)**
- **State grant provided $120,000 per bus (total of $600,000)**
- **School district paid approximately $130,000 per bus**

The New York Times, "The Wheels on These Buses Go Round and Round With Zero Emissions." November 12, 2018. https://www.nytimes.com/2018/11/12/climate/electric-school-buses.html

Patch.com, "White Plains Students Get First Look at Electric School Bus." June 20, 2018. https://patch.com/new-york/whiteplains/white-plains-students-get-first-look-electric-school-bus

Sustainable Bus Magazine. "Electric school bus fleet in NY State. Lion Electric will be used also as power storage unit." December 4, 2018. https://www.sustainable-bus.com/news/electric-school-bus-fleet-in-ny-state-lion-electric-buses-will-be-used-also-as-power-storage-unit/

WHY ELECTRIC SCHOOL BUSES?

CHISPA
CLEAN BUSES | HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

DIESEL SCHOOL BUSES

HEALTH

- Bad for our health
- Classified by the EPA as a cancer-causing agent and by the World Health Organization as a carcinogenic
- Shortens life spans
- Especially bad for children's health
- Worsens asthma and can even lead children to develop asthma

"There is no known safe level of exposure to diesel exhaust for children, especially those with respiratory illnesses."

FUEL

- Poor fuel efficiency
- 7 miles per gallon
- Diesel is a fossil fuel, contributing to climate change

COST

- Lowest upfront cost but costs more to maintain over time
- $1 million for an electric bus over $1.4 million for a diesel bus
- High fuel costs

PROPANE OR CNG

HEALTH

"Even limited exposure to these particulates can be harmful."

"Propane and CNG school buses do not significantly improve air quality compared to newer models of diesel buses, and actually emit some forms of pollution at higher levels."

FUEL

- Poor fuel efficiency
- Still emits dangerous nitrogen oxide and particulate-matter emissions

COST

- Low upfront cost
- costs more to maintain over time

U.S. Environmental Protection Agency. "Diesel engine exhaust." 2019. https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=642

The New England Journal of Medicine. "Air Pollution and Mortality in the Medicare Population." June 29, 2017. https://www.nejm.org/doi/full/10.1056/NEJMoa1702747

U.S. Environmental Protection Agency. "Integrated Science Assessment (ISA) For Oxides Of Nitrogen - Health Criteria (Final Report, 2016)." January 28, 2016. https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879

Journal of Allergy and Clinical Immunology. "FOXP3 hypermethylation is associated with diesel exhaust exposure and risk for childhood asthma." December 20, 2012. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3563724/

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TransPower. "Economical Electric School Bus (EESB) Final Project Report." June 2, 2014. http://www.transpowerusa.com/downloads/TransPower-Economical-Electric-School-Bus-Final-Report.pdf

CityLab. "How to Clean Up the Dirtiest Vehicles on the Road." May 19, 2016. https://www.citylab.com/solutions/2016/05/sustainable-trucks-buses-fuel-efficiency-in-transportation/471621/

MJ Bradley & Associates. "Comparison of Modern CNG, Diesel, and Diesel Hybrid-Electric Transit Buses." https://mjbradley.com/sites/default/files/CNG%20Diesel%20Hybrid%20Comparison%20FINAL%2005nov13.pdf

CityLab. "The Yellow School Bus Needs a Green Makeover." May 31, 2018. https://www.citylab.com/transportation/2018/05/its-time-for-the-school-bus-to-grow-up/560396/

Bellwether Education Partners. "From Yellow to Green. Reducing School Transportation's Impact on the Environment." August 2019. https://bellwethereducation.org/sites/default/files/Bellwether_WVPM-YellowToGreen_FINAL.pdf

National Renewable Energy Laboratory. "Foothill Transit Battery Electric Bus Demonstration Results." January 2016. https://www.nrel.gov/docs/fy16osti/65274.pdf

ELECTRIC

HEALTH

- NO dangerous tailpipe emissions that threaten children's health

FUEL

- More efficient
- Four times more efficient than CNG buses
- Even when comparing emissions used to generate electricity, electric buses have 70% lower greenhouse gas emissions than diesel and natural gas buses

"Despite their differences in petroleum use, the latest diesel, propane, and CNG school bus models emit similar amounts of GHGs — about 40 to 50% more than electric options... Emissions and fuel use data clearly show that electric school buses are the most environmentally friendly option, as they use less fuel, emit fewer GHGs, and create little pollution. "

COST

- At least $40,000 cheaper over their lifetime
- Lower maintenance costs than propane, CNG or diesel buses
- Lower fuel costs than propane, CNG or diesel buses
- Electricity prices are lower and more stable than fuel prices

