
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY**Senator Bob Wieckowski, Chair****2015 - 2016 Regular**

Bill No: SB 32 **Hearing Date:** 4/29/2015
Author: Pavley
Version: 3/16/2015
Urgency: No **Fiscal:** Yes
Consultant: Rebecca Newhouse

SUBJECT: California Global Warming Solutions Act of 2006: emissions limit

ANALYSIS:

Existing law, under the California Global Warming Solutions Act of 2006 (Health and Safety Code §38500 et seq.):

1. Requires the California Air Resources Control Board (ARB) to determine the 1990 statewide greenhouse gas (GHG) emissions level and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020, and to adopt GHG emissions reductions measures by regulation.
2. Authorizes ARB to adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHGs, applicable from January 1, 2012, to December 31, 2020, inclusive.
3. Specifies that the statewide GHG emissions limit remains in effect unless otherwise amended or repealed.
4. Expresses Legislative intent that the emissions limit be used to maintain and continue in GHG emissions reductions beyond 2020.
5. Requires ARB to make recommendations to the Governor and the Legislature on how to continue GHG emissions reductions beyond 2020.

This bill:

1. Requires ARB to approve in a public hearing a statewide GHG emission limit of 80% below the 1990 level of GHG emissions, to be achieved by 2050 and based on the best available scientific, technological, and economic assessments, and requires the limit include short-lived climate pollutants, as defined.

2. Authorizes ARB to approve 2030 and 2040 interim GHG emission targets, consistent with the 2050 limit.
3. Specifies that the 2050 limit remain in effect and be used to maintain and continue emissions reductions beyond 2050.
4. Requires ARB to make recommendations to the Governor and the Legislature on how to continue GHG emissions reductions beyond 2050.
5. Specifies that it is the intent of the Legislature for the Legislature and appropriate agencies, in achieving the 2050 GHG emissions limit, to adopt policies that ensure those long-term emission reductions advance all of the following:
 - A. Job growth and local economic benefits in the state.
 - B. Public health benefits for Californians, particularly in disadvantaged communities.
 - C. Innovation in technology and energy and resource management practices.
 - D. Regional and international collaboration to adopt similar GHG emission reduction policies.

Background

1. *Climate Change.*

The 5th assessment report from the Intergovernmental Panel on Climate Change (IPCC) notes that atmospheric concentrations of global warming pollutants have risen to levels unseen in the past 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times. There is broad scientific consensus that these global greenhouse gases emission increases are leading to higher air and water temperatures as well as rising sea levels, with serious consequences for California.

Sea level is expected to rise 17 to 66 inches by 2100, and the frequency of extreme events such as heat waves, wildfires, floods, and droughts is expected to increase.

Higher temperatures will result in more rain and less snow, diminishing the reserves of water in California's Sierra Nevada snowpack. Even if all GHG emissions ceased today, some of these developments would be unavoidable because the climate system changes slowly.

There are significant public health risks associated with climate change. According to the US EPA, warmer average temperatures will likely lead to hotter days and more frequent and longer heat waves and could increase the number of heat-related illnesses and deaths. Increases in the frequency or severity of extreme weather events could increase the risk of dangerous flooding, high winds, concentrations of unhealthy air, and water pollutants, and potentially enhance the spread of certain diseases.

Along with the potential costs associated with public health impacts, climate change also represents a very real threat to California's infrastructure, and could lead to billions of dollars in property damage. The Pacific Institute estimates that \$100 billion worth of property in California is at risk of flooding during a 100-year flood with a projected 1.4 meters of sea level rise.

As the evidence for anthropogenic climate change has mounted over the last few decades, the state has implemented a broad climate portfolio to mitigate global warming impacts by pursuing policies that reduce GHGs.

2. *The Global Warming Solutions Act of 2006.*

In 2006, the Global Warming Solutions Act of 2006, AB 32 (Núñez, Pavley), Chapter 488, Statutes of 2006, established a statewide GHG emissions limit by 2020. AB 32 defines greenhouse gasses (GHGs) as carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride and requires ARB to determine the 1990 statewide GHG emissions level and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020.

AB 32 requires ARB, among other things, to:

- Inventory greenhouse gas emissions in California.
- Implement regulations that achieve the maximum technologically feasible and cost-effective reduction of GHG emissions and impose fees for administrative implementation costs.
- Identify and adopt regulations for discrete early action measures.
- Prepare and approve a scoping plan to achieve the maximum technologically feasible and cost-effective reduction of GHG emissions by 2020, to be updated every five years.

- Convene an Environmental Justice Advisory Committee to advise ARB in the development of the scoping plan.
- Appoint an economic advisory committee to obtain recommendations for GHG reduction measures.

