



January 7, 2022

Rajinder Sahota
Deputy Executive Officer

California Air Resources Board
Low Carbon Fuel Standard Program
1001 I St.
Sacramento, CA 95814

Elk Petroleum Comments on the December 7, 2021, LCFS Workshop -
Potential Future Changes to the LCFS Program

Dear Ms. Sahota,

Elk Petroleum (and Elk Operating Services, LLC – together “Elk”) appreciates the opportunity to submit comments on the potential future changes to the Low Carbon Fuel Standard (LCFS) program and thanks the California Air Resources Board (CARB) for providing an early opportunity for stakeholder input.

Elk is a small crude oil producer operating in Utah on Navajo Nation land and producing crude oil that can be transported to and refined in California. Elk operates its units collaboratively with Navajo Nation Oil & Gas Company, contributing significant economic benefit to the Navajo Nation. Elk is actively developing a project to deploy a carbon capture and sequestration (CCS) unit for an industrial size power load (~35 MWs) to dramatically reduce the greenhouse gas (GHG) emissions associated with its crude production. The CCS technology that the project would likely utilize will capture approximately 160,000 MT per year of CO₂e that would have otherwise been emitted in conjunction with the production of the product. By demonstrating CCS technology on an industrial-sized generation unit, this project would not only reduce the carbon footprint of Elk’s facility but would also help prove the efficacy of this decarbonizing technology for industrial facilities.

Access to LCFS credits under the Innovative Crude Program of the LCFS¹ creates a necessary economic inducement for this project. If this program were repealed or substantially constrained, this CCS project would not be economically feasible and would likely not be built. To be clear, Elk’s operations will continue, albeit with a higher carbon impact. By essentially eliminating this and other projects that would reduce the Carbon Intensity (CI) of crude production and refining, CARB will close off an opportunity to create significant GHG reductions during the lengthy phase-out of fossil fuels. Indeed, the reconsideration of this program itself will have a chilling effect on projects such as Elk’s as companies cannot invest time and money into developing decarbonization projects for a program that may be substantially changed or even eliminated by the time the project is completed.

In the following comments, we have outlined the current and potential environmental improvements, CI reductions, economic benefits, and advancements in innovation resulting from the Innovative Crude Program and similar programs under the LCFS. Elk Petroleum appreciates the opportunity to submit these comments and would welcome further engagement with CARB to address any questions that may arise.

¹ Low Carbon Fuel Standard Regulation, 17 CCR § 95489 (2020).

Introduction

In a presentation² in conjunction with a December 7th Public Workshop on “Potential Future Changes to the LCFS Program”, CARB staff identified a series of modifications to the LCFS program that would be evaluated in 2022. In order to “harmonize” the LCFS program with “Federal Policy”, the staff sought input on initiating a “limit and ultimately phase out [of LCFS] credits for petroleum projects.” In the accompanying notes to the presentation, staff identified two specific concepts that had been used for ending other LCFS credit programs:

- Establishing an end date for accepting applications for crediting, and
- Limiting credit generation to the recovery of capital expenses or establishing an overall end date for crediting

Though California is working toward carbon neutrality and other climate targets, the state will be processing and utilizing crude oil for many years. The specific policy cited for justifying this review of the carbon reduction programs for fossil fuel was the announcement by Governor Newsom that the State would join a new global alliance committed to ending reliance on fossil fuels. However, the targets of that alliance are decades away with goals to phase out oil production no later than 2045 and reduce demand for oil by ending the sale of new gas cars by 2035. As the nation’s seventh-largest crude oil producer, California will continue consuming billions of gallons of gasoline and diesel fuel in the interim (and beyond).

In short, without the ability to generate LCFS credits under the Innovative Crude Oil and the Refinery Investment Credit project-based crediting programs – as well as potentially other projects including CCS, future projects employing cleaner fuels would be stalled or abandoned, thus resulting in higher greenhouse gas (GHG) emissions from fuel production, fewer low-carbon fuels entering the market, and market uncertainty for investment in fuel decarbonization.