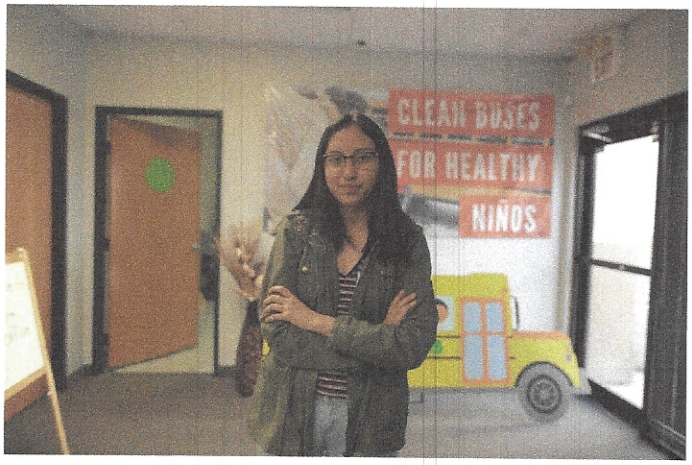
CHISPA
CLEAN BUSES | HEALTHY NIÑOS
LEAGUE OF CONSERVATION VOTERS

ELECTRIC SCHOOL BUSES ARE THE ONLY ZERO-EMISSION, CLEAN RIDE FOR HEALTHY KIDS.

SAVING MONEY WITH ELECTRIC SCHOOL BUSES

Electric school buses are ultimately cheaper than diesel, propane or CNG models. Because electric school buses cost significantly less to operate and maintain (60-80% less in some current examples), they can actually help school districts save thousands of dollars per year.

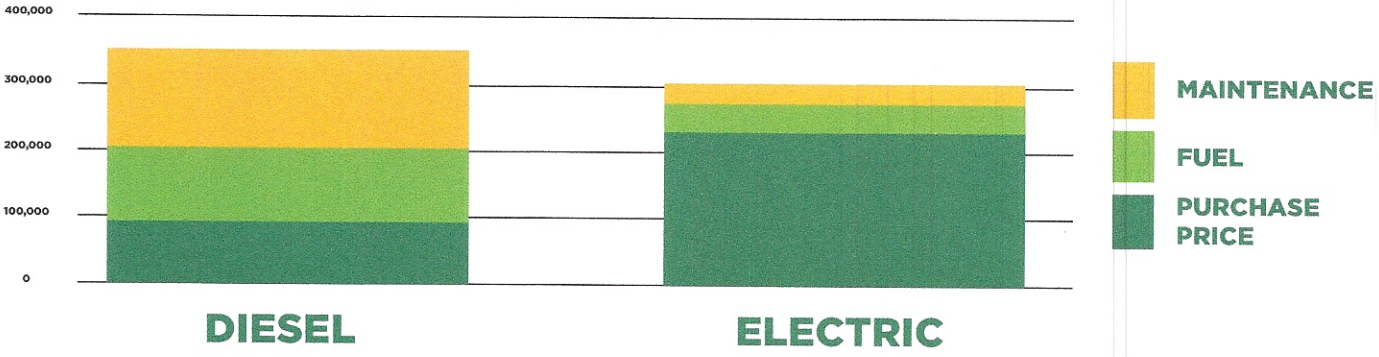
An electric school bus may have a high upfront cost, but has fewer maintenance and operation costs over its lifespan, while diesel school buses get more expensive to fuel and maintain over time. Additionally, electricity prices are more stable than diesel prices; it costs 2.5 times less to power a vehicle with electricity than with diesel.



As the price of batteries continues to fall each year and electric technology improves, so will the upfront costs of electric school buses. Electric school buses are projected to reach cost parity with diesel buses as soon as 2022.

Multiple studies have shown that electric school buses are more affordable than diesel school buses in the long-term, given fewer parts to maintain, no fuel costs and longer-lasting parts. U.S. PIRG found in 2018 that each electric school bus can save school districts up to $2,000 a year in fuel and $4,400 a year in reduced maintenance costs, saving tens of thousands of dollars over the lifetime of a bus.

TOTAL LIFECYCLE COSTS OF SCHOOL BUSES



HB1451_Chesapeake Physicians for Social
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

Committee: Ways and Means
Testimony on: HB1451 "School Bus Purchasing – Zero-Emission Vehicle – Requirement"
Position: Support
Hearing Date: March 4, 2020

The Chesapeake Chapter of Physicians for Social Responsibility submits this testimony in support of HB1451, which requires that new school buses bought after October 1, 2023, by a county board of education, and new school buses bought after October 1, 2026, by contractors who provide student transportation under contract to counties, be zero-emission vehicles.

