

August 17, 2023

Ms. Rajinder Sahota
Deputy Executive Officer
California Air Resources Board
1001 I Street,
Sacramento, CA 95814

Re: Comments on the CARB Public Workshop: Potential Amendments to the Cap-and-Trade Regulation

We are writing to provide comments on the California Air Resources Board (CARB) Public Workshop: Potential Amendments to the Cap-and-Trade Regulation, hosted on July 27, 2023. California Resources Corporation (CRC) is an independent energy and carbon management company committed to energy transition. CRC has some of the lowest carbon intensity oil and natural gas production in the US and we are focused on maximizing the value of our land, mineral and technical resources for decarbonization by developing carbon capture and storage (CCS) and other emissions reducing projects.

CRC agrees with CARB that Carbon Capture and Sequestration is necessary to achieve the reductions

We agree that dispatchable power generation will be required to stabilize the California electrical grid far into the future. As noted in the 2022 Scoping Plan, approximately 10% of the power generation in California in 2045 will be gas-fired plants fitted with carbon capture and sequestration (CCS), a proven technology, to provide firm baseload and dispatchable power to fill in the power generation gaps left by wind, solar and batteries. The same technology is also able to reduce greenhouse gas emissions from cement, biofuels and other hard to decarbonize industries that are not amenable to electrification or hydrogen use.

CRC encourages CARB to incorporate CCS into Cap and Trade

CARB has already invested significant time and effort in developing a comprehensive and protective regulation for CCS, incorporating methodologies for both permanence and quantification. The lifecycle-focused protocol, which was incorporated into the Low Carbon Fuel Standard (LCFS) effective January 1, 2019, goes to great length to ensure that only the most suitable sites are chosen for permanent geologic storage, that they are operated and decommissioned diligently, and that they are monitored thoroughly during their operational life and well past site closure.

However, neither the Mandatory Reporting Regulation (MRR) or emission-based cap and trade program recognizes emission reductions through CCS. The exclusion of CCS under Cap and Trade represents a disconnect between the major implementing regulations of AB32 (i.e., MRR, LCFS, Cap and Trade) and California's carbon neutrality goals. Currently under Cap and Trade, an entity would have to pay cap and trade when not emitting any CO₂ into the atmosphere

because there is no mechanism to allow it to subtract captured and geologically sequestered carbon dioxide from its compliance obligation, even when the entity satisfies the requirements of CARB's CCS Protocol to generate LCFS credits. This disconnect means that a CCS project would be treated under Cap and Trade as an uncontrolled source and have to account and acquire allowances or offsets for all captured CO₂.

Incorporation of such a protocol into the Cap-and-Trade Program was foreseen by CARB as far back as 2010, when the Cap-and-Trade regulation was adopted, under Board Resolution 10-42, in which the Board directs the Executive Officer to establish such a protocol in the Cap-and-Trade regulation:

“BE IT FURTHER RESOLVED that the Board directs the Executive Officer to initiate a public process to establish a protocol for accounting for sequestration of CO₂ through geologic means and recommendations for how such sequestration should be addressed in the cap-and-trade program [...]”

CRC has 191 MMT of Class VI permits submitted to the EPA, all of them located in California.

The 2022 Scoping Plan outlined an aggressive, but achievable, plan for California to reach carbon neutrality. A key component of the Scoping Plan is shown in slide 5 of CARB's July 27 presentation, a scenario needing 20 MMT CO₂e of CCS/DAC in 2030 to reach a 48% reduction below 1990.

The state has set the goals and CRC is already working to help meet these aggressive goals by having 191 MMT of Class VI permits submitted to the EPA, as well as 5 CDMAAs (Carbon Dioxide Management Agreements) with promising greenfield projects that can accelerate the new energy economy in California. For example, these promising projects include renewable transportation fuels and low carbon hydrogen production, which are marquee components of the California net zero vision. What is urgently needed now is regulatory certainty so that project developers understand how they will meet California's permitting and legal requirements.

