
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: SB 905
Author: Skinner
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Consultant: Eric Walters

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Fiscal: Yes

SUBJECT: Decarbonized Cement and Geologic Carbon Sequestration
Demonstration Act

DIGEST: This bill tasks the California Air Resources Board (ARB) with a number of responsibilities surrounding geologic carbon sequestration demonstration projects, including but not limited to: developing a geologic carbon sequestration demonstration initiative; funding 1-3 projects therein by January 1, 2024; developing program guidelines and criteria; and acting as lead agency under the California Environmental Quality Act (CEQA) for any geologic carbon sequestration demonstration projects. It also includes consultations with other specified agencies and entities, labor and employment standards, and various stipulations regarding project ownership and conveyance.

Due to the COVID-19 Pandemic and the unprecedented nature of the 2021 Legislative Session, all Senate Policy Committees are working under a compressed timeline. This timeline does not allow this bill to be referred and heard by more than two committees as a typical timeline would allow.

ANALYSIS:

Existing law:

Existing federal law sets, through the Clean Air Act (CAA) and its implementing regulations, National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ground-level ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide. (42 U.S.C. §7401 et seq.)

Existing state 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 (GHG) emissions limit equivalent to the statewide GHG emissions level in 1990 to be achieved by 2020 (AB 32, 2006) and to ensure that statewide greenhouse gas emissions 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 GHG 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 emissions 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.
 - 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) Requires, under SB 596 (Becker, Chapter 246, Statutes of 2021), ARB, by July 1, 2023, to develop a comprehensive strategy for the state's cement sector to achieve net-zero GHG emissions no later than December 31, 2045.

This bill:

- 1) Tasks ARB with developing and administering the Geologic Carbon Sequestration Demonstration Initiative, to:
 - a) Evaluate and demonstrate the efficacy, safety, and viability of geologic sequestration of carbon dioxide not associated with enhanced oil recovery or fossil fuel production;
 - b) Enhance air quality and reduce greenhouse gas emissions; and
 - c) Promote workforce and community benefits.

- 2) Requires ARB and the State Water Resources Control Board (Water Board) to award funding under the initiative by January 1, 2024 to one to three geologic carbon sequestration demonstration projects, which:
 - a) Demonstrate the feasibility of one or more geologic carbon sequestration strategies by facilitating the capture, removal, and geologic sequestration of carbon dioxide generated at one or more new or existing cement production facilities in the state to one or more geologic storage complexes;
 - b) Achieve the capability to sequester at least onemillion metric tons of CO₂ equivalents annually in a storage complex capable of storing at least 50 million metric tons;
 - c) Incorporate strategies to reduce co-pollutant emissions and limit air pollution, water pollution, and construction-related impacts in the community or communities adjacent to any geologic storage complexes used for the project;
 - d) Include monitoring and reporting schedules to state regulatory agencies.
 - e) Promote workforce development and create employment opportunities in the community;
 - f) Advance the state's net-zero cement industry goal and the strategy developed by the state board pursuant to SB 596 (Becker, Chapter 246, Statutes of 2021);
 - g) Include an infrastructure path for construction of, or reuse of existing, pipelines to connect geologic storage complexes to carbon dioxide sources;
 - h) Include facilities, site access, and technical capacity available to support the innovation hub; and
 - i) Have the technical capacity to begin operation no later than September 1, 2023.

- 3) Directs ARB to prioritize demonstration projects that:
 - a) Are likely to generate the greatest net reduction in GHG emissions;
 - b) Represent appropriate land use and minimize potential environmental, noise, air quality, traffic, and other construction-related impacts to the community;
 - c) Promote the goals of the environmental justice element of any applicable general plan, as specified;
 - d) Provide benefits to disadvantaged communities, as specified;and
 - e) Leverage private funding sources and public-private partnership structures alongside state funding sources;

- 4) States that a geologic carbon sequestration demonstration project is a public works project under Labor Code § 1720 et seq, and must pay prevailing wages.

