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Submitted electronically via [ww2.arb.ca.gov](http://ww2.arb.ca.gov)

Rajinder Sahota  
Deputy Executive Officer for Climate and Research  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**RE: Comments on the April 23, 2024, CARB Public Workshop and the Proposed Amendments to the Cap-and-Trade Program Regulations**

Dear Ms. Sahota:

California Resources Corporation (“CRC”) appreciates the opportunity to comment on the California Air Resources Board’s (“CARB” or “the Board”) public workshop held on April 23, 2024, regarding potential amendments to the Cap-and Trade (“C&T”) program regulations. CRC believes that carbon capture and storage (“CCS”) is an integral part of CARB’s scoping plan to achieve California’s climate goals. Without CCS, California risks losing access to both federal IRA dollars, as well as private investment to other states. CRC therefore respectfully requests that CARB revise the proposed amendments to ensure that: (1) the Mandatory Reporting Rule (“MRR”) be revised to account for sequestered greenhouse gas (“GHG”) emissions from covered facilities that have deployed CCS, and (2) similarly revise the C&T regulations to clarify that the CCS at a covered facility allows for a reduction in the applicable C&T compliance obligation. CRC separately requests that CARB retain the current benchmarks and allocations for thermal oil production in California. We also support the comments from the Western States Petroleum Association (“WSPA”) that CARB revise the C&T regulations to allow for CCS to generate offsets under the C&T and/or tradeable credits and incorporate those comments by reference here. The requested changes are essential in order to promote CCS projects, end regulatory uncertainty in the state, thereby promoting necessary investment in California which has a vital role in meeting California’s climate goals.

**About CRC and Carbon TerraVault Holdings, LLC**

California Resources Corporation is an independent energy and carbon management company committed to the energy transition. CRC has some of the lowest carbon intensity production in the US and we are focused on maximizing the value of our land, mineral and technical resources for decarbonization by developing CCS and other emissions reducing projects.

Our core activities involve exploration, production, gathering, processing, and marketing of crude oil, natural gas, and natural gas liquids. We leverage advanced technologies extensively to enhance safety and boost production efficiency across our expansive mineral acreage and

diverse portfolio. These cutting-edge technologies allow us to increase production while minimizing the environmental footprint of our oil and gas development operations. For more information about CRC, please visit [www.crc.com](http://www.crc.com).

Carbon TerraVault Holdings, LLC (“CTV”), a subsidiary of CRC, provides services that include the capture, transport and storage of carbon dioxide for its customers. CTV is engaged in a series of CCS projects that inject CO<sub>2</sub> captured from industrial sources into depleted underground reservoirs and permanently store CO<sub>2</sub> deep underground. For more information about CTV, please visit [www.carbonterravault.com](http://www.carbonterravault.com).

### **About Carbon TerraVault Joint Venture**

Carbon TerraVault Joint Venture (“CTV JV”) is a carbon management partnership focused on carbon capture and sequestration development, and was formed between Carbon TerraVault, a subsidiary of CRC, and Brookfield Renewable. The CTV JV develops both infrastructure and storage assets required for CCS development in California. CRC owns 51% of the CTV JV with Brookfield Renewable owning the remaining 49% interest. Brookfield Renewable has made an initial \$500 million private equity commitment to CTV JV with an option to make additional investments of more than \$1 billion assuming it fully participates in future CTV JV projects.

### **Proposed Recommendations**

As a California-based company committed to the energy transition, CRC supports CARB’s overall goal of achieving carbon neutrality by 2045 and reducing greenhouse gas emissions by 2045 to a level that is 85% below 1990 levels.

As discussed in greater detail below, we respectfully request that as part of updating the California Cap-and-Trade Program and MRR, CARB:

- Provide detailed CCS permanence and quantification methodologies in the current rulemaking process; and
- Retain the current benchmarks and allocations for thermal oil production in California.

