SENATE COMMITTEE ON ENVIRONMENTAL QUALITY
Senator Allen, Chair
2021 - 2022 Regular

Bill No:	SB 27		
Author:	Skinner and Caballero		
Version:	3/1/2021	**Hearing Date:**	3/15/2021
Urgency:	No	**Fiscal:**	Yes
Consultant:	Eric Walters, Rylie Ellison		

SUBJECT: Carbon sequestration: state goals: natural and working lands: registry of projects

DIGEST: Creates the California Carbon Sequestration and Climate Resilience Project Registry, in order to maintain a list of eligible but unfunded projects, which then may be funded by public or private entities in order to mitigate California's greenhouse gas (GHG) emissions and improve climate resilience. Also directs the Air Resources Board (ARB) to add carbon sequestration targets to the state's climate protection efforts.

ANALYSIS:

Existing law:

1) Establishes the ARB as the air pollution control agency in California and requires ARB, among other things, to control emissions from a wide array of mobile sources and coordinate, encourage, and review the efforts of all levels of government as they affect air quality and GHG emissions. (Health and Safety Code (HSC) §39500 et seq.)

2) Requires ARB to ensure that statewide GHG emissions are reduced to at least 40% below the 1990 level by December 31, 2030 (i.e., SB 32); and allows ARB, until December 31, 2030, to adopt regulations that utilize market-based compliance mechanisms (i.e., the cap-and-trade program) to reduce GHG emissions. (HSC §§ 38566, 38562)

3) Establishes the Greenhouse Gas Reduction Fund (GGRF) in the State Treasury, requires all moneys, except for fines and penalties, collected pursuant to a market-based mechanism be deposited in the fund. (Government Code §16428.8)

4) Requires ARB to prepare and approve a scoping plan to achieve maximum technologically feasible and cost-effective reductions in GHG emissions at

least once every five years, as specified. (HSC §38561)

5) States that it is the policy of the state that the protection and management of natural and working lands, as defined, is an important strategy in meeting the state's GHG emissions reduction goals, and that the protection and management of those lands can result in the removal of carbon from the atmosphere and the sequestration of carbon in, above, and below the ground. (Public Resources Code (PRC) §9001 et seq.)

6) Establishes the Strategic Growth Council (SGC), consisting of the Director of the State Office of Planning and Research (OPR), the Secretary of the Natural Resources Agency, the Secretary for Environmental Protection, the Secretary of Business, Transportation, and Housing, the Secretary of California Health and Human Services, and one member of the public to be appointed by the Governor. (Public Resources Code §75076 et seq.)

7) Identifies, under SB 1386 (Wolk, Chapter 545, Statutes of 2016) the protection and management of NWLs as a key strategy towards meeting SB 32 goals.

This bill:

1) Makes findings and declarations regarding:

    a) The impacts of global climate change and California's efforts to mitigate its GHG emissions.

    b) Recent reports from the Intergovernmental Panel on Climate Change (IPCC) and Lawrence Livermore National Labs (LLNL) which discuss the needs for and applicability of negative emission practices, including managing forests, soils, wetlands, and meadows.

    c) The need for making natural and manmade systems in California resilient to the increasing impacts of climate change.

    d) The value, specifically to certain regions of California, of developing nascent negative emission technologies.

2) Creates the California Carbon Sequestration and Climate Resiliency Project Registry, to be established and maintained by OPR, for the purposes of identifying and listing projects seeking funding that will sequester carbon in natural and working lands or through direct air capture.

3) Aligns nascent efforts in carbon removal and sequestration in California with the state's broader GHG emission reduction goals by:

    a) Requiring the California Natural Resources Agency (CNRA), in coordination with the state Environmental Protection Agency, ARB, and the Department of Food and Agriculture, to establish carbon sequestration goals for natural and working lands.

    b) Requiring ARB to establish carbon dioxide removal targets, based on specified information, and include them in Scoping Plan updates.

4) Tasks OPR, in collaboration with SGC, with creating an application for projects to be added to the registry, which must include ensuring projects: achieve long-term carbon removal or sequestration and utilization benefits; include monitoring and reporting of carbon sequestration benefits over time; and improve the state's resilience to climate change.

5) Ensures OPR devises a system by which projects that are funded from the registry will be removed from the registry, be tracked through their progress, and ultimately notify OPR when the carbon removal project is completed.

