
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: SB 582
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Fiscal: Yes

SUBJECT: Climate Emergency Mitigation, Safe Restoration, and Just Resilience Act of 2021

DIGEST: Updates the statewide greenhouse gas (GHG) emission reduction target to 80% by 2030, establishes climate restoration goals of achieving net negative GHGs by 2035 and exercising global leadership to restore GHGs to preindustrial levels before 2050, and tasks the Office of Planning and Research (OPR) and other specified agencies with developing a just resilience plan to ensure that the path to achieving these climate goals is carried out equitably and provides additional resources to low-income and vulnerable communities.

ANALYSIS:

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

- 1) Establishes the State Air Resources Board (ARB) as the state agency responsible for monitoring and regulating sources emitting greenhouse gases.
- 2) Requires ARB to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 (AB 32, 2006) and to ensure that statewide GHGs are reduced to at least 40% below the 1990 level by 2030 (SB 32, 2015).
- 3) Requires ARB to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions and to update the scoping plan at least once every 5 years.
- 4) Requires ARB when adopting regulations, to the extent feasible and in furtherance of achieving the statewide GHG goal, to do the following:
 - a) Ensure that activities undertaken to comply with the regulations do not disproportionately impact low-income communities.

- b) Ensure that activities pursuant to the regulations do not interfere with efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions, and consider cost-effectiveness of these regulations.
 - c) Consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.
 - d) Consider cost-effectiveness of these regulations.
- 5) Establishes the Integrated Climate Adaptation and Resilience Program (ICARP), administered by OPR, to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change with, to the extent feasible, an emphasis on climate equity considerations across sectors and regions and strategies that benefit both greenhouse gas emissions reductions and adaptation efforts. (Public Resources Code (PRC) §71354)
- 6) Requires ICARP and OPR, in consultation with other specified agencies and outside entities, to develop the California Climate Change Assessment at least once every five years to provide an integrated suite of products that report the impacts and risks of climate change, based on the best available science, and identify potential solutions to inform legislative policy. (PRC §71340)

This bill:

- 1) Enacts the Climate Emergency Mitigation, Safe Restoration, and Just Resilience Act of 2021.
- 2) Require ARB to ensure that statewide greenhouse gas emissions are reduced to at least 80% below the 1990 level by 2030.
- 3) Declares that it is the policy of the state to lead a global effort to restore oceanic and atmospheric concentrations of greenhouse gas emissions to preindustrial levels as soon as possible to secure a safe climate for all, and to restore community health and reverse the impacts from the damage and injustice climate change is causing to the people, the economy, and the environment of California.
- 4) Requires, concurrent with the development of the scoping plan, the Secretary of the California Natural Resources Agency (CNRA), in coordination with the

Secretary of the California Environmental Protection Agency (CalEPA) and ARB to develop a Climate Restoration Plan that does the following:

- a) Achieves and maintains net negative greenhouse gas emissions in California no later than 2035.
 - b) Specifies carbon removal targets before 2035 as necessary to facilitate achievement of this goal.
 - c) Exercises global leadership in restoring atmospheric and oceanic concentrations of greenhouse gas emissions to preindustrial levels as soon as possible, but no later than 2050.
- 5) Tasks the OPR, in collaboration with other specified agencies, with developing a Just Resilience Plan (Plan) by June 1, 2022, to drive resilience investments in vulnerable communities in California. In developing the Plan, OPR shall do the following:
- a) Convene a minimum of two workshops to develop recommendations for policies that promote and support resilience and regenerative economic policies in low-income and vulnerable communities to defend against climate vulnerability.
 - b) Ensure that economic policies include investments in and loan guarantees to low-income and vulnerable communities to develop local economic solutions to the effects of climate change.
 - c) Develop strategies and recommendations to ensure that low-income and vulnerable communities receive the benefits and resources needed to achieve GHG reduction targets and to meet climate restoration goals.
 - d) Ensure that low-income and vulnerable communities are provided job training, access to the internet, and workforce development resources to maximize and facilitate their inclusion in economic opportunities that reduce GHG emissions.
- 6) Requires OPR, in collaboration with local governments, tribes, and community groups in low-income and vulnerable communities, to enable and promote community driven resilience solutions, develop responsive climate services, resources, assistance, and programs that provide access for community engagement, and assist vulnerable communities to prepare and respond to severe climate disasters.

