California Air Resources Board - <https://www.arb.ca.gov/homepage.htm>

NOTE THAT THE ARB WAS FORMED THREE YEARS BEFORE THE FEDERAL CLEAN AIR ACT WAS PASSED

<https://www.arb.ca.gov/html/aboutarb.htm>

The California Air Resources Board is a part of the California Environmental Protection Agency, an organization which reports directly to the Governor's Office in the Executive Branch of California State Government.

**The Mission of the California Air Resources Board:**

* To promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state.

**The Major Goals of the Board are to:**

* Provide Safe, Clean Air to All Californians
* Protect the Public from Exposure to Toxic Air Contaminants
* Reduce California's Emission of Greenhouse Gases
* Provide Leadership in Implementing and Enforcing Air Pollution Control Rules and Regulations
* Provide Innovative Approaches for Complying with Air Pollution Rules and Regulations
* Base Decisions on Best Possible Scientific and Economic Information
* Provide Quality Customer Service to All ARB Clients

History of ARB

<https://www.arb.ca.gov/knowzone/history.htm>

**A brief history of the Air Resources Board**

In 1967, California's Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus--the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board--to establish the Air Resources Board (ARB). On February 8, 1968, the first meeting of the ARB was held in Sacramento. Since its formation, the ARB has worked with the public, the business sector and local governments to find solutions to California's air pollution problem. The resulting state air quality standards set by the ARB continue to outpace the rest of the nation and have prompted the development of new antismog technology for industrial facilities and motor vehicles.  
  
An 11-member board appointed by the governor governs the ARB. Six of the members are experts in fields such as medicine, chemistry, physics, meteorology, engineering, business and law. Five others are elected officials who represent regional air pollution control agencies--one each from the Los Angeles region, the San Francisco Bay area, San Diego, the San Joaquin Valley and another to represent other, more rural areas of the state.  
  
The ARB also oversees the activities of 35 local and regional air pollution control districts. These districts regulate industrial pollution sources. They also issue permits, develop local plans to attain healthy air quality and ensure that the industries in their area adhere to air quality mandates.

**The "Father" of Air Pollution Control**  
Dr. Arie Haagen-Smit, known by many as the "father" of air pollution control, was a Dutch-born graduate of the University of Utrecht and a professor of biochemistry at the California Institute of Technology, Pasadena for 16 years before beginning his air pollution research in 1948.  
  
An avid gardener in the Los Angeles region, Dr. Haagen-Smit first became concerned about damage to his plants, such as discolored leaves and undersized flowers. His curiosity led to a series of experiments that uncovered the chemical interactions to form smog. He found that most of California's smog is a result of photochemistry: when exhaust from motor vehicles and industrial facilities react with sunlight to create ozone. This break-through is the foundation upon which today's nationwide air pollution standards are based.  
  
After serving as an original board member of the Motor Vehicle Pollution Control Board, formed in 1960, Dr. Haagen-Smit became the ARB's first chairman in 1968. Haagen-Smit died of lung cancer two months after the ARB laboratory in El Monte was dedicated in his name in March 1977.

**Cutting Edge Research**  
The basis for all ARB programs is research into the causes of air pollution and their effects on public health and the environment. From its first chairman, Dr. Haagen-Smit, to the present chair, Mary D. Nichols, the ARB has led the country developing air quality standards based on its research efforts.  
  
**Some examples:**

* The ongoing Children's Health Study, designed to assess the health effects of long-term air pollution exposure on Southern California children. The study includes over 3,000 children in 12 communities who undergo annual health examinations for up to 10 years. Although not yet complete, the study has already yielded important information, including a link between slow lung function growth and long-term exposure to outdoor air pollution.
* A Fresno area study on the impact of air pollution on childhood asthma. The overall goal is to determine the effects of particulate matter, in combination with other pollutants, on asthmatic children. Still another ARB study is designed to determine how short and long term exposure to particulate matter affects the development and progression of cardio-vascular disease in the elderly. The study group of 4,000 men and women has been followed since 1990.

**Community Health Program**  
In 2000, the Air Resources Board announced the Community Health Program, which studies the influences of air toxics and other air pollutants within individual neighborhoods. For the first time, the ARB is addressing the cumulative effects of exposure from multiple air toxics along with strategies to reduce these health issues.  
  
The ARB has begun to review ambient air quality standards to ensure that they adequately protect children. ARB is looking at six communities to examine the effects of air pollution on children's health. As part of this effort, the ARB has begun monitoring selected schools, daycare centers and playgrounds in order to determine air quality.  
  
**Indoor Air**  
Californians spend, on average, about 87 percent of their day indoors. During that time they are often exposed to air pollution levels higher than those outdoors. ARB's Indoor Air Quality and Personal Exposure Assessment Program includes sponsored research, exposure assessment, the development of indoor air quality guidelines and public education and outreach to identify and reduce Californians exposure to indoor air pollution.  
  