6) Requires OPR to track carbon removal or sequestration benefits and GHG reduction and report them to ARB for consideration under GHG emission reduction goals.

7) States that projects listed on the registry shall not create credits for the purposes of any market-based compliance mechanisms run by ARB, nor used to offset emission reduction obligations.

Background

1) *Natural and Working Lands (NWLs).* California's natural and working lands include rangelands, forests, woodlands, wetlands, grasslands, shrubland, farmland, riparian areas, and urban green space. They cover more than 90 percent of the State and supply life-sustaining resources including clean water, air, food, and fiber. With their potential to sequester carbon, reduce GHG emissions, and increase the capacity for California to withstand inevitable climate impacts, these lands are a critical component of California's integrated climate change strategy. However, some sources show that California's natural and working lands are a net GHG source, losing more carbon than they are sequestering, with wildfire being the largest cause of carbon loss. A number of entities in California's executive branch are developing policy and implementing programs to mitigate disturbances on natural and working lands

and protect these lands from conversion to more intensive land uses.

2) *ARB's NWL Inventory.* The NWL Inventory (Inventory) is a quantitative estimate of the existing state of ecosystem carbon stored in the State's land base. It provides estimates of carbon stocks, stock change, and resulting GHG flux associated with changes in California's landscape, and attributes those changes to disturbances. The data from 2014 estimates that 5.5 billion metric tons of carbon are in California's ecosystems, but that they have been lost (primarily due to wildfires) an estimated 630 million metric tons of CO2-equivalents from 2001 to 2014, or a rough average of 42 million metric tons per year. The historic 2020 wildfire season is estimated to have released 111 million metric tons of CO2. To put this in perspective, the 1990 annual emission level enshrined as AB 32's 2020 goal was roughly 431 million metric tons. Notably, the CO2-equivalent emission contribution of wildfires is not included in ARB's calculations used to evaluate statewide emission levels.

3) *The 2030 NWL Climate Change Implementation Plan.* As directed by ARB's 2017 Scoping Plan Update, the 2030 NWL Climate Change Implementation Plan (Plan) is designed to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working lands. The Plan proposes an increase in State-led conservation, restoration, and management activities from two to five times above current levels, to achieve a level of effort commensurate with that invested in other sectors of California's climate change portfolio.

4) *Funding a project through GGRF.* Proceeds from the Cap-and-Trade Program support a wide range of programs and projects that reduce GHG emission and deliver major economic, environmental and public health benefits for Californians, including meaningful benefits to the most disadvantaged communities, low-income communities, and low-income households. The Legislature and Governor appropriate money from the GGRF to State agencies through the Budget process.

   GGRF money is allocated to 20 agencies, which administer a total of 42 programs, split across 4 categories. The GGRF-funded programs for natural and working lands currently receive more than $600 million in California Climate Investments. They include: California Department of Forestry and Fire Protection's Forest Health Program, The Sustainable Agricultural Lands Conservation Program, California Department of Food and Agriculture's Healthy Soils Program, The Wildlife Conservation Board's Climate Adaptation Program, California Natural Resources Agency's Urban Greening Grant Program, The Department of Fish and Wildlife's Wetland Restoration for Greenhouse Gas Reduction Program, and The Coastal Conservancy's Climate

Ready Program. ARB's Carbon Capture & Sequestration Projects would also be eligible under SB 27.

Comments

1) *Purpose of Bill.* According to the author, "Hotter weather, increased fires, and rising seas are clear evidence that the climate crisis is upon us. To lessen the crisis, every tool available needs to be put to use — both to reduce emissions and to capture carbon that has already been released. Fortunately, nature has its own mechanisms for capturing carbon in plants, soils, rocks, and more. SB 27 is aimed at maximizing nature's ability to store carbon in soil, grasslands, farmland, wetlands, forests and other natural systems, as well as exploring cutting-edge technology like Direct Air Capture that mimic this natural process.

   "By directing state agencies to set goals for natural carbon removal and establishing a registry of California-based carbon sequestration projects, SB 27 can funnel public and private dollars toward California projects that supports our farmers and land managers, fight climate change, and make California more resilient to climate change impacts that are already upon us."

2) *Mitigation versus resilience*. Acting to minimize the impacts of global climate change on California requires both that the state reduce its GHG emissions (thereby mitigating its contributions to worsening climate changes) and that the state take proactive measures to protect itself (thereby becoming more resilient to the changes that will undoubtedly occur). Both types of work are vital. There are projects that can serve both ends, such as restoring coastal wetlands to both sequester carbon and protect lands from erosion. Much more often, a climate mitigation project does nothing to directly aid resilience, and vice versa.

