



Environmental Fact Sheet

Episodic Emission Control Programs

The dramatic increase in the number of miles being driven in recent years threatens to overwhelm the technological advances made with respect to vehicle emissions reductions and has contributed to urban gridlock and highway congestion. The Environmental Protection Agency (EPA) is committed to providing states and local areas with support in their efforts to meet air quality standards. The implementation of episodic emission control programs is becoming increasingly popular across the country as an innovative approach to reduce emissions of ozone precursors, carbon monoxide, and particulate matter.

Episodic Emission Control Programs

The dramatic increase in the number of miles being driven in recent years threatens to overwhelm the technological advances made with respect to vehicle emissions reductions and has contributed to urban gridlock and highway congestion. EPA is committed to providing states and local areas with support in their efforts to meet air quality standards. The implementation of episodic emission control programs is becoming increasingly popular across the country as an innovative approach to reduce emissions of ozone precursors, carbon monoxide, and particulate matter.

What Are These Programs?

The episodic emission programs being implemented in many U.S. cities provide steps that the public and industry can take to reduce emissions when weather conditions that contribute to high ozone (smog) levels are forecast. The programs are usually voluntary. They emphasize educating

the public about the impact that individual activities can have on local air quality and about the basics of air pollution (e.g., “good” stratospheric ozone vs. “bad” ground-level ozone). The education programs inform the public of activities that can reduce pollution on both an intermittent “episodic” basis (e.g., reduction of trips, postponement of certain activities) and on a longer term basis (maintenance of cars).

Motivation for implementation of this type of program often stems from local government and business concerns about the attainment status of the area (a designation indicating the severity of the ozone problem) and the restrictions that might apply to that status, additional controls to reduce ozone, and costs associated with reclassification into a different attainment status. Many areas are also motivated by public health concerns and believe that increasing the amount of air quality information available to sensitive populations raises awareness and results in significant health benefits. Specific goals usually associated with episodic control programs include:

- Educate the public
- Attain air quality standards (NAAQS)
- Meet specific emission reduction targets
- Manage/reduce congestion
- Maintain economic benefits associated with attainment status
- Protect public health
- Maintain air quality standards

Episodic programs are appealing to areas that have significant emissions from sources such as onroad vehicles, which are traditionally difficult to reduce due to driver behavior. The programs may also offer additional emission reductions, that historically are not easily obtained on an ongoing basis, during a time when the impacts of emission reductions are the most critical. Public education efforts may also reduce emissions over the long term, due to increased public awareness of the air quality impacts of changed behavior. These public education efforts serve the general public and help them to understand their role in air quality planning. The education component of these programs also helps to create a strong link between environmental goals (attainment) and associated public health benefits.

What Are the Air Quality Benefits?

Most episodic control programs are designed to limit the number of times the ozone (or other pollutant) standard is exceeded, and therefore should have a positive impact on air quality. When episodic control days are forecast, notification through various means (e.g., TV, radio, etc.) is undertaken to raise awareness of the general public and encourage individuals to make behavioral changes. Emission reductions associated with changes in individual behavior can be significant if a large number of individuals limit activities that are associated with production of emissions, such as driving, use of small engines, and refueling.

Long-term emission reduction measures currently in place are expected to lower long-term average (annual average) concentrations of pollutants in urban areas, but may not be enough to completely avoid violations of short-term standards (one-hour or eight-hour average) during severe ozone episodes. Because episodic controls have been designed to cut emissions by larger amounts for shorter periods, they have the potential of being more effective in reducing short-term air quality violations.

To stay in attainment of air quality standards, areas must reduce and eventually eliminate the number of air quality violations. Activities that cannot be eliminated on a long-term basis, such as lawn maintenance or tank refilling, can be restricted on ozone alert days and result in reductions of emissions and improvement of air quality.

What Are the Health Benefits?

In addition to reduced pollutant exposure of the general population due to improved air quality on days having a high potential for ozone formation, there are other health benefits directly associated with episodic control programs. Several population groups are more susceptible to the harmful health effects of ground-level ozone: the elderly, children, and asthmatics. Public education or programs directly targeting these groups may provide the most significant benefits of an episodic control program. Early awareness of a potential high ozone day may help these groups limit their outdoor activities and therefore limit their potential for overexposure to ozone.

The American Lung Association (ALA) has measured the effects of ozone on emergency room visits. Its report finds that ground level ozone is linked with 10,000 to 15,000 hospital admissions for respiratory

conditions (including asthma, pneumonia, influenza, bronchitis, and chronic obstructive pulmonary disease) in 13 cities during the 1993 and 1994 high ozone seasons. The report links 30,000 to 50,000 emergency room visits with high ozone levels, and cites increasing evidence that these effects occur at levels at or below the current ozone standards. Many cities, such as Los Angeles and Houston, continue to exceed the 0.12 ppm summertime standard.

The ALA study highlights the specific link between ground-level ozone concentrations and health effects on susceptible populations. While the principal investigators note that their methodology does not account for all factors (e.g., demographics and other factors associated with the use of emergency rooms), the results do indicate that high concentrations of ground-level ozone can be statistically associated with emergency room visits and hospital admissions.

Implementation of effective episodic control programs can mitigate these effects in three direct ways. First, communication and outreach programs can inform the public—and specific susceptible populations—about the potential public health risks due to increases in ground-level ozone. Second, accurate forecasting and subsequent notification of alert days can allow people in these susceptible populations to change their behavior to limit their exposure. Third the long-term impact of the episodic control program may reduce concentrations of ground-level ozone and further cut the exposure to susceptible populations and all other residents.

For Further Information

For more information on Episodic Emission Control Programs, please contact Michael Ball at:

U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, MI 48105
Phone: (734) 734-7897
Fax: (734) 741-7906
E-mail: ball.michael@epamail.epa.gov

Information on episodic control programs is available electronically at the Survey Of Episodic Control Programs page on EPA's Internet World Wide Web (WWW) site:

<http://www.epa.gov/OMSWWW/reports/episodic/study.htm>.