

**American Lung Association of California
Position Statement**

**POSITION TITLE: Air Quality and Health Impacts of Greenhouse Gas
Emissions and Global Warming**

DATE APPROVED: June 5, 2004

POSITION TEXT:

The American Lung Association of California is concerned about the negative impacts on air quality and public health of greenhouse gas emissions and global warming. Build-up of greenhouse gases in the atmosphere leads to higher temperatures that will likely contribute to increased ozone formation, as well as increased emissions of ozone precursors, toxic air contaminants and fine particles. Rising temperatures and associated emission increases will contribute to worsening air quality and respiratory illnesses, including aggravated asthma, increased hospitalizations for respiratory and cardiovascular disease, reduced lung capacity and premature deaths.

The American Lung Association of California supports efforts to reduce greenhouse gas emissions from vehicles, industries and other sources as an important part of California's clean air strategy. California should adopt the strongest possible regulations to reduce greenhouse gas emissions from motor vehicles [pursuant to Assembly Bill 1493 (Pavley); Chapter 200, Statutes of 2002] and should increase the stringency of those regulations over time as more alternative fuels and new technologies become available. California laws and regulations should not make tradeoffs between reduced greenhouse gas emissions and reduced criteria air pollutant emissions; both are essential to improved air quality and public health.

Background

Global warming is well recognized by scientists around the world as a serious public health and environmental concern. While the greenhouse effect has been beneficial to maintain global temperatures compatible to human life, recent increases in average temperatures due to human activities have caused great concern. Scientific evidence has linked global climate change to increased weather extremes including flooding, storms, droughts and heat waves. The increase in global warming gases in the atmosphere is primarily due to increased consumption of fossil fuels for industrial uses, power plants, motor vehicles and other uses.

Two well respected scientific bodies, the Intergovernmental Panel on Climate Change and the National Research Council of the National Academies, have concluded that the global climate is changing at a rate unprecedented over the past 1,000 years. Average

temperatures on earth have climbed more than one degree Fahrenheit over the past century compared to nine degrees Fahrenheit since the last Ice Age over 10,000 years ago. Changes documented over the past fifty years and projected to worsen in the future include more hot days and higher maximum air temperatures, among other changes. Average global temperatures could increase by 2.5 to 10.4 degrees Fahrenheit by the year 2100 according to the Intergovernmental Panel on Climate Change. Global warming will have a wide range of public health and environmental impacts, including impacts on air quality, water supply and quality, coastal resources, and agriculture. Greenhouse gases that contribute to global warming include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, black carbon particles and ozone.

Air Quality Concerns Related To Global Warming

As atmospheric concentrations of greenhouse gases rise globally, temperatures on earth are increasing. Higher temperatures commonly lead to higher emissions of air pollutants and increased public health impacts. Higher temperatures, strong sunlight and a stable air mass are ideal for formation of ground level ozone. EPA studies and other studies designed to study the impacts of increased temperatures from global warming have determined a likely increase in peak ozone levels. In addition, the National Research Council of the National Academies has linked global warming to increased ozone levels in two recent reports. In addition to facilitating ozone formation, higher temperatures on their own lead to increased emissions. For example, hotter summer weather leads to increased emissions of ozone precursors, particulate matter and toxic air contaminants from increased energy production, electricity use, fuel evaporation and other sources. During hot summer days, air conditioners are utilized more frequently, leading to increased demand for electric power production and associated increases in smog-forming pollutants, such as NOx and hydrocarbons. Increased mobile air conditioning usage also leads to higher pollution emissions.

The heat waves in Europe in summer 2003 provide a case study of heat-related ozone impacts on public health. During the heat waves there were thousands of excess deaths that occurred above the average recorded for that time of year. Epidemiological studies of deaths during the heat waves suggest that a substantial portion of the mortality could be attributed to elevated ozone and particulate levels that occurred during the heat waves. Two studies suggest that 20-50% of the total excess deaths were due to elevated ozone and particle levels.

