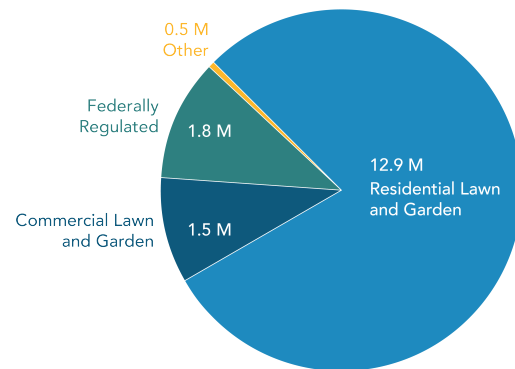


### Small engines in California

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 outdoor power equipment. The population of small engines in California (16.7 million) is greater than that of light-duty passenger cars (13.7 million) and is comprised of 77% residential lawn and garden equipment, 9% commercial lawn and garden equipment, 11% federally regulated construction/farming equipment, and 3% other equipment types (e.g., generators, utility carts).



1 hr lawn mower use



driving 300 miles  
from LA to Vegas



1 hr leaf blower use



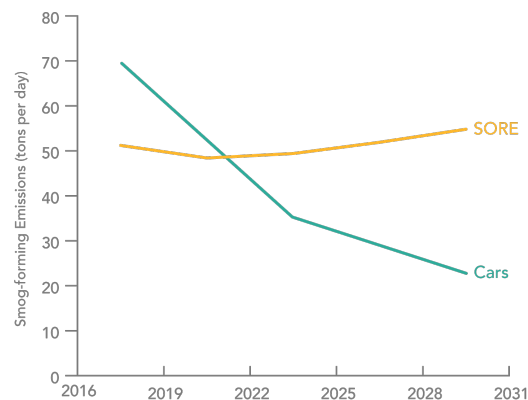
driving 1100 miles  
from LA to Denver

### Emissions are significant

Today, operating the best-selling commercial lawn mower for one hour emits as much smog-forming pollution as driving the best-selling 2017 passenger car, a Toyota Camry, about 300 miles – approximately the distance from Los Angeles to Las Vegas. For the best-selling commercial leaf blower, one hour of operation emits smog-forming pollution comparable to driving a 2017 Toyota Camry about 1100 miles, or approximately the distance from Los Angeles to Denver.

### The need for additional controls

The California Air Resources Board (CARB) adopted emissions standards for small engines 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, small engines are 40-80% cleaner today than they were before the program began. In the early 2020s, however, total smog-forming emissions from small engines are projected to exceed those from passenger cars in the South Coast Air Basin because passenger car emissions will continue to decrease. By 2031, small engine emissions will be more than twice those from passenger cars.



### CARB actions to reduce emissions

Because of California's ongoing air quality challenges, additional emissions reductions are needed from small engines. In 2020, CARB will consider new standards for small engines to help California meet its goal of reducing smog-forming pollutant emissions from mobile sources by 80 percent in 2031. Significant emission reductions will be achieved through a combination of regulatory and incentive approaches, and a major shift to zero-emission equipment will be needed to meet the 80 percent reduction goal.