Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

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Dear Air Pollution Control Officers:

As a result of the energy crisis, the Air Resources Board (ARB) has received numerous inquiries about the appropriateness of using portable diesel-fired engines registered under the Statewide Portable Equipment Registration Program for providing emergency standby electricity generation. With this letter we are providing our views on when Statewide registered portable generators can be used in such a capacity.

Diesel-fueled engines are a significant source of emissions of oxides of nitrogen (NOx) and diesel particulate matter which is a toxic air contaminant. Diesel engine emissions are orders of magnitude greater than a gas-fired plant in terms of pollution produced per megawatt of electricity generated and their routine use can significantly elevate health risks experienced by nearby residents or workers. (See enclosure.) Use of these units as a routine replacement for power from the grid is inappropriate.

However, in recognition of the energy crisis, ARB staff believes the use of State registered portable generators for emergency power is appropriate under limited circumstances. In the event of rolling blackouts, such registered portable generators should be allowed to generate emergency power at facilities that are experiencing (or shortly expected to experience) a blackout. The use of Statewide registered equipment for this purpose should be limited to the duration of the blackout at the facility, the time needed to switch on the unit in advance of the blackout, and the time needed to maintain power as operations at the facility are switched back to the grid. Although this guidance is directed specifically at Statewide registered equipment not subject to district rules, we believe that a similar policy should be applied by districts to back-up diesel engine generators permitted or allowed by district regulations.

If you have any questions or would like to discuss this issue further I can be reached at (916) 445-4383, or you may have your staff person contact Mr. Michael Tollstrup, Chief, Project Assessment Branch, at (916) 323-8473.

Sincerely,

Michael P. Kenny
Executive Officer

Enclosure

Attachment to Letter on Emergency Generators
Air Pollution Emissions from Electricity Generation

- Generation of electricity using fossil fuels (natural gas, oil or coal) creates significant air pollution. The amount of pollution varies greatly with the fuel used, the generation technology and the specific pollution control technology employed.

- Two pollutants, oxides of nitrogen (NOx) and particulate matter (PM), are of most concern. NOx emissions produce ozone and react in the atmosphere to form small particles. Diesel PM is the most significant toxic air pollution problem in California.

- This table compares emissions of NOx in pounds per megawatt hour (MW-hr) of power produced for several technologies.

Generation Unit	Lbs. NOx / MW-hr
Existing Diesel Standby Emergency Generators	25 to 30
Diesel Engine with Best Available Control	7
Uncontrolled Coal-Fired Power Plant	6
Uncontrolled Gas-Fired Power Plant	2 to 4
New Natural Gas Peaking Turbines	0.1 to 0.8
Typical Mix of Existing Gas-Fired CA Power Plants	0.5
Well Controlled Older Gas-Fired CA Power Plant	0.1 to 0.15
New Combined Cycle Gas-Fired CA Power Plant	0.05

- PM emissions from diesel engines are significantly higher than emissions from turbines or boilers fueled with natural gas. Relative emissions are shown below.

Generation Unit	Lbs. PM / MW-hr
Existing Diesel Engine	1 to 3
Existing Diesel Engine with Trap Retrofit	0.1 to 0.5
Gas-Fired Power Generation	0.03 to 0.07

- PM emissions from a typical diesel emergency generator operated only during peak demand periods can cause a significant increase in cancer risk for nearby residents. For example, operation of an uncontrolled one MW diesel engine for 250 hours per year would increase cancer risk to nearby residents (within one city block) by 250 in a million. On average, this represents a 50 percent increase in the cancer risk due to exposure to diesel exhaust.