

HEALTH BENEFITS OF ELECTRIC SCHOOL BUSES



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About me

- Mom of 3 AISD students (all at Ridgetop Elementary ~ SOMOS RATTTLERS!)
 - *Ages 4, 6, and 7*
- Fourth year medical student interested in environmental impacts on health
- Future Pediatrician
- Our kids learned to hike in the Greenbelt and have already hiked 12 US National Parks





Sometimes being outside...

can be dangerous for kids.





When it comes to poor air quality, kids are at greater risk

- Children's airways are smaller than those of adults and are more susceptible to inflammation and injury
- Children's lungs are not fully developed until their teenage years
- Children breathe more through their mouths, bypassing nasal filtration

The kids on bus breathe 4x more fumes*



“For one child, a half-hour ride to school, and a half-hour ride home each day amounts to 180 hours per school year—90 full 24-hour-days over 12 years of school.”

- Children’s Exposure to Diesel Exhaust on School Buses, Environment & Human Health, Inc.

1 in 4 AISD students ride the bus to school

THERE IS NO SAFE LEVEL
OF DIESEL EXHAUST
FOR CHILDREN



There is no safe level of diesel exhaust for children

- Diesel fumes contain particulate matter and nitrogen oxides, which predispose children to poor respiratory, cardiovascular, and neurologic health¹
- Diesel exhaust is recognized internationally as a carcinogen and prolonged exposure significantly increases lifetime risk for cancer²



1. Liu NM, Grigg J. Diesel, children and respiratory disease. *BMJ Paediatr Open*. 2018;2(1):e000210. Published 2018 May 24. doi:10.1136/bmjpo-2017-000210
2. World health Organization www.iarc.fr/wpcontent/uploads/2018/07/pr213_E.pdf

Asthma and Absences

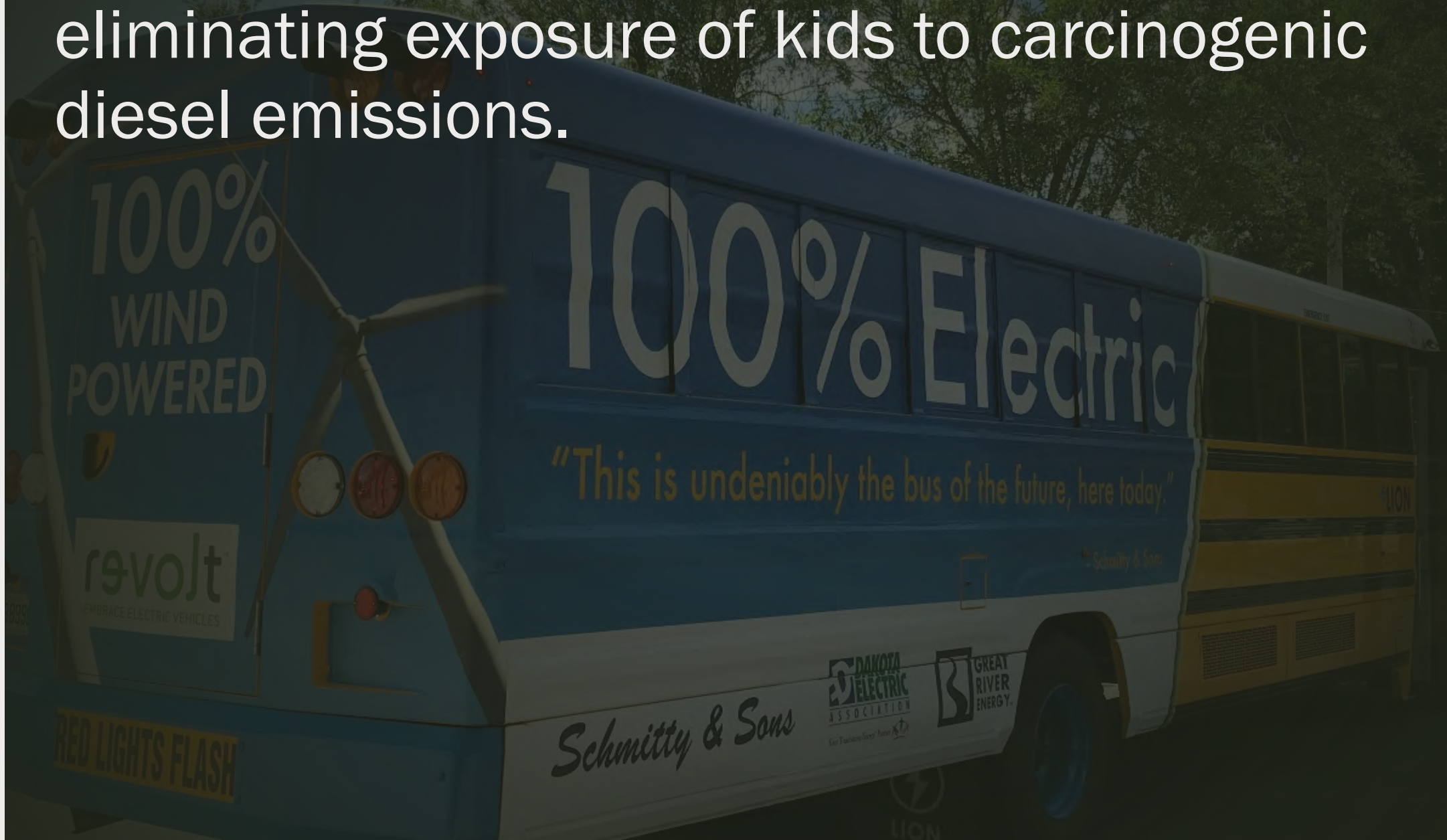
- Roughly 1 in 10 US schoolchildren have asthma and are at increased risk of worsening disease from diesel fumes¹
- Asthma is a leading cause of absenteeism nationwide, based on several observational studies²
- Low-income populations, minorities, and children living in inner cities experience **more emergency department visits, hospitalizations, and deaths** due to asthma than the general population.³