This legislation will provide important health and other benefits to Maryland's children, for the following reasons:

Diesel emissions are the unhealthiest kind of transportation emissions – While important progress has been made in reducing the health-harming nature of diesel fuel and improving the efficiency and reducing pollution from heavy diesel vehicles, diesel exhaust fumes still have higher levels of health-harming substances, including particulate matter and nitrogen oxides, than other transportation fuels.[1] Most of the particulate matter in diesel soot is of "ultrafine" size - the most harmful type of particles because their microscopic size allows them to enter deep into the lungs and actually penetrate cell walls to enter the circulation. Particulate matter is strongly associated with pulmonary and cardiovascular risk and with long-term mortality. Nitrogen oxides from fossil fuel combustion, including diesel exhaust, are still the major precursors of ground level ozone, which is an important trigger of asthma attacks.

Diesel exhaust contains over 40 toxic air contaminants, including benzene, formaldehyde, and heavy metals. These and other substances make diesel exhaust exposure a recognized cause of cancer risk; the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment found that "long-term exposure to diesel exhaust particles poses the highest cancer risk of any toxic air contaminant evaluated."[2] As a result of studies of the health effects of diesel exhaust, in 2012 the International Agency for Research on Cancer (a division of the World Health Organization) listed diesel engine exhaust as "carcinogenic to humans."

Volunteer studies have also shown that exposure to diesel exhaust increases individuals' susceptibility to allergens that trigger asthma or other respiratory symptoms, and may actually facilitate the development of new allergies.[3]

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[1] Union of Concerned Scientists, *Diesel Engines and Public Health*; https://www.ucsusa.org/clean-vehicles/vehicles-air-pollution-and-human-health/diesel-engines, 2019
[2] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment and American Lung Association of California, *Health Effects of Diesel Exhaust*; 2001 (updated 2019)
[3] California Air Resources Board, *Overview: Diesel Exhaust and Health*; https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health, 2013

Children are more susceptible to these health effects – The developing lungs of children make them especially sensitive to the harmful effects of diesel exhaust exposure.[3,4] The high prevalence of asthma in young children increases this susceptibility, and asthma attacks are important causes of school absence and of medical care-seeking for school-age children. There is also strong evidence that exposure to transportation exhaust pollution causes long-term damage to lung development in children: a long term study of over 2,000 children in Los Angeles showed a direct connection between such exposure and reduced lung function development.[5] Because diesel exhaust makes up roughly 2/3rds of the particulate matter and half of the nitrogen oxide content of transportation pollution,[1] it is fair to say that part of this lung function impairment is attributable to diesel exhaust emissions.

Diesel school buses can directly expose children to diesel exhaust emissions – Almost everyone in the U.S. – especially in urban and suburban areas and near major transportation routes – is exposed to some degree of diesel exhaust pollution. While there is limited research on this issue, existing evidence indicates that diesel school buses can actually produce direct exposure of children to exhaust emissions that would be otherwise avoidable. Ironically, the greatest exposure documented occurred when children were actually riding in the bus. One study by Yale University researchers found that fine particulate matter pollution concentrations measured on buses were as much as 5-10 times higher than average pollution levels measured fixed-site pollution monitoring stations.[6] Another study controlled for other exhaust exposure by comparing pollution levels in school buses with those in surrounding traffic; that study determined that a child riding inside a diesel school bus may be exposed to as much as 4 times the level of diesel exhaust as someone riding in a car ahead of it.[7] Exposure levels were higher in the back of the bus and when windows were closed.

The time of second greatest exposure would be when children are lining up to board buses after school, especially if the buses are idling. This exposure would affect not just the children who travel on the buses, but potentially all children leaving school.

If an average school bus ride lasts 30 minutes each way, a child will spend about 180 hours each year exposed to this health risk. Across our state, in grades K-12, Maryland children will spend an estimated total of 80 million hours each year on school buses. This is a consequential health issue for our children.

Zero-Emission Vehicles – especially electric school buses – are a feasible and cost-effective alternative to diesel school buses – Zero-emission vehicles would include such technologies as fuel cells (which are not in mass production), but specifically include electric powered school buses. As of 2019, every major manufacturer of school buses is offering electric powered versions, and electric school buses are now available in every capacity category. The initial cost of an electric school bus is substantially greater than a diesel bus; however, the long-term savings in fuel, operation, and maintenance costs actually make the electric bus a more cost-effective investment over its lifetime. The U.S. Public Interest Group (US PIRG) determined that while electric school buses cost around $120,000 more than diesel school buses, lifetime fuel and

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[4] Liu, NM and Grigg, J, *Diesel, Children, and Respiratory Disease*; British Medical Journal (BMJ Paediatrics Open), 24 May 2018

[5] Gauderman, WJ, et al, Association of Improved Air Quality with Lung Development in Children; New England Journal of Medicine, vol.372, no.10; 5 March 2015

[6] Wargo, J, *Children's Exposure to Diesel Exhaust on School Buses*; Environment and Health; February 2002

[7] 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

maintenance savings of electric school buses are around $170,000.[8] Forbes has calculated that in general, the fuel, operation, and maintenance cost savings of electric buses provide a payback in about 7 years;[9] the average life of a school bus is over 15 years.

