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Mr. Matt Botill
Chief, Industrial Strategies Division
California Air Resources Board
1001 I Street Sacramento, California 95812

Ms. Rajinder Sahota
Deputy Executive Officer
Climate Change & Research
California Air Resources Board
1001 I Street Sacramento, California 95812

Comments on the LCFS 15-day text:

Dear Mr. Botill and Ms. Sahota,

Thank you for the opportunity to provide comments on the proposed modifications to the text of the LCFS amendment issued August 12, 2024 (the "15-day Changes"). Roeslein Alternative Energy ("RAE") was founded in 2012 as an operator and developer of renewable energy production facilities that convert agricultural and livestock substrates and feedstocks, along with renewable biomass feedstocks, into renewable natural gas and sustainable soil amendments and co-products. At RAE, we provide market-based solutions to meet the competing demands of renewable energy production, ecological services, and wildlife habitat restoration while enhancing the sustainability of food, feed, fuel, and fiber production.

The Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information (the "Notice") accompanying the 15-day Changes specifies that staff is required to respond to comments received during the comment period that are responsive to the Notice, documents added to the record, or changes detailed in Attachments A-1.1 and A-2.1 thereto. Included as one of the documents in the record is CARB's *Compliance Offset Protocol Livestock Projects – Capturing and destroying Methane from Manure Management Systems. Adopted on November 14, 2014* (the LOP").

We are writing today to comment on the LOP as follows:

CARB should amend the LOP to add beef cattle manure as a type of livestock manure that can generate LCFS avoided emissions credits.

The LOP was created for California Cap-and-Trade ("C&T") and not the LCFS.

While CARB uses the methodology set forth in the LOP for the purpose of calculating the carbon intensity of LCFS dairy and swine manure ("DSM") pathways, the LOP was not created

for the LCFS, but rather for another one of CARB's regulations, California Cap-and-Trade ("C&T").

When C&T went into effect in 2012, it included as a means of **cost containment** the ability for covered entities to offset their annual compliance obligations through a limited number of offset credits. CARB included the avoidance of methane emissions that occurs by installing anaerobic digestion in DSM management operations as a type of offset credits a covered entity could acquire.

The quantification of such offsets was based on a forerunner of the LOP, a livestock offset protocol created by the Climate Action Reserve ("CAR"). Version 1.0 of CAR's protocol was entitled "Livestock Project Reporting Protocol Capturing and combusting methane from manure management systems Version 1.0 June 2007" (CAR LOP V1).

CAR LOP V1 expressly referred to beef cattle manure as a type of livestock manure that could produce offset credits, along with dairy and swine manure. For example, on p. 3 it states, "project developers could be livestock owners and operators, such as dairy cattle, **beef cattle**, or swine farmers. [Emphasis added.] On p. 43 it contains the following table:

Table C.1: Livestock Population Data for the U.S. and California, 2002

	US		California			
	# Farms	# Animals	# Farms	# Animals	% of US Farms	% of US Animals
Dairy	91,989	17,013,361	2,793	2,806,357	3.0%	16.5%
Beef	796,436	34,431,060	12,497	879,582	1.6%	2.6%
Hogs	78,895	60,405,103	1,521	163,465	1.9%	0.3%

Source: U.S. Department of Agriculture National Agricultural Statistics Service (2004)

(It is worth noting that the above table shows that in June 2002, California had more than five times as many beef cattle as hogs, and yet swine manure is covered by the LOP and beef cattle manure is not.)

To quantify the methane emissions reductions for the offsets, CAR LOP V1 used values contained in the section 10.4 (Methane Emissions from Methane Management) of Chapter 10 (Emissions from Livestock and Manure Management) of Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The Guidelines are hereinafter referred to as the IPCC 2006 Guidelines.

Section 10.4 contains all necessary values for dairy, swine and beef cattle manure, including values for when the manure decomposes in a pasture/range/paddock, in solid storage or on a dry lot, or when the manure is collected in a liquid or slurry form.