- 7) Directs OPR to use the most recent California Climate Change Assessment in developing recommendations, strategies, investment plans, economic opportunities, incentives, environmental justice considerations, and other community resilience efforts.

Background

- 1) *Climate Change in California.* California is particularly susceptible to the harmful effects of climate change, including an increase in extreme heat events, drought, wildfire, sea level rise, and more. According to the Fourth California Climate Change Assessment, by 2100, the average annual maximum daily temperature is projected to increase by 5.6-8.8 °F, water supply from snowpack is projected to decline by two-thirds, the average area burned in wildfires could increase by 77%, and 31-67% of Southern California beaches may completely erode without large-scale human intervention, all under business as usual and moderate GHG reduction pathways.

California is already experiencing the effects of climate change now. For example, eight out of the past ten years have had significantly below average precipitation. As of September 2020, the state has experienced a degree of wildfire activity that California's Fourth Climate Change Assessment initially forecasted to not occur until 2050. We can expect effects such as these as well as extreme weather events to increase over time until global emissions are significantly reduced.

- 2) *California's Evolving GHG Emissions Targets.* Through both legislation and executive orders, California has established several state-wide climate goals over the years:
 - a) The first state GHG reduction targets were set in 2005 by Governor Schwarzenegger (EO S-3-05) to reduce emissions 80% below 1990 levels by 2050.
 - b) The legislature passed the Global Warming Solutions Act of 2006 (AB 32) to reach the 1990 level of GHGs by 2020.
 - c) In 2015, the same year as the Paris Climate Agreement, SB 32 added a new target to reduce GHGs by 40% below 1990 levels by 2030, which codified EO B-30-15.
 - d) In 2018, Governor Brown set the goal of achieving carbon neutrality by 2045 (EO B-55-18). This order was issued one month before the Intergovernmental Panel on Climate Change (IPCC) Special Report on

Global Warming of 1.5 degrees, which calls for global carbon neutrality by 2050.

- e) A few additional sweeping targets have also been set to help achieve these goals, including SB 100 (2018) to get California to 100% zero-carbon energy by 2045, EO N-79-20 to phase out sales of gas-powered cars in the state by 2035, and EO N-82-20 to conserve 30% of the state's land and waters by 2030.
- 3) *United Nations Environment Programme Gap Report*. The United Nations Environment Programme (UNEP) releases an annual Emissions Gap Report to provide an update on global progress towards reducing emissions and updated targets to avoid the worst effects of climate change if 1.5 °C is exceeded. In their 2020 report, they make several recommendations for global climate policy to ensure a safe climate future for all. The consensus is that, globally, we are currently not on track to reduce emissions in a timely manner. Under current unconditional commitments from the Paris Agreement, temperatures are expected to rise by 3.2 °C. The report states that the level of ambition in the Paris Agreement must be roughly tripled for a 2 °C pathway and increased at least fivefold for the 1.5 °C pathway. The United States is identified as one of the countries not on track to meet their current, and insufficient, nationally determined contribution (NDC).

When global equity is taken into account, the wealthiest nations must cut emissions even more. The combined emissions of the richest 1% of the global population account for more than twice the poorest 50%. The wealthiest 1% will need to reduce their footprint by a factor of at least 30 to stay in line with the Paris Agreement targets.

The report also stresses the COVID-19 recovery as a vital turning point towards reducing emissions. A green pandemic recovery that accelerates a low-carbon transition could cut up to 25% off the emissions we would expect to see in 2030 compared to the trajectory of emissions based on policies in place prior to COVID-19.