### **Representative Projects**

CTV JV is involved in several new clean energy initiatives. These include the Grannus Ammonia and Hydrogen Project, which expects to sequester 370,000 metric tons (“MT”) of CO<sub>2</sub> annually and produce clean ammonia and hydrogen in Northern California. The project aims to be California’s first clean ammonia and hydrogen facility producing 150,000 MT per annum of clean ammonia and 10,000 MT per annum of clean hydrogen. Additionally, the Lone Cypress Hydrogen Project, in collaboration with Lone Cypress Energy Services, expects to sequester 100,000 MT of CO<sub>2</sub> per year from a new hydrogen plant, with an expansion plan to 205,000 MT and the

production of 60 tons per day of hydrogen.<sup>1</sup> Such projects will constitute new regulated entities with captured CO<sub>2</sub> emissions sources that will have significant compliance obligations under the Cap-and-Trade regulations if they cannot reduce their obligations through CCS.

The expectation is that these projects will contribute to our sustainability goals to reduce carbon emissions, promote clean energy and should not be penalized as if they emit CO<sub>2</sub> to the atmosphere when that CO<sub>2</sub> is captured and sequestered. CARB could incentivize the proliferation of these projects and others like them, which is fully consistent with its 2022 Scoping Plan and the State's energy transition goals, by amending the Cap-and-Trade regulations as suggested herein.

In addition to the projects discussed above, CTV JV intends to partner with existing sources of CO<sub>2</sub> emissions considered in CARB's 2022 Scoping Plan, which desire to reduce their compliance cost under Cap-and-Trade. These projects rely on this relief, in part, for economic justification.

### **California Resource Corporation's Recommendations and Comments on Potential Cap-and-Trade Amendments**

#### **I. CRC recommends CARB incorporate CCS permanence and quantification methodologies in the upcoming Cap-and-Trade program rulemakings without delay.**

The California Climate Crisis Act, AB 1279 established the State's ambitious goal to achieve carbon neutrality by 2045 and contained clear directives from the legislature to CARB on CCS. AB 1279 expressly notes the need to prioritize direct emission reductions and for CARB to identify and implement policies that support the deployment of CCS. While CARB acknowledged the critical role CCS plays in its 2022 Scoping Plan, CARB's existing regulations are inadequate to achieve the Legislature's aggressive goal of supporting direct GHG emission reductions through the use of technologies like CCS because current regulations still do not allow for the quantification of sequestered carbon for purposes of either MRR reporting or Cap-and-Trade program obligations. Consequently, such operators are required to purchase allowances or offsets under the Cap-and-Trade program even if their carbon emissions are 100% captured and sequestered. This creates a paradox by which, despite not emitting a single carbon dioxide molecule to the atmosphere, such net zero sources like the previously mentioned Lone Cypress Hydrogen Project are treated the same as uncontrolled sources (*e.g.*, a fossil power plant without CCS installed). This paradox has created uncertainty for CRC, CTV and the others that are needed to invest the millions of dollars in projects to reduce emissions on existing operations, which could lead to an effective moratorium on the CCS projects that the 2022 Scoping Plan called for on hard-to-abate industries.

Such an approach is not consistent with CARB's 2022 Scoping Plan or the intent of the California Legislature when it passed AB 1279. Both AB 1279 and the C&T regulations prioritize and seek to incentivize direct GHG emission reductions. If certain hard to decarbonize sources,

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<sup>1</sup> Lone Cypress CDMA Press Release, California Resources Corporation (Dec. 7, 2022).

such as baseload power generating facilities, are forced to only rely on carbon allowance and offset purchases to achieve compliance with C&T requirements, the goals of AB 1279 and the 2022 Scoping Plan cannot be met. For these hard to decarbonize sources, CCS represents the best and shortest path to achieve timely direct emission reductions. And yet, CARB's delay in creating rules for accounting for GHG emissions from sources utilizing CCS has the perverse effect of disincentivizing early action by these sources to deploy CCS because they receive no compliance benefit. If CCS is to be rapidly adopted as part of California's energy transition, as well as clear a path to the required data centers for artificial intelligence in agriculture and biotechnology, these counterproductive regulations must be revised as soon as possible in order to support state goals and achieve the Legislature's express intent to support direct GHG emission reductions.

