

WE CAN FIX THIS PROBLEM.

Of all the different forms of air pollution we breathe, the diesel emissions in our school buses arguably should be the easiest to clean up:

✓ **All new buses are much cleaner than those they replace.**

EPA's standards for school bus emissions have been gradually tightened over recent years, and as buses are retired they are replaced with much cleaner ones. The 2007 engine standards will make them more than 95% cleaner than the buses of two decades ago.

✓ **Affordable pollution-cutting retrofits are available.**

Older buses scheduled to remain in service for a few more years can be retrofitted with filters that bring their tailpipe exhausts and crankcase emissions into line with new-bus emission standards. Diesel particulate filters capture the majority of particle emissions that normally would exit the tailpipe. And a closed crankcase filtration system, installed under the hood captures the emissions that normally are vented from the engine directly to the outside air.



PHOTO: Clean Air Task Force

✓ **Revenues already collected are available to clean up buses.**

In recent years, the Legislature imposed a series of fees and surcharges to pay for reducing air pollution emissions. Texans are paying this money to the state, but much of it is sitting unspent in the State Treasury.

The state is sitting on millions of dollars of unspent emission-reduction funds.

The Texas Emissions Reduction Plan (TERP) is projected to hold \$57 million of unappropriated money at the end of 2007. Another pollution-reduction fund receives more in fees than its outlays require. Legislators should use these funds to cut air pollution as promised.

WHAT CAN YOU DO?

Contact your state representative and your state senator. [To find your legislators' contact info online, visit www.capitol.state.tx.us.]

Tell them our children deserve to breathe healthy air. Urge them to use some of the unspent emission-cutting funds to help Texas school districts retrofit or replace older, polluting buses.

If you'd like to help clean up Texas school buses, contact Betin Santos at (713) 942-5821 or bsantos@environmentaldefense.org.



**Don't our children
deserve to breathe
clean air on their
ride to school?**

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ENVIRONMENTAL DEFENSE

finding the ways that work

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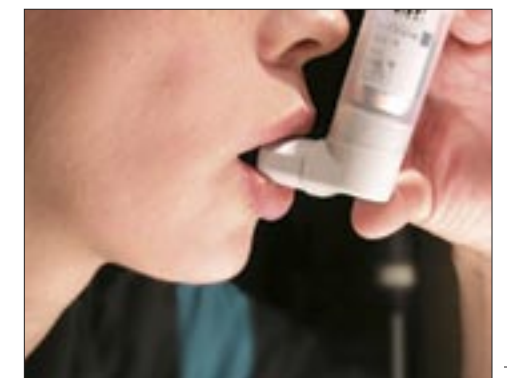
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Founded in 1967, Environmental Defense is a nonprofit, nonpartisan organization representing 400,000 members. Employing more Ph.D. scientists and economists in environmental advocacy than any similar group, it works to create innovative market-based solutions to protect clean air and water, healthy food and flourishing ecosystems.

PROTECTING OUR
KIDS' HEALTH:

CUTTING THE DIESEL POLLUTION INSIDE TEXAS SCHOOL BUSES



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DIESEL POLLUTION AND OUR CHILDREN'S HEALTH

Diesel engines—including those powering most of the buses that each day carry Texas children to their classes, on field trips and to athletic events—spew out nearly 40 toxic substances, smog-forming emissions, and fine particulate matter (PM) better known as soot.

Particles of PM_{2.5} soot measure less than 2.5 micrometers—less than one-fortieth the thickness of a human hair—so they are easily inhaled deep into the lungs. These fine particles are associated with a laundry list of adverse health effects, including coughing and dizziness, exacerbation of asthma, chronic bronchitis, cardiovascular illnesses, cancer risk and even premature death.

Diesel exhaust is associated with a variety of respiratory and other health problems.

Evidence continues to mount that children, especially those with asthma, are particularly sensitive to the effects of fine particle pollution. For instance, children have a more rapid rate of respiration and they inhale more air per pound of body weight than adults do. And because their systems are still developing, the damage may be irreversible.

The current health-based standard for ambient fine particles (15 micrograms/cubic meter) is being reviewed by the U.S. Environmental Protection Agency (EPA) and may be tightened. Indeed, the EPA's own scientific advisors say that serious health effects occur at levels considerably lower than the current standard.

