Get On The Bus…For Cleaner Air

Get on the Bus

for

Cleaner Air and Healthier Kids

An Education and Action Project of

Utah Clean Cities
Alternative Fuels

NATIONAL ENERGY FOUNDATION

Advancing Innovative Solutions since 1984
EESI

DEPARTMENT OF ENERGY
UNITED STATES OF AMERICA

Welcome to the

Idle Reduction and Clean School Bus Curriculum

Developed by the Utah Clean Cities Program, National Energy Foundation,
and Environmental and Energy Study Institute, with support of the U.S. Department of Energy.

- This file should be reviewed in Normal view—select “Normal” under View menu and click “Slides” tab. The “Notes” panel should be visible under each slide with the slide sequence visible in the left column. Panels can be adjusted by clicking and dragging borders.

- The information found in the “Notes” pages is also compiled in the accompanying PDF file titled: *Presenter Guide--Idle Reduction and Clean School Bus Curriculum.*

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Get On The Bus… For Cleaner Air

There is good news and bad news about school bus transportation in the United States Today

But First Some Fast Facts

- There are approximately 500,000 school buses in operation in the U.S.
- 54 percent of all U.S. students ride a school bus to school.
- 25 million students are transported to school by bus each day.
- One out of 12 people living in the United States rides a bus to school.
- School buses travel approximately 4.3 billion miles each year.
- 95% of all school buses operate with diesel engines– about 1/3 were built prior to 1990.

First, The Good News

Good News

- School bus drivers provide a tremendous service in the United States.

- School buses are by far the safest way for students to get to school.
  - The Federal Government has determined that a student is nine times safer in a school bus than in an automobile.*
  - A student traveling to school is 96 times more likely to be involved in a fatal accident in a private vehicle than in a school bus.*

***(Transportation Review Board)**

Good News

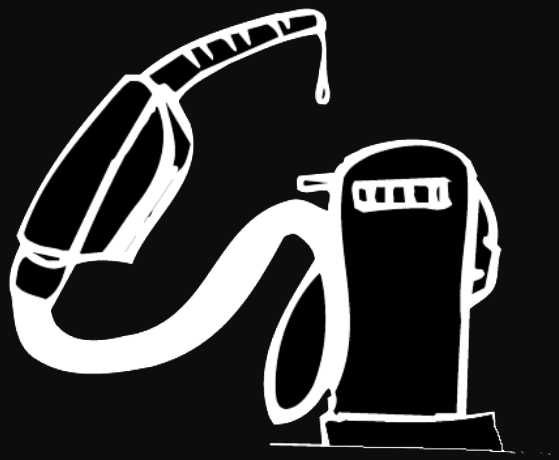
- School buses decrease air pollution by replacing automobiles that would otherwise transport students to school.

- In fact, if the students on one school bus were driven to school in 20 private vehicles, it would result in:
  - Six times more Hydrocarbon*
  - Three times more Carbon Monoxide*
  - Two times more Nitrous Oxide*
  - Five times more Carbon Dioxide*

***(Massachusetts Department of Environmental Protection)**

Good News

- School buses save millions of gallons of gas each year that would otherwise be spent by parents transporting their children to school.



- It has been proposed that Americans reduce gasoline consumption by 20 percent in the next 10 years--without school buses, this will be virtually impossible.

There Is Bad News

There Is Bad News

Diesel engines produce more harmful exhaust than unleaded gasoline engines.

- 66 percent of particulate pollution from on-road sources comes from diesel exhaust, even though diesel-powered vehicles are a small percentage of all vehicles.[1]
- Diesel exhaust contains more than 40 toxic chemicals.[2]
- 15 chemicals in diesel exhaust are cancer causing (carcinogenic). In fact, it is estimated that 70 percent of airborne cancer risk comes from diesel exhaust.[2]

[1](Public Research Works)
[2](California Air Resource Board)

There Is Bad News

Diesel engines produce more harmful exhaust than unleaded gasoline engines.

- Other chemicals in diesel exhaust exacerbate asthma, bronchitis, and other respiratory conditions.

- Researchers have linked some diesel exhaust chemicals as those that contribute to circulatory, neurological, and reproductive ailments.

