BACKGROUND INFORMATION

- DDDC Diesel Vehicle and Idling Factsheet
- California Diesel Rules and Regulations
- News Coverage on Air Pollution
- Idling Reduction Fact Sheet
- Idling Reduction Fact Sheet (Spanish)
- Idling Reduction Fact Sheet (Extended)
DEVELOPMENT OF SOLAR POWERED ENERGY

In the Bay Area:

- Diesel trucks and buses often idle, leaving engines on while stopped or parked in neighborhoods. (See box below).
- Truckers and buses drive through residential streets. Heavy-duty vehicles and related businesses have impacts on residents from noise, vibrations, safety, and damage to roads.
- The Bay Area is not meeting standards for PM 2.5 set by the US Environmental Protection Agency.
- Alameda County’s childhood asthma hospitalization rate is the second highest in California.
- San Francisco county has an asthma hospitalization rate of 207 per 100,000 children aged 0-14, and 120 per 100,000 for all ages, which are both higher than the statewide rates.
- The childhood asthma rate for African American children is 2.5 times higher than the County rate; 12 times the Asian/Pacific Islander rate and about 4 times the Latino and White rates.
- About 71% of cancer risk in West Oakland - a community heavily burdened by diesel pollution - is attributed to diesel PM from on-road heavy-duty trucks.

Violators face a $300–$1,000 fine or criminal charges.

Health Impacts

Diesel vehicle emissions are a mixture of gases and solids, including particulate matter (PM), carbon monoxide, sulfur oxides, ozone precursors – volatile organic compounds and nitrogen oxides. Of these chemicals, 40 are listed as toxic chemicals by the California Environmental Protection Agency. Diesel PM can be smaller than the human eye can see and can penetrate deep into the lungs and enter the bloodstream. Diesel emissions contribute to adverse health problems.

- Exposure to diesel PM greatly increases a person’s chances of developing lung cancer, cardiopulmonary disease, cardiovascular disease, asthma and bronchial infections.
- High exposure to diesel PM is especially dangerous to children, elderly and those with existing medical conditions.
- Diesel trucks that transport freight contribute to approximately 50% of total diesel PM in California.
- Diesel PM can aggravate allergies, asthma, bronchitis and other lung disease.
- Truck drivers often face the highest exposure to diesel exhaust and are undercompensated for health effects in the freight transport industry.
- Mothers’ exposure to polycyclic aromatic hydrocarbons (PAHs) from diesel exhaust during pregnancy has been show to lower their children’s IQ levels.
- It is estimated that local idling has lowered birth weights by 1.5 lbs.

Neighborhood Impacts

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In the Bay Area in 2005, annual estimates of health impacts from Port trucks (heavy-duty trucks) are:

- 18 premature deaths
- 284 cases of asthma and other lower respiratory symptoms
- 9 hospital admissions for cardiovascular reasons
- 1,650 lost workdays
- 17,875 restricted activity days
- 5,042 missed school days

Adding up to approximately $153 million in health care costs

Possible Solutions

- Toolkit in schools
- Outreach to neighbors, local businesses that attract trucks

Report Violators

- Call Bay Area Air District: 1-800-EXHAUST
- Call Air Resources Board: 1-800-END-SMOG
- Go online: www.arb.ca.gov/ent/complaints/complaints/htm

Here’s Why Buses and Cars Shouldn’t Idle Outside Our School

- Toxic chemicals are emitted from the buses, diesel emissions, and car exhaust.
- When children sit in their classrooms or stand in line by the parking area, they are subjected to these emissions. These emissions increase the risk of asthma, lung and heart disease, and are responsible for many cancers.
- Idling wastes resources and damages the environment. Burning fuel needlessly costs you money.
- Idling vehicles can be easily stolen or can cause damage if accidentally put in gear.
- Today’s buses, trucks and cars do not need to be warmed up, except in extremely cold conditions (below 0°F). In fact, for modern diesel engines idling can actually be harder on the engine than driving down the road. (Info from the Minnesota Office of Environmental Assistance.)


California Environmental Protection Agency, California Air resources Board and the Office of Environmental Health Hazard Assessment. April/May 1998. Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant.


Alameda County Public Health Department. August 2008.


California Diesel Rules and Regulations

California Diesel Rules & Regulations

Diesel engines are responsible for most of the health risks associated with air pollution, and are regulated by a vast network of federal, state, and local laws. On the federal level, most regulations tighten emissions standards only for new engines. The state of California has taken matters a step further by adopting rules to clean up existing diesel fleets, starting with transit buses. And local entities within California, such as the South Coast Air Quality Management District, have taken the initiative of passing regional fleet rules that will significantly reduce diesel pollution.

