

March 15, 2023

Dr. Cheryl Laskowski Branch Chief – Low Carbon Fuel Standard California Air Resources Board 1001 I Street Sacramento, CA 95814 Sent via upload to: https://www.arb.ca.gov/lispub/comm2/bcs ubform.php?listname=lcfs-wkshp-feb23ws&comm_period=1

Re: CRC Comments on CARB Preliminary Discussion Draft of Potential LCFS Regulation Amendments and February 22, 2023, LCFS Workshop

Dear Dr. Laskowski,

We are writing to provide comments on the CARB Preliminary Discussion Draft of Potential LCFS Regulation Amendments and February 22, 2023, LCFS Workshop. California Resources Corporation (CRC) views the LCFS as an important policy and regulatory mechanism to help California achieve carbon neutrality for the state, an effort complicated by the sheer complexity of the economic interactions between sectors and the vast numbers of people living in widely different locals and climates.

Background

California Resources Corporation (NYSE: CRC) is an independent oil and natural gas company committed to energy transition in the sector. 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 carbon capture and storage (CCS) and other emissions reducing projects. CRC has a large portfolio of lower-risk conventional opportunities in the following major California oil and gas basins: San Joaquin, Los Angeles and Sacramento.

As a company exclusively invested in California, CRC is committed to the success of California's climate goals, including transitioning the economy to meet net zero greenhouse gas emissions by 2045. CRC announced a Full-Scope Net-Zero Goal in November 2021, which includes eliminating our Scope 1 and 2 emissions and permanently storing captured greenhouse gas emissions in a volume equal to our Scope 3 emissions by 2045. 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.

OPGEE (Draft Regulatory Text, Table 9)

California's crude production carbon footprint is the best understood and quantified primary source of transportation fuels in the world, backed up with measured and verified data and produced by local diverse workforces that represent California's high standards for social equity and corporate governance. All California crude is not the same and can have carbon intensities that span over an order of magnitude, including in many cases being lower



than similar crudes from outside California. As part of the preparation of CRC's 2021 ESG report¹, CRC calculated the carbon intensity of its crude accounting for emissions from extraction, electricity generated and used in processing, electricity purchased from California's grid and transportation to downstream refining. CRC's measured well-to-refinery crude carbon intensity was 7.28 g/MJ in 2020. As a proxy for the crude CI used in LCFS, this value is 30% lower than the 2020 average CI of the non-US crudes (10.36 g/MJ) as calculated by OPGEE 2.0.

We note that the revisions to the model presented in OPGEE 3.0 were to have incorporated California's cleaner electrical grid and methane reductions realized through the California Oil and Gas Regulation. However, OPGEE 3.0 has modeled an increase in the CI of crudes, despite already overestimating the CI by approximately 30% for CRC's fields. For example, according to OPGEE 3.0 the CI of crude from two of CRC's largest fields Elk Hills and Wilmington have increased from 8.02 g/MJ to 12.06 g/MJ and 8.31 g/MJ to 16.17 g/MJ, respectively. These changes in the model output, both in magnitude and direction, call into question the validity of OPGEE and the proposed revisions to the model. CRC strongly suggests that the model output be ground-truthed and converged to the verified GHG emissions from California's oil fields before adopting any revisions to this important policy tool.

Slide 43 - Project-Based Crediting – Phase Out

CRC objects to an artificial phase out of project-based crediting and limiting the duration of the crediting period of petroleum projects, as project-based crediting incentivizes incremental GHG emission reductions. Such an approach is arbitrary and discourages investment in real GHG reduction investment at oil producing facilities. Rather than arbitrarily constrain these credits without science-based drivers, CARB should be removing current barriers to qualification. Innovative Crude credits are currently restricted to a discrete set of technologies and should be expanded to enable emerging technologies and efficiency investments that reduce carbon emissions - especially given the strong and long-term demand for petroleum fuels identified in the 2022 Scoping Plan Update.

Financing these projects requires decades of support from LCFS credit generation and arbitrarily limiting the payback window will chill project development well before any planned phase out of the use of petroleum is set to occur. Further, projects that have been built will fail to perform as projected which could cascade into any project that relies in some way on revenue from LCFS credits as there is a demonstrated unmitigable risk that CARB could change the rules before economic maturity of a project.

Slide 44 - Project-Based Crediting – Direct Air Capture

CRC commends staff's consideration of geographic limitations for crediting for Direct Air Capture (DAC) projects. The application of the LCFS program to DAC projects which do not

¹ 2021 CRC Sustainability Report. <u>https://crc.com/images/documents/sustainability/2021-CRC-Sustainability-Report.pdf</u>



necessarily have a direct nexus to transportation fuels in California remains an anomaly in the current regulation. Inasmuch as the LCFS program incentivizes low carbon fuel producers to provide low carbon fuels to California, the credits represent a net cash flow from California to the generators of credits. Similar to the treatment of offsets under the capand-trade program which requires that half come from projects with Direct Environmental Benefit (DEB) to California, CRC believes that the cash flows generated from the low carbon fuel standard are best allocated as close to California as possible. In addition to geographic limitations, CRC believes that the application of the LCFS program needs to be consistent with California Senate Bill 905 which restricts enhanced oil recovery using CO2. If these geographic and use limitations are not implemented, California will potentially fund DAC projects in other states that use CO2 for enhanced oil recovery, which is the opposite intent of Senate Bill 905. We support a geographic limitation for DAC projects -- not only within the United States, but within California -- to allow the economy that pays for the credits to economically benefit from carbon reduction projects, directly and indirectly.

Slide 63 - Hydrogen Production

All hydrogen production pathways should be considered in the LCFS and credited based on their CI reduction potential. A more robust hydrogen infrastructure has been shown to be a technologically feasible, cost-effective way to reduce GHG emissions. However, disregarding hydrogen produced through steam methane reforming of natural gas simply because it is derived from natural gas has no basis in climate science. The goal as we see it is to provide the lowest lifecycle carbon intensity hydrogen to the transportation fuels market on a commercially viable basis to encourage market development, vehicle availability, and fueling infrastructure build out. Excluding the vast majority of current hydrogen production capacity from participation in the LCFS using book and claim, appears to be in conflict with the goal of real emission reductions and transition of the transportation sector to lower carbon emissions. CRC does not support the exclusion of hydrogen derived from fossil fuels from book-and-claim eligibility.

Slide 68 – Change to the Crediting of Innovative Crude Projects using Solar Electricity

Similar to the discussion of phase out of project crediting (slide 43), CARB has emphasized the importance of providing certainty in the LCFS program to encourage investment in new projects to lower California's transportation fuel CI. As CARB is aware, these projects are financed over project lifetimes that are decades long and there is much market uncertainty that is evaluated, mitigated (if possible) or accepted as part of the funding investment decision. The suggested change to a key input that was previously a constant factor increases the risk perceived by project financiers and will short-change projects that are already built, which have not yet returned the capital invested. Further, the appearance that project economics can change quickly not only due to markets, but due to regulatory action decreases the certainty needed for investment across all LCFS projects. CARB should be providing more certainty for projects, not less. CRC believes that the crediting methodology should be locked in at project approval and re-evaluated at regular long-term intervals as is being proposed for other project types.



Thank you for the opportunity to provide comments on proposed revisions to the LCFS. We look forward to working with CARB on this and other future rulemaking that is spurred by the recently adopted scoping plan.

Regards,

Chris Gould

Chris Gould Chief Sustainability Officer California Resources Corporation