- 4) *Climate Restoration*. "Climate restoration" is a relatively new term, usually defined as actions associated with restoring CO₂ in the atmosphere to pre-industrial levels, or below 300 parts per million (ppm), for the long-term safety of humanity. Achieving this goal would rely heavily on carbon removal and negative emissions technologies. In 2019, the Foundation for Climate Restoration published a white paper on carbon removal solutions. They included pumping CO₂ underground, producing synthetic limestone with CO₂, and sequestering carbon in the oceans through kelp forests and controlled algal

blooms. All of these projects are under development by private companies, and the Foundation estimates they could be scaled up globally to sequester all excess CO₂ by 2050 for an estimated \$100 trillion, or \$3 trillion a year. For comparison, COVID-19-related fiscal spending by governments is estimated at around \$12 trillion globally, or 12% of global gross domestic product (GDP) in 2020.

For carbon removal options in California, Lawrence Livermore National Lab (LLNL) produced a report in 2020 called *Getting to Neutral*, where they determined that California will need to remove on the order of 125 million tons of CO₂ per year from the atmosphere by 2045 to achieve carbon neutrality while continuing to emit predicted quantities of GHGs. Methods are already available or are becoming available to do so, including carbon capture and storage through natural and working lands, conversion of waste biomass to fuels and carbon storage, and direct air capture.

- 5) *Communities Vulnerable to Climate Impacts*. While all Californians are impacted by climate change, climate change does not affect all people in the same way. In 2018, ICARP published a resource guide called *Defining Vulnerable Communities in the Context of Climate Adaptation*. The guide defines vulnerable communities as those that “experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.” People living in poverty, tribal communities, immigrants and the elderly are some of the groups expected to suffer disproportionately from problems caused by a changing climate. While affluent Californians have resources to shield themselves from some of climate change’s impacts, many impoverished communities face threats that are intensified by climate change. For example, they frequently live in areas already vulnerable to pollution and natural disasters, yet may lack insurance and other economic means to recover from health problems or disasters. Investing in vulnerable and disadvantaged communities can improve public health, quality of life, and economic opportunity in California’s most burdened populations, and at the same time, reduce pollution that causes climate change.

The ICARP report lists a number of climate vulnerability assessment tools for evaluating climate risk, such as CAL-ADAPT to spatially display climate impacts, as well as tools for evaluating adaptive capacity, such as

CalEnviroScreen and the Regional Opportunity Index from the UC Davis Center for Regional Change that identifies census tracts lacking opportunities and needing investment.

- 6) *The Cost of Climate Change.* Climate change comes with a huge price tag for every government, and California is no exception. California's 2018 wildfires, less than half the size of the 2020 conflagrations, cost \$148.5 billion in damages (about two thirds of California's pre-COVID 2020 state budget), with \$27.7 billion (19%) in capital losses, \$32.2 billion (22%) in health costs and \$88.6 billion (59%) in indirect losses with a majority of those far from the actual wildfire footprint. The cost of water and energy is predicted to increase significantly as well, especially in the Western United States. The Natural Resources Defense Council (NRDC) estimates that under a business-as-usual scenario, between the years 2025 and 2100, the cost of providing water to the western states in the US will increase from \$200 billion to \$950 billion per year, nearly an estimated 1% of the United States' gross domestic product.

There is a greater human cost to climate change as well. In addition to capital losses, increased cost of resources, and health costs, the impacts of climate change on mental health, food security, displacement and migration, and more are just coming into the conversation and are still difficult to quantify.

One of the questions before the committee is: are California's current climate goals sufficient to avoid the enormous monetary and human cost of climate change? If not, is the cost and effort that would be required of every economic sector to achieve more rigorous GHG goals, a safe restoration plan, and just resilience greater than the cost of not doing so?

Comments

- 1) *Purpose of Bill.* According to the author, "The earth is heating up from the accumulation of pre-industrial levels of carbon dioxide and from GHG emissions added every year by industrialized nations. In order to avoid the growing and worsening effects of climate change, the state must accelerate its GHG emission goals or face the economic, environmental and social consequence that continue to ravage California in the form of deadly and frequent wildfires, extreme weather patterns, rising sea levels and adverse health impacts, all of which disproportionately affect vulnerable and low-income communities. This year, global leaders will convene in Glasgow, Scotland to reaffirm and strengthen their commitment to combating climate change. California can help provide leadership by establishing new GHG emission targets, require new climate restoration goals, and ensure that

vulnerable and disadvantaged communities are afforded the resources to develop local regenerative economic policies that will make them more climate change resilient.”