In-Use Cleanup vs. New Standards

California created a Diesel Risk Reduction Plan in 2000, which called for a 75 percent statewide reduction of diesel PM by 2010 and an 85 percent reduction by 2020. The plan acknowledges that in order to reduce exposure to toxic diesel PM, emissions from existing vehicles and equipment must be reduced. This approach marked a significant change in the way diesel sources are regulated, turning the focus in California to cleaning up engines in use now as opposed to new engines. While EPA continues to adopt stringent standards for new engines, California has adopted seven in-use fleet rules so far: Transit buses, refuse haulers, public heavy-duty and utility vehicles, portable equipment, stationary engines, cargo-handling equipment, and truck refrigeration units. These are listed together with other California rules in Table 1.

Table 1: California Rules Reducing Diesel Emissions

<table>
<thead>
<tr>
<th>Industry (Point Sources)</th>
<th>Cars &amp; Trucks (On-Road Mobile Sources)</th>
<th>Construction Equipment and Other Mobile Sources (Off-Road Mobile Sources)</th>
</tr>
</thead>
</table>

Note: Implementation dates in parentheses. Rules are already in effect where no implementation dates are listed.
Source: California Air Resources Board, www.arb.ca.gov.
California Diesel Rules and Regulations

Limits on how long diesel vehicles can idle their engines have also proven useful as a means of curbing diesel pollution. Several years ago strict School Bus Idling Limits went into effect followed by more recent limits on truck idling. The truck idling limits are not only expected to reduce harmful diesel exhaust but are also expected to reduce statewide use of diesel fuel by three percent. Other programs that help reduce diesel exhaust from trucks include truck inspection programs and automatic monitoring systems for newer trucks.

California diesel fuel standards are also more stringent than federal standards, particularly for off-road equipment, locomotives and Harbor Craft such as tugboats. The California Air Resources Board recently adopted a rule requiring cleaner fuel for large international ships phasing out the use of notoriously dirty “bunker fuel” in California ports.

Both in-use fleet rules and new emission standards are important to reducing public exposure to diesel exhaust, given that diesel engine use continues to grow and many diesel engines remain in use for decades. Figure 1 lists diesel PM contributions from different sectors in California in 2010. Heavy-duty trucks (on-road vehicles) and off-road equipment will continue to be large sources of pollution, while emissions from marine vessels and locomotives are expected to increase.

California Incentive Programs

Various incentive programs in California provide diesel cleanup funding on a voluntary basis. These programs have commonly received more applications than funds can cover because of the benefits they provide, such as improved fuel economy and early compliance for future regulations. However legislation in 2004 brought much more funding to these important programs.

The Carl Moyer Program, administered by CARB, is a clean engine incentive program initially approved in February 1999. The program has provided $98 million so far in incentives to reduce emissions of NOx and fine PM from heavy-duty diesel engines. Funds are distributed through local air districts, which select projects. Incentives, in the form of grants for private companies, public agencies, or individuals operating heavy-duty diesel engines, cover an incremental portion of the cost of cleaner on-road, off-road, marine, locomotive, and agricultural irrigation pump engines.

The Lower-Emission School Bus Program, which began in 2001, distributes funds to schools statewide to replace or retrofit older diesel school buses.
**Local Measures**

Most local diesel reduction measures within California have been implemented by the South Coast Air Quality Management District (AQMD). Table 2 lists these and other local measures within California.

**Table 2: Local Measures Reducing Diesel Emissions**

<table>
<thead>
<tr>
<th>Industry (All Point Sources)</th>
<th>Cars &amp; Trucks (On-Road Mobile Sources)</th>
<th>Construction Equipment and Other Mobile Sources (Non-Road Mobile &amp; Area Sources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary Diesel Engine (regulated for NOx and CO in 13 districts and diesel PM in one district)</td>
<td>Light &amp; Medium-duty Fleet Vehicles, Transit Buses, Airport Shuttles, Refuse Collection Vehicles &amp; Street Sweeping Operations</td>
<td>Locomotive Memorandum of Understanding (MOU), Locomotive Idling Limits, Portable Engine Program (in certain districts), Marine Vessel Cleanup</td>
</tr>
</tbody>
</table>


**What More Can Be Done?**

**Advocacy for Stronger Federal and State Rules:** EPA has yet to pass adequate emissions standards for locomotives and marine vessels, and CARB has yet to adopt many of the in-use fleet rules proposed in the Diesel Risk Reduction Plan.

**Early Local Implementation of Existing State Rules and Programs:** Advocacy efforts can also be targeted locally to bring about faster implementation of existing in-use fleet rules or new in-use fleet rules that have not been adopted statewide. For example, community groups can work with city councils and county boards to adopt alternative fuel requirements for refuse haulers, or contract requirements that specify the use of cleaner construction equipment.

