



October 26, 2023

To: California Air Resources Board  
From: Stephen Rosenblum, Ph.D., for Climate Action California  
Daniel Chandler, Ph.D., for 350 Humboldt  
Re: **Comments on the October 5, 2023 California Public Workshop:  
Potential Amendments to the Cap-and-Trade Regulation**

### **Proposed Revisions to Offsets Protocols in the Cap-and-Trade Program**

Climate Action California and 350 Humboldt, with nearly 9,000 supporters around California, focus much of our climate advocacy on short-lived climate pollutants, especially methane and refrigerants. Thus we are keenly interested in how the Cap-and-Trade program deals with these gases—which we must stop emitting in the next few years if the planet is to remain livable for humans.

In the current series of Cap-and-Trade workshops we have not seen a focus on offsets. Nevertheless, we wish to propose two changes now: removing dairy digester offsets and adding offsets for refrigerant destruction. If consideration of offsets is to be included in a future workshop, we will resubmit these comments. In any case we hope you will find time to consider them now.

#### **Recommendation 1: Eliminate Dairy Digester-Based Cap and Trade Offsets**

The “Compliance Offset Protocol Livestock Projects” section<sup>1</sup> posits that digesters reduce ozone and other pollutants so that “livestock projects located within the State provide direct environmental benefits [DEBS] by reducing or avoiding emissions of air pollutants in the State and reducing or avoiding pollutants that could have an adverse impact on waters of the State.”

These statements are incomplete at best and highly misleading, because agricultural greenhouse gas emissions and pollution are either unregulated (methane and nitrous oxide and ammonia) or poorly regulated (air<sup>2</sup> and water<sup>3</sup> pollution). In fact, current agricultural and particularly dairy practices (on confined animal feeding operations, or CAFOs) lead to high levels of methane and nitrous oxide emissions plus air pollution and water pollution. These practices are largely within the control of farmers and could be reduced across the board if adequately regulated). Current state policies, especially the Low Carbon Fuel Standard’s “avoided emissions” credits, are misguided. The offsets provided by cap and trade are for dairy digesters because they purportedly reduce methane and pollution. Please consider the following:

- a. There is evidence that the digestate left over from digesting methane considerably *increases* emissions of ammonia and N<sub>2</sub>O.<sup>4</sup> Ammonia and N<sub>2</sub>O both cause ground level ozone, and

ammonia leads to PM 2.5 pollution<sup>5</sup>. Recent emissions studies show that the models used in the CARB emissions inventory seriously under-report both methane and ammonia emissions from dairies.<sup>6</sup>

- b. Dairies, with or without digesters, are the cause of extensive water pollution in California. There is not enough land to absorb the ammonia and other nutrients produced, leading to contamination of groundwater. This has recently been documented by California Department of Food and Agriculture research.<sup>7</sup>
- c. CAFOs cause health problems, with or without digesters. Most health problems are due to air pollution, with PM 2.5 the most detrimental pollutant. PM 2.5 from dairies is primarily attributable to dust, so is not abated by digesters.<sup>8</sup>
- d. Digesters produce carbon dioxide and hydrogen sulfide if biogas is used for generating electricity; if used for producing biomethane it is generally combusted by the end user, contributing to global warming. Biomethane mixed into natural gas pipelines contributes to the negative health effects of methane leaks in the home.<sup>9</sup>

Most significant of all, a recent study shows that the offset funds provided through cap and trade to dairies all over the country have resulted in very few digesters coming into being that did not already exist.<sup>10</sup> **That is, farmers are being paid to reduce methane they are already reducing, so the offsets are worthless. Worse, third party developers are taking advantage of California's offsets and essentially scamming the Cap-and-Trade program and the state, which could be using the money paid out to farmers to reduce emissions.** Here for example are the comments of dairy farmers interviewed about their digesters in recent peer reviewed research:<sup>11</sup>

No project owners cited revenue from offset credits as an incentive to install their anaerobic digesters. In fact, half of the anaerobic digesters were installed with no knowledge of the California Compliance Offset Program at the time of installation. This lack of knowledge was a common theme throughout the interviews as one project owner told me, "As farmers we don't have knowledge of the carbon market" because "it's not what we do for a living." After [anaerobic digester] AD installation, many project owners were then approached by private companies about the opportunity to generate additional revenue in California's carbon market. One farmer remarked that they were "approached by different companies saying, hey look, you have this anaerobic digester and here's this way of getting extra income [from it]." Another stated: "We were approached, actually approached multiple times by different project developers, looking for farms with [installed] digesters."

In conclusion, we urge you in the strongest possible terms to drop digester-based cap and trade offsets from the program. They are illegitimate since they result from unregulated sources; they cause rather than ameliorate health concerns; they cause ammonia and N<sub>2</sub>O emissions and water pollution; and in *fully 88 percent* of cases<sup>12</sup> they have not resulted in additional methane reductions, since they are paying for reductions that pre-existed cap-and-trade funding.

