May 27, 2015

Animal Legal Defense Fund

170 East Cotati Avenue
Cotati, California 94931

T 707.795.2533
F 707.795.7280

info@aldf.org
aldf.org

California Air Resources Board
Climate Change Program
1001 "I" Street
Sacramento, CA 95814

Via Online Comment Submittal Form

RE: Comments to ARB's Short-Lived Climate Pollutant Reduction Strategy Concept Paper

Dear Climate Change Program,

In developing its comprehensive plan to control short-lived climate pollutants (SLCPs) pursuant to SB 605,[1] ARB must effectively hold the livestock industry accountable for its significant and hitherto unregulated contribution to climate change. The livestock industry is an enormous contributor to climate change in California, but has so far received a free pass. As a result, ARB's own GHG inventory found that emissions from the livestock industry swelled 16% from 2001-2012 at a time when emissions from almost every other sector stabilized or decreased.[2] Regarding SCLPs specifically, the livestock industry accounts for well over half of all methane emissions in this state. Methane is, of course, the largest SLCP contributing to climate change. Dramatic and effective

[1] SB 605 was enacted in 2014, and requires ARB to "complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state" by January 1, 2016. Health & Saf. Code § 39730. In developing this comprehensive strategy, SB 605 further requires ARB to:

> (1) Complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data.
>
> (2) Identify research needs to address any data gaps.
>
> (3) Identify existing and potential new control measures to reduce emissions.
>
> (4) Prioritize the development of new measures for short-lived climate pollutants that offer cobenefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities, as identified pursuant to Section 39711.
>
> (5) Coordinate with other state agencies and districts to develop measures identified as part of the comprehensive strategy.

Id.

[2] California Greenhouse Gas Emission Inventory: 2000-2012 (2014 Edition).

reductions in GHG emissions from the livestock industry should therefore be the centerpiece of ARB's SB 605 comprehensive plan.

To this end, ALDF is concerned after reading ARB's *Short-Lived Climate Pollutant Reduction Strategy Concept Paper* (Concept Paper) that ARB too narrowly focuses on specific control measures that may not ultimately prove capable of achieving significant emission reductions. The suggested manure management techniques may not be safely implemented by all facilities, and the biological manipulation of animals to reduce enteric fermentation may not be effective or may be unacceptably harmful in other ways. To bypass this problem, ARB should seriously consider and discuss inclusion of the livestock industry in the cap-and-trade program, which would allow dairy or other livestock facilities to simply purchase allowances where actual reductions prove otherwise infeasible. No matter what strategy ARB pursues, it should be effective, mandatory, and mindful of potential animal welfare implications.

I. ARB SHOULD SERIOUSLY CONSIDER CAP-AND-TRADE AS A STRATEGY TO ACCOUNT FOR GHG EMISSIONS FROM THE LIVESTOCK INDUSTRY

ARB's Concept Paper suggests that the eventual comprehensive plan for SLCPs may directly conflict with SB 605's mandate to "identify existing and potential new control measures to reduce emissions"[3] by failing to seriously consider or discuss cap-and-trade as a potential mechanism to account for GHG emissions from the dairy industry.

Cap-and-trade offers several advantages over the control measures outlined in the Concept Paper. It allows ARB to account for GHG emissions from the livestock industry where other control measures prove infeasible or ineffective for large dairy facilities to implement. Such facilities could instead simply buy allowances on the market, effectively controlling overall emissions by subsidizing reductions elsewhere. This advantage is especially salient with regards to enteric fermentation because significant reductions through potential control measures such as genetic manipulation or microbial intervention may never be developed, or may never be implemented due to attendant harms. Cap-and-trade would also serve as a global model to regulate emissions from the entire livestock industry, rather than an ad hoc approach specific only to California and its factory dairy farms.