- 5) Directs ARB to require funded projects use skilled and trained workforce, as defined, to perform all project work, as specified.
- 6) Requires ARB to, no later than January 1, 2024, approve between one to three geologic carbon sequestration demonstration projects.
- 7) Prohibits ARB from approving projects associated with or incorporating enhanced oil recovery or fossil fuel production as qualifying geologic carbon sequestration projects.
- 8) Tasks ARB, in consultation with the California Energy Resources Conservation and Development Commission (CEC), California Geological Survey, State Water Board, State Fire Marshal, Department of Fish and Wildlife, State Lands Commission, local air districts, regional water quality control boards, and other state entities as needed, and after holding at least three public workshops located throughout the state, as specified, to develop both the following (which are exempted from administrative regulations in Government Code § 11340 et seq, neither affect Low Carbon Fuel Standard regulations, and they do not include enhanced oil recovery or fossil fuel production):
 - a) Guidelines for the implementation of the initiative and development of geological carbon sequestration demonstration projects, including specified technical and labor best practices; and
 - b) Criteria for the selection of eligible carbon sequestration demonstration projects,
- 9) Establishes the Hub for Innovation In Geologic Carbon Sequestration (hub), and stipulates:
 - a) ARB shall administer the hub to advance, coordinate, and promote geologic carbon sequestration technology, as specified; and
 - b) The hub shall, if feasible, be located at a specified academic institution, and include facilities for use by myriad specified researchers and organizations
- 10) States that the unitization agreements established in 1971 (and contained in PRC § 3640 et seq) apply to this part as well.

- 11) Declares that the title to any geologic storage reservoir is vested in the owner of the overlying surface estate unless it has been severed and separately conveyed, and details specifics regarding conveyance of ownership and transferring of rights.
- 12) States that for any geologic carbon sequestration project other than ones approved by the state board pursuant to this part, the geologic carbon sequestration project operator, or its designee, shall have title to the carbon dioxide injected into and stored in a geologic storage reservoir associated with the project, including all rights and interests in, and all responsibilities associated with, carbon dioxide stored in the geologic storage reservoir, and liability for any and all damages caused by the project.
- 13) Stipulates that, pursuant to the California Environmental Quality Act (CEQA), ARB is the lead agency for a geologic carbon sequestration demonstration projects, and further specifies the responsible agencies for specific features of the demonstration projects.
- 14) Requires ARB to, on or before January 1, 2025, adopt regulations creating a coordinated state permitting process, as specified, for approval of geologic carbon sequestration projects, including a single unified permit for submission by developers or sponsors of geologic carbon sequestration projects.

Background

- 1) *Concrete and Cement.* Concrete is a mixture of cement (a binder usually made from lime or calcium silicate), aggregates (sand, rock, etc.), water, and air. In a typical mix, the cement represents 10-15% of the material by volume but 80-90% of the life cycle CO₂ emissions for the concrete. Cement is made by grinding clinker—an intermediary nodular material produced from heating limestone and clay in a rotary kiln—to about 2700 °F. Most of the energy used in cement manufacturing is in clinker production. The remainder of emissions comes from quarrying, transporting, and preparing the other raw materials.

California is the second largest cement producing state after Texas, accounting for 10-15% of the cement production and industry employment in the US as of 2009. As of 2019, there were 9 cement plants in California and more than 300 concrete manufacturing plants. Most of the cement used in California is produced in state. Cement and clinker production is expected to increase significantly in California as the population and economy grow.

- 2) *Concrete GHG Emissions.* Cement alone accounts for 1.8% of the California’s GHG emissions and 7% of CO₂ emissions worldwide. It is often referred to as one of the most “hard to abate” industrial sectors. According to a February 2019 report by Global Efficiency Intelligence, the state’s cement factories are the largest consumers of coal and petroleum coke in California. In fact, California’s cement factories have higher emissions per ton of cement than similar factories in China, India, and other major cement-producing regions. California’s aging and inefficient cement production facilities are substantially dirtier than new facilities in countries like China and India. The opportunity to clean up California’s cement industry is significant.