CAR's LOP V1 was subsequently amended. By the time CARB adopted its first Livestock Offset Protocol in October 2011 (the "LOP #1"), CAR had arrived at LOP V3.0. CARB based LOP #1 on CAR's LOP V3.0. (LOP #1 was virtually identical to CAR LOP v 3.0, with the addition of certain minor changes required to make it comply with California regulatory requirements.)

While CAR LOP V1 did not limit the types of livestock manure to be covered by it to dairy and swine manure, the LOP #1 did. While a search of the record did not show why CAR imposed that limit, a review of CAR's FAQs on its Livestock Projects Protocol page provides a clue.

See FAQ #5: "**Is an anaerobic digester at a beef farm eligible?"**

CAR answered as follows:

"A: **No,** only swine and dairy manure are eligible waste streams. ***Beef farms were not included in the performance standard analysis because it was unknown whether it is common practice to anaerobically treat beef cattle waste***, meaning that when a digester is installed and digesting beef cattle waste, there may not be any project emission reductions compared to the baseline (no methane avoidance)." [Emphasis added.][1]

It appears that CAR had not done the research necessary to determine whether it was a common practice to anaerobically digest beef cattle manure, and just assumed the answer. (We asked CAR but were not able to find anyone there who remembers why the limitation was included.) CARB apparently accepted CAR's work without making the determination itself even though CAR's FAQ answer does not make sense. See the discussion in the 2nd from the last paragraph on p. 6 *infra*.

CARB subsequently amended LOP #1, with the amended version adopted on November 14, 2014. It is that version of the LOP that CARB has included as a document in the Notice. Subsequently CARB incorporated the LOP into the LCFS without conducting any analysis as to whether it was appropriate to do so, and even though the purpose of offset credits under C&T is different than the purpose of the LCFS credits. CARB is on track to compound that error by amending the LCFS again with C&T's 2014 LOP incorporated yet again.

SB 1383 was enacted since the creation of the LOP

Not only was the process of LOP incorporation into the LCFS improper, but 10 years have passed since the last amendment of the LOP. There have been significant developments affecting methane emissions from manure management since then. One significant change was the enactment of *SB 1383, Short-lived climate pollutants: methane emissions; dairy and livestock: organic waste: landfills*, on September 19, 2016.

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[1] https://www.climateactionreserve.org/how/protocols/waste/us-livestock/livestock-project-protocol-faqs/,

SB 1383 required CARB to begin implementing California's comprehensive short-lived climate pollutant strategy "to achieve a reduction in the statewide emissions of methane by 40 percent … below 2013 levels by 2030."

Section 4 of SB 1383 requires CARB, in consultation the Department of Food and Agriculture (CDFA), to, subject to certain conditions precedent, "adopt regulations to reduce methane emissions from **livestock manure management operations and dairy manure management operations**, consistent with … the strategy, by up to 40 percent below the **dairy** sector's **and livestock** sector's 2013 levels by 2030." [Emphasis added.]

Therefore, the California legislature expressly directed CARB to adopt regulations to reduce methane emissions from **livestock** management operations **separately from *AND* in addition to** reducing methane emissions from **dairy** manure management operations. In fact, virtually every time the statute refers to reductions in methane emissions from dairy manure management in SB 1383, it separately references livestock manure management. It is therefore clear that the legislature was targeting reductions in methane emissions from **livestock *other than* dairy cattle** when it passed SB 1383.

As a result of SB 1383 CARB, CDFA and other relevant California agencies convened a Dairy and Livestock GHG Emissions Working Group (Working Group). One of the subgroups, Dairy and Livestock Subgroup #2: Fostering Markets for Digester Projects, was convened to "to review circumstances, identify barriers, and make recommendations toward advancing digester development to reduce **dairy** manure methane emissions", and in fact only made recommendations relevant to dairy methane emissions when it issued its report on October 12, 2018, notwithstanding the inclusion of "Livestock" in the subgroup name. [Emphasis added.] Therefore, to date, CARB has not addressed methane emissions from livestock manure management (other than dairy manure) in either laws or regulations.