**Pollution-free Zones:** In addition to campaigns for early adoption of existing rules or programs, the concept of pollution-free zones should also be pursued near schools, daycares, nursing homes, hospitals, and residences. Local action is needed to clean up pollution sources near these sensitive sites.

**Resources**

For more information, visit the following websites and look for the reports listed here:

- Environmental Protection Agency, Office of Transportation & Air Quality
- California Air Resources Board, California Diesel Risk Reduction Plan
- California Air Resources Board, Mobile Source Program
- South Coast Air Quality Management District, Rules
- NRDC, Harboring Pollution: Strategies to Clean Up U.S. Ports

Ditching Dirty Diesel Collaborative • Anti-Idling Toolkit for Schools
News Coverage on Air Pollution

One-Fifth of U.S. Lives Near Roads with Higher Air Pollution, Study Says
October 2, 2013 • Tony Barboza • LA Times

Air Pollution is a Leading Cause of Cancer
October 17, 2013 • Kate Kelland and Stephanie Nebehay • Reuters

Air Pollution: Battle Still on for Clean Air
September 5, 2013 • David Danelski • The Press Enterprise
**Idling Reduction Fact Sheet**

**DID YOU KNOW?**

- Each of us takes 20,000 breaths each day.
- The average American breathes 3,400 gallons of air a day.
- Children breathe 50 percent more air per pound than adults.
- Vehicle exhaust is the leading source of toxic air pollution in Washington. (Replace with statistic relevant to program location.)
- Idling consumes _ gallon to 1 gallon of fuel per hour and wastes more fuel than turning off and on your vehicle engine.
- Diesel exhaust contains microscopic soot, a particle that is about 200 times smaller than the period at the end of this sentence.
- Diesel exhaust contains both very small particles and 40 chemicals that are classified as “hazardous air pollutants” under the Clean Air Act.
- Idling buses tend to accumulate diesel exhaust, which may be retained during the ride depending upon bus ventilation rates.
- It is more efficient to turn off most warmed-up vehicles than to idle for more than 30 seconds.
- A single vehicle dropping off and picking up kids at one school puts three pounds of pollution into the air per month.
- Carbon monoxide reduces the ability of blood to bring oxygen to body cells and tissues.
- Asthma is the third leading cause of hospitalization among children under the age of 15.
- Children’s asthma symptoms increase as a result of car exhaust.
- Asthma is the most common chronic illness in children and the cause of most school absences.
- Exposure to vehicle exhaust increases the risk of death from heart and lung disease and lung cancer.
¿Sabía Usted?

- Cada uno de nosotros respira 20,000 veces al día.
- El americano típico respira 12,870 litros (3,400 galones) de aire al día.
- Los niños respiran el 50% más de aire por peso que los adultos.
- Los gases del tubo de escape de los motores de diesel contienen hollín microscópico, aproximadamente 200 veces más pequeño que el punto al final de esta oración.
- Los gases del tubo de escape de los automóviles son la principal causa de contaminación ambiental en el estado de Washington. (Replace with statistic relevant to program location.)
- Dejar el auto encendido sin andar puede consumir un galón de combustible por hora y desperdicia más combustible que apagar y encender el motor.
- Los gases de diesel contienen 40 contaminantes ambientales dañinos. Además, los gases de diesel contienen partículas de carbono y 40 químicos clasificados como “contaminantes ambientales dañinos” por la Ley del Aire Limpio (Clean Air Act).
- Los autobuses esperando en cola con el motor encendido tuvieron el nivel más elevado de partículas y carbono negro. Los autobuses parados con el motor encendido tienden a acumular gases del escape, los cuales a veces se quedan dentro del autobús, dependiendo de la facilidad de aireación de cada autobús.
- El asma está alcanzando proporciones epidémicas en Washington. Más de medio millón de residentes de Washington padece asma y eso incluye a uno de diez niños del estado. (Replace with statistic relevant to program location.)
- Los síntomas de asma infantil aumentan como resultado de los gases de los automóviles.
- El asma es la enfermedad crónica más común entre los niños y la causa de la mayoría de las faltas a la escuela.
- El monóxido de carbono reduce la capacidad de la sangre de transportar oxígeno a las células y tejidos del organismo.
- El riesgo de muerte es 17% mayor en las zonas de más contaminación.
**Air Quality**

- Vehicle exhaust is the leading source of hazardous air pollution in the state of Washington. (National Transportation Library)
- In the past ten years, residents have increased the amount they drive by more than 70 percent. (National Transportation Library)
- Diesel exhaust contains microscopic soot, about 200 times smaller than the period at the end of this sentence. (Oregon DEQ)