The GHG emissions from making cement are approximately 40% from energy use (for heating and driving the processing) and 60% from the chemical reaction that occurs when limestone is heated at high temperatures to make cement, known as “process emissions.”

- 3) *Cement Decarbonization Roadmap.* In September of 2019, Global Efficiency Intelligence also published a report called *Deep Decarbonization Roadmap for the Cement and Concrete Industries in California*. They identified four key decarbonization levers for the cement industry. In order of greatest reduction potential to least, they are (1) carbon capture, utilization, and storage (CCUS) – capturing and compressing CO₂ emitted during cement production to be permanently stored; (2) clinker substitution; (3) fuel switching; and (4) energy efficiency, including waste heat recovery. Implementing these levers could potentially reduce GHG emissions from concrete and cement by up to 68% compared to 2015 levels by 2040. A more conservative estimate with moderate improvements and low adoption of CCUS is around a 13% reduction by 2040.

The scenario analyzed in the report which had the greatest use of CCUS determined that it would result in 4 million metric tons of CO₂ emission reductions in 2040.

- 4) *Impact on Communities.* Cement kilns release numerous harmful pollutants, including nitrogen oxides, sulfur dioxide, and particulate matter. Research shows that local air pollution from cement kilns are both damaging to the environment and cause numerous adverse health effects, including heart and lung disease. Communities near these cement kilns, especially low-income communities, which are often communities of color and children, bear the largest brunt of these health issues. California is home to 9 cement plants, many of which are concentrated in the Inland Empire and Eastern Kern County regions. These areas already face existing air quality challenges as well.

In 2019, the Lehigh Cement Company reached a settlement for alleged violations of the Clean Air Act. As part of the settlement, Lehigh has to invest \$12 million in pollution control technology at 11 of their cement manufacturing plants, three of which are in California.

- 5) *Carbon Capture and Storage (CCS)*. CCS is a process of separating CO₂ from a point source, such as the flue of a gas-fired power plant or a cement plant, and putting it into long-term storage, usually by injecting CO₂ into a geological reservoir. CCS is generally considered by experts to be a CO₂ reduction strategy, not a CO₂ removal strategy, since it is only reducing CO₂ from anthropogenic sources that would have otherwise entered the atmosphere, rather than removing what was already there.

CCS is adoptable in California due to the existing geological storage from the state's history of fossil fuel extraction. However, according to a LLNL report published in 2021, no CCS projects exist today in California, and it is unlikely that CCS could be scaled up at the pace needed due to the current regulatory framework for screening and authorizing projects. ARB has already adopted a CCS protocol under the Low Carbon Fuel Standard (LCFS), including for out-of-state CCS projects. CCS remains controversial because of fears it could prolong the life of fossil fuels and delay the transition to more sustainable fuels.

- 6) *Carbon capture is not a new idea*. According to the 2021 Global CCS Institute (GCCSI) *Global Status of CCS Report*, the earliest example of carbon capture technology being used was in 1972 in Texas at a natural gas processing plant where it supplied CO₂ to a nearby oilfield for enhanced oil recovery. After decades of development and investment, there are 27 commercial-scale carbon capture projects operating worldwide today, capturing a total of 36.6 million tons of carbon per year, an amount equivalent to nearly 9% of California's annual emissions. The majority of global CCS capacity operating today was built prior to 2011, and captures carbon from natural gas processing plants.