Beef cattle is the top livestock commodity category in California after dairy products

The question thus arises as to what "livestock" the legislature was referring to in SB 1383. To answer that question, we turn to the CDFA's 2022-2023 California Agricultural Statistics Review, https://www.cdfa.ca.gov/Statistics/PDFs/2022-2023_california_agricultural_statistics_review.pdf.

It is instructive to look at the list of the Top 20 commodities in California from 2020 – 2022.The top commodity in the state was "dairy products, milk", but in 4th place, and **the top livestock commodity after dairy** in the CDFA Statistics Review, was "**cattle and calves**" in 2022, up from 5th place in 2020 & 2021.

See the below table:

Top 20 Commodities in California, 2020-2022						
	Value and Ranks [1]					
Commodity	2020		2021		2022	
	$1,000	Rank	$1,000	Rank	$1,000	Rank
Dairy products, Milk	7,265,456	1	7,571,411	1	10,397,493	1
Grapes	4,488,553	4	5,209,355	3	5,535,442	2
Miscellaneous crops [2]	4,552,240	3	4,966,148	4	5,525,930	3
Cattle and calves	2,736,559	6	2,898,877	6	3,627,208	4

Dairy and dairy products accounted for 59.8 percent of the total livestock and livestock product receipts, while cattle and calves accounted for 20.8 percent of the state's total livestock receipts in 2022.

Therefore, the legislature almost certainly had beef cattle in mind when it passed SB 1383. Yet CARB has not taken any action with respect to beef cattle manure. A way to do so is to add beef cattle manure to the LOP.

A significant amount of beef cattle manure decomposes anaerobically today

Furthermore, whether or not it was a common practice for beef cattle manure to be anaerobically digested when LOP #1 was adopted in 2011, it is much more common now. In fact, in Iowa, the number of beef cattle housed in barns where the manure is collected and digested doubled from 2010 to 2018. There are now more beef cattle housed in barns than in open feed lots in Iowa.[2]

That change has not happened because beef cattle farmers get incentives like LCFS credits. Rather it is because of improvements in barn design. Housing cattle in barns keeps them dry in the cold, wet winter. Keeping cattle warm and dry in the winter is considered more humane and doing so results in better productivity, feed efficiency, and performance.

However, when beef cattle are housed in barns, their manure does not decompose aerobically when stored, and will thus generate methane emissions unless anaerobically digested. Therefore, CARB should want to incentivize the installation of anaerobic digesters on beef cattle farms where the manure decomposes anaerobically.

Furthermore, there is no reason to exclude beef cattle manure from the LOP since the amount of the avoided emissions credit is a function of the amount of methane generated under the conditions in which the manure is collected and stored, per Section 10.4 of Volume 4, Chapter 10 of the IPCC 2006 Guidelines. If the manure on such a beef cattle farm would decompose

[2] See the attached slide with the data.

aerobically, avoided emissions credits will not be generated and the famer will not be incentivized by the LCFS.

In closing, we anticipate that CARB will receive many comments on the 15-Day Changes. It is therefore possible for the agency to issue a second 15-day package before the November Board meeting. Since the values CARB needs to update the LOP already exist in Chapter 10.4 of the IPCC Guidelines[3], it would be simple to amend the LOP to include beef cattle manure in the second 15-day package. We urge CARB to do so.

Sincerely,

Bryan J. Sievers

Bryan Sievers
Director of Government Relations
Roeslein Alternative Energy

[3] Attached are tables from Chapter 10.4 providing the applicable values for dairy, swine and beef cattle manure. The values for dairy and swine manure found in the LOP are taken directly, without modification, from Chapter 10.4.