It is also possible to find financing options that reduce the up-front "sticker shock" of new electric buses, allowing the savings over time to cover a significant part of the purchase cost. The NRDC's study reviewed available financing and funding choices and found that American cities and school districts already had a multitude of options to make the transition to electric buses feasible.[7] Based on all these feasibility findings, the NRDC proposed incremental replacement of diesel school buses with electric buses, as fleets are expanded or as diesel buses are retired from service and replaced.[7]

Finally – Providing basic support for a transition of our school buses to zero emissions vehicles will demonstrate to our children that we are serious about reducing pollution and greenhouse gases and addressing climate change – Our children hear a lot these days about climate change, and hear many expressions of concern about doing something. Pediatric experience shows clearly that our children learn more by what we do than what we say. Providing technical support and grant funding that will assist local jurisdictions as they begin this transition will ultimately create a visible change in a core element of the world children experience every day - going to school. It will provide a material lesson for our children. Since they are the ones who will bear the brunt of climate change, it's a lesson that's important – and urgent. We owe it to them, and to their health.

On these bases, we strongly support favorable action on HB1451.

Alfred Bartlett, M.D., F.A.A.P.

Board Member
Chesapeake Physicians for Social Responsibility
alfredbartlett@msn.com

[8] US PIRG, *Paying for Electric Buses Financing Tools for Cities and Agencies to Ditch Diesel*; 30 October 2018
[9] Forbes, The U.S. just spent $84 million on electric buses; https://www.forbes.com/sites/sebastianblanco/2018/08/31/84-million-electric-buses/#50edccc65e40, 31 August 2018

HB1451_ElectricSchoolBuses_LCV
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

March 3, 2020

SUPPORT HB1451: School Bus Purchasing – Zero-Emission Vehicle

Dear Chairwoman Kaiser, Chairman Barve and members of the Committees,

The above-signed organizations strongly urge your support of HB1451 and thank Delegate Fraser-Hidalgo for his leadership on this important matter.

Everyday over 626,000 children in Maryland take one of the approximately 7,200 diesel school buses to school in Maryland. Every year, school buses in Maryland travel more that 123 million miles[1]. 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[2]. Diesel emissions are filled with carcinogens, particulate matter and soot that increases lifetime risk of cancer, incidents of asthma and heart disease[3]. These effects are even more dangerous to children whose lungs, heart, and other organs are still developing.

In Maryland, approximately one in ten children suffer from asthma, and this rate is higher among minority groups.[4] Asthma is a leading chronic illness among children and in the United States and it's also one of the leading causes of school absenteeism.[5] In Maryland, 19.2 percent of parents reported that their child missed 1-2 days of school because of asthma during the past year and 9.7 percent said their child missed over seven days due to asthma.[6]
Children riding in zero emissions buses experience lowering exposure to air pollution, less pulmonary inflammation, more rapid lung growth over time, and reduced absenteeism compared to diesel buses, particularly among children with asthma.[7]

Zero emissions school buses also make economic sense for school districts. Although the upfront costs of zero emissions buses is higher than diesel buses, over the life span of a school bus, the lower cost of fuel and maintenance will save tens of thousands of dollars to school districts. The

[1] http://files.schoolbusfleet.com/stats/SBFFB18StateByState.pdf
[2] https://www.nrdc.org/sites/default/files/schoolbus.pdf
[3] https://uspirg.org/sites/pirg/files/reports/National%20-%20Paying%20for%20Electric%20Buses.pdf
[4] https://phpa.health.maryland.gov/mch/Documents/Asthma%20in%20Maryland%202012.pdf
[5] https://www.cdc.gov/healthyschools/asthma/index.htm
[6] https://phpa.health.maryland.gov/mch/Documents/Asthma%20in%20Maryland%202012.pdf
[7] https://www.atsjournals.org/doi/10.1164/rccm.201410-1924OC

Twin Rivers Unified School District in California reports that their electric school buses cost about 75 percent less to fuel and 60 percent less to maintain.[8] This is money that school districts across Maryland could spend on academic programs. When you add the economic benefits of electric school buses to the health benefits from reducing particulate matter, CO_2 and NOx emissions, the case for electrifying school bus fleets in Maryland is very clear.

It is no longer acceptable to allow our children to in ride dirty diesel school buses when zero emissions clean electric school buses are readily available. Children have the right to breathe clean air and pursue a good education, and both are hindered by the effects of polluting buses. HB1451 creates a grant program to help school districts make the transition to clean, zero-emission buses, which is an important first step in the goal of reducing the exposure of Maryland's children to the harmful exposure of toxic diesel exhaust.