In 2010, the California Carbon Capture and Storage Review Panel (formed by the CPUC, CEC, and ARB and composed of experts from industry, trade groups, academia, and environmental organizations) issued findings and recommendations for how to deploy CCS at a greater scale in California. Those findings and recommendations were based in part on deliberations made at the Sixteenth session of the Conference of the Parties (COP 16) and the issuance of federal subsurface CO₂ injection regulations, both of which happened in 2010. Some of the key findings from that 2010 report included, "Technology currently exists for the safe and effective capture, transport, and geological

storage of CO₂ from power plants and other large industrial facilities...There is a need for clear, efficient, and consistent regulatory requirements and authority for permitting all phases of CCS projects in California, including CO₂ capture, transport, and storage”

There is increasing acceptance of the need to increase CCS to limit global warming as much as possible. According to the GCCSI report, the current capacity of CCS projects in either construction or development is 60.9 million tons per year—almost twice the total capacity operating today. The largest projects currently under development are intended to capture CO₂ from either ethanol production or power generation from coal, but other CO₂ sources (direct air capture, cement production, waste-to-energy, hydrogen production, etc.) are planned to be used by other projects as well.

- 7) *Permitting CCS in California.* California’s complex permitting and regulatory framework currently stymies adoption of CCS. A recent report from Lawrence Livermore National Laboratory posits that California’s permitting requirements take 5-6 years to complete. Given California’s fast-approaching climate deadlines, slow CCS permitting could cause it to be unusable for meeting those goals.

The report cites a lengthy environmental review process, a lack of jurisdictional clarity, cross-agency input at local, state and federal levels, and an absence of a joint-review process as key determinants of the lengthy timeline. For example, projects injecting CO₂ into underground saline reservoirs for long-term storage require a Class VI Underground Injection permit from EPA Region 9. The approval process is extensive, scientifically rigorous, and involves multiple government bodies at the state and federal level. The EPA inventory only lists two Class VI permits, one of which took three years to process and approve. None have been granted in California. In addition to EPA Region 9, the State Water Board, regional Water Boards, and CalGEM may all undergo their own reviews of the Class VI application materials.

Furthermore, CCS projects have the potential to emit air pollutants, requiring an Authority to Construct from local air districts. This will in turn trigger a CEQA review, significantly lengthening the review timeline. The level of regulatory complexity only increases if extensive pipeline infrastructure is needed or if projects pursue Low Carbon Fuel Standard credits.

Although unitization is the purview of the Senate Natural Resources and Water Committee, due to the rescission of SB 905 from referral to that committee, the

topic is addressed briefly here. “Unitization” refers to combining separately owned mineral or leasehold interests related to a common supply such as a reservoir or field to create a joint operation to maximize production and optimize operations. Unitization of an oil or gas producing reservoir is routinely used in the state and elsewhere to facilitate oil and gas production where the reservoir has multiple owners. Unitization provides a method, subject to the approval of the State Oil and Gas Supervisor, for joint development of the oil and gas production of the reservoir so long as 75% of the ownership agrees, as provided (see Chapter 3.5 of Division 3 of the Public Resources Code, beginning with §3630). However, geologic sequestration of carbon dioxide by injection into a well is appreciably different from the production (“un-sequestration”) of oil and gas from a well, not least both physically and economically.

- 8) *SB 596*. Last year, Senator Becker’s SB 596 (Chapter 246, Statutes of 2021) set a decisive path towards net-zero emissions in the cement sector. It required ARB to, by July 1, 2023, develop a comprehensive strategy for the state’s cement sector to achieve net-zero emissions of GHGs associated with cement used within the state as soon as possible, but no later than December 31, 2045. The bill stated that it was, “the intent of the Legislature that attaining net-zero or net-negative emissions of greenhouse gases from the cement and concrete sector in a manner that enhances California’s competitiveness, supports high-paying jobs, improves public health, and aligns with local community priorities becomes a pillar of the state’s strategy for achieving carbon neutrality.”

Although CCS was not explicitly mentioned in the language of SB 596, as noted above there have been multiple reports that suggested CCS would be all but essential to achieve net-zero operations by 2045. In granting ARB the authority to develop and implement a comprehensive strategy for the state’s cement sector to achieve net-zero GHG emissions, SB 596 strongly suggested, but did not outright require, cement-associated CCS projects in California.