A. CAP-AND-TRADE DOES NOT DEPEND ON ADOPTING NEW TECHNIQUES WITH UNCERTAIN FEASIBILITY AND EFFICACY

The Concept Paper identifies some potential control measures that should be studied and potentially implemented at livestock facilities to reduce GHG emissions, such as installing manure digesters for anaerobic lagoons, and biologically manipulating animals to emit less methane from enteric fermentation. However, the ultimate feasibility of adopting many of those control measures may never be achieved, leaving ARB with no way to account for emissions from factory dairy farms or other livestock facilities.

[3] Health & Saf. Code § 39730.

By contrast, accounting for livestock emissions through cap-and-trade does not require reliance on specific control measures with speculative feasibility and efficacy. Livestock facilities that can legally install manure digesters, or safely dispose of scraped manure may do so to reduce emissions; those that cannot would be compelled to subsidize reductions elsewhere by purchasing allowances on the cap-and-trade market. Likewise, facilities that cannot actually and legally reduce emissions from enteric fermentation could simply buy allowances on the market.

1. Accounting for enteric fermentation through cap-and-trade

The Concept Paper recognized the need to achieve deep cuts in enteric fermentation: "[a]chieving the methane targets identified in this Concept Paper may be difficult or infeasible if emissions from enteric fermentation increase."[4] This fear is well-founded. If overall GHG emissions in California decrease by 80% below 1990 levels in accordance with ARB's 2050 goal, then *enteric fermentation alone* from the livestock industry would swell to more than 13% of total GHG emissions assuming it remains stable at 2012 levels.[5]

In light of this fact, the Concept Paper's discussion of potential enteric fermentation control measures is alarmingly narrow because it relies exclusively on the speculative future development of various biological manipulation techniques such as "breeding for lower methane-producing animals, microbial interventions, and nutrition and animal management."[6] The suggested control measures for enteric fermentation are concerning due to the significant risk that the suggested measures may never be developed.

Even if biological manipulation through genetic or microbial intervention is ultimately developed and found to be effective in reducing GHG emissions, the attendant harms may outweigh the costs, rendering implementation untenable. Biological manipulation has already caused grievous animal suffering to cows and other farmed animals. Cows in today's factory farms have been biologically manipulated for ever greater milk yield, with cows today producing more than 22,000 pounds of milk per cow each year—around 50 percent more than what they produced on a per-cow basis 35 years ago, and 14 percent more than they did just 10 years ago.[7] This unnaturally high milk production exacts a grave toll, with cows becoming "spent" from the metabolic effort and being sent for slaughter at less than 5 years of age, on average. Cows'

[4] Concept Paper at p. 21.

[5] *See* California Greenhouse Gas Emission Inventory: 2000-2012 (2014 Edition), pp. 16-17 (Figures 8 and 9). If manure management likewise remained stable, then the livestock industry would be responsible for more than 26% of total GHG emissions in California by 2050 assuming overall emissions decreased by 80% as planned.

[6] Concept Paper at pp. 21-22.

[7] *See An HSUS Report: The Welfare of Cows in the Dairy Industry*, Humane Society of the United States, available at http://www.humanesociety.org/assets/pdfs/farm/hsus-the-welfare-of-cows-in-the-dairy-industry.pdf); U.S. Department of Agriculture National Agricultural Statistics Service, *Milk cows and production* (2015), available at http://nass.usda.gov/Charts_and_Maps/Milk_Production_and_Milk_Cows/cowrates.asp.

natural life expectancy is greater than 20 years.[8] Moreover, the substitution of inexpensive corn feed instead of a normal grass diet for cows has also caused severe health problems for the animals.[9]

Similarly, whereas hens naturally lay at most a couple dozen eggs per year, egg-laying hens in today's factory farms have been biologically manipulated to lay more than 250 eggs per year.[10] This unnatural egg production saps egg-laying hens of their calcium, leading to immense suffering from fragile bones caused by avian osteoporosis.[11]

Unacceptable attendant harms are not limited to animal welfare. The introduction of antibiotics to animal feed to suppress diseases in overcrowded and unsanitary conditions has been largely recognized as causing a public health crisis due to the emergence of antibiotic resistant bacteria.[12]

Cap-and-trade can account for enteric fermentation even if the biological manipulation measures imagined in the Concept Paper ultimately prove ineffective or otherwise unacceptable. Factory dairy farms that are unable to reduce emissions from enteric fermentation can simply purchase allowances on the market, effectively offsetting their enteric fermentation by subsidizing reduced emissions elsewhere.