The statute also specifies that ARB may include market-based compliance mechanisms in the AB 32 regulations, after considering the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution, and must design any market-based compliance mechanisms to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants. The statute also specifies that market-based compliance mechanisms must also maximize additional environmental and economic benefits for California, as appropriate.

3. *AB 32 Scoping Plan.*

Pursuant to AB 32, ARB approved the first Scoping Plan in 2008. The Scoping Plan outlined a suite of measures aimed at achieving 1990-level emissions, a reduction of 80 million metric tons of CO₂ (MMT CO₂e). Average emission data in the Scoping Plan reveal that transportation accounts for almost 40% of statewide GHG emissions, and electricity and commercial and residential energy sector account for over 30% of statewide GHG emissions. The industrial sector, including refineries, oil and gas production, cement plants, and food processors, was shown to contribute 20% of California's total GHG emissions.

The 2008 Scoping Plan recommended that reducing GHG emissions from the wide variety of sources that make up the state's emissions profile could best be accomplished through a cap-and-trade program along with a mix of other strategies including:

- a low carbon fuel standard (LCFS);
- light-duty vehicle GHG standards;
- expanding and strengthening existing energy efficiency programs, and building and appliance standards;
- achieving a 33% Renewable Portfolio Standard (RPS);
- regional transportation-related GHG targets; and
- creating targeted fees on water use and high global warming potential pollutants.

The basic design of the program, as recommended by the original Scoping Plan, is that the combination of direct regulatory measures and cap-and-trade is intended to achieve the emission reduction target by 2020. An overall limit on greenhouse gas emissions from most of the California economy will be established by the “cap” portion of a cap-and-trade program, and direct regulations within both capped and uncapped sectors would achieve additional emissions reductions.

Pursuant to authority under AB 32, ARB adopted a Low Carbon Fuel Standard in 2009, and a cap-and-trade program, approved on December 13, 2011.

Of the 80 MMTCO₂ of GHG emissions reductions required to reach the 2020 AB 32 target, four programs are estimated by ARB to result in the largest emissions reductions, including cap and trade, LCFS, energy efficiency measures and the RPS. Together, they are projected to result in 70% of the total emissions reductions necessary to meet the 2020 goal. The measures that make up the other 30% include the Advanced Clean Cars program, which sets GHG emissions standards for passenger vehicles, the Sustainable Communities and Climate Protection Act of 2008, created by SB 375 (Steinberg), Chapter 728, Statutes of 2008, which requires ARB to set regional targets for GHG emissions reductions from passenger vehicle use, programs for the reduction of high global warming potential gasses, and others.

Scoping Plan Update: ARB approved an update to the Scoping Plan on May 22, 2014. The update asserts that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32.

The February 2014 updated Scoping Plan draft describes policies, actions, and strategies in the energy, transportation, fuels, agriculture, waste, and natural lands sectors as a means to continue emissions reductions in each of these sectors. The update also emphasizes the need for California to establish a mid-term statewide emission reduction target “informed by climate science, to frame the additional suite of policy measures, regulations, planning efforts, and investments in clean technologies that are needed to continue driving down emissions.”

The update also includes a summary of the recent science on short-lived climate pollutants.

4. *Short-lived Climate Pollutants.*

The updated draft Scoping Plan notes that ARB will develop a short-lived climate pollutant strategy by 2015 that will include an inventory of sources and emissions, the identification of additional research needs, and a plan for developing necessary control measures. CO₂ remains in the atmosphere for centuries, which makes it the most critical greenhouse gas to reduce in order to limit long-term climate change. However, climate pollutants including methane, tropospheric ozone, hydrofluorocarbons (HFCs), and soot (black carbon), are relatively short-lived (anywhere from a few weeks to 15 years), but have much higher global warming potentials than CO₂.

New research suggests that black carbon is the second largest man-made contributor to global warming and its influence on the climate has been greatly underestimated.

Another study published in the journal *Nature Climate Change* found that reducing emissions of short-lived climate pollutants, including soot and methane, by 30 to 60% by 2050 would slow the annual rate of sea level rise by about 18% by 2050. In addition, the study found that, compared to just cutting CO₂ emissions, reducing the release of short-lived climate pollutants would do more to slow sea level rise before 2050, but that lowering CO₂ emissions would be required to limit warming and warming-related impacts beyond that point.

According to the updated Scoping Plan, the three short-lived climate pollutants with the greatest implications for California are the following:

Black carbon: Black carbon, a component of soot, also known as PM 2.5, comes from diesel engines and incomplete burning of carbon sources. Wildfires contribute almost 50% of the total black carbon emissions in the state. In addition to being a powerful global warming pollutant, black carbon is associated with numerous negative health impacts and is designated a potential human carcinogen. Black carbon is not listed under AB 32 as a greenhouse gas subject to AB 32 regulations. However, due to known health and air quality impacts, ARB adopted truck and bus regulations in 2008 to control diesel PM emissions. ARB also administers the Carl Moyer Program, which provides grants to fund “cleaner than required” engine upgrades, or retrofits that reduce PM 2.5 and other pollutants.