CRC highlighted the need for a strong policy signal and suggestive decisive actions to support CCS project development in its letter to CARB dated July 27, 2020 – over 3 years ago. Our full comments are incorporated by reference and are excerpted below for emphasis:

Time is of the essence and swift action by CARB is needed to avoid California falling behind other states in the race to climate leadership on CCS. While the normal rulemaking schedule may perhaps suffice to meet the January 1, 2024 deadline for start of construction under 45Q, project lenders will require a firm pathway well before then to demonstrate financial viability of a CCS project. Given the scale and complexity of CCS projects, multiple parties are expected to participate financially in the CO₂ source, the capture facility, transportation and sequestration operations. For the agreements between these entities to be feasible with respect to cash flow, debt amortization and

similar measures, all funding mechanisms of real income, imputed income and tax benefits need to be solidly determined and agreeable to project lenders and other participants.

Said differently, without changes to the MRR and Cap-and-Trade program to exclude CO₂ that is captured and not released, projects face a steep obstacle financially and will be delayed or deferred. **To address this, we are asking that the permanence provisions of the CCS Protocol in the LCFS regulation be incorporated directly. Further, we ask that the federal regulation at 40 CFR 98 RR be incorporated into the MRR directly to provide an accounting mechanism for emission reductions. Incorporation of CCS under Cap and Trade will further cement California's role as the energy and climate technology leader. Without these prompt regulatory clarifications, we believe the existing inconsistency between the CCS Protocol in LCFS and the Cap and Trade program will seriously impede or delay CCS projects in California and needlessly cede California's CCS leadership to other states and countries.**

As highlighted in CARB's July 27th presentation, the Cap and Trade regulations reference CCS but require a board-approved quantification methodology before it can be used to reduce a CO₂ suppliers compliance obligation. **We encourage CARB to approve a CCS methodology as soon as possible so that market participants can have clarity that the state supports CCS development.**

Crude Production Direct Allocations

In slides 57-59, CARB is considering a single benchmark emission baseline for California crude production. As CARB is aware, much of California's production is comprised of heavy crudes which are produced using thermally-enhanced oil recovery (TEOR). This method of production involved steam production which increases the carbon intensity of the crude produced. Under its original design, the cap and trade program provided significant larger allocations per barrel produced using TEOR to minimize leakage of emissions out of state, which is a prime consideration required under AB32.

AB32 mandates that CARB minimize leakage to the extent feasible. CARB has recognized the High Risk of leakage associated with crude oil extraction. A single baseline, presumably much lower than the existing TEOR benchmark, will further burden a significant portion of California production allowing out of state producers, which are not subject to cap and trade, an advantage in the California market. For example, by incorporating a barrel-weighted average benchmark to provide production allocations, CRC estimates that the cap and trade cost per barrel for thermal oil production in the state will increase by roughly 40%. This economic pressure will tend to increase crude imports from outside California causing leakage of emissions.

CRC presumes that this strategy is based on the misconception that imported crude has a lower carbon intensity than California crude and that one grade of crude is replaceable by any other. We have serious doubts on the former as has been detailed by CRC and others and the latter is simply not accurate. Production of oil in California involves TEOR because of the oil and formation characteristics that California possesses, which is as arbitrary as the location of the

State's geographical boundaries. It is not due to a discretionary choice of production practices or lax environmental restrictions.

Further, because California refineries were configured to refine California crude, when a barrel of crude produced by TEOR in California is replaced by an imported barrel, that imported barrel is not a light, low CI barrel, but another heavy crude, high CI barrel produced by TEOR in another country. That imported barrel will have an uncertain carbon intensity (at best). We note that CARB cites OPGEE model results for carbon intensities of crudes. While the data for California crudes is detailed and voluminous, data from other countries is lacking and of uncertain quality. For example, production from many fields are modeled by CARB using only the API gravity and production volumes technical journals, which may not have even been peer reviewed. In contrast, California producers directly report their emissions and electricity use which are third party verified. Further, data for production practices are overseen by CalGem which has a 100-year history of regulation and data collection.

CRC recommends that CARB work with California producers and other state agencies such as CalGEM and Energy Commission to evaluate the effect of such a foundational program change on heavy crude production such that the AB32 legal requirement to minimize leakage is satisfied.

Thank you for the opportunity to provide comments on the Cap and Trade Workshop. We look forward to working with CARB on future rulemaking.

Regards,



Chris Gould
Chief Sustainability Officer
California Resources Corporation