

California's Air Resources Board Approves Comprehensive Plan to Cut Diesel PM Emissions

On September 28, 2000, California's Air Resources Board unanimously approved a historic, comprehensive plan to reduce PM emissions from diesel-fueled engines by 75% in 2010 and by 85% in 2020. The next step will be for ARB to adopt a series of individual rules requiring the reduction of PM emissions from new and existing on-road, off-road, and stationary diesel engines, as well as setting a sulfur limit of 15 ppm for *all* diesel fuel sold for use in California beginning in 2006. California's program will likely serve as a model for other local, state, regional, national, and international initiatives to reduce diesel PM.

Current Diesel Engine Inventory and Exposure Risks

In 1998, after ten years of review, ARB declared PM emissions from diesel-fueled engines to be a toxic air contaminant. The finding triggered the regulatory initiative that is now underway. ARB estimates that diesel PM currently accounts for 70% of the statewide risk from air toxics emissions – 1,3 Butadiene is second at 10% and Benzene third at 8%.

Over 1.25 million diesel engines operate in California. Table 1 provides the breakdown by engine application. These engines currently emit 28,100 tons of PM emissions per year. Off-road engines account for 66% of the emissions with on-road engines contributing 27%, portable engines 5%, and stationary engines 2%.

Table 1	
Diesel Engine Inventory	
Category	Number of Engines
<i>Mobile</i>	
On-Road	687,000
Off-Road	547,000*
<i>Stationary</i>	
Emergency/Stand-By	11,000
Prime	5,000
<i>* includes 49,000 portable engines</i>	

Control Program

The ARB plan identifies diesel particulate filters as the principal technology expected to be used to reduce PM emissions from both existing and new diesel engines. Other strategies identified by ARB include fuel cells, electrification, alternative fuels, alternative diesel fuel formulations and additives, and engine modifications.

The ARB plan calls for cutting emissions by at least 85% from up to 90% of the existing on-road, off-road, and stationary engines, and by at least 90% from new engines. The ARB plan recognizes that control retrofit might not be technically possible and cost effective in every engine application and has committed to work with interested parties to insure a fair, cost-effective, and technically sound program. To further this goal, ARB has created an advisory committee made up of international experts. MECA and several members have been invited to serve on this Advisory Committee.

Over the next two to three years, the ARB staff will be developing 14 new control measures including four measures that will require the cooperation and action of the U.S. EPA. The fourteen control measures are summarized below in Table 2.

The implementation schedule is 2002-2008, depending on the specific rule involved. To a major degree, the exact implementation schedule will be tied to the availability of the 15 ppm sulfur diesel fuel. ARB plans to require all fuel sold for use in California to have a sulfur limit of 15 ppm by June 2006. However, low sulfur fuel will be available before that date. At the hearing, the ARB staff estimated that currently there is refining capacity in the state to provide 15 ppm diesel sulfur fuel for 20% of the on-road diesel fleet.

**Table 2
Planned Control Measures**

Category Rule	Development Schedule
<i>On-Road Mobile Sources</i>	
Lower New Engine Standards	2001
Retrofit Existing Engines	2002
HDV In-Use Compliance Program	2003
Supplemental HDV Certification Procedures	2000
<i>Off-Road Mobile Sources</i>	
Lower New Engine Standards	2002
Retrofit Existing Engines	2002
Diesel Pleasure Craft Standards	2002
HDE In-Use Compliance Program	2003
<i>Stationary and Portable Engines</i>	
Address New and Existing Engines (emergency/standby, prime, agriculture, and portable engines)	2002
<i>Federal Action Required</i>	
Locomotives	No date established
Commercial Marine Vessels	No date established
New Farm and Construction Equipment <175 hp	No date established
New Vehicle Standards and Fuel Specifications	2000

Copies of documents related to the proposed risk reduction plan can be found at <http://www.arb.ca.gov/toxics/diesel/diesel.htm>.