Methane: Methane (CH₄) is the principal component of natural gas and is also produced biologically under anaerobic conditions in ruminants, landfills, and waste handling. Atmospheric methane concentrations have been increasing as a result of human activities related to agriculture, fossil fuel extraction and

distribution, and waste generation and processing. Many emissions sources of methane are unregulated (e.g., methane from dairy production and fugitive methane emissions from landfills and natural gas distribution) and recent scientific reports indicate that the US Environmental Protection Agency has underestimated methane emissions by as much as 50%.

Hydrofluorocarbons (HFC): HFCs are synthetic gases used in refrigeration, air conditioning, insulation foams, solvents, aerosol products, and fire protection. They are primarily produced for use as substitutes for ozone-depleting substances which are currently being globally phased out. Currently, HFCs are a small fraction of the total climate forcing (<1%), but their emissions are growing relatively more rapidly than those of CO₂. ARB has implemented several measures to reduce HFC emissions including low-global warming potential (GWP) requirements for aerosol propellants, a deposit-return recycling program for small cans of air conditioner refrigerant and a refrigerant management program.

Comments

1. *Purpose of Bill.*

According to the author, “Following the issuance of Executive Order S-03-05, which set a long-term greenhouse gas emissions reduction target for California of 80 percent below 1990 levels by 2050, the Legislature enacted AB 32 (Núñez-Pavley, 2006). The express intent of AB 32 was for the California Air Resources Board (ARB) to continue reducing greenhouse gas emissions beyond the 2020 limit established therein. The Legislature also directed ARB to develop regional greenhouse gas emissions reduction targets for automobiles and light trucks for 2035 in SB 375 (Steinberg, 2008).

“In the Scoping Plan Update issued in May 2014, the ARB identified a number of cost-effective, technologically feasible pathways to emissions reductions required by 2030, 2040 and 2050 to adequately protect the health, safety and welfare of Californians from the mounting costs of unabated climate change. While the courts have affirmed this ongoing authority to reduce greenhouse gas emissions beyond 2020 (See *Cleveland National Forest Foundation v. San Diego Association of Governments* (4th Dist., Div. 1, No. D063288, Nov. 24, 2014)), the Legislature has not yet given direction to shape future reduction strategies.

“SB 32 would provide regulatory certainty by establishing the greenhouse gas reduction limit of 80 percent below 1990 levels by 2050 in law. This level of climate pollution has been identified by the international scientific community as

necessary to stave off the worst effects of climate change on California's health and safety. The target is guided by science, but this bill provides the flexibility inherent in the existing AB32 framework to adjust pathways to the goal along the way based on changing technological and economic conditions, and ongoing evaluations of policy efficacy. The legislation also identifies goals to ensure that greenhouse gas reductions advance job creation; public health improvement, especially in disadvantaged communities; innovation; and policy collaboration beyond our borders.

“By simply amending the existing AB32 framework without any major mechanical changes to the regulatory implementation process, SB 32 ensures that the policy tools currently being utilized to achieve the existing 2020 greenhouse gas target remain available for the achievement of targets beyond 2020 – including, but not limited to, energy efficiency requirements for buildings and appliances, tailpipe emissions standards for mobile sources, power sector renewable portfolio and emissions performance standards, sustainable land use policies, fuel-related emissions standards, and market based mechanisms – to maximize the effectiveness of our climate policies overall.”

2. *Updating the GHGs.*

AB 32 defines GHGs as CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and nitrogen trifluoride.

However, research since the passage of AB 32 clearly indicates that black carbon is a potent climate forcer, in addition to its numerous negative health impacts.

Should the list of GHGs in AB 32 be updated with black carbon? Additionally, should the definition of GHG in AB 32 allow for additional GHGs that may be identified pursuant to ARB's short-lived climate pollutant strategy, due in January 2016?

3. *Technical Amendments for Consistency of the Act.*

Several provisions of AB 32 reference the 2020 greenhouse gas emissions limit. As the bill establishes a 2050 GHG emissions limit equal to 80% below the 1990 GHG emissions level, *several technical, conforming amendments are needed to ensure consistency between the bill and existing law.*

Related/Prior Legislation

AB 32 (Núñez, Pavley), Chapter 418, Statutes of 2006, requires ARB to establish a GHG emissions limit equal to 1990 level of emissions, to be achieved by 2020.

SB 1125 (Pavley) of 2014 requires ARB, in consultation with other entities, to develop reduction targets for GHG emissions for 2030 in an open and public process by January 1, 2016.