   SB 27 currently requires those projects applying directly to be listed on the registry to improve the state's resilience to climate change. However, projects that are added to the registry by way of being not funded by GGRF need only provide evidence of mitigation. *It is reasonable to use the registry to consolidate and fund projects that do either type of work, but the author may wish to consider clarifying the goal—be it mitigation alone or also resilience—and aligning the expectations of projects from the two sources.*

3) *How much carbon removal, and for how long?* Section 38575.6 of SB 27 states that "The project proponent shall notify the Office of Planning and Research when the carbon removal or sequestration project is completed, and shall provide to the office monitoring and reporting data for the duration of the contract terms of the project." For some carbon removal projects, particularly

NWL-based projects, specific data may be difficult and costly to acquire. Moreover, a project being "completed" can mean different things depending on a project. For example, if restoring or maintaining a native ecosystem is the basis of a project, when is it considered done? If such a project is deemed complete, and is subsequently burned, razed, or otherwise lost, what purpose did the project serve over its defined lifetime? *The author may wish to consider allowing OPR to define projects as lacking a definitive end-date and requiring ongoing evaluation. Additionally, OPR could be directed to consider allowing certain projects to use best-estimate predictions of carbon removal, when accurate measurement of carbon removal would be unreasonably burdensome.*

4) *Counting carbon*. Quantifying carbon flows in and out of a source is challenging in any real-world circumstance, and it becomes particularly difficult with natural sources. It is important to determine what carbon removal would have happened without the funded project and ensure the removal is relatively permanent. Moreover, if these projects are to be selected by funders on the basis of cost-per-ton price, accurate estimates of carbon removed from the atmosphere will be essential.

5) *No shortcuts*. The final sentence of the bill states that, "Projects listed on the registry shall not create credits for the purposes of market-based compliance mechanisms developed or administered by the state board pursuant to this division, and shall not be used by a state or private entity to offset a statutory or regulatory obligation to reduce emissions under this division." This is an important provision that addresses a major concern about negative emission technologies (NETs): the potential for carbon removal to further enable ongoing emissions.

   While the IPCC report and others have identified NETs as an important part of achieving carbon neutrality, it is essential that emissions continue to be reduced as fast as possible, with or without NETs. If NETs are used to justify prolonging the use of polluting technologies, then they are not pushing California to carbon neutrality to their full potential.

   Even under the ambitious, broad-portfolio approach to carbon dioxide removal laid out in Lawrence Livermore National Labs' 2019 Getting to Neutral report, NETs represent 125 to 150 million metric tons (MT) of CO2 equivalents per year being removed annually in a carbon-neutral 2045. While ramping carbon removal up from negligible amounts today to 150 MT in 25 years would be extremely challenging on its own, that still does not guarantee carbon neutrality. Accomplishing 150 MT of carbon dioxide removal still only achieves carbon neutrality if statewide annual emissions are also 150 MT: a 65% reduction from today's emissions.

By explicitly prohibiting registry projects from offsetting emission reduction obligations or being involved in market-based compliance mechanisms, SB 27 works to fund NETs while upholding the importance of actually reducing emissions. As the Committee considers this and other bills that would remove carbon from the atmosphere, it may be prudent to request similar provisions are included.

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

AB 1395 (Muratsuchi, 2021) would require ARB to establish carbon dioxide removal targets, separately from greenhouse gas emissions reduction targets, and include them in Scoping Plan updates. This bill is awaiting referral to a committee.

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

SB 1323 (Skinner, 2020) would have created similar agency requirements and established an identical registry to SB 27. SB 1323 died in the Senate Environmental Quality committee.

SB 1362 (Stern, 2020) would have required ARB to adopt a strategy by July 2021 to achieve statewide carbon neutrality by December 31, 2045. It would also require ARB to take a number of specified actions, including developing standardized methodologies and accounting mechanisms to quantify CO2 sequestration in NWLs. SB 1362 died in the Senate Environmental Quality committee.

SOURCE: Author

SUPPORT:

Carbon Engineering
League of Women Voters of California

State Building and Construction Trades Council of California
The Climate Center
The Nature Conservancy
Zero Foodprint

OPPOSITION:

Biofuelwatch - Global Justice Ecology Project

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