



July 27, 2020

Jason A. Gray
Chief, Climate Change Program Evaluation Branch
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

Re: CCS and Cap and Trade

Dear Mr. Gray,

We are writing to request that the California Air Resources Board (“CARB”) incorporate its existing Carbon Capture and Sequestration (CCS) Protocol (the “Protocol”) into the Cap-and-Trade Program with specific modifications to the quantification methodology to incorporate federal regulations under 40 CFR 98 RR.

Regulatory Framework for CCS

CARB has invested significant time and effort in developing a comprehensive and protective regulation for CCS, incorporating methodologies for both permanence and quantification. The 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. It is widely considered as the most comprehensive regulation for permanent geologic CO₂ storage.

However, the exclusion of CCS under Cap and Trade represents a disconnect between the regulation and California’s carbon neutrality goals. Currently under Cap and Trade, there is no mechanism to allow an entity to subtract captured and geologically sequestered CO₂ 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 as though it were emitted into the atmosphere. Inclusion of CCS under Cap and Trade will facilitate development of a broad spectrum of CCS projects within California’s borders.

Requested Changes to MRR and Cap and Trade to Allow Timely CCS Investments in California

We therefore urge CARB to expeditiously amend the Cap-and-Trade regulation and MRR to incorporate CCS projects that comply with the established CCS Protocol under LCFS. The existing MRR already has provisions for “Carbon Dioxide Suppliers” at §95123 and incorporates 40 CFR 98 PP as the quantification methodology. While the permanence aspect of the CCS Protocol incorporated into LCFS can be readily transferred to Cap and Trade, the accounting mechanisms including lifecycle emissions should not. CRC believes that the federal regulations at 40 CFR 98 RR provide a more appropriate accounting measure, especially when accompanied by a Federally Approved Monitoring Reporting and Verification (MRV) protocol, which would be required to apply the Federal 45Q tax credit under recent IRS guidance.

Action Requested

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. We believe this rulemaking can be accomplished in an expeditious fashion and by Board Resolution or emergency regulation. 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.**

CalCapture at Elk Hills Power Plant

CRC is designing and permitting the CalCapture CCS project to capture carbon dioxide from the 550-MW natural gas combined cycle Elk Hills Power Plant for enhanced oil recovery and sequestration at the Elk Hills Oil Field. CalCapture will generate significant direct economic benefits for Californians while providing low carbon intensity (CI) domestic crude oil. In 2019, the U.S. Department of Energy (DOE) awarded financial support to four natural gas combined cycle power plants in the U.S. to conduct front-end engineering design (FEED) studies to retrofit them with CCS, including the Elk Hills Power Plant. The Elk Hills Power Plant was built in 2003. The plant supplies electricity and steam to CRC's 75 square mile oil and gas field and surplus power to a local utility and the grid sufficient to power up to 350,000 homes in neighboring communities. The FEED study at Elk Hills is being conducted by the Electric Power Research Institute and Fluor Corporation. It is fully funded and expected to be complete by the end of 2020. We are currently working with CARB staff (Oil and Gas & GHG Mitigation Branch) during regular meetings on the LCFS applications which will document reservoir suitability for sequestration and are simultaneously preparing for the other regulatory reviews.

CCS Project Economics

Due to the significant costs of large-scale CCS projects, the economics of permitting, constructing and operating a CCS project require numerous means to generate investment value. The State of California provides for LCFS credits under the Innovative Crude Provisions of the Standard. Incorporation of CCS under California’s Cap and Trade program as a reduction mechanism would provide another necessary financial incentive that is entirely consistent with the Cap and Trade program’s imperative to lower greenhouse gas emissions. Further, the federal tax credit under IRS 45Q provides additional financial incentive. However, under 45Q, construction of the capture project is required to commence before January 1, 2024. For these projects to work under typical financing scenarios, all three value mechanisms need to be in place: generation of LCFS credits, reduction of Cap and Trade obligations and the creation of tax credits through 45Q. There is, thus, a need for prompt action by CARB to exclude captured CO₂ from lifecycle accounting under the Cap-and-Trade program and the MRR regulation in order to enable California CCS projects to leverage the federal 45Q incentive before it expires.

Economic Impacts of CRC’s CCS Project

CRC engaged the IMPLAN Group to evaluate the job creation and economic benefits to California of building and operating the CCS project at the Elk Hills Power Plant and Field. The table below summarizes the jobs, economic output and taxes that the CCS project will provide. CRC was the first oil and natural gas company in California – upstream, midstream or downstream – to enter into a statewide Project Labor Agreement (PLA) with the California State Building and Construction Trades Council. This PLA means that, just like the construction of the Elk Hills Power Plant in 2003, all facilities for the CCS project will be built and maintained by a safe, highly qualified California workforce of union workers who have followed the rigorous training and apprenticeship programs of the Building Trades.

