October 22, 2021

California Air Resources Board
1001 I Street
Sacramento, California 95814

RE: Public Workshop on 2022 Scoping Plan Update – Scenario Inputs Technical Workshop

The California Carbon Capture Coalition (Coalition) appreciates the opportunity to submit comments to the California Air Resources Board (CARB) in response to the September 30, 2021 Public Workshop on the 2022 Scoping Plan Update – Scenario Inputs Technical Workshop.

The California Carbon Capture Coalition includes a number of leading industries and hundreds of thousands of workers in the state that are critical to successful climate action in California. We are committed to supporting California's efforts to reduce greenhouse gas (GHG) emissions in line with the Paris Agreement in cost-effective ways that drive technology and create and maintain high quality jobs and robust economic growth in the state.

The Coalition appreciates CARB's consideration of Scoping Plan scenario alternatives to achieve California's net-carbon neutrality goals that include carbon capture, utilization and sequestration (CCUS) technology. CCUS must be a key component of the scenarios that CARB analyzes and implements for achieving California's net-carbon neutrality goals in the 2022 Scoping Plan Update.

The 2022 Climate Change Scoping Plan Update will play a pivotal role in charting California's path to achieving the state's 2045 carbon net-neutrality goal. The Scoping Plan should be designed to optimize the range of benefits that achieving climate goals in California can provide. California is uniquely positioned to benefit from CCUS in ways that provide significant and lasting greenhouse gas emissions reductions and support new and existing high-quality jobs. CCUS can also deliver air quality and local economic benefits to California communities in many parts of the state.[1] CCUS technologies are being safely deployed at multiple locations across the world today. These technologies are effectively working to reduce emissions across a range of industries in increasingly cost-effective and innovative ways. As detailed below, the state cannot successfully decarbonize without significant and meaningful contributions from CCUS.

California will not achieve its climate goals without CCUS

Achieving California's climate goals will require significant and rapid deployment of CCUS technology. As CARB has recognized throughout this Scoping Plan Update process, the scale and pace of emissions reductions required to achieve California's 2030 GHG target and

[1] See "The role of carbon capture and storage in the race to carbon neutrality," Peridas and Schmidt, 2021.

subsequent 2045 net-neutrality goal must increase substantially from current progress to date.[2] Numerous recent expert analyses have identified CCUS as a critical component of successful climate action strategies globally, nationally and in California. Leading analyses, including those from the Intergovernmental Panel on Climate Change, the International Energy Agency, the Energy Futures Initiative, Stanford University, Lawrence Livermore National Laboratory, UC Berkeley and UCLA, Princeton University, and Energy & Environmental Economics detail the imperative of including CCUS at scale as an essential part of the approach to achieving California's climate goals, including the 2045 carbon net-neutrality goal.

California's 2008 Climate Change Scoping Plan, and subsequent 2013 and 2017 plan updates, all recognized the importance of CCUS in the state's comprehensive climate strategy. Governor Newsom's recent *California's Electricity System of the Future* report also highlighted the key role that CCUS can play in state climate action.

The recent report from President Biden's White House Council on Environmental Quality to Congress on Carbon Capture, Utilization and Sequestration describes the key role for CCUS technologies in national decarbonization efforts, noting specifically that large scale deployment of CCUS can deliver multiple benefits in addition to reducing greenhouse gases, including reducing emissions of other pollutants and providing support for well-paying union jobs. California's history as a national climate leader ideally positions the state play an instrumental role as part of efforts to scale CCUS technologies across the country, and the reap the benefits these actions can deliver in California.