This bill that has real benefits for our children, communities, school districts, and the environment. We strongly urge a favorable report on House Bill 1451.

[8] https://www.nytimes.com/2018/11/12/climate/electric-school-buses.html

HB1451_Labor Network for Sustainability_FAV

Uploaded by: Palencia-Calvo, Ramon

Position: FAV

LABOR NETWORK FOR SUSTAINABILITY
A PROJECT OF VOICES FOR A SUSTAINABLE FUTURE, INC.

March 4, 2020

The Honorable Anne Kaiser
House Ways and Means Committee
Room131, House Office Building
Annapolis, MD 21401

Re: HB1451- School Bus Purchasing – Zero–Emission Vehicle. Position: SUPPORT

Hon. Anne Kaiser:

The Labor Network for Sustainability (LNS) strongly supports HB 1451 requiring that each school bus purchased by a county board of education be a zero-emission vehicle, beginning October 2023 (2026 for contractors).

Nothing is more important than safeguarding the health and safety of our children. Emissions from diesel burning school buses pose a serious health risk to the 640,000 Maryland children who ride them. 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 especially dangerous to children whose lungs, heart, and other organs are still developing.

For children, studies have shown that exposure levels to these harmful bus pollutants can be between four and ten times higher on school buses than in the surrounding environment. School bus drivers and maintenance employees are also adversely affected by breathing the toxic fumes emitted by diesel buses.

The only real solution to address the harmful pollutants emitted by diesel, propane and CNG buses is to transition to zero-emissions electric buses. Doing so would immediately reduce the toxic pollutants children, families and workers breathe every day.

Electric school buses also make economic sense. Diesel, propane and CNG buses have poor fuel efficiency and higher maintenance costs. Over the life span of a school bus, the lower cost of fuel and maintenance will save tens of thousands of dollars to school districts; money that can be spent on academic programs. When you add the economic benefits of electric school buses to the health benefits from reducing particulate matter, CO2 and NOx emissions, the case for electrifying school bus fleets is very clear.

Additionally, electric school bus technology is readily available today and is advancing daily. By delaying until 2023 the start of Maryland's transition, HB 1451 strikes the right balance between bold action, fiscal responsibility and acknowledgment of evolving technologies.

We also urge that HB 1451's ambitious requirements could and should be part of an overall state economic development plan. Procurement of electric buses and the necessary infrastructure should include incentives for creating high quality jobs in the state.

Finally, we also urge the State and county school districts to ensure that proper training for school bus operators and maintenance employees is provided as part of the transition to cleaner, healthier zero emissions buses.

For these reasons, we urge the Committee to issue a favorable report on this legislation.

Joe Uehlein,
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Elizabeth Bunn
Maryland State Director
Labor Network for Sustainability
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HB1451_Maryland PIRG_FAV_EmilyScarr
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

Ways and Means Committee
HB1451 - School Bus Purchasing – Zero–Emission Vehicle
Position: Favorable
March 4, 2020

Maryland PIRG is a state based, citizen funded public interest advocacy organization with grassroots members across the state. For forty years we've stood up to powerful interests whenever they threaten our health and safety, our financial security, or our right to fully participate in our democratic society.

Environment Maryland is a citizen-based environmental advocacy organization. We work to protect clean air, clean water, and open space.

Maryland PIRG and Environment Maryland support House Bill 1451 requires that beginning in October 2023, any buses purchased by County School Boards be zero-emission school buses and by October 2026, and buses purchased by contractors for use by County School be zero-emission school buses.

School buses play a key role in Maryland's transportation system. In Maryland, nearly 625,000 public school students are transported on school buses every day.[1] They either ride on one of the 3,700 buses owned by county boards of education or one of the 3,400 buses owned and operated by school bus contractors. Parents across the state rely on these buses to get their kids to and from school safely.

Yet, the vast majority of these buses remain dirty – burning fossil fuels like diesel that put the health of our children and communities at risk and contribute to global warming. Numerous studies have shown that inhaling diesel exhaust can cause respiratory diseases and worsen existing conditions like asthma. Diesel exhaust is internationally recognized as a cancer-causing agent and classified as a likely carcinogen by the U.S. Environmental Protection Agency.[2] In a study of 61 million people in 2015, researchers found that exposure to diesel soot and ground-level ozone created by diesel exhaust was linked to higher rates of mortality.[3]

Diesel pollution is especially dangerous for children -- for children there is no established safe level of exposure to diesel exhaust pollutants.[4] But in Maryland PIRG's report, *Electric School Buses: Clean Transportation for Healthier Neighborhoods and Cleaner Air*, we found that dirty school buses expose

