AMENDED IN ASSEMBLY JULY 8, 2024

AMENDED IN ASSEMBLY JUNE 5, 2024

AMENDED IN SENATE MAY 18, 2023

AMENDED IN SENATE APRIL 10, 2023

AMENDED IN SENATE MARCH 14, 2023

SENATE BILL No. 308

Introduced by Senator Becker

February 2, 2023

An act to amend Sections ~~38562.2~~ *39741.1* and 39741.4 of, and to add Section 38562.3 to, the Health and Safety Code, relating to greenhouse gases.

LEGISLATIVE COUNSEL'S DIGEST

SB 308, as amended, Becker. Net zero greenhouse gas emissions goal: carbon dioxide removal: regulations.

The California Global Warming Solutions Act of 2006 establishes the State Air Resources Board as the state agency responsible for monitoring and regulating sources emitting greenhouse gases. The act requires the state board to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to ensure that statewide greenhouse gas emissions are reduced to at least 40% below the 1990 level by 2030. The act authorizes the state board to adopt a regulation that establishes a system of market-based declining annual aggregate emissions limits for sources or categories of sources that emit greenhouse gases, applicable from January 1, 2012, to December 31, 2030, inclusive, as

specified. The act authorizes the state board to include in its regulation of those emissions the use of market-based compliance mechanisms.

The act requires the state board 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. Existing law requires the state board, as part of its scoping plan, to establish specified carbon dioxide removal targets for 2030 and beyond.

The act also declares the policy of the state both to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85% below the 1990 levels.

This bill would require the state board to develop and adopt regulations, or utilize existing programs and regulations, to ensure the state achieves carbon dioxide removals equivalent to at least 100% of statewide greenhouse gas emissions in calendar year 2045, and all subsequent years, in order to achieve the net zero and net negative greenhouse gas emissions goals. As part of those efforts, the bill would require the state board to establish separate interim targets for greenhouse gas emissions reductions and carbon dioxide removals, to be applicable beginning no later than calendar year 2030, and to report on progress toward achieving those targets. ~~The bill would provide that only carbon dioxide removed by processes certified by the state board as satisfying certain requirements shall be eligible to be counted for the purpose of counterbalancing statewide greenhouse gas emissions when determining the state's progress toward achieving net zero and net negative greenhouse gas emissions.~~ *For purposes of those provisions, the bill would require state board to only approve carbon dioxide removal processes that meet certain requirements, as specified.*

Existing law requires the state board to establish a Carbon Capture, Removal, Utilization, and Storage Program to, among other things, evaluate the efficacy, safety, and viability of carbon capture, utilization, or storage technologies and carbon dioxide removal technologies and facilitate the capture and sequestration of carbon dioxide from those technologies, where appropriate. *Existing law requires the state board to adopt regulations to implement that program.* In furtherance of the objectives of that program, existing law authorizes the state board, by

January 1, 2024, to adopt protocols to support additional methods of utilization or storage of captured carbon dioxide.

This bill would *require the state board to adopt the regulations to implement the program no later than July 1, 2027. The bill would* indefinitely authorize the state board to adopt those protocols, and protocols to support methods of utilization or storage of removed carbon dioxide.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature finds and declares all of the following:

(1) The United Nations' Intergovernmental Panel on Climate Change (IPCC) has recognized that limiting global warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) over preindustrial times will require not only large reductions in global carbon dioxide emissions from human sources but also carbon dioxide removal (CDR) from the atmosphere. "Climate Change 2022: Mitigation of Climate Change," a report by the IPCC released in early 2022, states, "[t]he deployment of CDR to counterbalance hard-to-abate residual emissions is unavoidable if net zero CO2 or GHG emissions are to be achieved."

(2) Assembly Bill 1279 (Muratsuchi, Chapter 337 of the Statutes of 2022) established a target for reducing greenhouse gas (GHG) emissions by at least 85 percent from 1990 levels by 2045 as part of achieving net zero GHG emissions. California will need to employ CDR to balance out the remaining up to 15 percent GHG emissions to achieve the net zero target.