There Is Bad News

“Children are especially vulnerable”

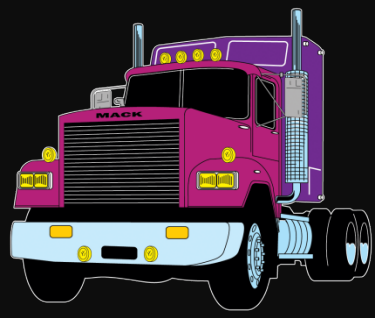
- Young children inhale 50 percent more air per pound of body weight than adults.*
- Developing lungs are unable to defend against the fine (small) particulates in diesel exhaust which can become permanently lodged in the lungs.
- Polluted air inhibits healthy lung development.

***(U.S. Environmental Protection Agency)**

Is Anything Being Done?

YES!

A national campaign is underway to reduce diesel engine pollution in the United States. This includes both off-road (construction, agriculture, locomotion) and on-road (trucks, buses, diesel automobiles) sources.



Is Anything Being Done?

1) The federal government has mandated cleaner burning fuel (ultra low sulfur diesel) and is encouraging the use of less polluting alternative fuels.
2) The federal government is requiring more efficient diesel engines in new vehicles by 2007.
3) Many states are enacting laws to prohibit unnecessary vehicle idling.

Is Anything Being Done?

Is there anything pupil transportation professionals can do?

Is Anything Being Done?

The best thing that school bus drivers can do is reduce the amount of time that buses unnecessarily idle.

Idling Buses Emit Harmful Particulates Into The Air

- Diesel exhaust accumulates in the bus interior when idling.
- Diesel exhaust may enter the school building through air intakes when the bus is in close proximity to the school.
- Children are exposed to exhaust fumes as they board buses and while traveling to and from school.

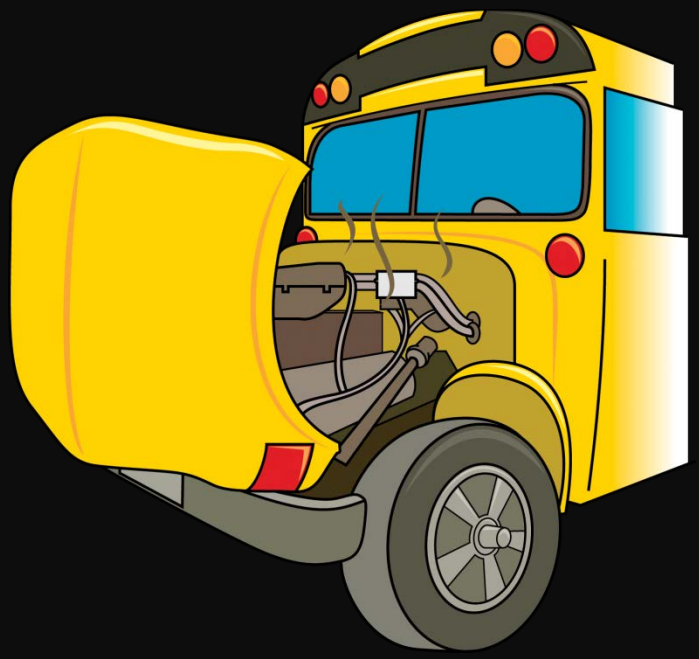
Are There Good Reasons To Idle A Diesel Engine?

There are some myths about diesel engine idling as well as new technologies that reduce the need to idle.

Are There Good Reasons To Idle A Diesel Engine?

Myth: Idling is good for the diesel engine.

Fact: Excessive idling actually damages engine components and necessitates more frequent maintenance.



Are There Good Reasons To Idle A Diesel Engine?

Myth: Diesel engines need a long warm-up before driving.

Fact: Lengthy idling is not an effective warm-up for diesel engines–

driving slow and steady for the first few minutes is.

Are There Good Reasons To Idle A Diesel Engine?

Myth: Stopping and restarting the bus is bad for the engine and wastes more fuel than leaving it running.

Fact: Frequent restarting has little impact on bus maintenance

Fact: Idling for less than one minute per day adds more to fuel costs than the added maintenance from regular restarting.

Are There Good Reasons To Idle A Diesel Engine?

Myth: When the bus is not idling, it gets too cold for the students.

Fact: Most buses will hold their heat for a short period of time if doors and windows are closed.