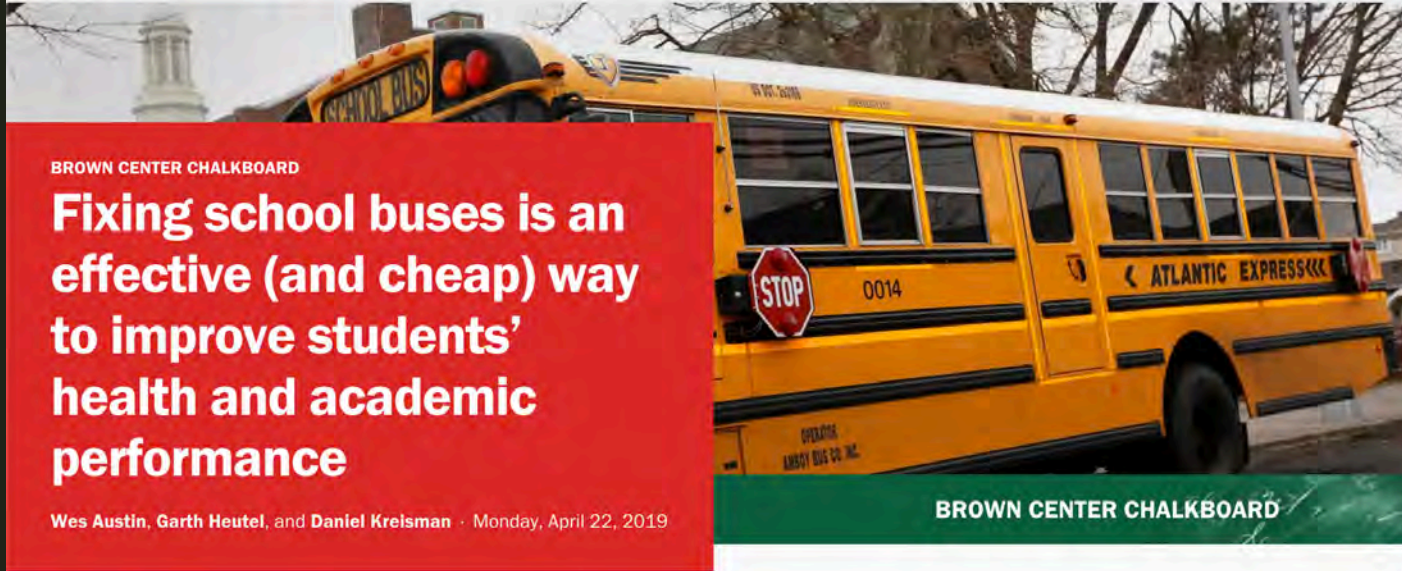
1. Asthma. National Center for Health Statistics, CDC.gov

2. Johnson, S.B., Spin, P., Connolly, F., Stein, M., Cheng, T.L. and Connor, K., 2019. Peer Reviewed: Asthma and Attendance in Urban Schools. *Preventing chronic disease*, 16.

3. American Lung Association, Epidemiology and Statistics Unit, Research and Program Services. Trends in Asthma Morbidity and Mortality. September 2012. Retrieved from <https://www.lung.org/assets/documents/research/asthma-trend-report.pdf> icon

Electric buses emit no tail pipe pollution,
eliminating exposure of kids to carcinogenic
diesel emissions.





Going electric has potential to improve health and academic outcomes

- A new study from the Brookings Institute analyzed 2,656 school bus retrofits in Georgia which reduced harmful emissions by 95%. Approximately 750,000 students were part of this data set each year from 2007-2017.
- Researchers saw significant improvements in students' respiratory health, with twice the benefit for elementary students, whose younger age increase their vulnerability. The study also found strong evidence of academic improvements after the change, most significantly noted in English test scores.

1. Farber, Katy. Has Your Child's School Switched to Electric Buses? Moms Clean Air Force, Originally published online June 17, 2019. Accessible at: <https://www.momscleanairforce.org/electric-buses/>
2. Austin, W., Heutel, G. and Kreisman, D., 2019. School bus emissions, student health and academic performance. *Economics of Education Review*, 70, pp.109-126.