Comments

- 1) *Purpose of Bill*. According to the author, “The global scientific community agrees to prevent the most devastating impacts of climate change we need to act quickly to both reduce and capture carbon emissions. CA has made a commitment to achieve net-zero greenhouse gas emissions from its domestic cement production by 2045. As cement manufacture is one of the most carbon intensive industrial processes, in order to achieve this, the cement industry needs to be able to capture and permanently store carbon from its production process.

“SB 905 allows CA to test the viability of underground storage of carbon by piloting a carbon capture and underground storage process at a small number of California cement manufacturing facilities. SB 905 will help facilitate the clarification of legal ambiguities around underground storage, and the development of a unified permitting and application process for underground carbon storage reservoirs.

“Pilot projects allowed under SB 905 will be required to provide prevailing wage jobs and to reduce air pollution and other co-pollutants from cement facilities that impact neighboring communities.”

- 2) *Hard to abate emissions.* Not all sectors of our economy will be equally as difficult to decarbonize. Existing zero-emission technologies for electricity generation and transportation, for example, will need to be drastically scaled up, but we ultimately have most of the tools we need today. Cement and concrete production, on the other hand, are considered “hard to abate.” As described in the background, the majority of the CO₂ emissions from cement production are a result of the chemical processes underlying the process. In other words, rather than a matter of scaling up existing clean technologies, there will need to be fundamental changes in the sector in order to decarbonize. Based on modeling and research, CCS seems to be the most promising approach to abating those emissions.

CCS is not a panacea. Fossil fuel-centric industries have made use of carbon capture for roughly fifty years at this point, much of it used to extract more oil from the ground or to attempt to produce so-called “clean coal.” Despite decades of research and investment, the technology has not operated on a meaningful scale for many of its most promising applications. However, CCS is also not inherently iniquitous. By virtually all accounts, it will be necessary in order to stave off the worst effects of climate change and maintain global warming of under 1.5 degrees Celsius. The unprecedented, catastrophic impacts predicted in scenarios with greater warming will disproportionately harm those who have done the least to cause it, as have the effects of climate change experienced so far. As such, it is imperative to rapidly and extensively reduce emissions across our entire economy.

Cement will continue to be essential in building future infrastructure, and at present CCS is the most promising technological approach to reducing the associated GHG emissions. Therefore, cement production seems to be a laudable specific sector for which to advance CCS in California.

- 3) *Establishing CCS standards and accelerating deployment.* Regardless of the fate of the captured carbon, or the source of the carbon stream, carbon capture in California has a documented history of being bureaucratically difficult to deploy. In a sense, SB 905 blazes a trail for CCS in the state, regardless of the sector or application.

As stated above, cement production makes a lot of sense for deploying CCS, but SB 905 does not take the responsibility of facilitating all future CCS in California lightly. While further legislation was arguably unnecessary for ARB to initiate CCS projects to decarbonize cement production under the requirements of Senator Becker's SB 596, this bill goes to great lengths to provide extensive direction on the specifics of the demonstration projects and the permitting associated with them. While this extensive direction may increase complexity for ARB in implementing this legislation, it also allows the Legislature to weigh in on these important details.

If signed into law, once the requirements of SB 905 are carried out it will be significantly easier to undertake a CCS project in California than it is today, thanks to streamlined permitting and clarity regarding ownership and reservoir title. That is a decision that should not be taken lightly. As this measure is deliberated, the committee should be aware that this will have impacts beyond just the direct ones on the state's cement industry – other sectors and projects not contemplated here will have an easier path to completion because of the work set forth in SB 905.