**Stationary Sources**  
While it is important to reduce air pollution from vehicles, it is not enough.  Large industrial sources, such as refineries, factories and power plants must also meet state and federal air quality standards. These and other stationary sources, including gasoline service stations, dry cleaners, and bakeries, for example, are regulated by local air quality officials.  
  
Industrial sources must use the best available control technology (BACT) to achieve the greatest feasible emission reductions. In addition to using advanced control technology in new factories, many older facilities have reduced their emissions by using retrofit equipment and switching to cleaner burning fuels.

**Consumer Products**  
Smaller, more personal air pollution sources, known as consumer products, also affect our air quality. Products such as deodorants, hair spray and cleaning products contain ozone-forming chemicals knows as volatile organic compounds (VOCs).  
  
In 1990, consumer products emitted about 264 tons of smog-forming pollutants each day.  This is more than all the refineries and gas stations in the state combined.  
  
California's clean air plan commits to an 85 percent reduction in ozone-forming pollution from consumer products.  To accomplish this, the ARB works with industry to make sure the regulations are technologically and commercially viable.

**Toxic Air Contaminants**  
In 1977 the ARB appointed an independent panel of seven experts to review what was known about carcinogenic air pollutants in California. The panel recommended that follow-up research be done to explore further the relationship of cancer to air pollution and to determine the extent of the problem in California.  
  
California's air toxics program began in 1983 with the adoption of the Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner).  The act set up a process to identify a substance as a toxic air contaminant and, if necessary, develop one or more control measures to reduce emissions of that substance.  
  
In 1992 the Toxic Air Contaminant Identification and Control Act was further amended to integrate rules from the Federal Clean Air Act.  
  
The Air Toxics program has identified almost 200 substances which are hazardous to the people of California, and the list continues to grow. Among those listed are asbestos, Environmental Tobacco Smoke, and, to control the emissions from the growing number of diesel engines in our state, diesel particulate matter.

**Motor Vehicles**  
Californians set the pace nationwide in their love affairs with cars. The state's 34 million residents collectively own about 25 million cars, almost one for each man, woman and child, and drive more than most other Americans. Unfortunately, there is a consequence. Motor vehicles are California's number one cause of air pollution. Therefore, controlling pollution from cars and trucks is essential to reduce smog.

**The ARB's efforts include:**

* The nation's first motor vehicle emission standards in 1966.  These standards produced bolt-on pollution controls, such as air pumps that improve combustion efficiency. In 1970, the ARB required auto manufacturers to meet the first standards to control smog-forming hydrocarbon and nitrogen oxide emissions.
* The phase-out of lead because of concerns about its health impacts. Another benefit of this action was that manufacturers were then able to use catalytic converters to more effectively control tailpipe emissions.
* Efforts continue to reduce emissions of motor vehicles and fuels. Today's California gasoline contains less pollution-forming sulfur, benzene, aromatic hydrocarbons and olefins than most gasoline sold elsewhere in the nation. Use of cleaner-burning gasoline has removed the emissions equivalent of 3.5 million vehicles from California's roads. In 1999, the ARB also approved a rule that bans the additive MTBE in gasoline.
* California diesel fuel regulations require limits on sulfur and aromatic hydrocarbons lower emissions of particulate matter and nitrogen oxides. Diesel-powered vehicles account for about 30 percent of the nitrogen oxides and 60 percent of particulate matter (PM) emitted from California vehicles. In 1993, the first steps were taken to clean up diesel fuel.
* To further control motor vehicle emissions and maintain pollution reductions to date, the ARB is making efforts to place more zero emission vehicles (ZEVs) on the road. In 1990 the ARB approved a rule to require that ten percent of all 2003 model year cars offered for sale in California be ZEVs. In February 2000, a similar ruling was adopted for transit buses, requiring transit agencies to demonstrate zero-emissions buses (ZEBs) in 2008 and to purchase 15 percent ZEBs for their fleets thereafter.
* California is also taking bold steps to cut its greenhouse gas emissions from motor vehicles. Transportation is California's largest source of carbon dioxide, with passenger vehicles and light duty trucks creating more than 30 percent of total climate change emissions. ARB has also adopted greenhouse gas emission standards for new passenger vehicles, effective with 2009 models.

Through ARB regulations, today's new cars pollute 99 percent less than their predecessors did thirty years ago. Still, over half of the state's current smog-forming emissions come from gasoline and diesel-powered vehicles.  
  
**Diesel Activities**  
In 1998 the ARB identified diesel particulate matter as a toxic air contaminant, which means the compound is a known human carcinogen. As part of that process, Cal/EPA's Office of Environmental Health Hazard Assessment completed a thorough health risk assessment. The findings revealed that diesel PM can cause life-shortening health problems ranging from respiratory illness to heart problems, asthma, and cancer.  
  