(3) The State Air Resources Board's "2022 Scoping Plan for Achieving Carbon Neutrality," dated November 16, 2022, ~~stated~~, *states*, "[t]he modeling shows that emissions from the AB 32 GHG Inventory sources will continue to persist even if all fossil related combustion emissions are phased out. These residual emissions must be compensated for to achieve carbon neutrality."

(4) The 2022 Scoping Plan estimated that the state would need approximately 75 million metric tons (MMT) of CDR in 2045 in order to achieve net zero GHG emissions. It further identified a target of 7 MMT per year of CDR by 2030 as "an ambitious, but

achievable, goal" that "can serve as an important marker for progress in deploying CDR to support California's carbon neutrality goal."

(5) Therefore, although CDR should not be seen as a reason to prolong the state's reliance on fossil fuels or as an excuse for not reducing GHG emissions as quickly as is feasible, CDR is widely predicted to be an important and necessary part of achieving the state's net zero target.

(6) A diversity of approaches can be used to remove carbon dioxide from the atmosphere and sequester it, including natural processes, engineered mechanical and chemical processes, or a combination of these approaches.

(7) Once carbon dioxide is released into the atmosphere from previously inert sources, such as fossil fuels, it "causes increases in atmospheric concentrations of CO2 that will last thousands of years," according to the United States Environmental Protection Agency.

(8) CDR that is intended to balance out continued emissions of greenhouse gases in order to achieve net zero GHG emissions by 2045 should therefore result in long-lasting reductions in carbon dioxide in the atmosphere on a similar time scale to that of the released carbon dioxide.

(9) Very little capacity exists currently to provide CDR that can meet these criteria for long-lasting reductions in carbon dioxide in the atmosphere, and this capacity, along with the supporting infrastructure for transporting and sequestering the removed carbon, will need to be scaled up enormously in order to meet the needs estimated for the state's target of achieving net zero GHG emissions by 2045.

(10) CDR approaches that can reduce atmospheric carbon dioxide for shorter periods of time can also provide valuable services in reducing climate change, but they eventually must be coupled with more durable sequestration of carbon in order to truly balance the impact of residual emissions of greenhouse gases.

(11) In order to be counted for the purpose of balancing continued residual emissions of greenhouse gases, CDR processes must be quantifiable and must include scientifically rigorous approaches to monitor and verify the sequestration of removed carbon in order to ensure that the reduction in atmospheric carbon dioxide is maintained over long periods of time.

(12) CDR that is intended to balance the impact of residual emissions of greenhouse gases in order to achieve net zero GHG emissions by 2045 should represent true removals of carbon dioxide from the atmosphere and not just the avoidance of emissions that might otherwise have occurred, as is sometimes allowed in carbon offset programs.

(13) The use of carbon capture, utilization, and storage technologies to prevent greenhouse gas emissions represents an avoidance or reduction of emissions that would otherwise have occurred, not the removal of carbon dioxide from the atmosphere, and should therefore be counted toward the state's greenhouse gas emissions reduction targets and not toward the state's carbon dioxide removal targets.

~~(13)~~

(14) Developing and manufacturing the technologies needed to capture and sequester carbon dioxide and building and operating the facilities and supporting infrastructure used for CDR can be a source of jobs, economic development, and tax revenues for the state and can establish the state as a leader in exporting these products to help the rest of the world achieve reductions in net GHG emissions.

(b) It is the intent of the Legislature for the State Air Resources Board to implement regulations and programs to attain the state's target for net zero greenhouse gas emissions, as set forth in Section 38562.2 of the Health and Safety Code, and to establish and attain interim targets in order to grow over time the CDR capacity and supporting infrastructure that will be necessary to achieve that net zero target.

