

Protect Iowans' Health



Reducing fine particles and toxic emissions in diesel exhaust will reduce the incidence and severity of asthma attacks, chronic bronchitis, and coughing and wheezing.

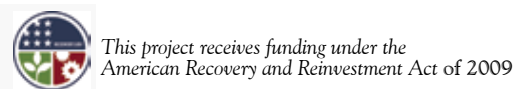
It will also reduce lost school days for children and work days for parents and adult asthmatics.

There are 200,000 Iowans affected with asthma and 40,000 are under 18 according to the Iowa chapter of the American Lung Association. That's 7 percent of the population!



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www.iowadnr.gov/air/RIDE/index.html



Ways to limit what blows out of your stack



A message for owners of diesel engines built prior to 2007



Ways to limit what blows out of your stack



Diesel engines are powerful, durable and reliable. They're used to build roadways and bridges, till land for crops, dig space for building foundations, carry grain and farm animals, deliver new vehicles, transport people, and float materials up and down rivers. Most freight is moved by diesel power and in Iowa, farmers use 25 percent of the diesel fuel sold.

Diesel exhaust contains fine particles and toxic air contaminants that can cause cancer, premature death and other health problems. Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. But even healthy adults are vulnerable if they are physically active where fine particles are in high concentration.

Some areas in eastern Iowa are close to the Environmental Protection Agency's health threshold for fine particles. If more stringent air requirements become necessary to keep these levels in check, Iowans could have increased health care costs, increased costs for industry expansion, and stressed economic conditions. Voluntary actions on the part of all citizens will help

keep Iowa in attainment, and operators of diesel engines can lead the way.

It would take 60 of the new truck or bus models to emit the same fine particles as one 1988 model.

— Health Effects Institute

REDUCTION STRATEGIES

Trucks and buses rolling off production lines since 2007 are up to 95 percent cleaner than past models. Even more stringent requirements apply for 2010 vehicles. Operators of older diesel engines, both on- and off-road, can help reduce diesel exhaust too. Here's how:

- **Use ultra-low sulfur diesel.** The sulfur content of ultra-low sulfur diesel fuel is reduced from between 350 and 500 parts per million to 15, limiting the formation of fine particles and sulfur dioxide (both regulated air pollutants under the Clean Air Act). Beginning December 1, 2010, only ultra-low sulfur diesel fuel will be available for highway use. Start using it now!

Diesel exhaust contains 40 toxic air contaminants and fine particles as small as red blood cells. When exposed to dangerous exhaust levels, these fine particles attack lung tissue and enter the bloodstream causing lung inflammation and increased intensity of asthma attacks, even premature death for people with lung or heart disease.



Healthy airway



Inflamed airway

Photos courtesy of EPA

Continued inside

REDUCTION STRATEGIES, *cont.*

Some people are concerned that the fuel may cause fuel tank deposits to loosen or that fuel system components may be affected. Lubricity is also a concern. Additives to increase lubricity and to inhibit corrosion are added to ultra-low sulfur diesel fuel prior to sale.

- **Use biodiesel fuel.** Particulate matter and carbon monoxide are each reduced by 12 percent when using a 20 percent biodiesel blend. Using 100 percent biodiesel reduces particulate matter by 47 percent and carbon monoxide by 48 percent. An added plus is that biodiesel, with its natural lubricity, extends engine life.
- **Turn the engine off if you will be idling more than 30 seconds.** This not only helps air quality, it results in overall fuel savings, longer engine life, longer time between oil and filter changes and less noise.
- **Keep the engine properly tuned and the tires properly inflated** to maximize fuel efficiency and save emissions.
- **Farmers can reduce air pollution by switching to a no-till system.** EPA studies show that by switching to a no-till system, a corn farmer on a 440-acre farm can reduce nitrogen oxide emissions by 1,122 pounds a year—like taking 29 cars off the road for a year.



REDUCTION TECHNOLOGIES

Various technologies, some of which pay for themselves in fuel savings, can be added onto older engines to reduce pollution.

- **Buy small generators or auxiliary power units** that provide heat, air conditioning and power while a vehicle is parked.
- **Purchase electric starting aids** such as block heaters which help warm the engine to avoid starting difficulties and reduce idling time during warm-up.
- **Install diesel particulate filters** which remove 85 to 100 percent of diesel soot.
- **Replace the existing muffler with a diesel oxidation catalyst** which helps the engine burn fuel more completely.
- **Add filtration systems** to improve in-cab air quality.
- **Use truck stop electrification stations** where available instead of idling.
- **Repower locomotive and marine engines.**

Go to www.epa.gov/diesel/ for more information. Here you will find links to more technologies and strategies, grant information and health impacts of diesel exhaust.

NEW PURCHASE OPTIONS

New diesel engines, whether for marine, rail, off-road or highway use, will emit 90 percent less pollution than the older models. To help new trucks operate even more efficiently, consider these options:

- **Purchase single-wide tires.** Total weight savings for a typical combination truck using single wide-base tires on its drive and trailer axles ranges from 800 to 1000 pounds. A recent EPA test indicates a potential fuel economy improvement of 2 to 5 percent compared to equivalent dual tires.



A combination long-haul truck could save more than 400 gallons of fuel per year and cut emissions of carbon dioxide by more than four metric tons annually.

- **Increase trailer aerodynamics.** When driving at highway speeds, about half of the power produced by the truck engine is used to overcome aerodynamic drag. When purchasing a new vehicle, select aerodynamic designs which include low-profile side mirrors, integrated roof fairings, fuel tank side fairings, rounded bumpers, trailer gap reducers and hidden exhaust stacks. According to manufacturers, all of these options add up to significant fuel savings and can improve fuel economy 15 to 20 percent compared to “classic” style trucks.

CAN I MAKE A DIFFERENCE?

Using strategies that clean the air will help to improve the quality of life for your children, your neighbors and future generations. It’s a formidable challenge that is up to individuals, acting deliberately, to correct. In reducing air pollution you’re changing a legacy of independence to one of responsibility. That’s an honorable course to steer.

HEAVY DIESEL TRAFFIC RAISES FINE PARTICLE LEVELS

Iowa’s air contains a relatively high concentration of fine particles — 70 percent of the health threshold established by the Environmental Protection Agency (EPA). Fine particles are defined as 2.5 microns (millionths of a meter) in size. For comparison, a human hair is about 70 microns in diameter.

Prevailing winds, high traffic areas, electricity generation and industry are contributing to an excess of fine particles along eastern Iowa. These areas are dangerously close to levels the EPA considers not clean. If those areas go over the health threshold too many times, the area could be declared in “nonattainment.”

When areas reach the point of too much air pollution, the consequences are increased health care costs, increased costs for industry expansion, increased costs to develop transportation improvements, and stressed economic conditions due to more stringent air quality protection requirements.