Achievements of the Oil Production, Refining, and CCS Credit Generating Programs

The goal of the LCFS program is to reduce the CI of transportation fuels used in California from a 2010 baseline. The program aims to achieve a 20 percent reduction in the state’s transportation fuel pool by 2030 and 80 percent by 2050. As of 2020, the LCFS had achieved 7.5 percent of the 20 percent total target CI reduction.³ Emissions from refining and crude production contribute to the GHG emissions from the transportation sector and are a key part of the state’s program. As of the development of these comments, six applications have been approved under the Innovative Crude Oil Program, and three applications have been approved under the Refinery Investment Credit Program. Additionally, two projects have been approved using CCS technology and storing the captured CO₂ geologically or through enhanced oil recovery. Table 1 below shows the CI reductions across the Innovative Crude Oil Program projects and the CCS projects approved by CARB under the LCFS.⁴ The CI reductions for the Refinery Investment Credit Program projects were not available at the time of drafting these comments.

² https://ww2.arb.ca.gov/sites/default/files/2021-12/LCFS%2012_7%20Workshop%20Presentation_notes.pdf

³ <https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard>

⁴ <https://ww2.arb.ca.gov/resources/documents/approved-innovative-crude-oil-applications-under-lcfs>

Table 1. Carbon Intensity Reductions for Approved Innovative Crude Oil and Carbon Capture and Storage Projects

Project Name	CI Reduction
<i>Innovative Crude Oil Projects</i>	
The Seneca Solar Project	0.31 g CO ₂ /MJ
Midway Sunset Oil Field Solar Project	0.4453 g CO ₂ /MJ
Cahn Solar Electricity Project	0.10 g CO ₂ /MJ*
Poso Creek Oil Field Solar Electricity Project	0.89 g CO ₂ /MJ
New Cuyama Solar Project	2.86 g CO ₂ /MJ
Crimson Lost Hills - 2MW Solar Project	0.201 g CO ₂ /MJ
<i>CCS + CO₂ Storage / EOR Projects</i>	
Red Trail Energy Project	32 g CO ₂ e/MJ
White Energy Project	25.56 g CO ₂ e/MJ

* CI reduction eligibility threshold may exceed this value, not specified.

Currently approved projects under the Innovative Crude Oil Program result in a significant CI reduction from the required threshold of 0.10 g CO₂/MJ. They are also all solar projects which only reduce a portion of the overall energy footprint of the facility. CCS projects could create a 90 percent reduction in GHG emissions from energy production 24 hours a day, 7 days a week – a much larger CI and total MT CO₂e reduction compared to a solar project under the Innovative Crude Oil Program.

The White Energy and Red Trail Energy projects (listed in Table 1 above) generate LCFS credits at their ethanol facilities utilizing CCS technology, with estimated CI reductions of 25.56 gCO₂e/MJ and 32 g CO₂e/MJ respectively.^{5, 6} The White Energy project captures the CO₂ and utilizes it for enhanced oil recovery (EOR), while the Red Trail Energy project captures the CO₂ and permanently sequesters it in a saline formation beneath the facility. The Innovative Crude Oil Program allows project-based credit generation through implementing CCS at oil and gas production facilities to reduce their emissions. Although there are no projects currently generating credits through this method, maintaining it as an opportunity to generate credits could enable adoption of innovative CCS technologies to reduce GHGs and further improve costs associated with the technology. Similarly, the Refinery Investment Credit Program incentivizes project-based investments in technologies and processes that improve a refinery's overall GHG emissions.

The Intergovernmental Panel on Climate Change (IPCC) and the California Council on Science and Technology (CCST), among many other scientific bodies, have identified CCS as a technology that can potentially reduce carbon emissions by billions of metric tons. CCS technologies are among the decarbonizing innovations that benefit from incentives offered by the LCFS and the federal Section 45(q) tax credits, as the costs associated with its adoption remain higher than a project that does not capture the carbon that would otherwise be emitted. Removing the ability of further projects in these sectors, such as Elk's prospective project, to generate LCFS credits would stop the momentum in producing lower-carbon fuels and disincentivize innovation and investment in decarbonization, resulting in overall increased emissions over the next few decades, even if California's ambitious energy transition goals are achieved.

⁵ https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/d0013_summary.pdf

⁶ https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/d0005_summary.pdf

Aligning California's Climate Targets with the Beyond Oil and Gas Alliance's Goals

California has committed to end the sale of new gas-powered cars by 2035.⁷ As of November 2021, hybrid and electric vehicles accounted for 22 percent of light-duty vehicle sales.⁸ Projections from the California Energy Commission show a gradual decline in demand for gasoline through 2030 due to growing adoption of zero emission vehicles and, conversely, an increasing demand for diesel through 2030.⁹ The transportation sector – particularly heavy-duty vehicles – will continue to rely upon fossil fuels for the coming decades. Maintaining LCFS credit generating opportunities for refiners and producers to provide low-carbon fuels to California will be essential to reaching climate goals and reducing the CI of transportation fuels in the State.