Rules on diesel fuel and engine performance adopted between 1990 and 1998 have radically cut diesel PM. Today, the ARB is striving to further reduce diesel emissions. New data show that diesel particulate is the most common airborne toxic that Californians breathe. As a result, the ARB has developed a 14-point program, the Diesel Risk Reduction Plan, to slash diesel emissions in the next decade.  
  
This plan will retrofit new and existing engines with PM filters to reduce emissions. A major component of the plan calls for extensive use of low sulfur diesel fuel. Like removing lead from gasoline, this requirement is leading the way to new technological advances in automotive engineering.  
  
Since the adoption of this plan, a regulation to reduce emissions from off-road diesel vehicles, some of the dirtiest in the state, was approved by our board. A regulation is also in the works which would lower emissions from all on-road heavy duty diesel vehicles being driven in California.  
  
To help cut emissions from the state’s more than 1.25 million diesel engines, California has invested in a number of incentive programs to help the owners of diesel engines upgrade or replace them with cleaner-burning alternatives, such as compressed natural gas or electric-powered technology.

**Goods Movement**  
The ARB received 1 billion dollars from Proposition 1B to reduce emissions from activities related to goods movement along California's four major trade corridors. In order to distribute these funds, a partnership was created with local agencies in an effort to reduce emissions from goods movement by providing incentives to upgrade to cleaner technologies.

**Into the 21st Century**  
The United States is the highest emitter of greenhouse gases in the world, and with the looming thread of global warming, California is once again leading the charge to combat airborne threats. When Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006, he established the first-in-the-world comprehensive program to reduce greenhouse gases. ARB is tasked with the job of monitoring and reducing GHG emissions by 25 percent by 2020, and achieving 80 percent more in reductions by 2050.   
  
As always, California plans to meet these goals through groundbreaking regulations which will require mandated cuts and technology forcing policies. Through coordinated state-wide efforts, the ARB will lead the nation, and the world, to a better environment.  
  
**Conclusion**  
As a result of the ARB's and local air district's work to limit air pollution, Californians today breathe the cleanest air since measurements have been recorded. The number of first stage alerts in the Los Angeles area has been cut from over 200 per year in the 1970s to less than 10 per year today. Other regions of the state also have improved air quality despite massive increases in population, the number of motor vehicles and the distances they are driven.

Below are links to specific pages

<https://www.arb.ca.gov/html/lawsregs.htm> List of all laws and regs

<https://www.arb.ca.gov/html/programs.htm> List of all ARB Programs and Links

<https://www.arb.ca.gov/cc/hfc-mac/hfcdiy/hfcdiy.htm> Small Can Regulation for DIY Automotive Refrigerant

<https://www.arb.ca.gov/cc/cc.htm> Climate Change Program

<https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm> Cap and Trade Program

Cap-and-trade is a market based regulation that is designed to reduce greenhouse gases (GHGs) from multiple sources. Cap-and-trade sets a firm limit or cap on GHGs and minimize the compliance costs of achieving AB 32 goals. The cap will decline approximately 3 percent each year beginning in 2013. Trading creates incentives to reduce GHGs below allowable levels through investments in clean technologies. With a carbon market, a price on carbon is established for GHGs. Market forces spur technological innovation and investments in clean energy. Cap-and-trade is an environmentally effective and economically efficient response to climate change.

The AB 32 Scoping Plan identifies a cap-and-trade program as one of the strategies California will employ to reduce the greenhouse gas (GHG) emissions that cause climate change. This program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020, and ultimately achieving an 80% reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors will be established by the cap-and-trade program and facilities subject to the cap will be able to trade permits (allowances) to emit GHGs.

The California Air Resources Board (ARB) has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The development of this program included a multi-year stakeholder process and consideration of potential impacts on disproportionately impacted communities. The program starts on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions.

California is working closely with British Columbia, Ontario, Quebec and Manitoba through the Western Climate Initiative to develop harmonized cap and trade programs that will deliver cost-effective emission reductions. The WCI jurisdictions have formed a non-profit corporation, WCI, Inc. to provide coordinated and cost-effective administrative and technical support for its participating jurisdictions' emissions trading programs. Just as with other voluntary agreements that ARB establishes with local air districts, states, federal government, and contractors, ARB's [agreement](https://www.arb.ca.gov/cc/capandtrade/wci/agreement.htm) with WCI, Inc. does not confer any decision making authority; decisions concerning the ARB's cap-and-trade regulation are made by ARB at the direction of the Board. More details on the organization and operation of WCI, Inc., can be found at: [http://www.wci-inc.org/](https://www.arb.ca.gov/)