



Small Motor Pollution: Options for Regulation

The air pollution emitted from small motors is largely unregulated, while the pollution from larger motors, especially in automobiles, has become highly regulated. This report informs readers on the levels of pollution emitted from small motors and examines the regulatory options available to the State of Iowa.

Small Engine Pollution

Table 1 presents a breakdown of engine class by horsepower and provides typical examples of engines at each class. The engines inside most lawn and garden equipment are generally classified as small spark-ignition engines of 25 horsepower (hp) or less. Small engines of less than 50 hp emit significant amounts of gases that react to the air to form particulate matter (PM). Particulate matter can affect the lungs and heart, and can potentially be a serious health threat to people who have asthma or sensitive airways.¹ A study by the American Lung Association shows that people living in areas with a high

Table 1:

Engine Class (Horsepower)	Example
0-5	Weed Whackers, Chainsaws, Self-propelled Rotary Lawn Mowers, Moped, Garden Trimmer
5-20	Most Push Lawnmowers, Most Riding Lawnmowers, Lawn Tractors, Garden Tractors, Leaf Blower
20-50	ATVs,
50-100	Fishing/Skiing Boats
100-150	Fishing/Skiing Boats, Motorcycles
150-200	Motorcycles, Cars
200-300	Jet-Ski, Some Cars, Light Trucks, Trucks
300+	Sports Cars, Sports Trucks

¹ Browner, Carol M. United States. Environmental Protection Agency. 40 CFR Part 83. Billing Code 6560-50-P. 29 Jan. 1999. Sept. 2007 <<http://legalminds.lp.findlaw.com/list/epa-air/msg00873.html>>.

concentration of particulate matter have a 17% higher mortality risk than people living in areas of lower concentrations.² Small engines also emit hydrocarbons (HC) and oxides of nitrogen (NO_x). These pollutants cause ground-level ozone to form, which is the core component of smog. Ozone is harmful to the lungs and can hinder the growth of plants.³

The use of lawn and garden equipment exceeds 3 billion hours per year.⁴ This is significant because a gasoline-powered lawn mower releases as much pollution per hour as 11 cars, while a riding lawn mower releases as much as 34 cars per hour. A chain saw that is in use for two hours can emit as much hydrocarbon as driving ten cars made in 1995 for 250 miles each.⁵

Regulatory Authority and States Limitations

Air pollution is currently regulated at the federal level. In the Clean Air Act (CAA) of 1990 the federal government authorized the Environmental Protection Agency (EPA) to conduct research and impose regulations on many forms of air pollution.⁶ In addition to setting national standards for the regulation of air pollution, the CAA *prohibits* states from enacting their own air quality regulations in many areas including those affecting engines of 175 horsepower or less.⁷

There is currently one exception to this ban on state regulations. Because of its history of serious air pollution, California has been granted an exception to federal standards under Title II Section 209 of the CAA. California and its main air pollution regulatory body, the California Air Resource Board (CARB or ARB), has the authority to create its own stricter regulations in the area of small and non-road engines. These regulations are subject to EPA approval.⁵ As a provision of this allowance, Title II Section 177 allows other states to adopt standards identical to the standards set by California in many areas of CARB regulations, but *not* in the area of engines under 50 horsepower.⁸

Thus, in all states except California, the EPA standards regulate emissions for spark-ignition engines less than 50 horsepower. States may adopt the CARB standards for

² "Particulate Matter." American Lung Association. Apr. 2000. 24 Sept. 2007 <<http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=35356>>.

³ United States Environmental Protection Agency. "Small Engine Emission Standards. Answers to Commonly Asked Questions from Dealers and Distributors." August 1998. <<http://www.epa.gov/otaq/equip-ld.htm>>.

⁴ Seidman, Nancy L., And Dennis McLerran. "NACAA Comments on EPA's Proposed Rule to Control Emissions of Nonroad Spark-Ignitions Engines and Equipment." 1 August, 2007. <<http://www.4cleanair.org/TopicDetails.asp?parent=27>>

⁵ "Fact Sheet: Reducing Pollution From Small Engines." Air Resources Board. California Environmental Protection Agency. Sept. 2007 <http://www.arb.ca.gov/msprog/offroad/sm_en_fs.pdf>.

⁶ United States of America. EPA. Environmental Protection Agency. 2 May 2007. Sept. 2007 <<http://www.epa.gov/air/caa/>>.

⁷ United States of America. EPA. Environmental Protection Agency. 2 May 2007. Sept. 2007 <<http://www.epa.gov/air/caa/caa209.txt>>.

⁸ Seidman, Nancy L., and Dennis McLerran. National Association of Clean Air Agencies. 1 Aug. 2007. Mobile Sources and Fuels Committee. Sept. 2007 <<http://www.4cleanair.org/TopicDetails.asp>>.

engines higher than 50 horsepower if they choose. However, states wishing to do so must notify an EPA Administrator and complete a waiting period of no less than two years before the standards take effect. Eleven states have adopted CARB standards over EPA standards for engines larger than 50 hp. These states are Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington.⁹

Future Prospects of Federal Regulation

California is currently asking the EPA for a waiver over more of the requirements of the CAA. The EPA has promised to rule on California's request for a waiver of regulations by the end of 2007.¹⁰ While this waiver mainly concerns automobile and green house gas regulation, it may signify broader changes in the air quality regulatory system.

This report was prepared in September, 2007 by the Iowa Civic Analysis Network (I-CAN), a non-partisan public policy undergraduate research group at the University of Iowa. For additional research on this or other issues, please visit our website at <http://www.uiowa.edu/~ican> or contact us at studorg-i-can@uiowa.edu.

⁹ "California Auto Standards." 14 June 2007. National Environmental Trust. 24 Sept. 2007
<http://www.net.org/warming/docs/pavley/net_pavley_fact_sheetfinal.pdf>.s

¹⁰ Werner, Erica. "EPA to Rule on CA Waiver This Year." USA Today 21 June 2007. 9 Sept. 2007
<http://www.usatoday.com/news/washington/2007-06-21-3222629824_x.htm>.