## **Recommendation 2: Add Additional Ozone-Depleting Substances and Other High GWP Refrigerants Recommended by the CARB Compliance Offsets Task Force**

The "Compliance Offset Protocol Ozone Depleting Substances (ODS)" is one of the very few offset protocols that clearly reduce emissions permanently. However, this section of the Cap-and-Trade program can now be made more effective by adding other refrigerants. HCFC R-22 is still one of the

most used refrigerants in California, although it can no longer be produced in this country. This gas, chlorodifluoromethane, delivers the double whammy of both causing 1800 times as much global warming per ton as CO<sub>2</sub> and also destroying the atmospheric ozone layer.

**We remind the Board that the CARB Compliance Offsets Task Force recommended in 2021 that R-134a, R-125, R-32, and R-143a be declared eligible for the ODS offset protocol. We suggest that R-22 and these other refrigerants be added to the ODS protocol, which offers offsets for refrigerants being destroyed (rather than vented or reclaimed/recycled).**

Thank you for considering these comments. We look forward to future workshops and the forthcoming staff report detailing updates and revisions to the Cap-and-Trade program.

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<sup>1</sup><https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/direct-environmental-benefits>

<sup>2</sup> California's Central Valley has some of the worst air pollution in the country.

<https://blog.ucsusa.org/carly-phillips/climate-change-threatens-already-poor-quality-in-californias-central-valley/> and Ha, Sandie, Valerie Martinez, and Alec M. Chan-Golston. "Air pollution and preterm birth: A time-stratified case-crossover study in the San Joaquin Valley of California." *Paediatric and Perinatal Epidemiology* 36, no. 1 (2022): 80-89; White, Catherine Garoupa. "Reframing Air Pollution as a Public Health Crisis in California's San Joaquin Valley." *Case Studies in the Environment* (2020).

<sup>3</sup> More than 100 rural communities in the San Joaquin Valley have contaminated tap water. Hanak, Ellen, Alvar Escriba-Bou, Brian Gray, Sarge Green, Thomas Harter, Jelena Jezdimirovic, Jay Lund, Josué Medellín-Azuara, Peter Moyle, and Nathaniel Seavy. "Water and the future of the San Joaquin Valley." *Public Policy Institute of California* 100 (2019).

<sup>4</sup> Baldé, Hambaliou, Andrew C. VanderZaag, Stephen D. Burt, Claudia Wagner-Riddle, Leigh Evans, Robert Gordon, Raymond L. Desjardins, and J. Douglas MacDonald. "Ammonia emissions from liquid manure storages are affected by anaerobic digestion and solid-liquid separation." *Agricultural and forest meteorology* 258 (2018): 80-88. And: <https://insideclimatenews.org/news/19092022/dairy-digesters-methane-california-manure/> And: Michael A. Holly, Rebecca A. Larson, J. Mark Powell, Matthew D. Ruark, Horacio Aguirre-Villegas, Greenhouse gas and ammonia emissions from digested and separated dairy manure during storage and after land application, *Agriculture, Ecosystems & Environment*, Volume 239, 2017, Pages 410-419, ISSN 0167-8809, <https://doi.org/10.1016/j.agee.2017.02.007>. (<https://www.sciencedirect.com/science/article/pii/S0167880917300701>)

<sup>5</sup> The central valley has not met PM<sub>2.5</sub> standards set 20 years ago by the EPA.

<https://insideclimatenews.org/news/19092022/dairy-digesters-methane-california-manure/>

<sup>6</sup> Vechi, N. T., J. Mellqvist, J. Samuelsson, B. Offerle, and C. Scheutz. "Ammonia and methane emissions from dairy concentrated animal feeding operations in California, using mobile optical remote sensing." *Atmospheric Environment* 293 (2023): 119448. Kupper, Thomas, Christoph Häni, Albrecht Neftel, Chris Kincaid, Marcel Bühler, Barbara Amon, and Andrew VanderZaag. "Ammonia and greenhouse gas emissions from slurry storage-A review." *Agriculture, ecosystems & environment* 300 (2020): 106963.

<sup>7</sup> [https://www.cdfa.ca.gov/oefi/research/docs/cbc\\_manure\\_nutrient\\_report.pdf](https://www.cdfa.ca.gov/oefi/research/docs/cbc_manure_nutrient_report.pdf)

<sup>8</sup> Casey, Joan A., Brent F. Kim, Jesper Larsen, Lance B. Price, and Keeve E. Nachman. "Industrial food animal production and community health." *Current environmental health reports* 2 (2015): 259-271.

<sup>9</sup> Lebel, Eric D., Drew R. Michanowicz, Kelsey R. Bilsback, Lee Ann L. Hill, Jackson SW Goldman, Jeremy K. Domen, Jessie M. Jaeger, Angélica Ruiz, and Seth BC Shonkoff. "Composition, emissions, and air quality impacts of hazardous air pollutants in unburned natural gas from residential stoves in California." *Environmental science & technology* 56, no. 22 (2022): 15828-15838.

<sup>10</sup> Pierce, M. Hanna, and Aaron L. Strong. "An evaluation of New York state livestock carbon offset projects under California's cap and trade program." *Carbon Management* (2023): 2211946.

<https://www.tandfonline.com/doi/full/10.1080/17583004.2023.2211946>

<sup>11</sup> Ibid.

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<sup>12</sup> Ibid. The article has an accompanying downloadable spreadsheet which contains information on all of the cap and trade digester grants across the country. Of these all 13 in CA were pre-existing and overall 88% were pre-existing.