Fact: Auxiliary heaters are available that will heat the bus interior. They use about half a cup of fuel per hour compared to ½ a gallon when idling.

Are There Good Reasons To Idle A Diesel Engine?

Myth: **When the bus is not running, the electrical systems and safety equipment will not work.**

Fact: Most buses can be re-wired to allow electrical equipment to operate for up to one-hour without damaging consequences.

Think Of It This Way…

If every bus that transported children to school were to idle for just one less minute both to and from school every day…….

Think Of It This Way…

Exhaust Emissions Each School Year Would Be Reduced By:

- **319** tons of Carbon Monoxide*
- **185** tons of NO/NO_2*
- **8.3** tons of small particulate matter (those very small toxic particulates that can penetrate lung tissue)*
- **41** tons of VOC (Volatile Organic Compounds that cause Greenhouse Gases)*

***(Union of Concerned Scientists)**

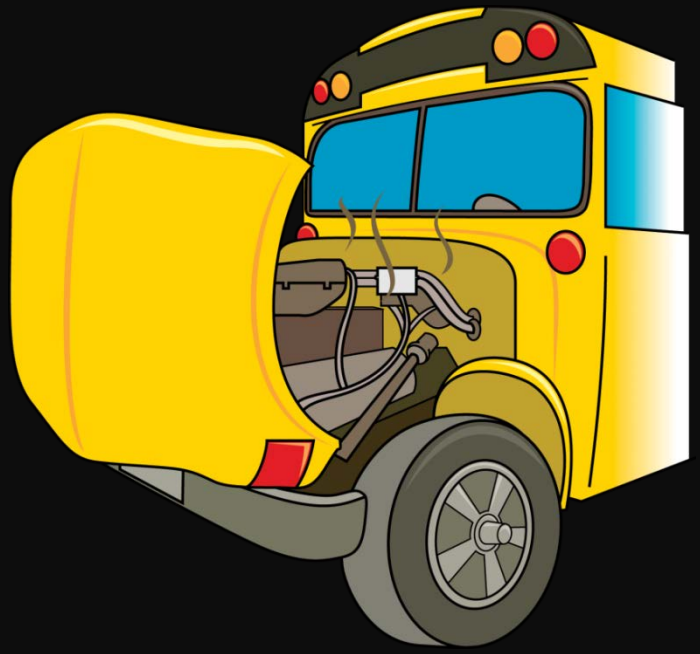
Think Of It This Way…

1,500,000 Gallons Of Fuel Would Be Saved Every Year.

Think Of It This Way…

Maintenance Costs Reduced

The equivalent of 21 million road miles of unnecessary wear and tear on school bus engines would be reduced.



In Summary…

- Bus drivers make a major contribution to the safe and efficient transportation of students to school.
- Air quality is also improved because school buses replace many private vehicles that would otherwise transport students to school.
- Diesel exhaust is much more toxic than the exhaust from unleaded fuel vehicles and children are vulnerable to its effects.
- Minimizing student and bus driver exposure to diesel exhaust and reducing general air pollution is the goal of the National Clean Diesel Campaign.

Success Stories

- “Get on The Bus for Cleaner Air” program goal: 10 minutes of reduced idle time per-day per-school bus.

Success Stories

Actual Reduction in Idle Time

- Average reduced idle time per day—Utah Pilot School Districts (Washington, Salt Lake and Cache Valley) = __ minutes
- 3,000 school bus drivers combined reduced idle time per day = ___ minutes
- 40 school districts pledged to reduce their idling
- Reduction of 92,000 gallons of diesel fuel and over 5,000 pounds of particulate matter.
- Drivers also pledged to reduce idle time in their personal vehicles.

Success Stories

Actual reductions in fuel consumption

- Decreased fuel consumption per day--Nevada Pilot County Schools (Washoe and Lyon) =____ %

- Lyon County is currently installing auxiliary power units for further idle reductions.

Please Do Your Share For Cleaner Air!

Resources

- Environmental Protection Agency
  - www.epa.gov/cleanschoolbus
- American Lung Association
  - www.lungusa.org
- Union of Concerned Scientists
  - www.ucsusa.org
- State Environmental Resource Center
  - www.serconline.org/schoolbus
- National Resources Defense Council
  - www.nrdc.org/air/transportation/qbus.asp