[1] School buses transport over 70 percent of all Maryland public school students and travel over 123,000,000 miles every year. "U.S. State by State Transportation Statistics 2016-17," School Bus Fleet, http://files.schoolbusfleet.com/stats/SBFFB19-transportation.pdf.
[2] International: World Health Organization, International Agency for Research on Cancer, "IARC: Diesel Engine Exhaust Carcinogenic" (press release), 12 June 2012, available at http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf; U.S. Environmental Protection Agency, "IRIS Assessments: Diesel Engine Exhaust – CASRN NA," 28 February 2003, archived at https://web.archive.org/web/20180412031944/https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=642.
[3] Quian Di et al., "Air Pollution and Mortality in the Medicare Population," *The New England Journal of Medicine,* 376:2513-2522, DOI: 10.1056/NEJMoa1702747, 29 June 2017.
[4] Children are most vulnerable to the negative health effects caused by air pollution; their respiratory systems are still developing and they inhale more air per pound of body weight than adults. C. Li, Q. Nguyen, P. Ryan, G. LeMasters, H. Spitz, M. Lobaugh, S. Glover and S. Grinshpun, 2009, Journal of Environmental Monitoring, "School Bus Pollution And Changes in The Air Quality at Schools: A Case Study."

children to high levels of diesel exhaust pollutants, whether they are on the bus, near an idling bus at school, or even just in neighborhoods where dirty school buses travel.[5]

The good news is that Maryland can clean up its school buses by making them electric. All-electric buses are here, and they're cleaner, healthier and often cheaper for school districts and bus contractors to run in the long-term. With no tailpipe emissions, electric school buses can drastically reduce the pollution Maryland's children are exposed to.

Dramatic declines in battery costs and improvements in performance, including expanded driving range, have made electric buses a viable alternative to diesel-powered and other fossil fuel buses.[6] So while electric school buses are essential to protect the health of our children, they are also smart investments for school districts and school bus contractors. Still, the upfront purchase price is more expensive than that of a diesel bus, so the grant program set up by the bill will be critical to allowing school boards to make the switch.

Kids in Maryland deserve a safe ride to school. Thanks to pollution, they're not getting safe rides on diesel buses. It's time to switch to all-electric buses.

We respectfully request a favorable report on HB1451.

[5] "Electric School Buses: Clean Transportation for Healthier Neighborhoods and Cleaner Air," Maryland PIRG, May 2018, https://marylandpirg.org/sites/pirg/files/reports/MD%20Electric%20Bus%20Report%20Apr18.pdf.

[6] Each electric school bus can save districts nearly $2,000 a year in fuel and $4,400 a year in reduced maintenance costs, saving tens of thousands of dollars over the lifetime of a bus. Clinton Global Initiative V2G EV School Bus Working Group, ZEV School Buses – They're Here and Possibly Free (presentation), 22 April 2016, available at https://green-technology.org/gcsummit16/images/35-ZEV-School-Buses.pdf.

HB1451_MdSierraClub_FAV
Uploaded by: Palencia-Calvo, Ramon
Position: FAV

7338 Baltimore Ave
Suite 102
College Park, MD 20740

Committee: **Ways and Means**

Testimony on: **HB 1451 – "School Bus Purchasing – Zero-Emission Vehicle – Requirement"**

Position: **Support**

Hearing Date: **March 4, 2020**

The Maryland Sierra Club strongly supports HB 1451. This bill would require that, beginning on October 1, 2023, all school buses purchased by county school boards be zero-emission vehicles, meaning vehicles that do not produce any tailpipe or evaporative emissions and have not been altered from the manufacturer's original specifications. The bill also would require that, beginning on October 1, 2026, all school buses purchased by individuals under a transportation services contract with a county school board be zero-emission vehicles.

By initiating the transition to electric school buses, Maryland would reduce the extremely harmful effects of diesel pollutants on children. Over 640,000 kids in Maryland take one of the more than 7,000 diesel school buses to school every day. Studies have shown that diesel pollutants concentrate inside bus cabins, exposing children to 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 increase the lifetime risk of cancer, and incidents of asthma and heart disease, and are especially dangerous to children, whose lungs, hearts, and other organs are still developing.

Zero emission school buses also would make good economic sense for Maryland. Each electric school bus can save districts nearly $2,000 a year in fuel and $4,400 a year in reduced maintenance costs, saving tens of thousands of dollars over the lifetime of a bus. Though their initial cost is higher, the long term economic, health and environmental benefits of electric school buses far outweigh any rationale for continuing to use diesel school buses.

In summary, this bill would begin the transition away from dirty diesel school buses, which would be good for our children, communities, school districts and the environment. We strongly urge the Committee to issue a favorable report on this legislation.