~~SEC. 2. Section 38562.2 of the Health and Safety Code is amended to read:~~

~~38562.2. (a) This section shall be known, and may be cited, as the California Climate Crisis Act.~~

~~(b) For purposes of this section, "net zero greenhouse gas emissions" means emissions of greenhouse gases, as defined in subdivision (g) of Section 38505, to the atmosphere are balanced by removals of greenhouse gas emissions over a period of time, as determined by the state board.~~

~~(c) It is the policy of the state to do both of the following:~~

~~(1) Achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and to achieve and maintain net~~

~~negative greenhouse gas emissions thereafter. This goal is in addition to, and does not replace or supersede, the statewide greenhouse gas emissions reduction targets in Section 38566.~~

~~(2) Ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the statewide greenhouse gas emissions limit established pursuant to Section 38550.~~

~~(d) Only carbon dioxide removed by processes certified by the state board pursuant to Section 38562.3 shall be eligible to be counted for the purpose of counterbalancing statewide greenhouse gas emissions when determining the state's progress toward achieving net zero and net negative greenhouse gas emissions pursuant to subdivision (c).~~

~~(e) The state board shall work with relevant state agencies to do both of the following:~~

~~(1) Ensure that updates to the scoping plan required pursuant to Section 38561 identify and recommend measures to achieve the policy goals stated in subdivision (c).~~

~~(2) Identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California to complement emissions reductions and achieve the policy goals stated in subdivision (c).~~

~~(f) (1) By December 31, 2035, the state board shall evaluate the feasibility and tradeoffs of achieving the policy goal stated in paragraph (2) of subdivision (c) relative to alternative scenarios that achieve the policy goals stated in paragraph (1) of subdivision (c), and report its findings and recommendations to the Legislature.~~

~~(2) The state board shall report to the Joint Legislative Committee on Climate Change Policies annually on progress toward the goals stated in subdivision (c).~~

~~(3) As part of its annual reporting requirements pursuant to Section 38592.6, the Legislative Analyst's Office, until January 1, 2030, shall conduct independent analyses of the state's progress toward the goals stated in subdivision (c) and shall prepare an annual report detailing its review, which may include recommendations for improvements in state actions taken to achieve the goals stated in subdivision (c). When appropriate, these annual reports may incorporate reviews of the state board's evaluation and reporting practices, and may include~~

~~recommendations for potential changes to advance transparency and accountability. A report prepared pursuant to this paragraph shall be made available to the public.~~

~~SEC. 3.~~

SEC. 2. Section 38562.3 is added to the Health and Safety Code, to read:

38562.3. (a) (1) The state board shall develop and adopt regulations, or utilize existing programs and regulations, to ensure the state achieves carbon dioxide removals equivalent to at least 100 percent of statewide greenhouse gas emissions in calendar year 2045, and all subsequent years, in order to achieve the net zero and net negative greenhouse gas emissions goals established pursuant to Section 38562.2.

(2) Regulations adopted pursuant to this subdivision shall be consistent with, or impose requirements equivalent to, Chapter 4.3 (commencing with Section 39740) of Part 2 of Division 26 of this code and Part 8 (commencing with Section 71460) of Division 34 of the Public Resources Code, as determined by the state board.

(3) Before commencing a formal rulemaking process for regulations adopted pursuant to this subdivision, the state board shall conduct a robust community engagement process that includes outreach that targets residents of communities most likely to be near potential carbon dioxide removal projects. The environmental justice advisory committee established pursuant to Section 38591 shall be invited to participate in planning and implementation of this community engagement process.

(b) (1) As part of its efforts undertaken pursuant to subdivision (a), the state board shall establish separate interim targets for greenhouse gas emissions reductions and carbon dioxide removals, to be applicable beginning no later than calendar year 2030, and report on progress toward achieving those targets. The state board shall post any report prepared pursuant to this subdivision on its internet website.

(2) The interim target for carbon dioxide removals established pursuant to paragraph (1) for calendar year 2030 shall be at least 1 percent of projected total greenhouse gas emissions for that calendar year.