CCUS will deliver significant job and economic benefits in California

Deployment of carbon capture, utilization and sequestration technology affords California a significant opportunity to create and preserve thousands of high quality, high wage jobs across the state in both new and existing industries. As documented in recent analyses from Rhodium Group and Energy Futures Initiative, bringing CCUS projects and infrastructure on-line in California will support a range of employment opportunities across multiple economic sectors including construction and pre-construction, engineering, sciences, project development and ongoing project management. Similarly, deployment of CCUS technologies in California can play a key role in helping to manage the costs associated with California's efforts to decarbonize, especially for the most vulnerable Californians.[3]

California is uniquely positioned to safely take advantage of CCUS technology

California has an unparalleled set of resources to be a global leader in demonstrating the critical role that safe and effective CCUS technologies can play in climate action. Analyses presented by leading experts from Stanford University and Lawrence Livermore National Laboratories at the

[2] See Slide 9, "2022 Scoping Plan Workshop Update," Kickoff Workshop, June 8, 2021; and Slide 4, "2022 Scoping Plan Workshop Update," Engineered Carbon Removal Technical Workshop," August 2, 2021.
[3] See "California needs clean firm power, and so does the rest of the world," Long, et. al., 2021.

August 2 Engineered Carbon Removal Scoping Plan workshop highlighted the abundance of safe, high quality geologic sequestration capacity in the state – much of it strategically located near existing facilities currently suited for safely capturing and transporting CO2.

Analysis from the U.S. Department of Energy concludes that California has more than enough sequestration capacity to safely and permanently store hundreds of years' worth of the state's total CO2 emissions. Additionally, many CCUS technologies have been safely and successfully practiced for decades across the spectrum of capture, transport and storage activities.[4] These technologies and practices can be applied, refined, and enhanced to enable CCUS to play a meaningful role in California's decarbonization efforts.

California industries possess a depth of technological capability and technical expertise to quickly and safely deploy CCUS. The state has one of most skilled workforces in the world standing at the ready to design, build and operate CCUS projects and infrastructure. As detailed in the February 2021 report *Permitting Carbon Capture and Storage Projects in California*, California has existing and robust regulatory frameworks to ensure that CCUS projects protect public health, safety and the environment.

CCUS must be a key component of the scenarios that CARB analyzes for achieving California's net-carbon neutrality goals in the 2022 Scoping Plan Update.

The Coalition appreciates CARB's recognition of CCUS technology in the Scoping Plan Update draft scenarios. As detailed in the "Proposed PATHWAYS Scenario Modelling Assumptions" presented at the workshop, CCUS can play a key role to support GHG emission reductions across a range of economic sectors in California, including petroleum refining, electricity generation, and a number of other industries in the state. The Coalition looks forward to working with CARB and all stakeholders as these scenarios are analyzed in further detail as part of the Scoping Plan Update.

The Coalition is firmly committed to supporting California's efforts to cut greenhouse gas emissions in cost-effective ways that drive technology and create and maintain high quality jobs and robust economic growth in the state. As the state embarks on an accelerated effort to reduce emissions, it is imperative that we utilize a range of approaches to be successful. CCUS technology can be rapidly deployed to cost-effectively deliver tens of millions of tons of GHG emissions reductions in California to substantially contribute to state decarbonization goals.[5]

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[4] See "The role of carbon capture and storage in the race to carbon neutrality," Peridas and Schmidt, 2021.
[5] See "An Action Plan for Carbon Capture and Storage in California," incl. pg 43, 65, 66; "California CO 2 Storage Assurance Facility Enterprise (C2SAFE) Final Technical Report Type of Report Final Report," incl. Chapter 5.

By including a comprehensive policy, regulatory and economic framework for CCUS in California, the 2022 Scoping Plan Update can ensure that CCUS technology plays a key role in quickly, safely and significantly contributing to California's climate goals.

Sincerely,

Pete Montgomery
Vice Chair
California Carbon Capture Coalition

Members of the California Carbon Capture Coalition include Aera Energy, Boston Consulting Group, Chevron, Calpine, California Business Roundtable, California Manufacturers and Technology Association, Clean Energy Systems, Independent Energy Producers Association, Southern California Gas Company, State Building and Construction Trades Council of California, and Western States Petroleum Association.