- 2) *Moving the Goalpost.* California’s climate goals have generally been in-line with the scientific consensus at the time, including current targets to achieve a 40% GHG decrease by 2030 and carbon neutrality by 2045, which were consistent with IPCC recommendations to prevent a 1.5 °C rise by 2050. No IPCC report has been issued since 2018 when the last target was set, however the UNEP 2020 Emissions Gap Assessment indicates that current global GHG targets are insufficient to ensuring a safe climate future. The UNEP warns that, globally, emissions need to be cut by 7.6% every year until 2030 to meet the 1.5 °C target. The new target set in SB 582 of 80% GHG reduction by 2030 is consistent with the suggested GHG reduction targets in the UNEP report. A recent paper published in the journal *Environmental Research Letters* called “Accelerating the timeline for climate action in California” also lays out the case for California to accelerate GHG reduction to 80% by 2030. The broad scenario they illustrate to achieve this target would require rapid mobilization in every sector and would rely heavily on advancing clean energy and clean transportation standards as well as accelerating nature-based solutions on natural and working lands.

In 2020, global emissions were reduced by approximately 7%. While this was mainly due to the impacts of COVID-19, it does demonstrate that significant shifts in emissions are possible. However, if climate effects are not taken into account and low-carbon development is not incorporated into COVID-19 recovery measures, emissions could increase again.

The longer it takes for GHG emissions to be reduced, the more sharply they will need to be cut in the future to avoid the worst effects of climate change. While touring a Sierra foothill fire zone in September 2020, Governor Newsom stated that “across the entire spectrum, our climate goals are inadequate. We have to step up our game. As we lead the nation in low carbon green growth, we’ll have to fast track our efforts.” SB 582 offers one pathway towards doing just that. However, all of the current regulations, programs, and levers for reducing GHGs, such as cap-and-trade, are geared towards our current climate goals. SB 582 would require a monumental and rapid shift to accelerate GHG reductions to meet these stricter targets. This is especially true for ARB, which is set to release the next climate change scoping plan at the end of 2022. Furthermore, a report on ARB’s transportation programs from the California State Auditor released earlier this year concluded that the state is not on track

to meet existing 2030 GHG reduction goals, mainly due to transportation emissions.

The committee may wish to consider if accelerating our current targets is possible considering the current level of momentum towards the existing 2030 target.

- 3) *Government Leadership on Climate Change.* Several countries have recently increased the ambition of their climate goals through government action in the past few months. This includes the European Union’s plan to cut emissions 55% by 2030 and the United Kingdom’s plan to cut emissions by 68% by 2030. The Biden administration has also indicated that they will be setting new climate change goals at the federal level. They have already issued an executive order to make electricity carbon pollution-free by 2035 (Executive Order 14008, 2021), 10 years earlier California’s current target under SB 100.

California has long been seen as a global leader on climate change. SB 582 would be an opportunity for California to set some of the most aggressive, science-based targets that also incorporate a comprehensive call for climate restoration and environmental justice.

- 4) *Reliance on Negative Emissions.* The “Safe Restoration” portion of the SB 582 codifies and moves the current goal of net carbon neutrality up by 10 years from 2045, set by EO B-55-18, to 2035. If GHGs are reduced by 80% by 2030 and stay consistent at that level, then by 2035 California will need to sequester more than 86.2 MMT CO₂ equivalents per year. That is less than what the LLNL report projects is possible, however it is at a much faster timeline. Nascent technologies such as carbon capture and storage and direct air capture would need to be developed and scaled up much faster than the current rate. On the other hand, carbon sequestration on natural and working lands can be implemented now, however it is difficult to quantify and verify how much carbon can and will be removed. Furthermore, carbon stored may not be long-term if the land is burned, razed, or otherwise lost.

SB 582 also adds a new goal of exercising global leadership in restoring atmospheric and oceanic concentrations of greenhouse gas emissions to preindustrial levels no later than 2050.

