

SCHOOL TRANSPORTATION



What is School Transportation?

Students and their families need safe, reliable, and affordable ways of getting to and from schools. Families rely on a variety of means for transportation, including walking, bike-riding, public transportation, personal transportation, and our public-school bus system. In this report, we focus on the school bus system.

During the 2017–18 school year, nearly 23.3 million public school students took school buses daily, accounting for 55% of public school students.¹ The nation's school bus fleet is both large and costly. With nearly 480,000 buses, the fleet is more than twice the size of all other types of mass transit fleets combined.² In the 2015–16 school year, schools spent \$24.3 billion on transportation expenses, for an average of \$943 per student.³ In total, all school buses across the US drove nearly 3.45 billion miles during the 2017–18 school year.⁴



CONNECTION TO CLIMATE CHANGE

School buses emit greenhouse gases that contribute to climate change. Currently, 94% of school buses run on diesel engines, which operate from burning fossil fuels.⁵ The exhaust from diesel buses creates air pollution, harming both the environment and students' health.

Air pollution contributes to environmental and health disparities.⁶ Communities of color and low-income communities face greater exposure to air pollution and have higher rates of related chronic health issues such as asthma and hypertension. These conditions—as well as exposure to air pollution itself—have been linked to higher instances and severity of COVID-19.⁷ Children are also more susceptible to the negative health impacts of air pollution than adults because they have a faster breathing rate and their lungs are still developing.

Air pollution inside school buses can also harm students' health, with research suggesting greater risks for both urban and rural students. In particular, researchers previously have found students who take longer bus rides face more exposure to high levels of air pollution that can develop inside school buses

due to diesel emissions.⁸ In recent years, retrofit programs and advances in pollution control technologies have significantly reduced pollution from diesel exhaust. However, retrofit systems do not eliminate emissions completely.^{9,10}

There are a variety of options schools can use to reduce the environmental impact of school buses. Using cleaner technology in buses is one way to reduce air pollution.¹¹ Lower-emission school buses can include electric vehicles or engines that run on alternative fuels, such as propane.¹² While propane school buses can be a more environmentally and financially friendly option than diesel, they still emit significant levels of greenhouse gases. Transitioning directly to electric buses eliminates the environmental and health dangers of tailpipe emissions. Studies have shown that buses that are retrofitted or replaced entirely with green technology improve student academic performance and respiratory health and decrease student absenteeism.^{13,14}

Electric School Buses

Electric buses have become a growing focus in recent years. They are better for the environment by eliminating tailpipe pollution – the US Public Interest Research Group (PIRG) predicts that replacing all school buses with electric buses could prevent over 5.3 million tons of greenhouse gas emissions annually.¹⁵

With front-end incentives, electric buses are also more economically efficient than diesel buses in the long-run.¹⁶ While the upfront cost is higher—roughly three times more than a diesel or propane school bus—the savings of an electric bus can pay off over time, costing an estimated \$170,000 less in lifetime fuel and maintenance costs. Annually, each electric school bus can save districts almost \$2,000 in fuel and \$4,400 in maintenance costs.¹⁷

Dominion Energy

Partnerships with regional energy providers can help schools access electric buses. In Virginia, for example, utility company Dominion Energy is partnering with school districts throughout its Virginia territory to provide electric buses.¹⁸ The first phase of the pilot program will provide 50 buses across 16 districts by the end of 2020. These school districts will purchase electric buses for the same price as they would pay for diesel buses, with Dominion paying the additional cost for the electric bus and charging infrastructure.

The utility has proposed additional phases with a goal of having 100% of replacement school buses in its Virginia service areas be electric buses by 2030. To cover the cost of these phases, though, they were discussing increasing utility base rates. The batteries on the buses will supply and store clean energy for Dominion Energy's power grid. Advocates and school districts are working to ensure the phase-in centers equity, students, schools, and consumers in the planning.¹⁹

VW Mitigation Trust

Across all states, the Volkswagen (VW) Environmental Mitigation Trust can provide an opportunity for schools to purchase electric or other green buses with lower financial barriers.²⁰ The trust allocates \$2.9 billion in total to all states to reduce air pollution from large vehicles as part of the company's settlements for misleading emissions tests. The use of the funds is determined by each state's plan. While the VW settlement funds can help support a modest transition to electric school buses, these funds alone are not enough to cover the cost of transitioning an entire fleet to electric buses.