SOURCE: Author

SUPPORT:

American Academy of Pediatrics, California
 American Cancer Society Cancer Action network, California
 American Farmland Trust
 American Heart Association, California
 American Lung Association, California
 Asthma Coalition of Los Angeles County
 Audubon
 Autodesk
 Azul
 Bagito
 Bay Area Air Quality Management District
 Baz Allergy, Asthma and Sinus Center
 Bioenergy Association of California
 Biosynthetic Technologies
 Bonnie J. Adario Lung Cancer Foundation
 Breathe CA
 Building Doctors
 Business for Innovative Climate and Energy Policy
 California Black Health Network
 California Climate and Agriculture Network
 California Conference of Directors of Environmental Health
 California Energy Efficiency Industry Council
 California Interfaith Power & Light
 California League of Conservation Voters
 California Nurses Association
 California Pan Ethnic Health Network
 California Public Health Association, North
 California Service Chapter, American College of Physicians
 California Ski Industry Association
 California Solar Energy Industry Association

California Thoracic Society
California Wind Energy Association
Californians Against Waste
CALSTART
CaTrout
Carbon Cycle Institute
Catholic Charities, Diocese of Stockton
Center for Biological Diversity
Center for Climate Change and Health; Public Health Institute
Central California Asthma Collaborative
Ceres
Circulate San Diego
Clean Power Finance
Clean Water Action
Cleveland National Forest Foundation
Climate Ready Solutions LLC
Climate Resolve
Coastal Environmental Rights Foundation
Communications Workers of America, District 9, AFL-CIO
Communitas Financial Planning
Department of Public Health, Los Angeles County
Dignity Health
Distance Learning Consulting
Doctors for Climate Health
Eagle Creek
eBay, Inc
Ecogate, Inc
Endangered Habitats League
Environment California
Environmental Action Committee of West Marin
Environmental Defense Fund
Environmental Entrepreneurs
EtaGen
Friends of the River
Gap, Inc.
Greenbelt Alliance
Health Care Without Harm
House Kombucha
Klean Kanteen
Land Trust of Santa Cruz County
Large-scale Solar Association
League of Women Voters of California

Levi Strauss & Co
Los Angeles Business Council
Medical Advocates for Healthy Air
Mercury Press International
Moms Clean Air Force
National Parks Conservation Association
Natural Resources Defense Council
NextGen Climate
Physicians for Social Responsibility, Los Angeles
Physicians for Social Responsibility, San Francisco Bay Area Chapter
Planning and Conservation League
Power2Sustain
Progressive Asset Management, Inc.
Public Health Institute
Purple Wine & Spirits
Quest
RC Cubed, Inc
Regional Asthma Management and Prevention
ReLeaf
San Francisco Asthma Task Force
Santa Clara County Medical Society
Sequoia Riverlands Trust
Sidel Systems USA
Sierra Club
Silicon Valley Leadership Group
SmartWool
Solar Energy Industries Association
Sonoma County Asthma Coalition
Southwest Wetlands Interpretive Association
Sustainable North Bay
Symantec Corporation
Tamalpais NatureWorks
The Humane Society of the United States
The Nature Conservancy
The North Face
TransForm
TreePeople
Trust for Public Lands
Union of Concerned Scientists
Waterplanet Alliance

OPPOSITION:

African American Farmers of California
Agricultural Council of California
American Forest and Paper Association
American Wood Council
Brea Chamber of Commerce
Building Owners and Managers Association
California Agricultural Aircraft Association
California Association of Nurseries and Garden Centers
California Business Properties Association
California Cattlemen's Association
California Chamber of Commerce
California Cotton Ginners Association
California Cotton Growers Association
California Dairies, Inc.
California Farm Bureau Federation
California Fresh Fruit Association
California Independent Oil Marketers Association
California Independent Petroleum Association
California League of Food Processors
California Taxpayers Association
California Trucking Association
Camarillo Chamber of Commerce
Chamber of Commerce Alliance of Ventura and Santa Barbara
Fresno Chamber of Commerce
Fullerton Chamber of Commerce
Greater Bakersfield Chamber of Commerce
International Council of Shopping Centers
Irvine Chamber of Commerce
Los Angeles County Solid Waste Management Committee/Integrated Waste
Management Task Force
M-S-R Public Power Agency
NAIOP-Commercial Real Estate Development Association
National Federation of Independent Business
National Hmong American Farmers
Nisei Farmers League
Oxnard Chamber of Commerce
Rancho Cordova Chamber of Commerce
Redondo Beach Chamber of Commerce and Visitor Bureau
San Jose Silicon Valley Chamber of Commerce
Santa Maria Valley Chamber of Commerce and Visitor Bureau
Simi Valley Chamber of Commerce

SB 32 (Pavley)

South Bay Association of Chambers of Commerce
Southwest California Legislative Council
Torrance Chamber of Commerce
Western Agricultural Processors Association
Western Growers Association
Western Plant Health Association
Western States Petroleum Association

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