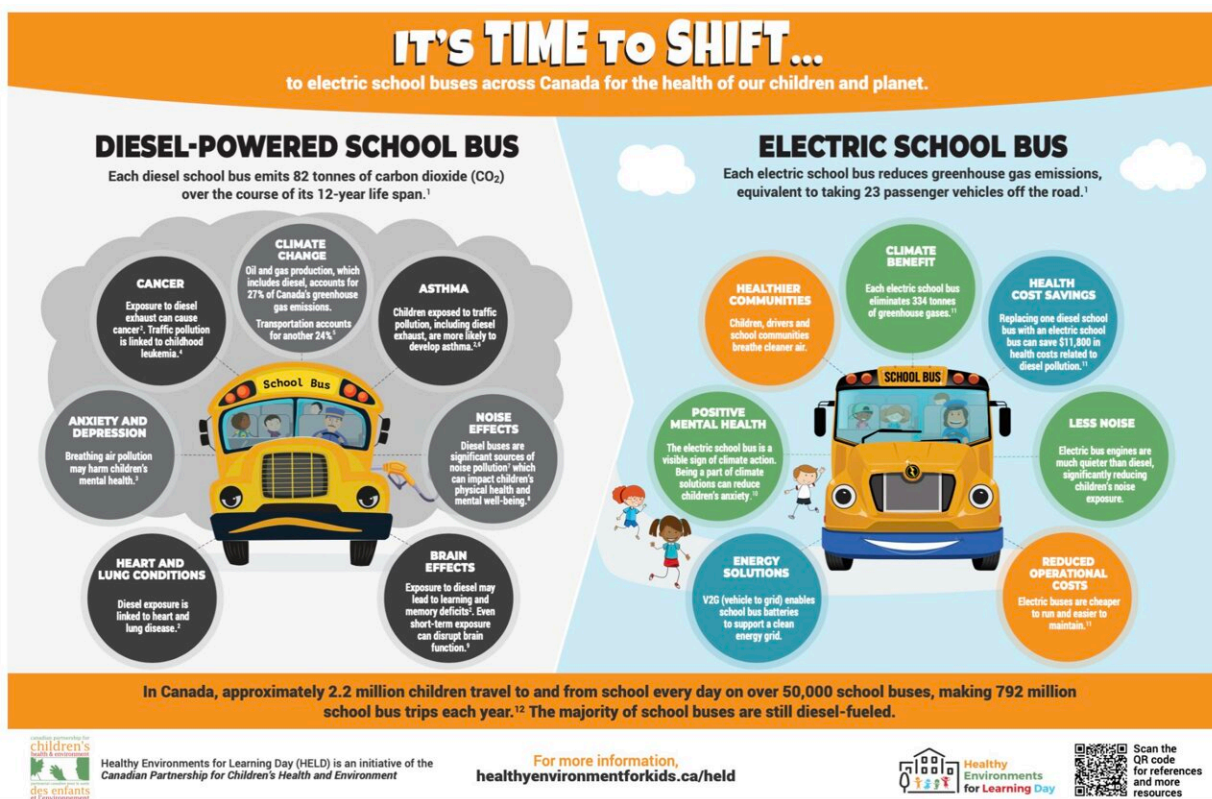


Citing growing evidence of harm, advocates call for faster replacement of diesel school buses

April 27 2023



IT'S TIME TO SHIFT...
to electric school buses across Canada for the health of our children and planet.

DIESEL-POWERED SCHOOL BUS
Each diesel school bus emits 82 tonnes of carbon dioxide (CO₂) over the course of its 12-year life span.¹

- CANCER**
Exposure to diesel exhaust can cause cancer.² Traffic pollution is linked to childhood leukemia.³
- CLIMATE CHANGE**
Oil and gas production, which includes diesel, accounts for 27% of Canada's greenhouse gas emissions. Transportation accounts for another 24%.⁴
- ASTHMA**
Children exposed to traffic pollution, including diesel exhaust, are more likely to develop asthma.^{5,6}
- NOISE EFFECTS**
Diesel buses are significant sources of noise pollution⁷ which can impact children's physical health and mental well-being.⁸
- HEALTHIER COMMUNITIES**
Children, drivers and school communities breathe cleaner air.
- CLIMATE BENEFIT**
Each electric school bus eliminates 334 tonnes of greenhouse gases.¹¹
- HEALTH COST SAVINGS**
Replacing one diesel school bus with an electric school bus can save \$11,800 in health costs related to diesel pollution.¹¹
- POSITIVE MENTAL HEALTH**
The electric school bus is a visible sign of climate action. Being a part of climate solutions can reduce children's anxiety.¹²
- LESS NOISE**
Electric bus engines are much quieter than diesel, significantly reducing children's noise exposure.
- ANXIETY AND DEPRESSION**
Breathing air pollution may harm children's mental health.⁹
- HEART AND LUNG CONDITIONS**
Diesel exposure is linked to heart and lung disease.¹⁰
- BRAIN EFFECTS**
Exposure to diesel may lead to learning and memory deficits.¹³ Even short-term exposure can disrupt brain function.¹⁴
- ENERGY SOLUTIONS**
V20 (vehicle to grid) enables school bus batteries to support a clean energy grid.
- REDUCED OPERATIONAL COSTS**
Electric buses are cheaper to run and easier to maintain.¹⁵

ELECTRIC SCHOOL BUS
Each electric school bus reduces greenhouse gas emissions, equivalent to taking 23 passenger vehicles off the road.¹

In Canada, approximately 2.2 million children travel to and from school every day on over 50,000 school buses, making 792 million school bus trips each year.¹² The majority of school buses are still diesel-fueled.