Brian Ditzler
Madeleine Green
Chapter Transportation Committee
mvgreen@mcdonogh.org

Josh Tulkin, Chapter Director
Josh.Tulkin@MDSierra.org
Lindsey Mendelson, Transportation Lead

HB1451_BGE_FAV_Washington
Uploaded by: Washington, Charles
Position: FAV

An Exelon Company

Position Statement

SUPPORT HB 1451
Ways & Means Committee
March 4, 2020

School Bus Purchasing – Zero–Emission Vehicle – Requirement

Baltimore Gas and Electric Company (BGE) supports *HB 1451: School Bus Purchasing – Zero–Emission Vehicle – Requirement*. This legislation would help to facilitate the adoption of zero-emission school buses in Maryland. It requires each school bus purchased by a local school system to be a zero-emission vehicle beginning October 1, 2023. In addition, beginning October 1, 2026, the bill requires each school bus purchased by a person for use under a contract with a local school system to be a zero-emission vehicle.

This legislation is consistent with Maryland's greenhouse gas reduction goals. In 2013, along with nine other states, Maryland signed a memorandum of understanding on state Zero-Emission Vehicle programs. At that time, Maryland adopted a goal of 300,000 zero-emission vehicles on the road by 2025. Studies show that to meet this goal, approximately 125,000 electric vehicles (EVs) would need to be added to BGE's service territory and about 27,000 charging stations would be needed.

Accordingly, BGE launched its EVsmart Program, which fits into this directive and will propel progress on Maryland's Air Quality and Chesapeake Bay goals. Under EVsmart, in addition to consumer education programs, BGE plans to install 500 public access charging stations. In addition, BGE's EVsmart program would help to mitigate the costs of implementing House Bill 1316, because the program incentivizes the installation of charging infrastructure at 1,700 residential and multi-unit dwelling properties.

BGE is committed to partnering with Maryland to achieve its electric vehicle goals. Accordingly, we support House Bill 1451, and respectfully request a favorable committee report.

Sandy Grace | Charles Washington | Allyson Black | 410.269.5281

HB1451_MACo
Uploaded by: Jabin, Drew
Position: UNF

MARYLAND Association of COUNTIES

House Bill 1451

School Bus Purchasing – Zero-Emission Vehicle – Requirement

MACo Position: **OPPOSE**

To: Ways and Means and Environment and Transportation Committees

Date: March 4, 2020

From: Drew Jabin

The Maryland Association of Counties (MACo) **OPPOSES** HB 1451. This stringently inflexible bill would place a costly mandate on school systems and county governments to carry out new state policy to purchase zero-emission vehicles in upcoming years.

As a rule, MACo resists state policies that result in costly or burdensome local implementation. HB 1451 would implement an extremely costly mandate for local boards of education to purchase zero-emission school buses as well as limit contracting with transportation services for school buses to contractors that have purchased zero-emission school buses. Under state law, counties have no choice but to support these costs for county boards of education—competing for limited local funds against school construction, public safety, roadway maintenance, and other essential public services. Amidst a broad-based re-thinking of Maryland's education priorities under the Kirwan Blueprint legislation, HB 1451 introduces a substantial new mandated cost fully outside the basis for that new vision for school funding.

HB 1451 is costly on multiple fronts. The Fiscal Note prepared by the Department of Fiscal Services recognizes direct costs of purchasing these vehicles, citing zero-emission vehicle cost of $340,000 per zero-emission vehicle. Another concern is the capital costs of installing school vehicle charging stations. Lastly, a less clear but still significant concern is the necessity of implementing additional school bus routes, resulting in potentially millions spent on personnel and operating costs. Current bus routes in some counties would not be able to accommodate electric school buses as the current route is too long.

This bill, as written, is an extremely significant unfunded mandate for local boards of education, and by extension, county governments. For this reason, MACo **OPPOSES** HB 1451 and urges an **UNFAVORABLE** report.

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HB1451_MACo_UNF
Uploaded by: Jabin, Drew
Position: UNF

MARYLAND Association of COUNTIES

House Bill 1451

School Bus Purchasing – Zero-Emission Vehicle – Requirement

MACo Position: **OPPOSE**

To: Ways and Means and Environment and Transportation Committees

Date: March 4, 2020

From: Drew Jabin

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AACPS HB1451 OPP 3.4.20

Uploaded by: Ortiz, Jeanette

Position: UNF

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HB1451 School Bus Purchasing – Zero–Emission Vehicle – Requirement

March 4, 2020
ENVIRONMENT AND TRANSPORTATION COMMITTEE

OPPOSE

Jeanette Ortiz, Esq., Legislative & Policy Counsel (410.703.5352)

Anne Arundel County Public Schools (AACPS) opposes **HB1451 School Bus Purchasing – Zero–Emission Vehicle – Requirement**. This bill requires each school bus purchased by a local school system to be a zero-emission vehicle beginning October 1, 2023. In addition, beginning October 1, 2026, the bill requires each school bus purchased by a person for use under a contract with a local school system to be a zero-emission vehicle.