CARB acknowledged the need for a CO<sub>2</sub> quantification and permanence methodology for CCS projects over a decade ago when it originally adopted the C&T regulations. Since that time, the U.S. Environmental Protection Agency has implemented the federal requirements for quantifying CO<sub>2</sub> emission reductions from CCS projects found at 40 C.F.R. § 98 Subpart RR, approving numerous monitoring, reporting and verification plans without any issues or substantive concerns. In addition, CARB has already adopted a CO<sub>2</sub> permanence methodology for CCS under the Low Carbon Fuel Standard CCS Protocol. There are clear, well-defined guideposts available to help CARB finally define its approach to quantifying GHG emissions from C&T facilities that would seek to utilize CCS. CARB, and California, cannot afford any further delay.

The treatment (or rather lack thereof) of CCS by the Cap-and-Trade program has remained unchanged despite previous attempts to raise awareness to this conflict. The lack of progress appears to emanate from SB 905 which, amongst other matters, establishes a unified permitting framework for CCS within California. However, nothing in SB 905 addresses (1) emission reporting under the MRR or (2) the C&T program, and so any actions required under SB 905 cannot reasonably be said to prevent or otherwise limit CARB from updating other aspects of its regulations to address CCS. If anything, SB 905 represents a strong signal from the legislature for CARB to press ahead with developing a comprehensive suite of regulations addressing CCS. Moreover, updating the MRR and the C&T regulations to recognize GHG emission reductions from CCS is arguably a necessary first step, or at a minimum a complimentary step, required to support the establishment of the comprehensive CCS permitting program called for by SB 905. The statutory text of SB 905 expressly does not prioritize any unified CCS permitting rulemakings over other CCS rulemakings or otherwise prevent CARB from acting on issues raised by CRC. CARB has read unnecessary restrictions into SB 905. To end this impasse and ensure there are no further delays permitting CCS projects once ultimately CARB establishes the unified framework under SB 905, CARB should revise the MRR and C&T regulations now to account for GHG reductions for CCS.

Delaying CCS rulemaking also threatens the net zero goals established by Assembly Bill ("AB") 32 which requires CARB to develop a Scoping Plan, laying out California's strategy for meeting the state's climate goals.<sup>2</sup> The 2022 Scoping Plan provides a detailed pathway to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85% below 1990 levels

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<sup>2</sup> Cal. Code Regs. Title 17, § 38561.(a)-(h) (2023).

no later than 2045. Part of this pathway includes fitting natural gas-fired electric generating units with CCS to provide baseload power, supplementing existing solar, wind, and battery power sources by the year 2045.<sup>3</sup> Yet, CARB is poised to ignore this opportunity to make a much needed and long awaited revisions to the current C&T regulations by finally adopting a GHG quantification methodology for CCS, which will provide another pillar of support the use of CCS as CARB envisioned in the 2022 Scoping Plan.

In connection with any final rulemaking, we recommend that CARB adopt the following amendments to the Cap-and-Trade and MRR programs. First, under its Cap-and-Trade program, CARB should finalize the placeholder provision in California Code of Regulations Title 17 § 95852(g) to allow for accounting for GHG sequestered from CCS. Reductions in C&T compliance obligations should be proportional to the amounts of carbon dioxide successfully captured and sequestered in the subsurface. Second, complementary amendments to the MRR program should allow CCS operators to realize back-end emissions reductions through their CCS deployments against their MRR emissions calculations for fuel flow on the front end. Third, we support allowing CCS projects to generate offsets or credits under the C&T program consistent with WSPA's comment letter, which we believe is supported by the same statements made above with respect to the MRR and C&T.

## **II. Proposed Amendments in Allowances for Thermal Oil Production**

We understand thermal allowances will be specifically addressed in an upcoming public workshop on the Cap-and-Trade program, but we feel that the importance of this topic warrants raising the issue now. As we previously noted in our comments on the July 27, 2023, public workshop, much of California's hydrocarbon production is comprised of heavy crude oil which is produced primarily using a thermal oil recovery processes.<sup>4</sup> This method of production typically uses injected steam to increase the extraction of crude oil from a given subsurface hydrocarbon reservoir—a process which invariably increases the carbon intensity of the produced hydrocarbons, albeit usually by a minor amount.

