Contact
www.theclimatecenter.org
1275 4th Street #191
Santa Rosa, CA 95404
707–525-1665

March 21, 2022

Senator Ben Allen
Chair, Senate Environmental Quality Committee
1021 O Street, Suite 6610
Sacramento, CA 95814

Re: SB 905 (Skinner) – Support

Dear Senator Allen:

On behalf of The Climate Center and its thousands of statewide supporters, I write to express our support for SB 905, which will support a small number of carbon capture and storage (CCS) demonstration projects in the difficult-to-abate cement sector.

The Climate Center is a climate and energy policy nonprofit which works for rapid greenhouse gas (GHG) reductions, starting in California. The Climate Center's flagship Climate-Safe California campaign aims to dramatically accelerate climate action in California through bold, equitable policies, catalyzing the nation and the world into greater action. Climate-Safe California focuses on achieving net-negative emissions in California by 2030 through deep emissions cuts along with significant natural and working lands carbon sequestration. Climate-Safe California is guided by three principles: adhere to the latest climate science, ensure climate justice, and foster a just transition for fossil fuel workers, their families and their communities.

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,[1] and storage of carbon dioxide has been correlated with earthquakes.[2] In addition, because CCS is focused on capturing CO_2 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.[3] [4] Indeed, a 2020 study found that over 80% of CCS projects have "[ended] in failure."[5]

Despite the flaws associated with its deployment in the fossil fuel sector, CCS may have a role to play in other use cases, specifically in so-called "hard-to-abate" industrial applications, such as cement production. These applications are often characterized by the release of carbon dioxide due to "process emissions," or the byproducts of chemical transformation of materials (e.g. limestone) when heated to very high temperatures. Process emissions therefore cannot be eliminated by facility decarbonization through electrification, fuel switching, or energy efficiency alone. As such, these emissions are "hard-to-abate" – decarbonizing that part of production requires technologies or processes that are not yet mature or known. Process emissions from cement production are roughly half of the total industry's emissions, with the other half coming from fossil fuel-based industrial heating, fossil fuels in their power supply, and transportation of materials.[6]

California is the second largest cement producing state in the US. With cement production the second-largest industrial source of GHG emissions in the state behind oil and gas,[7], and responsible for 8% of global GHG emissions while also being critical for climate-resilient construction,[8] finding a way to drive emissions reductions in the sector is an important policy goal.[9]

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[1] Nicholas Kusnetz. **Exxon Touts Carbon Capture as a Climate Fix, but Uses It to Maximize Profit and Keep Oil Flowing**. *Inside Climate News.* September 27, 2020. https://insideclimatenews.org/news/27092020/exxon-carbon-capture/

[2] ScienceDaily. **Gas injection probably triggered small earthquakes near Snyder, Texas.** *ScienceDaily.* November 4, 2103. https://www.sciencedaily.com/releases/2013/11/131104152726.htm

[3] Jason Deign. **The carbon capture project that couldn't: Chevron misses targets for its huge Australia facility.** *Canary Media,* 2021. https://www.canarymedia.com/articles/carbon-capture/the-carbon-capture-project-that-couldnt-chevron-misses-targets-for-its-huge-australia-facility

[4] Darren Samuelsohn. **Billions over budget. Two years after deadline. What's gone wrong for the 'clean coal' project that's supposed to save an industry?** *Politico,* 2015. https://www.politico.com/agenda/story/2015/05/billion-dollar-kemper-clean-coal-energy-project-000015/

[5] Ahmed Abdulla, Ryan Hanna, Kristen Schell, Oytun Babacan, David Victor. **Explaining successful and failed investments in U.S. carbon capture and storage using empirical and expert assessments**. *Environmental Research Letters,* 2020. https://iopscience.iop.org/article/10.1088/1748-9326/abd19e

[6] Jocelyn Timperley. **Q&A: Why cement emissions matter for climate change**. *Carbon Brief*, 2018. https://www.carbonbrief.org/qa-why-cement-emissions-matter-for-climate-change

[7] **New California Law Will Set Cement Sector Strategy to Cut GHG Emissions.** Engineering News-Record. October 10. 2021 https://www.enr.com/articles/52613-new-california-law-will-set-cement-sector-strategy-to-cut-ghg-emissions

[8] Concrete needs to lose its colossal carbon footprint. Nature. September 28, 2021. https://www.nature.com/articles/d41586-021-02612-5#ref-CR3

[9] https://www.climateworks.org/wp-content/uploads/2019/02/CA-Cement-benchmarking-report-Rev-Final.pdf

Given the difficulties associated with controlling process emissions, The Climate Center sees CCS potentially playing a role in reducing emissions in this economic sector, so long as there are prohibitions against using or selling the captured carbon dioxide for enhanced oil recovery. The exploration of this use case should be done cautiously, in a limited manner, and with other key safeguards, including assurances that (1) the transportation and storage of the captured carbon dioxide will be conducted in ways that do not harm nearby communities or the environment, (2) facilities work to rapidly decarbonize non-process emissions such as by using clean electricity, (3) facilities work to proactively and rapidly eliminate non-carbon dioxide pollutants, and (4) they engage meaningfully with the local community in the planning of these efforts. Additionally, the state's taxpayers should not be the primary source of funds for the buildout of these projects. The largest share of capital should be put forward by the developers seeking to implement this technology.

Senator Skinner's SB 905, with its authorization of one to three projects to demonstrate the use of CCS for concrete production and inclusion of multiple safeguards, successfully balances the cautious exploration of limited, non-fossil use cases with the need to protect local communities from healthy and environmental impacts of these projects. 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. The bill further requires the California Air Resources Board (CARB) to establish a unified application and permitting process for safe geologic carbon storage, and directs CARB to launch an Innovation Hub at a UC, CSU, or Community College close to the sequestration sites to provide research support to the demonstration projects. Lastly, SB 905 clarifies legal questions around ownership of pore space and unitization for underground carbon storage.

Cement manufacture is one of the most carbon intensive industrial processes and finding ways to safely and cost-effectively capture, transport, and permanently store as much carbon as possible from its production process while also protecting local communities could be a crucial step toward decarbonizing this and other hard-to-abate sectors. With the window to avoid the worst outcomes of climate change rapidly closing, the cautious exploration of limited CCS application in hard-to-abate sectors is warranted. SB 905 takes a measured and thoughtful approach to this exploration with built-in safeguards that put local communities and the environment at the forefront. For these reasons, we support SB 905 and urge your aye vote.

Sincerely,

Ellie Cohen
CEO
The Climate Center