Air Quality and Health

Californians already experience the worst air quality in the nation, with more than 95 percent of Californians living in areas with unhealthy air, according to the California Air Resources Board (CARB). The number of unhealthy days for ozone pollution (based on California's air quality standards) has been approximately one out of every three days for some areas of the state, such as the South Coast Air Basin and the San Joaquin Valley. According to CARB, the annual health impacts of exceeding state health-based standards for ozone and particulate matter include: 6,500 premature deaths; 4,000

hospital admissions for respiratory disease, 3,000 hospital admissions for cardiovascular disease, 350,000 asthma attacks, 2,000 asthma related emergency room visits, elevated school absences due to respiratory conditions, and reduced lung function growth rate among other health effects. Sensitive groups, including the elderly, people with heart or lung disease, children and infants are the most vulnerable to the harmful effects of air pollution. Low-income communities and communities of color are also especially vulnerable to air quality health impacts due to the multiple pollution sources located in these communities and often limited access to health care.² The impact of climate change on allergens is another area of concern. A recent Harvard Medical School study suggests that climate change will likely result in increased pollen production and new allergens leading to exacerbation of allergies and asthma.

California Regulations Fight Global Warming Pollution

According to the California Energy Commission, almost sixty percent of greenhouse gas emissions in California come from burning of petroleum fuels in the transportation sector. Passenger cars and trucks alone are responsible for approximately forty percent of greenhouse gas emissions in California. To address the large amount of greenhouse gases emitted from vehicles, California adopted legislation, AB 1493 (Pavley) that requires the California Air Resources Board (CARB) to adopt regulations to achieve the “maximum feasible and cost effective reduction” of greenhouse gases from motor vehicles. Pursuant to the legislation, CARB will adopt new regulations on cars requiring reductions in greenhouse gas emissions beginning in the 2009 model year. Existing technology is already available for automobile engines, transmissions, refrigerants, tires, aerodynamics and other areas to significantly reduce greenhouse gases. Use of hybrid-electric vehicles and alternative fueled vehicles such as battery electric, natural gas and fuel cell vehicles can also result in significant reductions in greenhouse gas emissions.

According to CARB, an important byproduct of the AB 1493 regulations will be reduced pollution emissions from the transportation, delivery and sale of gasoline (called “upstream emissions”) due to reduced petroleum use. Upstream emissions are a significant portion of vehicle emissions that contribute to unhealthy air, and can be expected to account for up to twenty-five percent of vehicle-related emissions by 2020. In addition to reducing greenhouse gases and upstream emissions related to petroleum use, the AB 1493 regulations would also encourage development of alternative fuels and technologies. Although the AB 1493 regulations will not require specific technologies, the drive toward cleaner cars will encourage the use of hybrid electric, alternative fuel and advanced technology vehicles that have extremely low emissions of ozone precursors.

Some European countries have embraced diesel vehicle technology, which uses less fuel than conventional gasoline vehicles, as a strategy to reduce greenhouse gas emissions. Given the current status of diesel technology, this strategy would be inappropriate from an air quality perspective and would slow the state’s progress toward meeting state and federal health-based air quality standards. California’s stringent

tailpipe standards for nitrogen oxide (NOx) and particulate emissions currently preclude introduction of new diesel passenger vehicles in California. A range of vehicle technologies and alternative fuel strategies is available to reduce greenhouse gases without reliance on diesel technology.

Conclusion

There is substantial scientific evidence that global climate change will have profound impact on California's environment and public health. Air quality will likely worsen as global climate change influences weather conditions and poor air quality is linked to a plethora of respiratory impacts. The central problem leading to greenhouse gas pollution is over-consumption of petroleum, especially in the transportation sector.³ Adopting strong regulations to reduce greenhouse gases from motor vehicles is a critical first step to addressing the broader global warming problem and related air quality and health impacts. In addition to addressing global warming, regulations to reduce greenhouse gases from motor vehicles will also assist efforts to reduce criteria air pollutants and meet health-based state and federal air quality standards. Given California's extreme air quality situation, all feasible emission reductions, including upstream emission reductions from the petroleum fuel cycle, are needed to make progress toward improved air quality.

While reducing greenhouse gases from California vehicles will not, by itself, slow the advance of global warming, it will set the example for other states, the nation and the world. Just as California's leadership has forced changes in auto emission controls to reduce smog that have been adopted around the globe, California's leadership in utilization of existing technologies and development of new vehicle technologies to control greenhouse gas emissions can also have global impacts.

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