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

Bill No:	SB 495		
Author:	Dahle		
Version:	4/20/2021	**Hearing Date:**	4/29/2021
Urgency:	No	**Fiscal:**	Yes
Consultant:	Paul Jacobs		

SUBJECT: California Global Warming Solutions Act of 2006: scoping plan: Greenhouse Gas Reduction Fund

DIGEST: This bill requires the California Air Resources Board (ARB) to include greenhouse gas emissions from wildlands and forest fires in its scoping plan.

ANALYSIS:

Existing law:

1) Designates ARB as the state agency charged with monitoring and regulating statewide greenhouse gas (GHG) emissions, and requires ARB to ensure that GHG emissions are reduced to at least 40 percent below the 1990 level by December 31, 2030. (Health and Safety Code (HSC) §38500 et seq.)

2) 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, and requires all GHG rules and regulations adopted by ARB be consistent with the updated scoping plan. (HSC §§ 38561 and 38592.5)

3) Authorizes ARB to include the use of market-based compliance mechanisms (i.e., the cap-and-trade program) until December 31, 2030 to reduce GHG emissions. (HSC §38562)

This bill requires ARB to include GHG emissions from wildlands and forest fires in its scoping plan.

Background

1) *Climate Change Scoping Plan*. AB 32 (Núñez and Pavley, Chapter 488, Statutes of 2006) requires ARB to prepare and approve a scoping plan, to be updated at least once every five years, to achieve the maximum technologically feasible and cost-effective reduction of GHG emissions. SB 32 (Pavley,

Chapter 249, Statutes of 2016) updated the AB 32 GHG emissions reduction target to at least 40 percent below the 1990 level by December 31, 2030. AB 398 (E. Garcia, Chapter 135, Statutes of 2017) requires all GHG rules and regulations adopted by ARB to be consistent with ARB's scoping plan that outlines how to achieve maximum technologically feasible and cost-effective reductions in GHG emissions.

ARB's most recent updated climate change scoping plan was released in November 2017. The scoping plan included GHG emissions from numerous sectors including transportation, industrial, electricity generation, commercial and residential, agriculture, high global warming potential GHGs, and recycling and waste. In 2018, total GHG emissions from these sources included in the scoping plan totaled 425.3 million metric tons of carbon dioxide equivalent ($MMTCO_2e$). While managing natural and working lands in California to reduce GHG emissions was mentioned to complement the measures described in the plan, GHG emissions from wildlands and forest fires were not included.

2) *Wildland and Forest Fire GHG Emissions.* Earth's natural terrestrial carbon cycle transfers carbon between the land, ocean, and atmosphere. Carbon enters biomass in forest and other natural lands through photosynthesis. The amount of carbon sequestration that occurs through photosynthesis is influenced by site conditions, climate, and prior forest management. If not cut or burned, some of this carbon will eventually fall to the forest floor through mortality as part of the plant's natural life cycle, which could range from a few years to sometimes hundreds or up to thousands of years for certain tree species. Estimation of carbon flows resulting from photosynthesis and other life cycle of plants has high uncertainty and is expected to vary greatly from year to year depending on temperature, precipitation, and sunlight availability of the year.

   In addition to carbon, other forces such as methane, nitrous oxide, aerosols and black carbon are also factors in GHG emissions from natural lands. A healthy forest ecosystem stores carbon and keeps other climate-forcing factors in relative balance. But in degraded ecosystems, their ability to absorb carbon declines, while at the same time other climate-forcing factors increase. For example, black carbon (small particulate matter from fires) settles and darkens the surface of the Earth, causing it to absorb more heat.

   While wildfires release GHG emissions that contribute to climate change, it is challenging to determine how much wildfire emissions alter the GHG concentrations in the atmosphere and contribute to anthropogenic climate change because wildfire emissions are part of the terrestrial carbon cycle. SB

901 (Dodd, Chapter 626, Statutes of 2018) required ARB to develop a report that assesses GHG emissions associated with wildfire and forest management activities. This report estimated that the annual average of wildfire GHG emissions in California from 2000-2019 was 14 MMTCO_2e. ARB also released a draft estimate of 2020 wildfire GHG emissions, which was the worst fire year on record for California, at 112 MMTCO_2e.

3) *Natural and Working Lands (NWL) Inventory*. ARB tracks how much carbon exists in California's ecosystems and estimates how much carbon is moving in and out of the various land types. The inventory consists of forest and other natural lands, croplands, urban forests, wetlands, and soil carbon. ARB developed the NWL inventory using design principles established by the Intergovernmental Panel on Climate Change. The NWL inventory is used for informing how California's land base contributes to the state's climate goals.

4) *Forestry Black Carbon Data.* ARB inventories black carbon data from non-agricultural prescribed burning and wildfire GHG emissions. Emissions from these activities exhibit high year-to-year variability and large uncertainty in current and future emissions, and are not included in the state's Short-Lived Climate Pollutant Strategy black carbon reduction target. To provide a more representative view of emissions without large year-to-year variability driven by natural forces, wildfire emissions are calculated as a ten year averages, currently estimated at 86.7 MMTCO2e (using 20-yr GWP) or 24.4 MMTCO2e (using 100-yr GWP).

5) *Executive Order N-82-20.* On October 7, 2020, Governor Newsom signed Executive Order (EO) N-82-20 that directs ARB, as part of the next scoping plan process, to take into consideration the Natural and Working Lands Climate Smart Strategy and science-based data to update the target for the natural and working lands sector in achieving the state's 2045 carbon neutrality goal.