As mentioned in the background section, unitization is the purview of the Senate Natural Resources and Water Committee, but is addressed here due to the fact this bill will not receive a hearing in that committee. The language in proposed PRC §71291 invokes the statutory requirements for existing oil and gas production unitization and states that “they apply” without addressing that this law, including its framework and definitions, are explicit to oil and gas production, not geologic sequestration, and, as such, are not wholly applicable. The language in proposed PRC §71291 does not acknowledge or provide for the differences in application. The author should consider removing the unitization language in its entirety, pending the development of more robust unitization language tailored to the specific needs and circumstances of geologic sequestration of carbon dioxide, and continue to work with the Natural Resources and Water Committee.

Notably, this bill has a prohibition on the association of enhanced oil recovery or fossil fuel production with any of the demonstration projects funded under it. However—and despite streamlined CCS permitting potentially hastening

approval of projects that do include those elements—the bill does not affect whether or not those projects are allowable in the state or eligible for the other benefits of the bill. *The author and committee may wish to contemplate further whether the prohibitions on enhanced oil recovery and fossil fuel production should extend beyond just these demonstration projects.*

- 4) *Aggressive timelines.* The sooner we stop emitting GHGs into the atmosphere, the less warming (and less requisite carbon removal) will ultimately be locked in—time is of the essence. That being said, the timelines in SB 905 are very aggressive.

If signed into law, SB 905 would go into effect January 1, 2023. ARB would then need to develop guidelines for implementation of the initiative and development of the geologic carbon sequestration demonstration projects, and project selection criteria by July 1, 2023—the same date the comprehensive strategy for cement sector decarbonization pursuant to Sen. Becker’s SB 596 is due. Then, no later than January 1, 2024, ARB would be required to approve between one and three geologic carbon sequestration demonstration projects, which would be required to have the technical capacity to have begun operation no later than September 1, 2023. Finally, ARB would further have until January 1, 2025 to adopt regulations creating a coordinated and unified state permitting process for approval of geologic carbon sequestration demonstration projects.

Should this bill move forward today, the author may wish to further consider the practicality of—and administrative resources required for—these rapid timelines and weigh those against the need for rapid emission reductions from CCS.

- 5) *Senate Natural Resources and Water Committee comment.* The Senate Natural Resources and Water Committee generally exercises jurisdiction over the state’s natural resources, and the California Natural Resources Agency and its boards, departments and commissions, as provided. The US Environmental Protection Agency has permitting authority for Class VI Underground Injection Control (UIC) program wells for geologic sequestration of carbon dioxide streams in California subject to federal regulation (see Title 40, Code of Federal Regulations, §146, in particular (40 CFR §146)). The California Geologic Energy Management Division does not currently have statutory authority over the injection of carbon dioxide into the subsurface except via Class II UIC program wells and its use for enhanced oil recovery or oil and gas production-related waste disposal.

While the federal Class VI UIC regulations require certain monitoring provisions during operation and post-site closure of the geologic sequestration wells, there are no explicit requirements for seismic monitoring in the vicinity of the wells. Given the acknowledged potential for induced seismicity associated with geologic sequestration wells, there should be an explicit requirement for seismic monitoring incorporated into the bill.

Proposed PRC §71293 effectively assigns the “cavity or void”(s) comprising the geologic sequestration reservoir to the surface property owner unless the property has already been severed and separately conveyed. California has a split estate where surface and mineral rights are often separated. The US Environmental Protection Agency recognizes that the use of a subsurface reservoir for geologic sequestration may impair access to collocated mineral rights (see 40 CFR §146.93(f)(2)). Therefore, the development of a geologic sequestration reservoir should, at a minimum, require the documented notification of the collocated mineral rights owner or owners. In addition, the Class VI UIC well regulations require after site closure that notice of the use of the reservoir for geologic sequestration be recorded in the title (40 CFR §146.93(g)). This requirement should be codified into state law, and some consideration made of whether the title should be modified to reflect that use earlier in the use of the site for sequestration.

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 Education Committee.

Related/Prior Legislation

SB 1297 (Cortese, 2022) requires the California Natural Resources Agency to, among other things and in consultation with specified state agencies, develop a plan to advance low-carbon materials and methods in building and construction projects that details a strategy and recommendations to minimize embodied carbon and maximize carbon sequestration in building materials, as provided. SB 1297 is currently before this committee.