**Vehicle Operation**

- One hour of idling burns up to a gallon of fuel. (Fuelmax Fuel Saving Tips)
- An idling engine delivers zero miles to the gallon.
- Drivers who shut off their engines, rather than idling for 30 seconds, benefit from both fuel savings and improved air quality. (average of recommended times from the U.S. EPA, Natural Resources Canada and Programs Europe)
- Frequent restarting has little impact on engine components like battery and starter motor. Wear caused by restarting is estimated to add $10 per year to the cost of driving, money likely recovered several times over in fuel savings. (Natural Resources Canada)
- Excessive idling can be hard on your engine because it isn’t working at peak operating temperature. Fuel doesn’t undergo complete combustion, leaving spark plugs dirty and contaminating engine oil. (Oregon’s Clean Air Action Day fact sheet)
- Idling isn’t an effective way to warm up your vehicle in cold weather. Modern engines need no more than 30 seconds of idling on winter days before starting to drive. (Natural Resources Canada)
- Idling buses tested had higher concentrations of particulates and carbon than moving buses. (Environment and Human Health Inc. (EHHI))
- Queued idling buses had the highest levels of particulates and black carbon measured. Idling buses tend to accumulate diesel exhaust, which may be retained during the ride, depending upon bus ventilation rates. (EHHI)
- A bus idling for one hour a day during the school year adds the equivalent of 1,260 miles of wear on the engine. (Oregon Department of Environmental Quality (DEQ))

**Impact on Health**

- Each of us take 20,000 breaths each day. (American Lung Association)
- The average American breathes 3,400 gallons of air a day. (American Lung Association)
- Asthma is the third leading cause of hospitalization among children under the age of 15. (American Lung Association)
- Air pollution may account for five percent of hospital admissions for heart disease. (National Institute of Environmental Health Sciences (NIEHS))
- Toxic air pollutants account for an additional 700 cases of cancer for every million Washington residents. (American Lung Association)
Idling Reduction Fact Sheet (Extended Version)

- The World Health Organization reported in 2002 that three million people die each year from the effects of air pollution. (Earth Policy Institute)
- Airborne particulate matter (PM) consists of many different substances suspended in air in the form of particles (solids or liquid droplets) that vary widely in size. Particles less than 10 micrometers in diameter, that include both fine and coarse dust particles, pose the greatest health concern because they can pass through the nose and throat and get into the lungs.
- Overall mortality increases 0.5 percent for every 10 microgram per cubic meter increase in small airborne particles (PM10) measured the day before death. This number is slightly higher for lung and heart-related deaths. (National Morbidity, Mortality and Air Pollution Study)
- Elderly people who live in the most polluted areas in the United States are nearly 20 percent more likely to be admitted to a hospital for a respiratory condition than those who live in cities with the least air pollution. (WebMD article on National Morbidity, Mortality and Air Pollution Study)
- Hospital admissions of non-elderly patients suffering from asthma increase four to five percent one day after an interquartile range change in PM. (Environmental Health Perspectives)
- Seattle’s average means for PM10 have a range of 12-25 micrograms per cubic meter with highs of 48-75. (Burning Issues referencing WA Dept. of Ecology stats)
- Carbon monoxide reduces the ability of blood to bring oxygen to body cells and tissues. (National Transportation Library)
- Exposure to vehicle exhaust increases the risk of death from heart and lung disease and lung cancer. (American Cancer Society)
- Diesel exhaust is classified as a probable human carcinogen by many governmental authorities, including the International Agency for Research on Cancer (World Health Organization), the U.S. National Toxicology Program, and the U.S. Environmental Protection Agency. It is classified as a known carcinogen by the state of California. (EHHI)
- Diesel exhaust contains both very small particles and 40 chemicals that are classified as “hazardous air pollutants” under the Clean Air Act. (EHHI)

Children
- Children breathe 50 percent more air per pound than adults. (EPA sheet on school bus idling)
- Asthma is the most common chronic illness in children and the cause of most school absences. (American Lung Association)
- Children’s asthma symptoms increase as a result of car exhaust. (Norris; American Lung Association)
In the United States, well over 425,000 school buses transport 24 million students to school daily. (EHHI)

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. Annually, U.S. children spend three billion hours on school buses. Connecticut children spend 50 million hours on buses each year. (EHHI)

**OTHER**

- 77 percent of Puget Sound residents perceive auto emissions as contributing a great deal to air pollution in the area. (Puget Sound Clean Air Agency)
- In 1952, death rates increased by five times over four days from air pollution that was trapped by fog in London. (Department of Biostatistics, Johns Hopkins)
- Approximately $100 million is spent in the United States annually to address the uncertainties in the understanding of the health effects of particulate matter. (Department of Biostatistics, Johns Hopkins)