(c) For purposes of ~~subdivision (c) of Section 38562.2,~~ *subdivisions (a) and (b),* the state board shall only ~~certify~~ *approve* carbon dioxide removal processes that meet all of the following:

(1) The carbon dioxide removal process results in removals of carbon dioxide from the ~~atmosphere, directly or indirectly,~~ *atmosphere* and not only the avoidance or reduction of greenhouse gas ~~emissions.~~ *emissions or the prevention of greenhouse gas emissions through the use of CCUS technology, as defined in Section 39741. The carbon dioxide process may remove carbon from the atmosphere directly or indirectly, including by direct air capture or using carbon stored in biomass or soil or absorbed in water.*

(2) The carbon dioxide removal process results in removals of carbon dioxide that are quantifiable, verifiable, and enforceable by the state board.

~~(2)~~

(3) The carbon dioxide removal process is not used for purposes of enhanced oil recovery, including the facilitation of enhanced oil recovery from another well.

~~(3)~~

(4) If the carbon dioxide removal process requires biomass as a feedstock, it only uses biomass that is produced as a residue or waste product, including, but not limited to, agricultural residues and byproducts of sustainable forest management.

~~(4)~~

(5) The carbon dioxide removal process is consistent with the requirements of Section 39741.1.

~~(5)~~

(6) The carbon dioxide removal process uses a form of long-term carbon storage with requirements for financial responsibility and longevity consistent with, or equivalent to, those required under Section 39741.5, as determined by the state board.

(d) For purposes of this section, the state board shall include nature-based carbon dioxide removal strategies pursuant to Section 38561.5 that meet all of the requirements of subdivision (c), either individually or when coupled with carbon dioxide removal processes with sufficiently long-term carbon storage such that carbon dioxide removal credits based on the combined impacts of the coupled processes meet all of the requirements of subdivision (c).

~~(d)~~

(e) To the extent feasible, the requirements of this section shall apply equivalently to all carbon dioxide removal processes ~~certified~~

approved by the state board whether located inside or outside of the state.

(f) The state board shall not approve a carbon dioxide removal process pursuant to subdivision (c) that includes an industrial facility or engineered infrastructure for any portion of the process until the owner or operator of the facility or infrastructure provides a written attestation to the state board that includes both of the following:

(1) The owner or operator has done meaningful community engagement, including conducting at least three community meetings that include explaining the scope and potential impacts of the proposed facility or infrastructure before beginning construction or operation of it.

(2) The owner or operator has a plan for providing meaningful benefits to residents of the surrounding community, such as through an enforceable community benefits agreement or the establishment of a community oversight and advisory body with members representing local residents for the purpose of addressing community concerns and prioritizing community investments.

(g) The state board shall post on its internet website attestations received for carbon dioxide removal processes pursuant to subdivision (f) and provide a process for a third party to report to the state board an allegation that an attestation was untruthful or that a commitment made in the attestation is not being met. The state board may determine appropriate remedies if a violation is found to have been committed, including revoking approval of the carbon dioxide removal process.

(h) No later than July 1, 2026, and annually thereafter, the chair of the state board shall appear before the Joint Legislative Committee on Climate Change Policies established pursuant to Section 9147.10 of the Government Code to report on the implementation of this section. The environmental justice advisory committee established pursuant to Section 38591 shall also be invited to appear to provide comments and recommendations on the implementation of this section.

SEC. 3. Section 39741.1 of the Health and Safety Code is amended to read:

39741.1. (a) The state board shall establish a Carbon Capture, Removal, Utilization, and Storage Program to do all of the following:

(1) Evaluate the efficacy, safety, and viability of CCUS and CDR technologies and facilitate the capture and sequestration of carbon dioxide from these technologies, where appropriate.

(2) Develop monitoring and reporting schedules to state regulatory agencies for carbon dioxide capture, removal, or sequestration projects to ensure efficacy, safety, and viability of the projects.