Going forward, particularly for the bill’s subsequent hearing in the Senate Natural Resources and Water committee, the author may wish to clarify what safe restoration means for California. Does it require a certain amount of negative emissions by 2050? Is it just about carbon removal or does it also

include protection of natural resources and biodiversity? What sort of framework should be used to achieve these goals?

- 5) *Protecting Climate-Vulnerable Communities.* AB 32 (2006) and SB 32 (2015) convened an environmental justice advisory committee and acknowledged the disproportionate impact of climate change to the state's most disadvantaged communities. However, aside from directing a portion of funds to disadvantaged communities, these laws did not lay out specific plans for how to address these issues.

SB 582 goes further by laying out an outline for OPR and other specified agencies to develop a Just Resilience Plan to ensure the path to achieving California's climate goals is carried out equitably. This includes holding public workshops and ensuring economic policies include investments, loan guarantees, workforce development, and resources to achieve GHG reductions for low-income and vulnerable communities. In developing their recommendations, OPR is directed to use the most recent California Climate Change Assessment. Currently, the most recent assessment was from 2018 and was also the first to include a report on climate justice. While it is not immediately apparent whether their recommendations have been achieved, the report stated that by 2020, California state agencies should:

- a) Complete regional cross-sector vulnerability assessments.
 - b) Based on these assessments, update adaptation strategies, funding estimates, and identify funding mechanisms for climate justice and equity for frontline communities.
 - c) Establish regional goals, targets, and implementation strategies for building climate resilience in frontline communities to be integrated into the state's 2020 climate change adaptation strategy.
 - d) Identify, raise, and invest at least \$1 billion, and by 2025, at least \$10 billion to complete regional plans for emergency preparedness, infrastructure, housing, and transition to a clean economy in frontline communities.
- 6) *Alternative Paths Forward.* The author may wish to consider additional or alternative avenues to bolster California's climate goals. One alternative would be interim targets to ensure the pace at which the state meets its targets is sufficient. There are also opportunities to restructure how existing climate goals are met to promote equity.

SB 582 will still need considerable input and refinement from stakeholders and legislators as it goes forward. The author should continue to keep this

committee apprised of pertinent developments. Although the challenges of further increasing the state's efforts to mitigate and adapt to climate change are large, and the solutions are yet unclear and highly ambitious, these are conversations the Legislature is better off having sooner rather than later.

DOUBLE REFERRAL:

If this measure is approved by the Senate Environmental Quality Committee, the do pass motion must include the action to re-refer the bill to the Senate Natural Resources and Water Committee.

Related/Prior Legislation

SB 27 (Skinner, 2021) would create the California Carbon Sequestration and Climate Resiliency Project registry, require the CNRA to establish carbon sequestration targets for natural and working lands, and require ARB to establish CO₂ removal targets. SB 27 has passed the Senate Environmental Quality Committee and has been re-referred to the Senate Natural Resources and Water Committee.

AB 1395 (Muratsuchi, 2021) would require ARB to establish CO₂ removal targets, separately from greenhouse gas emissions reduction targets, and include them in Scoping Plan updates. AB 1395 has been re-referred to the Assembly Natural Resources Committee.

AB 284 (R. Rivas, 2021) would require ARB, in collaboration with CNRA, to identify an overall climate goal for the state's natural and working lands to sequester carbon and support carbon neutrality, as well as identify practices, incentives, and quantification methods. AB 2954 has passed the Assembly Natural Resources Committee and has been re-referred to the Assembly Appropriations Committee.

SOURCE: Author

SUPPORT:

350 Sacramento
Alliance of Nurses for Healthy Environments
California Alliance of Nurses for Healthy Environments
California League of Conservation Voters
Center for Climate Change & Health
Community Environmental Council

Environmental Working Group
Joint Venture Silicon Valley Network
Mi Familia Vota
Natural Resources Defense Council (NRDC)
Physicians for Social Responsibility - San Francisco Bay Area Chapter
Slo Climate Coalition
The Climate Center
Zne Alliance

OPPOSITION:

None received

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