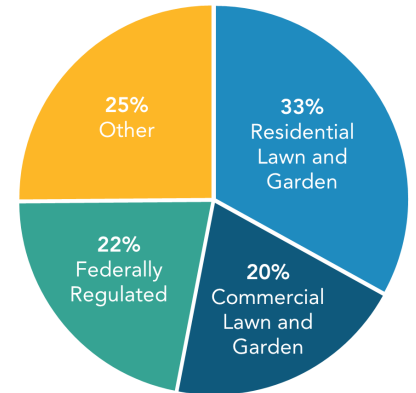


Small off-road engines in California

Small off-road engines (SORE) are spark-ignition engines rated at or below 19 kilowatts. Engines in this category are primarily used for lawn, garden, and other small off-road equipment. The population of SORE in California (15.4 million) is similar to that of light-duty passenger cars (14.0 million). As of 2021, 61% of California SORE are used in residential lawn and garden equipment, 8% in commercial lawn and garden equipment, 11% in federally regulated construction and farming equipment, and 20% in other equipment types (e.g., generators, pressure washers). While commercial lawn and garden equipment are only 8% of the SORE population, they account for 20% of smog-forming emissions from SORE during the summer.

SORE Emissions by Type (Summer)



1 hr lawn mower use



driving 300 miles
from LA to Vegas

Emissions are significant

Today, operating a commercial lawn mower for one hour emits as much smog-forming pollution as driving a new light-duty passenger car about 300 miles – about the distance from Los Angeles to Las Vegas, more than 4 hours of drive time. For a commercial leaf blower, one hour of operation emits smog-forming pollution comparable to driving a new light-duty passenger car about 1100 miles – about the distance from Los Angeles to Denver, over 15 hours of driving.



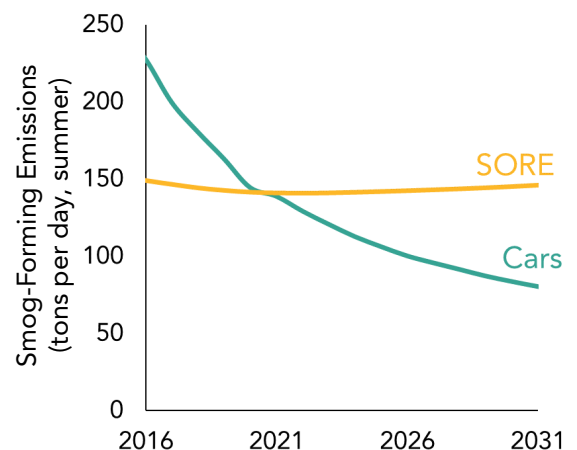
1 hr leaf blower use



driving 1100 miles
from LA to Denver

The need for additional controls

The California Air Resources Board (CARB) adopted emissions standards for SORE in 1990 and was the first agency in the world to control emissions from these engines. Due to the regulations put in place by CARB, SORE are 40-80% cleaner today than they were before the program began. However, total smog-forming emissions from SORE already exceed emissions from light-duty passenger cars in California. SORE emissions are projected to increase as the population grows, while emissions from passenger cars decrease. By 2031, SORE emissions are projected to be nearly twice those from passenger cars.



CARB actions to reduce emissions

Additional emission reductions are needed from SORE to reduce the disproportionate pollution burden on disadvantaged communities. To that end, California Executive Order N-79-20 sets a goal to transition off-road vehicles and equipment operations to 100 percent zero-emission by 2035 where feasible. Emission reductions are also needed to achieve attainment of ambient air quality standards. In 2021, CARB will consider new emission standards for SORE and expanded incentive programs to help California achieve these goals.