Additionally, as discussed above, the December 7th LCFS workshop referenced California's recent step at COP26 to join the Beyond Oil and Gas Alliance (BOGA). The BOGA Declaration argues that "continued investment in increasing the production of oil and natural gas encourages the building of infrastructure for supply and consumption, locking-in a high carbon pathway beyond 2050."¹⁰ CARB's proposal to end credit generation for petroleum projects is an effort to harmonize policy with the state's climate goals, but the proposed change would not decrease the production of oil and gas in California. Rather, the proposed change would effectively disincentivize drillers and refiners from reducing the carbon intensity associated with the production of crude oil. The BOGA declaration also calls for clear policy directions for the oil and gas sector, which the Innovative Crude Oil and Refinery Project programs can provide during these critical transition years.

In this sense, far from being contrary to the BOGA goals, the narrowly defined projects allowed under the Innovative Crude and Refinery Investment programs incentivize producers and refiners to invest in decarbonization projects that bring near term, GHG reductions. These projects (e.g., solar installations and CCS) are not investments into the expansion of production, but rather are material steps toward accelerating the State's current goals of steadily reducing the carbon intensity of its transportation fuels. Broad use of the two programs create more than 1,000,000 metric tons of CO₂e emissions reductions annually¹¹, creating millions of tons of reductions before the State can achieve its "beyond petroleum" goals.

Continued Opportunity for Economic and Innovation Advancements in California

CARB has prided itself in the LCFS' clear policy and market direction that provides certainty for businesses and investors, encourages innovative strategies and technologies to reduce emissions, and increases access to cleaner fuels. As CARB staff noted in the December 7th discussion draft, "attracting investment in the low carbon fuel sector requires a steady, long-term market signal accompanied by regulatory certainty." Through the LCFS, California has spurred the most investment in clean fuels and transportation in North America. California can continue to improve environmental conditions, advance the economy, and foster innovation by keeping these incentives in place – including credit generating opportunities for oil production and refineries. Through these programs, California can support the

⁷ <https://www.gov.ca.gov/2021/11/11/governor-newsom-announces-california-has-joined-new-global-alliance-committed-to-ending-reliance-on-fossil-fuels/>

⁸ <https://www.cncda.org/wp-content/uploads/CA-Auto-Outlook-PR-2021-Q3.pdf>

⁹ https://www.baaqmd.gov/~media/dotgov/files/rules/reg-6-rule-5-particulate-emissions-from-refinery-fluidized-catalytic-cracking-units/2020-amendment/documents/20210525_03_fuelspresentation_bods_presentations_050521_revised_op-pdf.pdf?la=en

¹⁰ <https://beyondoilandgasalliance.com/who-we-are/>

¹¹ Calculated by assuming that by 2030, a third of in state and U.S. based supply adopts measures (renewable energy or CCS) that decrease their CI by 3%. This estimate does not include refinery projects.

decarbonization of its robust oil and gas industry, which supports nearly 370,000 jobs¹² and 17 refineries that produce 2 million barrels per day.¹³ Through these LCFS programs, jobs in these industries can transition to often high-paying roles as experts in clean technologies.

Inserting uncertainty and a limited outlook on LCFS credit generation for these programs would likely lead to the retreat of investor interest in future decarbonizing projects like Elk Petroleum's potential CCS project. Further, uncertainty or the potential near-term end to credit generating opportunities for existing projects under these programs could result in abandoned investments. Stable policies and incentives are needed to achieve economies of scale for decarbonization technologies that can achieve necessary GHG reductions and encourage long-term investments in projects to reduce the CI of transportation fuels. Incentives like the Innovative Crude Oil and Refinery Investment Credit Programs under the LCFS help to cover the cost delta between continuing business-as-usual and adopting the low-carbon technologies that are critical to California's climate goals.

Thank you for your consideration of our comments. Elk Petroleum welcomes any questions and looks forward to working with CARB staff on this topic.

Sincerely,

Ray Ambrose
Chief Executive Officer, Elk Petroleum

¹² <https://www.wspa.org/resource/buildbetterlives/>

¹³ <https://afdc.energy.gov/states/ca>