(3) Ensure that all carbon dioxide capture, removal, or sequestration projects include the following, as appropriate:

(A) Strategies to minimize, to the maximum extent technologically feasible, copollutant emissions from facilities where CCUS or CDR technology is deployed to ensure that the use of carbon dioxide removal technologies and carbon capture and storage technologies does not have an adverse impact on local air quality and public health, particularly in low-income and disadvantaged communities.

(B) Strategies to ensure that carbon dioxide capture, removal, or sequestration projects minimize, to the maximum extent technologically feasible, local water pollution or air pollution from construction- and transportation-related impacts from the projects in communities adjacent to carbon dioxide capture, removal, or sequestration projects, including a geologic storage complex.

(C) Strategies to minimize the risk of seismic impacts to, and from, geologic storage projects, including the risk of gas leakage due to seismic activity.

(D) Monitoring and reporting of seismic activity related to geologic sequestration of carbon dioxide, and monitoring of sequestered carbon dioxide, including movement within the geologic storage complex, for a period of time that is sufficiently long enough to demonstrate that the risk of carbon dioxide leakage poses no material threat to public health, safety, and the environment and to achievement of net zero greenhouse gas emissions in California and that terminates no earlier than 100 years after the last date of injection of carbon dioxide into a geologic storage reservoir. In adopting regulations pursuant to subdivision (c) that pertain to this subparagraph, the state board shall consult with the State Geologist.

(E) Monitoring of criteria pollutants and potential toxic air contaminants at the one or more sites within the geologic storage complex and at mobile or fixed sites within the facility, and

monitoring of ambient carbon dioxide concentrations over the geologic storage complex to facilitate leak detection. Monitoring required under this section shall continue for a period of time that is sufficiently long enough to demonstrate that the risk of carbon dioxide leakage poses no material threat to public health, safety, and the environment and to achievement of net zero greenhouse gas emissions in California and that terminates no earlier than the completion of the applicable postinjection site care and site closure plan pursuant to Section 146.93 of Title 40 of the Code of Federal Regulations.

(F) Projects meet best available control technology requirements as determined by the local air district.

(b) In carrying out the objectives of the program, the state board shall prioritize the following:

(1) Reducing the emissions of greenhouse gases.

(2) Minimizing land use and potential environmental, noise, air quality, water quality, traffic, seismic, and other related impacts, and any potential health and safety risks, to all communities where CCUS and CDR technologies are deployed, and carbon dioxide capture, removal, or sequestration projects are located to the maximum extent feasible.

(3) Maximizing workforce development and employment opportunities in each community where CCUS and CDR technologies are deployed, and carbon dioxide capture, removal, or sequestration projects are located, to the extent feasible.

(4) Leveraging private funding sources and public-private partnership structures alongside potential state funding sources.

(5) Reducing fossil fuel production in the state.

(c) The state board shall adopt regulations to implement this ~~section.~~ *section no later than July 1, 2027.*

(d) In developing the program, the state board shall consult with the Geologic Carbon Sequestration Group established pursuant to Section 2213 of the Public Resources Code.

(e) In tracking progress toward the state's climate targets, the state board shall prevent the double counting of emissions reductions associated with utilizing carbon dioxide that is captured or removed from the atmosphere. The state board may use a state board-approved third-party verifier to satisfy this subdivision.

(f) (1) Beginning January 1, 2025, and every two years thereafter, the state board shall report to the Legislature on the

progress of the program. The report shall, at a minimum, include an evaluation of potential local environmental impacts and potential long-term leakage impacts as well as recommendations on measures to reduce these impacts of completed carbon dioxide capture, removal, or sequestration projects.

(2) A report to be submitted pursuant to this subdivision shall be submitted in compliance with Section 9795 of the Government Code.

SEC. 4. Section 39741.4 of the Health and Safety Code is amended to read:

39741.4. In furtherance of the objectives in Section 39741.1, the state board may adopt protocols to support additional methods of utilization or storage of captured or removed carbon dioxide, including for use in products and in methods of long-term storage as identified by the state board.

O