<i>Data from IMPLAN Study, May 2020</i>	Jobs Created	Millions of \$ per year	
		Economic Output	Taxes
Capture Plant (3 yr. construction)	3,475	1,315	124
Capture Plant (20 yr. operation)	159	1,172	71
EOR (CAPEX/OPEX) first 20 year	738	2,665	208

As shown, CRC’s CalCapture project will be a strong contributor to sustaining economic growth in the Central Valley and the state as a whole. With the recent historic economic downturn, the CalCapture project will bridge personal, local and state finances at a time when painful budget decisions are imminent while substantially advancing California’s sustainability goals.

Finally, there are other California projects in the same phase as our CalCapture project, with ongoing permitting and design to be completed over the next 18 months. Without swift CARB action to integrate the CCS Protocol into Cap and Trade, these projects are **at risk of delays in financing implementation, economic benefits and the capture and sequestration of millions of tons of greenhouse gases.**

Sincerely,



Urban Paul
Vice President, HSE and Sustainability

Background Information About California Resources Corporation



About CRC

California Resources Corporation (CRC) is the largest oil and natural gas exploration and production company in California. The Company operates its world-class resource base exclusively within the State of California, applying integrated infrastructure to gather, process and market its production. Using advanced technology, California Resources Corporation focuses on safely and responsibly supplying affordable energy for California by Californians.

As a company exclusively invested in California, CRC is committed to the success of California's sustainability goals, including reducing the carbon intensity (CI) of transportation fuels. CRC is actively designing innovative technologies for deployment at our fields and facilities to decrease the CI of our oil, natural gas and electricity production, and we aim to develop California's first commercial-scale CCS project. CRC's commitment to sustainability has been recognized by prominent non-profit organizations. For example, CRC received an A- ranking from CDP (formerly Carbon Disclosure Project) in January 2020 for our 2019 climate disclosure, scoring at CDP's Leadership Level and earning the highest ranking among U.S. oil and natural gas companies.

CRC explores for, develops and produces oil, condensate, natural gas liquids (NGLs) and natural gas in over 130 fields in each of California's four major oil and gas basins (San Joaquin, Los Angeles, Ventura and Sacramento). We are the largest private oil and natural gas mineral acreage holder in California, with interests in approximately 2.2 million net mineral acres. We are also a net electricity supplier and a net water supplier. With a 100% California workforce, CRC is committed to reducing the state's chronic dependence on imported energy by growing our local energy production in a manner that achieves California's world-leading safety, labor and environmental standards.

As an independent producer entirely invested in California, CRC stands apart in its commitment to California's environmental and economic sustainability. CRC has incurred over \$185 million to purchase allowances or offsets through California's Cap and Trade program under the State of California's greenhouse gas emission reduction fund from 2013 through 2018. Further, CRC has adopted 2030 Sustainability Goals throughout our operations which advance the State's 2030 goals and are integral to our life-of-field planning process. The Company's goals are measured against a 2013 baseline, which is the year before CRC's launch as an independent company and the baseline for the state's methane goal under Senate Bill (SB) 1383.

CRC's Sustainability Goals:

- Carbon -- Design and permit a CO₂ capture and sequestration system at the Elk Hills Field. This project would capture CO₂ from the Elk Hills Power Plant for injection into oil reservoirs at the Elk Hills Field for CO₂ enhanced oil recovery and long-term sequestration. This project would reduce CRC's statewide CO₂ emissions by 30%, cut in half the lifecycle greenhouse gas emissions of the oil produced at our Elk Hills Field (which is already among the lowest in the state) and put the 550-megawatt Elk Hills Power Plant on a path toward becoming a carbon neutral source of base-load electricity for Californians.

- Water -- Increase the volume of recycled produced water by 30% from our 2013 baseline. CRC is a net water supplier, delivering a Company record 5.35 billion gallons of treated, reclaimed water for agriculture in 2019. We supply more than three gallons of reclaimed water for every gallon of fresh water we purchase. Since 2013, we significantly increased our volume of produced water this is recycled, reused and reclaimed and are nearly halfway to our 2030 Water Sustainability Goal.
- Renewables -- Integrate significant renewable power into our oil and gas operations to safely provide Californians with reliable, affordable energy from in-state resources. CRC collaborates closely with renewable developers. For years, we have enabled third-party solar developers to build 640 megawatts of commercial solar projects over our mineral properties through surface waiver or mutual use agreements. In 2019, CRC entered into Power Purchase Agreements for 40 MW of behind-the-meter solar projects to supply CRC fields, and designed a 2 MW solar carport project that will power our largest office. As our solar projects obtain financing, permits and utility interconnection studies, they will position us to further reduce our electricity demand from the grid, and preserve environmental habitat by concentrating infrastructure on land already dedicated to energy production.
- Methane -- Reduce methane emissions from our 2013 baseline by 50%, more stringent than California's goal of a 40% reduction under SB 1383. CRC devotes substantial resources to capture natural gas, both in design and construction of new facilities and in retrofitting existing facilities, to minimize air emissions. In 2018, CRC surpassed our Methane Goal by achieving a 60% reduction, based on our third-party verified emissions. CRC achieved this goal by replacing gas-operated pneumatic valves with solar-powered, compressed air valves and enhancing inspection and maintenance of field equipment, and we have continued to reduce methane emissions.