SB 596 (Becker, Chapter 246, Statutes of 2021) requires ARB to, by July 1, 2023, to develop a comprehensive strategy for the state's cement sector to achieve net-zero GHG emissions no later than December 31, 2045.

AB 1365 (Bonta, 2021) would have established a schedule to incorporate concrete into the State's Buy Clean program and leverage California's purchasing power to advance low carbon technologies and best practices across the supply chain. AB 1365 died when then-Assemblymember Bonta left the Legislature.

AB 1452 (Skinner, 2009) would have required ARB to develop and adopt limitations on GHG emissions that result from the production of all cement sold in the state. AB 1452 died in the Assembly Appropriations Committee suspense file.

SOURCE: Author

SUPPORT:

Climate Reality Project, San Fernando Valley
Kern Community College District
Project 2030
The Climate Center

OPPOSITION:

California Carbon Capture Coalition
California State Pipe Trades Council

ARGUMENTS IN SUPPORT: According to The Climate Center, "As most recently outlined in the Intergovernmental Panel on Climate Change's Sixth Assessment report, immediate actions must be taken to avert catastrophic climate change, including judicious consideration of the use of technological solutions. With CCS gaining prominence as a potential solution in some of California's climate policy circles, we are at an inflection point in the discussion about this technology's appropriate place in the state's policy toolbox. For The Climate Center, this discussion begins with a very clear boundary: CCS should not be used for carbon capture of fossil fuel smokestack emissions or for enhanced oil recovery (EOR) under any circumstances. These end uses of CCS enable continued fossil fuel extraction and pollution, while continuing to unjustly burden fenceline, Black, Indigenous, People of Color (BIPOC) and working class communities. We note that CCS captures only some of the carbon dioxide emissions at the point source, leaks from pipelines during transport of the captured carbon dioxide have had deleterious impacts on local communities, and storage of carbon dioxide has been correlated with earthquakes. In addition, because CCS is focused on capturing CO₂ and not other pollutants, other toxic fossil fuel emissions are still released into

nearby communities. Beyond those impacts, the underwhelming results from numerous fossil fuel smokestack projects, characterized by cost overruns, project delays, and underperformance on capture targets, are clear indicators that its continued use in those applications make no economic sense. Indeed, a 2020 study found that over 80% of CCS projects have “[ended] in failure.”

ARGUMENTS IN OPPOSITION: According to the California State Pipe Trades Council, “We sincerely support efforts to advance carbon capture and sequestration through the creation of a demonstration project for the cement industry. Moreover, we appreciate inclusion of a skilled and trained workforce provision. Unfortunately, we must oppose the language on page 10 explicitly prohibiting the Hub for Innovation in Geologic Carbon Sequestration from conducting any work to advance sequestration from fossil fuel related industries. We would respectfully request that Line 17 on Page 10 be stricken in its entirety.

“We acknowledge that SB 905 contains provisions that are helpful to the advancement of carbon capture, particularly language related to the permitting, geological storage, and ownership interests of projects. However, academic institutions and experts across a wide array of organizations, including those employed by the state for their expertise, have consistently maintained that carbon capture will have to be deployed widely across multiple sectors in order to reach the state’s carbon reduction goals.

“For instance, in 3 of the 4 Scoping Plan Scenarios currently being discussed at the California Air Resources Board, carbon capture of all refinery emissions is proposed. If SB 905 is signed into law as written, it will explicitly prohibit the (Innovation Hub) from considering the use of CCUS in the refinery sector, thus contradicting the state’s own recommendations. We believe that establishing a precedent to prohibit CCUS for industries that are necessary for reaching carbon neutrality by 2045, will take us further from our target. What sense does it make to pass prohibitions on the use of the technology in sectors the state’s own experts have identified as needed to reach carbon neutrality?”

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