



# Fact Sheet

South Carolina Department of Health and Environmental Control • [www.scdhec.gov](http://www.scdhec.gov)

## Vehicle Maintenance and Air Quality

### Why should I be concerned about my vehicle's impact on the environment?

Your car or truck emits pollutants that form harmful ground-level ozone and particle pollution. Ground-level ozone can cause or worsen breathing problems. Particle pollution can irritate or damage your lungs.

Nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) are some of the tailpipe emissions that help form ground-level ozone. NO<sub>x</sub> is formed when fuel is burned at high temperatures. Sunlight causes NO<sub>x</sub> to react with VOCs. When NO<sub>x</sub> and VOCs react together in the presence of sunlight, the result is ground-level ozone.

Your vehicle also emits particle pollution, which can be formed from solid or liquid particles called particulate matter (PM). Sources of particle pollution include vehicle exhaust, tires and unpaved roads. Vehicle exhaust contains NO<sub>x</sub>, VOCs, sulfur oxides and ammonia, and these react in the atmosphere to form PM.

The U.S. Environmental Protection Agency (EPA) regulates ground-level ozone and PM in South Carolina.

### Which vehicle systems and parts help reduce air pollution?

Your vehicle's **emissions control system** reduces NO<sub>x</sub> and VOCs and improves gas mileage.

Your vehicle's **on-board diagnostic monitoring (OBD) system** also plays a big role. If it finds a problem in the engine, the "check engine" light comes on. Often, the problem is actually related to the transmission or your tailpipe emissions. Making repairs quickly can reduce emissions and improve air quality. A flashing light means the computer has found a serious problem and you shouldn't drive your car at all until it is fixed.

These vehicle parts also help reduce pollution:

- The **catalytic converter** oxidizes VOCs and carbon monoxide (CO) and reduces NO<sub>x</sub>.
- The **oxygen sensor** ensures the best possible mix of fuel and oxygen. If there is too much of one or the other, your emissions increase. When the oxygen sensor isn't working properly, your car uses more gasoline. In fact, replacing a worn oxygen sensor with a new one may boost gas mileage by 10 to 15 percent.
- The **exhaust gas recirculation (EGR) system** returns part of the exhaust gas to the combustion chamber. This lowers NO<sub>x</sub> emissions and improves gas mileage.
- The **air injection pump** pushes air into the exhaust manifold. This burns off VOCs and CO and helps fuel burn more completely.
- The **positive crankcase ventilation valve** redirects vapors into the intake manifold, reducing VOC emissions. This helps prevent engine corrosion, oil dilution and engine deposits.

- The **misfire monitor** causes the “check engine” light to come on when the engine misfires. Engine misfires can very quickly damage the catalyst.

### **What can I do to keep my car running efficiently and reduce greenhouse gas emissions?**

Greenhouse gas emissions contribute to global warming, or climate change. While some greenhouse gases occur naturally in the atmosphere, others result from human activities. Greenhouse gases include water vapor, carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide and ozone. Energy-related CO<sub>2</sub> emissions, such as those that come from burning fuel, make up 82 percent of U.S. greenhouse gas emissions. CO<sub>2</sub> emissions are always linked to fuel consumption because CO<sub>2</sub> is the end product of burning gasoline. The more fuel a car burns, the more CO<sub>2</sub> it emits. Efficient vehicles that burn less fuel also emit fewer greenhouse gases.

If you want to reduce your car’s greenhouse gas emissions, follow these tips:

- Replace clogged **air filters**. This will improve gas mileage by as much as 10 percent and protect the engine.
- Use the recommended grade of **motor oil**. Using a different motor oil grade than the one recommended for your vehicle can lower gas mileage by 1 to 2 percent.
- Properly inflate and align your **tires**. This can improve gas mileage by around 3.3 percent.
- Get regular **tune-ups**. They can improve gas mileage by 4 to 12 percent. Regular engine tune-ups and car maintenance checks help avoid problems due to worn spark plugs, dragging brakes, low transmission fluid or transmission problems. When your average gas mileage falls by 10 to 15 percent, you’re ready for a tune-up. Check your owner’s manual for tune-up guidance.

Your driving habits can also affect fuel efficiency and greenhouse gas emissions. To save gas and reduce pollution, follow these tips:

- Don’t warm up the engine before driving. It’s unnecessary, even in winter.
- Accelerate smoothly.
- Remove extra weight from your vehicle.
- Drive the speed limit. At speeds over 60 mph, greenhouse gas emissions increase and fuel economy drops.

For more information, visit: <http://www.scdhec.gov/carcare>