This legislation is an unfunded mandate. The technology associated with zero-emissions public school buses has not advanced to the point where buses can reliably run for the required and comparable number of hours or miles, as is the case with our existing diesel bus fleet. Currently, AACPS buses begin operation prior to 6:00 a.m. and may not end the service day until after 9:00 p.m. when athletics or other co-curricular or extracurricular activities conclude. Existing zero-emission buses cannot maintain this routine and there is insufficient idle time within the day to stop and recharge a zero-emission bus. In addition, charging stations would need to be installed countywide, at an exorbitant cost, because the buses do not always return to a centralized bus depot. This legislation could potentially require AACPS to double its combined bus fleet from approximately 700 to 1,400 buses to have dedicated morning and afternoon fleets to enable sufficient charging time and charging slots. We estimate the cost to increase our bus fleet to be $10 million to $15 million in addition to CIP funding for start-up charging station costs, and approximately $9 million in operating costs.

Accordingly, AACPS respectfully requests an **UNFAVORABLE** committee report on HB1451.

HB1451 MCPS BOE
Uploaded by: SUSSKIND, MCPS BOE
Position: UNF

MONTGOMERY COUNTY BOARD OF EDUCATION
Expanding Opportunity and Unleashing Potential
850 Hungerford Drive ◆ Room 123 ◆ Rockville, Maryland 20850

BILL:	HB1451
TITLE:	School Bus Purchasing – Zero–Emission Vehicle – Requirement
DATE:	3/4/2020
POSITION:	OPPOSE
COMMITTEE:	Ways and Means
CONTACT:	Danielle M. Susskind, Coordinator, Legislative Affairs Danielle_M_Susskind @mcpsmd.org

The Montgomery County Board of Education (Board) **opposes** HB1451.

Montgomery County Public Schools (MCPS) opposes HB1451 as it is currently written. MCPS could support this effort if there is dedicated state funding to fully support the increased costs. MCPS is exploring a business model to purchase electric school buses that would be cost neutral. Currently, an electric school bus is approximately $200,000 more than a diesel school bus.

This bill would have a major fiscal impact. The current cost of MCPS school buses is approximately $150,000. On an annual basis, MCPS purchases 120 new school buses. Electric school buses are an estimated additional $200,000 per bus. The additional expenditure for 120 school buses at $200,000 each bus with 6-year financing totals $4,000,000 to be added to the FY 2024 budget and subsequent budgets.

Additionally, there are concerns as to whether school bus manufacturers can realistically meet this demand by 2023 for all jursidictions in the state. Despite these factors, MCPS's goal is to electrify the school bus fleet as soon as funding allows.

For these reasons, the Board **opposes** this legislation and urges an unfavorable report.

John.Woolums_UNF_HB1451
Uploaded by: Woolums, John
Position: UNF

MABE
MARYLAND ASSOCIATION OF BOARDS OF EDUCATION

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BILL: **House Bill 1451**
TITLE: **School Bus Purchasing - Zero-Emission Vehicle - Requirement**
DATE: **March 4, 2020**
POSITION: **OPPOSE**
COMMITTEE: **Ways and Means Committee**
Environment and Transportation Committee
CONTACT: **John R. Woolums, Esq.**

The Maryland Association of Boards of Education (MABE) opposes House Bill 1451 because it would impose a costly mandate on all school systems by requiring each school bus purchased after October 1, 2023 to be a zero-emission vehicle.

Local boards of education place a very high priority on student transportation, including the substantial investment in school buses and drivers and maintenance staff. School systems also devote considerable resources to ensuring high standards for student safety relating to student transportation. Staff training is continuously ongoing whether for school system employed school bus drivers or drivers employed by school bus contractors. The high quality of student safety that these investments provide is MABE's top priority.

MABE does appreciate the action taken in 2019 to establish the Zero-Emission Vehicle School Bus Transition Grant Program within the Maryland Department of the Environment (MDE), a program intended to provide grants to local boards of education. However, MABE is troubled by this year's legislation proposing to mandate the statewide transition to zero emission school buses without a commensurate funding source to make such a transition possible.

As the Fiscal Note indicates, local school systems are clearly concerned with this legislation's dramatic impact on already challenged student transportation budgets. MABE recognizes that there may be the opportunity to develop purchase and financing arrangements that eliminate the higher initial procurement costs. However, such arrangements are not integral to this bill's approach. MABE looks forward to continued developments and advances in this area through pilot initiatives, but cannot at this time support legislation to institute a statewide zero emission school vehicle purchasing mandate by any set date.

For these reasons, MABE requests an unfavorable report on House Bill 1451.