For more information, healthyenvironmentforkids.ca/held

Healthy Environments for Learning Day (HELD) is an initiative of the Canadian Partnership for Children's Health and Environment

Healthy Environments for Learning Day

Scan the QR code for references and more resources

Advantage of electric vs. diesel school buses. Credit: CPCHE

Health and environmental advocates today called on communities, school boards and governments at every level to accelerate the electrification of

school buses, replacing tens of thousands of diesel-powered school buses spewing toxic fumes that can seriously harm child health and interfere with learning.

Led by the Canadian Partnership for Children's Health and Environment (CPCHE), a coalition of 34 organizations made the goal of all-electric [school](#) bus fleets in Canada the central focus of this year's national Healthy Environments for Learning Day (April 27).

The joint call for [urgent action](#) by relevant decision-makers nationwide closely follows the publication in January of new scientific evidence from British Columbia that even "[brief diesel exhaust exposure acutely impairs functional brain connectivity](#)." While adult subjects were studied, the new research raises further concerns about impaired brain function and learning ability of children breathing [diesel fumes](#).

Other research has warned that [diesel exhaust](#) may impede child neurodevelopment, spatial learning, attention and memory, and contributes to a myriad other physical and [mental health problems](#) (detailed below), as well as climate change.

"Faced with the existential threat posed by climate change and mounting scientific evidence of the harm to children caused by traffic-related air pollution, including diesel exhaust, more comprehensive and urgent action is needed to bring electric school bus transportation to all communities across Canada," the declaration says.

It underlines that "electric [school buses](#) are a viable solution that eliminates diesel bus emissions and exemplifies local action on climate change."

The majority of Canada's 50,000 school buses use diesel fuel. Each year, school buses make 792 million trips to carry roughly 2.2 million children

to and from school.

Says CPCHE Executive Director Erica Phipps, "Buses operating close to schools mean that all children, not just those riding the buses, can be exposed to and affected by diesel exhaust."

"The financial savings achieved over time by switching to cleaner, more sustainable school transportation more than make up for the initial cost of an electric bus. By switching to electric school buses, we can help our children thrive physically and intellectually while protecting the environment for generations to come with a tangible, visible action on climate change."

CPCHE and its collaborators today called on all levels of government to:

- Accelerate the shift to all electric school bus fleets across Canada, through policy and funding measures that support electric bus procurement, operation and infrastructure
- Prioritize electric school bus adoption in communities facing disproportionate exposure to traffic-related air pollution
- Promote and celebrate the electric school bus as a way for children, families and communities to learn about and participate in climate action through the transition to zero-emission transportation in Canada

Says Dr. Phipps, "Given what we know about the child [health](#) effects of diesel exhaust and the risks posed by [climate change](#), switching to an all electric school bus fleet should be an obvious choice nationwide to protect the health of children, now and into the future."

Along with the call for government action, the campaign is promoting videos and other educational resources to catalyze and inform local efforts to support the shift.

"The iconic yellow school bus transitioning to electric is a symbol of active hope," Dr. Phipps says. "It is an opportunity for students, educators and local communities to learn about and engage in a tangible action to protect the health of our children and the planet."

A litany of child health consequences

The World Health Organization has recognized diesel exhaust as a human carcinogen. And Health Canada's Human Health Risk Assessment concludes that exposure to diesel exhaust causes [lung cancer](#) and is linked to bladder cancer.

Health Canada has also documented a link between traffic-related air pollution (TRAP) and certain types of cancer including childhood leukemia and, in adults, breast cancer.



Credit: CPCHE

Acute and chronic exposures to diesel exhaust are linked to various harms including reduced lung function, inflammation of the airways, the risk of child asthma, chronic obstructive pulmonary disease, increased sensitivity to allergens, heart disease, arrhythmia, ischemia and myocardial infarction.

Toxicological research on diesel exhaust has also shown potential links to reproductive and developmental effects, and altered hormone levels and gene expression.

Today's declaration notes that children are more vulnerable than adults to the health effects of air pollution, including diesel exhaust, "because their bodies are growing, their lungs are developing and because they breathe in more air per kilogram of body weight."

Furthermore, "while Canadian data are limited, research shows that children in Canada who experience poverty, racialization and other forms of marginalization are often at greater risk because of disproportionate exposure to traffic-related air pollution."

Researchers have concluded that prenatal and early life exposures to traffic-related air pollution are likely implicated in autism spectrum disorder. Researchers have also found associations between TRAP and deficits in intelligence, memory, attention and behavior, as well as symptoms of anxiety and depression.

Furthermore, children can experience indirect barriers to learning as an impact of diesel exhaust. Asthma, for example, is the leading cause of school absenteeism and diesel emissions contribute to thousands of asthma symptom days and child acute bronchitis episodes across Canada every year.

Studies also show that substantial reductions in diesel emissions from school buses can contribute to decreases in childhood bronchitis and asthma cases, and lower diesel exposure may improve cognitive functioning.

Electric vs. diesel-powered buses:

While [child health](#) protection and climate action are clear benefits, initial challenges of shifting to electric school bus transportation can include the upfront costs of electric school bus models, the costs of charging stations and training for drivers and maintenance staff, and the shorter range of electric buses (though evolving battery technology is shrinking this difference with [diesel](#) vehicles).

While reliable operation in extreme cold weather is an often-cited concern, leading manufacturers of electric school buses guarantee their vehicles for operation in such conditions.

More information: Full call to action: drive.google.com/file/d/1_s1xF..._HSXb3582rca6L1A/view

Provided by Canadian Partnership for Children's Health and Environment / Canadian Child Care Federation

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