6) *Cap-and-Trade and GGRF*. The original cap-and-trade program was recommended by ARB as a central approach to flexibly and iteratively reduce emissions over time. Pursuant to legal authority under AB 32, ARB adopted cap-and-trade regulations on December 13, 2011. AB 398 extended the authority of ARB to implement a cap-and-trade program throughout the state until December 31, 2030.

   The cap-and-trade program covers approximately 80 percent of the state's GHG emissions included in the scoping plan. The program covers about 450 entities in the sectors of electricity generation, large industrial facilities, and

distributors of transportation, natural gas, and other fuels. The cap is enforced by requiring each covered entity to surrender one "allowance" for every metric ton of carbon dioxide equivalent ($MTCO_2e$) that it emits at the end of a compliance period. Some entities need to purchase these allowances through quarterly auctions, while others are allocated these for free. Revenue from the quarterly auctions are deposited into the GGRF.

Comments

1) *Purpose of Bill.* According to the author, "Wildfires have been scientifically proven to be the largest threat to clean air and climate change due to the massive amount of black carbon and harmful pollutants they expel into the air. CARB does not include these emissions in quantifying carbon capture and sequestration projects, despite having knowledge of statistics that prove the carbon output of wildfires dwarf those of the transportation and fossil fuel industry. In the effort to be more environmentally sustainable, it is evident by the requirements of the Low Carbon Fuel Standard (LCFS), cap-and-trade, the zero-emission vehicle (ZEV) mandate and the Renewables Portfolio Standard (RPS) programs that California do not tell the factual story without looking at the whole picture. SB 495 will require CARB to account for these impactful sources of carbon when tracking the State's greenhouse gas inventory by including emissions from wildfires. This bill will impart truth in assessing statewide progress toward climate goals and help communities by appropriating cap and trade funds to prevent massive wildfires in critical areas, including the improvement of aging or exposed utility infrastructure. California's priorities for fighting climate change should start with wildfire prevention, and possibly allow the state to leverage a partnership with the federal government for even greater emissions reductions through forest health and wildfire mitigation."

2) *Regulating Natural Processes?* Since the passage of AB 32, ARB has focused on reducing fossil fuel combustion emissions and other anthropogenic emissions because they are the primary cause of climate change. Fossil-fuel combustion releases ancient carbon stored underground for millions of years that is putting the natural terrestrial carbon cycle out of balance. In contrast, GHG emissions from wildfires are not necessarily a net emission as the carbon released from the burning biomass all came from the atmosphere originally.

   While California's forests and natural lands are experiencing a negative feedback loop from global warming and other human influences, it is extremely challenging to parse out the complex interactions between natural carbon cycles and human activity. In a recent study on GHG emissions from

the Amazon rainforest, one co-author stated "[I]t's made up of moving parts: multiple climate forcers, not just carbon but also methane, nitrous oxide, particulates and biophysical effects, each being acted on by human stressors that range from dam building and hunting to climate change…Synthesizing these changes is a huge challenge." As noted in the background, state law requires all GHG rules and regulations adopted by ARB to be consistent with the scoping plan. *Including GHG emissions from wildlands and forest fires could result in ARB regulating emissions from the natural terrestrial carbon cycle due to the scientific difficulty in identifying the cause of the emissions.*

While combustion of fossil fuels and other anthropomorphic activities has created the climate change problems we face, achieving the broader goal of carbon neutrality should include the sources and sinks from emissions from all sectors. ARB has stated they are working to understand and project both human- and naturally-caused wildfire GHG emissions, building on the work done for the NWL inventory. In this regard, ARB has additionally stated that the 2022 scoping plan effort will "… focus on what is needed for forests and other natural and working lands to be more resilient and healthy and to continue to provide water, air and biodiversity benefits to California, in addition to supporting carbon neutrality for the State."

3) *Premature to Include GHG Emissions from Wildlands and Forest Fires*. Including GHG emissions from wildlands and forest fires in the scoping plan would be a distinct departure from the current sectors included in the scoping plan. As GHG emissions from wildfires in 2020 show, wildfire emissions are highly variable. Furthermore, GHG emissions from natural and working lands would likely eclipse all other sources in the state. What impact would this have on the state goal of reducing GHG emissions to at least 40 percent below the 1990 level by December 31, 2030? How should regulatory agencies respond immediately following a severe wildfire year? What was the baseline of GHG emissions from natural and working lands in 1990? Again, how does the state ensure it's not regulating natural processes?

   Before considering the inclusion of GHG emissions from wildlands and forest fires in the scoping plan, ARB would need to have a much clearer understanding of which emissions are from natural processes and which are human caused. While it's not clear that a sufficient answer to this fundamental question can be achieved, it is an essential step to pursue when deliberating if and how these types of emissions should be part of ARB's scoping plan. While including these types of emissions in the scoping plan now is likely premature, conducting such a study to reveal what is known about the various sources of

these GHG emissions could be a step in achieving the author's intent in this bill.

Rather than including GHG emissions from wildlands and forest fires in ARB's scoping plan, the Committee may wish to amend the bill to instead require ARB to conduct a study to investigate and project human-caused vs. naturally-caused GHG emissions from wildlands and forest fires.

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 Governance and Finance Committee.

Related/Prior Legislation

SB 535 (Moorlach, 2019) would have required ARB to include GHG emissions from wildfires and forest fires in its scoping plan. SB 535 was held in the Assembly Appropriations Committee.

AB 1167 (Mathis, 2019), would have eliminated the allocation of 25 percent of the GGRF annual proceeds to the California high-speed rail program and redirected the funding to the Department of Forestry and Fire Protection. AB 1167 died in the Assembly Committee on Transportation.

SOURCE: Author

SUPPORT:

None received

OPPOSITION:

None received

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