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Flashing Lights

Danger: Polluting School Bus Ahead

by Erin Coughlin

Every day millions of parents put their children on big yellow school buses, trusting that they will be healthy and safe on their route to school. The fact is, however, that the 24 million kids who ride buses an average of an hour and a half every day are also being exposed to high levels of diesel exhaust that can affect their health. Of the 450,000 public school buses used in the U.S. today, the overwhelming majority, 390,000, are diesel.

Children are especially at risk from air pollution. A 2001 report by the Coalition for Clean Air (CCA) and Natural Resources Defense Council (NRDC), "No Breathing in the Aisles," found that children's exposure poses as much as 46 times the cancer risk considered significant by federal law. A child riding inside a diesel school bus could be exposed to four times more diesel exhaust than someone standing or riding beside it, according to the Union of Concerned Scientists. Diesel exhaust is associated with 125,000 cancer cases nationwide.



Tom Plenys, a CCA research and policy manager, says, "Due to a child's developing body and lungs, narrower airways, faster metabolism and faster-than-adult breathing rate, children riding our buses are the most susceptible to the hazards of diesel exhaust."

Diesel fumes have been linked to decreased lung growth and function; approximately 40 compounds found in diesel exhaust can potentially cause cancer. Asthma in children can be exacerbated and even caused because of respiratory damage due to diesel exhaust. Today, there are more than nine million children in the U.S. who suffer from asthma, and it causes children to miss more school than any other illness.

Buses manufactured before 1990 emit as much as six times more pollution as buses built after 2004 and about 60 times more pollution as buses that meet the new 2007 standards, according to the Environmental Protection Agency (EPA). Nearly two thirds of the diesel school buses in use today were produced between 1990 and 2002, while close to a third are from before 1990.

"As of 2004, California had the nation's third-largest school bus fleet, yet maintains some of the oldest and dirtiest school buses on the road," says Plenys. "In 2004, roughly 70 percent of the 25,000 school buses in California ran on diesel fuel and four percent predated the 1977 model year. Roughly three percent of the state's buses run on cleaner alternative fuels."

Both new and used diesel buses can be retrofitted with one of two devices to help reduce emissions. Diesel oxidation catalysts can reduce emissions by 20 to 40 percent, depending on the pollutant. Diesel particulate matter filters are more expensive than catalysts and must be used with low-sulfur diesel fuels to work properly, but they reduce emissions by 60 to 90 percent.

Ultra-low sulfur diesel fuel has been in short supply, but it was made available nationally last June, and will reduce emissions by five to nine percent. Biodiesel is manufactured using new and used vegetable oils and animal fats and can reduce harmful emissions by a reported 40 percent. Emulsified diesel is a blended mixture of diesel fuel, water and additives to reduce emissions about 50 to 60 percent. Compressed natural gas is an additional alternative fuel, and the "No Breathing in the Aisles" report estimates that diesel buses emit 51 times more air toxins than new natural gas buses (which cost approximately \$30,000 more, but save on maintenance and operation costs).

Another way to reduce the impact of school bus emissions is to reduce idling time. Exhaust from idling buses pollutes both inside and outside the vehicle, and can also enter school buildings. Much of the idling is unnecessary, since school bus engines do not need to idle more than three to five minutes to warm up and extended idling can actually cause damage to the engine.

Anti-idling campaigns have been started by schools, parents and students. The EPA began the Clean School Bus USA program in 2003 to reduce children's exposure to diesel exhaust and to reduce the amount of air pollution created by diesel school buses. Headed by the Office of Transportation and Air Quality, the program works to reduce unnecessary school bus idling, install effective emission-control systems on newer buses and replace the oldest models.

Jim Blubaugh, the EPA's director of the National Clean Diesel Campaign, says that in the three years the Clean School Bus program has been in place, 74 projects have been funded directly by the EPA and that the projects implemented have helped to spawn additional efforts across the U.S.

The Clean School Bus program is also working to take the approximately 3,000 older pre-1977 buses out of circulation, says Blubaugh. The federal program funds retrofitting of older buses, outright replacement and the use of alternative fuels. CCA works with school districts and local governments to reduce diesel emissions in California and has made some improvements, despite the need for additional funding.

Natural gas, propane and other alternative fuels currently power less than one percent of school buses, but their share is growing. As of 2001, there were approximately 130 school districts around the country that used 2,674 cleaner and alternative-fueled buses. Statistically, buses are the safest way for children to get to and from school, but their tailpipes could be made cleaner. It also wouldn't be a bad idea for bus drivers to leave the windows open as much as possible.