California Air Resources Board (CARB) Response to Animal Defense Legal Fund Comment:

CARB appreciates the comments provided by the Animal Defense Legal Fund.

CARB rejects the commenter's objections to the proposed temporary pathway. Commenters raise important concerns regarding actual and potential impacts that some existing, locally-permitted concentrated animal feeding operations (CAFO) may have on air and water quality. Decisions to permit the construction and operation of CAFOs, or any other facilities involved in the proposed manure to hydrogen fuel pathway, however, is beyond the scope of the approval of the temporary pathway, and outside of CARB's control and jurisdictional authority. Rather, CAFO owners/operators must seek permits from local land use and air/water quality agencies, not CARB, to construct and operate new or expanded CAFOs or other similar facilities to accommodate additional livestock, at which point those agencies are required to consider air/water quality impacts from those projects and must adequately mitigate those impacts consistent with applicable laws.

The commenters' arguments that the temporary pathway would promote intensification or expansion of CAFOs is not based in fact. Notably, the commenter has not submitted substantial evidence to support such a connection between CARB's action on the temporary pathway and the creation of new or expanded CAFOs to accommodate additional livestock. Rather, the commenter has based its argument on this point on speculation, which does not constitute substantial evidence. Moreover, there is no substantial evidence in CARB's record that indicates that its approval of the temporary pathway for hydrogen will directly or indirectly result in any new CAFOs or expansion of existing CAFOs in California to accommodate additional livestock. To the contrary, CARB's action here is limited in scope and does not authorize new or expanded CAFO operations. Rather, CARB is proposing a carbon intensity (CI) value for a new temporary pathway for hydrogen derived from biomethane produced through anaerobic digestion of dairy and swine manure using actual operational data provided by representative RNG pathway applicants and inputting that data into a formula to come up with the conservative CI value. The proposed pathway is a conservatively representative accounting of the life cycle CI of renewable hydrogen produced from dairy/swine manure for use in transportation that can be used for Low Carbon Fuel Standard (LCFS) crediting based on the hydrogen's displacement of gasoline and diesel use in vehicles. Therefore, given CARB's limited function of modeling a conservative CI value for the temporary pathway for hydrogen, the proposed pathway is essentially providing a scoring mechanism for this temporary pathway for use in the LCFS regulatory scheme, nothing more.

Development of low CI hydrogen is one of the strategies for reducing greenhouse gas (GHG) emissions and decreasing criteria air pollutant emissions from transportation. Through the crediting of low carbon intensity hydrogen used to power light- and heavy-duty vehicles, and cargo handling equipment, the LCFS promotes increased electrification within the transportation sector. The alternative fuels and vehicles promoted under the LCFS have and

will continue to result in net benefits for air quality statewide, as demonstrated in the air quality and health analyses conducted as part of the 2018 LCFS rulemaking.[1] CARB's emission analysis shows that, across the full fuel life cycle of dairy manure biogas to hydrogen pathways, there is an overall net reduction in NOx and PM, relative to the use of diesel fuel.[2] Moreover, the LCFS CI determination methodology for dairy biogas to hydrogen pathways[3] rewards the adoption and use of more efficient fuel cell vehicles, which produce no tailpipe NOx and PM emissions.[4]

The potential for local increases in criteria pollution associated with some fuel production processes and related activities was acknowledged and discussed as part of the Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard in 2018 (2018 EA).[5] As it relates to the use of biogas from CAFOs and other similar facilities, the EA addressed the potential construction of infrastructure needed to collect biogas and produce biomethane for the LCFS program, including construction of digesters, pipelines to transport the biogas and ancillary outbuildings at these facilities. The EA did not find that the LCFS regulation's allowance of the use of biogas would result, indirectly or directly, in new or expanded CAFOs or similar facilities to accommodate additional livestock. If the commenter had issues with CARB's analysis of the use of biogas digesters as part of the LCFS program, the time to raise those issues would have been during the public comment period of the draft 2018 EA, not during this procedural data analysis step of assigning a CI value to a particular LCFS crediting pathway. Moreover, the 2018 EA is now final and since the time to judicially challenge this EA has passed, it is presumed to be compliant with CEQA.

The EA also recognized the fact that increased availability of low carbon renewable hydrogen provides an alternative to the use of diesel/gasoline fuel thus resulting in lower PM emissions throughout the state and particularly the valley where diesel trucks are one of the largest contributors to the diesel particulate matter. Driven by the state's incentive and regulatory programs, including the LCFS, the opportunity to transition away from burning petroleum-based fuels, such as diesel, to non-combustion options (e.g., zero emission trucks) is unprecedented. Thus, pathways that support lower CI hydrogen are expected to facilitate the transition to zero emission transportation and therefore contribute to reductions in NOx emissions as well as emissions of diesel particulate and other toxic pollutants. In approving the LCFS amendments, the Board found that despite the conservatively assessed potential for adverse environmental impacts associated with certain pathways, other benefits of the regulatory action, such as those described above, were determined to be overriding considerations that warranted approval of the proposed regulation.[6]

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1 Staff Report*: Initial Statement of Reasons for the Proposed Regulatory Amendments to the Low Carbon Fuel Standard,* March 6, 2018. See Chapter V.

2 California Air Resources Board. *Dairy Digester Emissions Matrix Presentation*. May 2018.

3 Low Carbon Fuel Standard (LCFS) Guidance 19-06. *Determining Carbon Intensity of Dairy and Swine Manure Biogas to Electricity Pathways.*

4 Department of Energy. *Fuel Cell Electric Vehicle Emissions*.

5 *Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard and the Alternative Diesel Fuels Regulation*, September 17, 2018.

6 California Air Resources Board*. Resolution 18-34 Attachment E* Findings and Statement of Overriding Considerations, September 27, 2018.

CARB also rejects the commenter's objection regarding the sufficiency of the rationale provided to support the proposed pathway. The proposed temporary carbon intensity pathway is based on full lifecycle analysis[7] that captures GHG emissions from manure handling, biogas production and upgrading, transportation of biomethane and its use in steam methane reforming, compression and liquefaction of H_2, and final delivery to fueling stations in California. CARB has revised the staff summary to clarify this. For purposes of modeling the proposed temporary pathway utilizing actual operational data is neither possible nor necessary, because the goal is to develop a conservative CI score that can be applicable to any SMR hydrogen production from dairy biogas. In order to ensure that the CI is conservative, the proposed CI incorporates an assumption that natural gas is used as process energy. This in no way precludes the applicant from using renewable sources as process energy. CARB developed the conservative estimate based on cumulative review of actual operational data provided by representative RNG pathway applicants. Emissions from existing CAFO operations are accounted for, but do not include emissions associated with enteric methane and animal feed use because these emissions should more appropriately be allocated to and associated with the preexisting underlying, non-fuel product stream, and are thus excluded from the system boundary in the Board approved Tier 1 Calculator.

To the commenters' concern regarding potential double counting, double counting of environmental attributes associated with biomethane is generally prohibited by the LCFS regulation (section 95488.8(i)(2)).

7 The temporary CI determination follows the LCA method used in developing look-up table CIs for biomethane-derived H_2. Table F.3, *CA-GREET3.0 Lookup Table Pathways-Technical Support Documentation*.