State Policies



Electric Buses

State vehicle emissions regulations and funds for electric school buses can help states transition their school bus fleet.²¹ Most states' VW settlement plans allow funds to be used to replace old diesel school buses from before 2009 with cleaner technology. Forty-five states' plans allow funds to be used to purchase electric buses and 39 states' plans allow purchases of alternative fuel buses. While plans allowing electric and alternative fuel vehicles are promising opportunities, most states also allow funds to be used for new diesel buses.



Idling

Twenty-six states and DC have policies or programs to reduce school bus idling as another way to curb air pollution. Twenty-four of these states have regulations on idling, most of which specifically apply to school buses or other vehicles near school buildings. Six states have idling reduction policies that may apply to school buses, though school buses are not explicitly mentioned. Three states (AL, IN, OH) have grant or loan programs to support idle reduction technology retrofits for school buses. Three states (AZ, ID, MD) have voluntary idling reduction initiatives for school buses through opt-in programs for schools or districts.

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Photo by Allison Shelley for American Education: Images of Teachers and Students in Action.



BRIGHT SPOTS

- Twin Rivers Unified School District (CA) has 30 electric school buses, the largest such fleet in the country.²² In 2017, Twin Rivers was the first of three districts in Sacramento County to start using the electric buses, which were paid for using funds from California's cap-and-trade program. The electric school bus routes primarily run through historically marginalized communities, decreasing their exposure to pollution. The electric buses have also reduced Twin Rivers' fuel costs by 80%.²³
- Michigan has a pilot program to provide electric buses to school districts.²⁴ In fall 2019, seven districts began using a total of 17 electric buses. The program made \$13 million available for districts to replace diesel school buses from 2009 or earlier and is partially funded by Michigan's VW settlement allocation.²⁵

SCHOOL BUS EMISSION REDUCTION

DOES STATE HAVE POLICY TO REDUCE EMISSIONS OF SCHOOL BUSES?

States A–N	If state is using VW mitigation funds to replace school buses, what types are allowed in plan?		Does state have policy or program to reduce school bus idling?	
	Alt Fuel	Electric	Policy regarding school bus idling	Grant or loan program for idle reduction technology on school buses
Alabama	X	X		X
Alaska	X	X		
Arizona	X	X	X**	
Arkansas	X	X		
California		X	X	
Colorado		X	X*	
Connecticut	X	X	X	
Delaware			X	
DC			X	
Florida	X	X		
Georgia				
Hawaii		X		
Idaho	X	X	X**	
Illinois	X	X		
Indiana	X	X	X	X
Iowa	X	X		
Kansas	X	X		
Kentucky	X	X		
Louisiana	X	X		
Maine	X	X	X	
Maryland	X	X	X**	
Massachusetts	X	X	X	
Michigan	X	X		
Minnesota	X	X	X	
Mississippi	X	X	X	
Missouri	X	X		
Montana	X	X		
Nebraska				
Nevada	X	X	X*	
New Hampshire	X	X	X*	
New Jersey	X	X	X*	

Remaining states on following page

States N–W

New Mexico	X	X		
New York		X	X	
North Carolina	X	X	X	
North Dakota	X	X		
Ohio	X	X		X^
Oklahoma	X			
Oregon	X	X		
Pennsylvania	X	X	X	
Rhode Island			X*	
South Carolina	X	X		
South Dakota	X	X		
Tennessee	X	X		
Texas	X	X	X*	
Utah	X	X	X	
Vermont		X	X	
Virginia		X	X*	
Washington		X		
West Virginia	X	X	X	
Wisconsin	X	X		
Wyoming	X	X		
TOTALS	39	45	25	3
PERCENT	76%	88%	49%	6%

Note: Percentages are out of 51 (includes DC)

*Does not explicitly mention school buses

**Optional policy for districts or schools

^ Funding previously available for school buses



Photo by Allison Shelley for American Education: Images of Teachers and Students in Action.

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