April 21, 2025

Clerks’ Office, California Air Resources Board

1001 I Street, Sacramento, California 95814

Via Electronic submittal: <https://ww2.arb.ca.gov/lispub/comm/bclist.php>

Re: Proposed Amendment to Title 17, California Code of Regulations Section 95482(h)

The Center for Biological Diversity and Food & Water Watch submit the following comments on the portion of the proposed amendment to the Low Carbon Fuel Standard (“LCFS”) creating post-2035 LCFS credits for production of fossil methane-based hydrogen accompanied by carbon capture and sequestration (“CCS”), found at ATTACHMENT A-1, Proposed Regulation Order – Proposed Amendments to the Low Carbon Fuel Standard Regulation[[1]](#footnote-1) (LCFS credit for fossil-fuel derived hydrogen after 2035) (“Amendment”). The Amendment would expand the ways that fossil-fuel derived hydrogen can generate LCFS credits after 2035, and in so doing will incentivize the production of more fossil methane, a dangerous greenhouse gas. The Amendment adds use of CCS in the production of hydrogen from fossil methane as a mechanism to create LCFS credits. In this proposal, fossil fuel-derived hydrogen phases out of the LCFS by 2035 unless it is paired with factory farm gas credits or 100% produced with CCS. The CCS part of this is new.[[2]](#footnote-2)

The new provision of Title 17, California Code of Regulations Section 95482(h) that these comments address is:

Effective January 1, 2035, hydrogen produced using fossil gas as a feedstock is ineligible for LCFS credit generation unless biomethane attributes are matched to 100 percent of the hydrogen production as described in Section 95488.8(i)(2) or *100 percent of the hydrogen is produced with accompanying carbon capture and sequestration technology* [emphasis added].

We oppose the Amendment for four reasons: 1) CCS is an unproven, potentially dangerous technology that should not be a part of California’s hydrogen policy; 2) hydrogen does not fit within the LCFS CCS Protocol; 3) enhancing fossil methane production is counter to California’s greenhouse gas (“GHG”) policies and will lead to additional methane emissions from production and transportation; and 4) because of the items above, if CARB is to proceed with this amendment, a supplemental EIR is required.

1. **CCS Should Not Be Part of California’s Hydrogen Policy**

CCS is a risky, unproven technology that should not be part of California’s hydrogen policy. The Center for Biological Diversity’s February 20, 2024 letter to CARB on the proposed LCFS amendments pointed out the dangers of CCS. As the Center explained in that letter:

[T]he only form of hydrogen that should be considered under any provision in the LCFS is “green hydrogen,” or hydrogen made by splitting water into hydrogen and oxygen using 100% solar or wind energy, while adhering to the three pillars . . . CARB should not be incentivizing and prolonging the use of fossil fuels in any manner. This includes fossil fuels plus CCS. Facilities using CCS do not capture 100% of their climate-harming emissions, they incur a high energy penalty (meaning more energy use and emissions), and fossil fuel production is rife with environmental and health harms. Phasing out fossil fuels should be a fundamental tenant [sic] of any climate-focused policy, but CARB insists on carving out ways for fossil fuels to continue . . . These carve outs must end.

1. **Hydrogen Does Not Fit Within the LCFS CCS Protocol**

Green hydrogen produced by electrolysis does not produce CO2 or any GHGs as a byproduct. But hydrogen made from methane steam reforming does, to the tune of roughly 7 kg of CO2 produced for each kg of hydrogen created.[[3]](#footnote-3) The “Applicability” section of the Protocol states: “The Carbon Capture and Sequestration (CCS) Protocol applies to CCS projects that capture carbon dioxide (CO2) and sequester it onshore, in either saline or depleted oil and gas reservoirs, or oil and gas reservoirs used for CO2-enhanced oil recovery (CO2-EOR).” The Protocol, however, was designed to allow transportation fuels whose lifecycle emissions have been reduced through CCS to become eligible for LCFS credits. Hydrogen has many potential uses in addition to fuel cells used for transportation, including possibly decarbonizing hard-to-electrify industries such as steel and cement making, so it does not fit squarely within the purpose of the Protocol. To be consistent, if the proposed Amendment is adopted, the Protocol should be amended to include all uses of hydrogen produced in association with CCS, and that amendment should be analyzed under CEQA.

1. **Production And Distribution of Fossil Methane Should Not Be Encouraged**

Methane is a powerful greenhouse gas. The Amendment would provide a new market for fossil methane in California: supporting LCFS credits for hydrogen created by methane steam reformation. This is not consistent with California’s policy of reducing reliance on fossil fuels. In addition, the production and distribution of methane itself are plagued by leaks. As U.S. EPA explains for natural gas systems:[[4]](#footnote-4)

Methane emissions occur in all segments of the natural gas industry, from production, through processing and transmission, to distribution. They primarily result from normal operations, routine maintenance, fugitive leaks, and system upsets.

As gas moves through the system, emissions occur through intentional venting and unintentional leaks. Venting can occur through equipment design or operational practices, such as the continuous bleed of gas from pneumatic devices (that control gas flows, levels, temperatures, and pressures in the equipment), or venting from well completions during production. In addition to vented emissions, methane losses can occur from leaks (also referred to as fugitive emissions) in all parts of the infrastructure, from connections between pipes and vessels, to valves and equipment.

And as the MIT Technology Review reports:[[5]](#footnote-5)

The US Environmental Protection Agency estimates that roughly 1% of oil and gas produced winds up leaking into the atmosphere as methane pollution. But survey after survey has suggested that the official numbers underestimate the true extent of the methane problem.

As California is experiencing more and more damage from climate change, including increasingly severe wildfires, this is not the time to put more methane into the atmosphere.

1. **A Supplemental EIR Is Required for This Amendment**

Under CEQA Guidelines Section 15162(a), a supplemental EIR should be prepared when:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

…

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

CARB has the discretion to approve or reject the Amendment and so may prepare a supplemental EIR. In these circumstances it must, under subsections (1) and (3) above.

First, there will be new significant environmental effects due to the volume of methane that will be lost to the atmosphere in the production and distribution of methane for use in methane steam reforming to create hydrogen. That volume should be analyzed and mitigation measures developed under CEQA.

Second, the project will have a significant effect not discussed in the prior EIR: methane emissions in connection with hydrogen production due to methane leakage.

Accordingly, CARB should prepare a supplemental EIR before enacting the Amendment.

Thank you for your consideration of this letter.

Yours truly,

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Date

1. Available at https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/atta1.pdf), specifically Section 95482(h) at internal pages 36-37. [↑](#footnote-ref-1)
2. The CARB Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard appears at <https://ww2.arb.ca.gov/sites/default/files/2020-03/CCS_Protocol_Under_LCFS_8-13-18_ada.pdf>. [↑](#footnote-ref-2)
3. <https://www.sciencedirect.com/topics/engineering/methane-steam-reforming>. [↑](#footnote-ref-3)
4. <https://www.epa.gov/natural-gas-star-program/primary-sources-methane-emissions>. [↑](#footnote-ref-4)
5. <https://www.technologyreview.com/2024/03/13/1089725/methane-leaks-oil-gas/>. [↑](#footnote-ref-5)