CARB's Cap-and-Trade program—recognizing California's distinctive petroleum geology and seeking to limit out of state emissions—provides indirect concessions and incentives to California-based energy producers. First, as originally designed, the Cap-and-Trade program provides thermal oil production with a higher emissions efficiency benchmark (0.0811) than that of its non-thermal oil recovered counterpart (0.0076). Next, the current regulations give significantly larger allocations per barrel produced using thermal oil production in order to minimize leakage of emissions out of state. As a result, this allocation provided, through budget year 2023, approximately 80 million allowances for oil and gas extraction, with a majority using thermal oil production processes.

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<sup>3</sup> See, e.g., 2022 Scoping Plan, page 92.

<sup>4</sup> California Resources Corporation's Comments on the July 27, 2023 Cap-and-Trade Program Public Workshop, [https://ww2.arb.ca.gov/system/files/webform/public\\_comments/5331/CRC%20Cap%20and%20Trade%20Comments%2008172023.pdf](https://ww2.arb.ca.gov/system/files/webform/public_comments/5331/CRC%20Cap%20and%20Trade%20Comments%2008172023.pdf).

Alarming, recent CARB Cap-and-Trade program proposals to adopt a one-product, one-benchmark framework for oil and gas allocations run counter to this prior pragmatic treatment, subverting the overall goals of the program. As we previously noted, these goals come from AB 32 which requires regulations promulgated by CARB to minimize the leakage of emissions out of state.<sup>5</sup> This leakage minimization requirement was added to discourage California regulators from engaging in zero-sum games when targeting emissions reductions (*i.e.*, enacting rules that seemingly reduce California-based emissions, but which instead simply encourage equivalent emissions increases in other jurisdictions).

If CARB were to adopt a single benchmark for oil and gas production, this new benchmark would presumably be significantly lower than the current thermal oil production benchmark of 0.0811. Such a reduction would immediately increase production costs to California producers to financial advantage of out-of-state producers. As the disparity in production costs grows, California's energy market will favor cheaper crude imports at the expense of California-based companies like CRC.

Notably, these out-of-state producers are not subject to the same state regulatory oversight as their California counterparts. This disparity leads us to seriously doubt the accuracy of data underlying the proposed cap-and-trade amendments which often ascribes significantly higher carbon intensity values for California-produced oil as compared to imports. Regarding these valuations, CRC and other California companies diligently report emissions, energy usage, and other data to state regulators every year. Importantly, these submissions are subject to numerous audits and third-party verifications. In contrast, energy companies based in other states (and countries) do not face such oversight and compliance requirements, which invariably contributes to the lower prices of these imported energy supplies in the California energy market.

To summarize, CARB should prioritize the in-state supply of hydrocarbons while incentivizing carbon intensity reductions. The current thermal oil production proposed amendments run counter to the GHG reduction goals of the 2022 Scoping Plan by promoting foreign hydrocarbon supplies, in effect shifting emissions to unregulated and uncapped jurisdictions worldwide. CARB can avoid this potential emissions leakage by retaining the existing thermal oil production benchmarks and allocations.

## **Conclusion**

In order to accelerate California's ambitious climate goals, CRC recommends CARB revisit its upcoming revisions to the Cap-and-Trade program with respect to CCS and thermal oil production allowances, in particular. We believe that amendments to this program are necessary to ensure consistency with the 2022 Scoping Plan and, importantly, to recognize the importance of California-based energy producers in meeting the state's net zero goals. To that end, revisions which finally incorporate CCS crediting are required while also preserving the current thermal oil production allowances and benchmarks for California-based energy producers. Furthermore,

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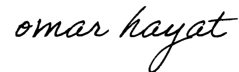
<sup>5</sup> See Cal. Code Regs. Title 17, § 38562.(a)(8) (2023).

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without clarity on CCS inclusion in Cap-and-Trade, California risks losing access to both federal IRA dollars, as well as private investment to other states.

CRC appreciates the opportunity to comment on the April 2024 Cap-and-Trade program workshop. We thank CARB for its consideration of our comments and look forward to continued dialogue.

Respectfully submitted,

A handwritten signature in cursive script that reads "omar hayat".

Omar Hayat  
Executive Vice President, Operations