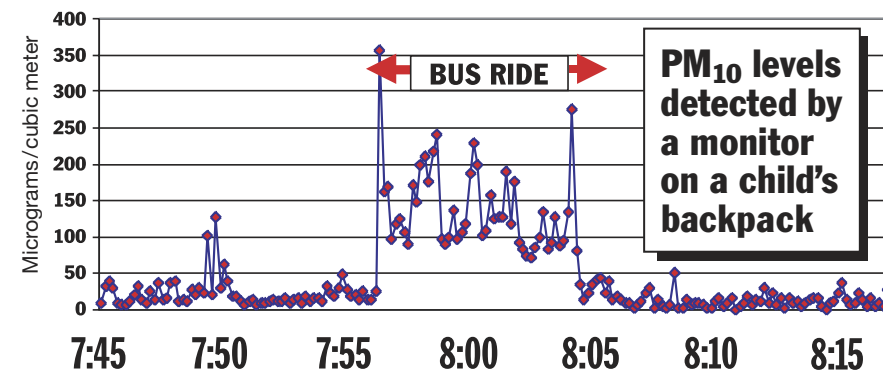
Finally, the EPA has designated diesel exhaust as a likely human carcinogen, and in large urban areas like Houston, experts say, diesel emissions are responsible for up to 80% of the cancer risk from air toxics.

AN EXTRA DOSE

It's important to note that children riding most buses receive an extra dose of pollution on each ride: monitoring shows the diesel pollution inside a typical school bus is significantly higher than in the outside air. And the science indicates that even short-term exposure to elevated particulate levels can have detrimental health effects.

Research shows that diesel pollution typically is higher inside a bus than outside.

Particle (PM) levels inside a school bus can be 5-10 times the levels outside the bus.



SOURCE: Environment & Human Health, Inc. (2002)

School buses are still the safest form of transport to and from school. But with lowered diesel emissions, they could be even safer.

HOW DO DIESEL EMISSIONS GET INSIDE A SCHOOL BUS?

There are actually two sources of the bus emissions children breathe on their ride to school. The obvious one, tailpipe exhaust, enters a bus through windows and other openings and through the front door as children board or exit the bus.

The other source is just a few feet away from the front door: the engine crankcase is vented into the air, carrying volatilized engine oil, unburned fuel, exhaust gases and fine particles that "blow by" the piston rings. This pollution enters the bus when children get on and off, and it can even penetrate the cabin through tiny openings when the bus is in motion.



HOW BIG IS THE PROBLEM?

There are over 35,000 school buses in Texas—more than 7,700 in the Houston area alone. A 2003 year-end survey revealed that 32% of Texas school buses were less than six years old, 32% were 6-10 years old, and 36% were over 10 years old.

Thanks to new emission standards that take effect in 2007—and the requirement of cleaner-burning, low-sulfur diesel fuel in late 2006—new diesel engines will be much cleaner than their predecessors.

Still, while newer buses have had to meet progressively tighter emission standards, thousands of middle-aged buses will continue polluting for years because diesel engines are "workhorses" that can last 20 years or more. A bus built in 1990 emits up to 60 times as much diesel pollution as a new bus. Even buses made in 2006 can emit 10 times more than new 2007 buses will. So, at current bus replacement rates, it will take years to achieve a truly "clean fleet."

Cleaning the Texas school bus fleet is not yet a statewide priority for many school officials or state elected officials. Some regions in Texas have been more successful at cleaning their fleets because they have access to special federal highway funds designated for ozone non-attainment areas. But children's diesel exposure should not depend on where they live. This public health issue cuts across all geographic regions and all populations.

Safe and healthy transportation to and from school should be a statewide priority.

Measuring pollution levels inside Texas school buses

In March 2006, Environmental Defense partnered with the Conroe ISD and the Clean Air Task Force to determine how much pollution-control devices might improve the quality of the air inside school buses. The preliminary results from this monitoring project confirm that a bus's own exhaust can enter the cabin as the bus travels its regular route. The tests also showed that an engine filter and a tailpipe filter, used in combination, dramatically reduce the amount of all key diesel pollutants inside school buses—down to the levels in the ambient outside air.