2. Accounting for manure management through cap-and-trade

Likewise, the Concept Paper narrowly focuses on implementing new manure management techniques to reduce emissions from dairy manure lagoons. However, legal and technical obstacles may stand in the way of widespread adoption of these techniques. For example, scrape systems often involve spreading some or all of the scraped manure on land as fertilizer. This may degrade water quality if excessive manure is spread on too small an area of land, resulting in the manure seeping into groundwater or running off into surface water.

---

[8] *See id*.

[9] *See* Graber, *A Difficult Reality to Digest: The Effects of a Corn-Based Diet on the Digestive System of Cattle*, Eukaryon, Vol. 8, March 2012, Lake Forest College, available at https://www.lakeforest.edu/live/files/1135-graberreviewaprintpdf.

[10] *See About Chickens*, Humane Society of the United States (http://www.humanesociety.org/assets/pdfs/farm/about_chickens.pdf), *citing* Smith P. and Daniel C., *The Chicken Book*, THE UNIVERSITY OF GEORGIA Press (2000).

[11] *See* Webster, *Welfare Implications of Avian Osteoporosis*, 2004 POULTRY SCIENCE 83:184–192, available at http://ps.oxfordjournals.org/content/83/2/184.full.pdf.

[12] *See Antibiotic Resistance Threats in the United States*, CDC (2013), pp. 16-18, available at http://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf.

A high profile lawsuit in Washington state regarding water contamination from excess manure spread on land highlights this concern.[13] In that case, a federal judge found that a factory dairy farm violated the Resource Conservation and Recovery Act (RCRA) by, among other things, over-applying solid manure to agricultural fields.[14] Because the manure was applied without regard to fertilization needs and without accounting for residue from previous applications, the court found that the manure impacted groundwater quality and constituted solid waste as regulated by RCRA.[15] The defendants in that case recently settled after the court announced that decision.[16]

Cap-and-trade allows facilities that cannot safely or legally utilize the manure management reduction techniques to buy allowances from the market instead. By adopting this approach – or at least keeping the option open – ARB will maintain a mechanism to account for GHG emissions from livestock facilities that cannot install digesters or implement a scrape system.

B. CAP-AND-TRADE OFFERS AN APPROACH TO ACCOUNT FOR WORLDWIDE LIVESTOCK INDUSTRY EMISSIONS, NOT JUST MANURE FROM CALIFORNIA DAIRIES

As explained in ALDF's rulemaking petition, one significant benefit to cap-and-trade is that it offers a global approach to control GHG emissions from the entire livestock industry. Any jurisdiction can follow such a precedent set by California. By contrast, the Concept Paper outlines a California-only approach that may significant reduce methane from manure management on factory dairy farms in California, but could not serve as a useful model for most other jurisdictions.

C. ARB ALREADY ALLOWS DAIRIES TO SELL OFFSETS CREDITS FROM MANURE MANAGEMENT IN THE CARBON MARKET, PROVING THAT INCLUSION IN CAP-AND-TRADE IS FEASIBLE

ARB's adoption of a compliance offset protocol for livestock projects proves that livestock emissions can be regulated through cap-and-trade.[17] ALDF understands that there is some concern about the accuracy of current GHG emission measurement methodologies when

[13] *Cmty. Ass'n for Restoration of the Env't v. Cow Palace, LLC*, 2015 U.S. Dist. LEXIS 4514 (E.D. Wash. Jan. 14, 2015).

[14] *Id*. at pp. *103-108.

[15] *Id*.

[16] Natasha Geiling, *This Washington State Case Could Have A National Impact On Agricultural Pollution*, THINK PROGRESS (May 14, 2015), available at http://thinkprogress.org/climate/2015/05/14/3658843/washington-dairy-pollution-settlement/.

[17] *Compliance Offset Protocol for Livestock Projects*, AIR RESOURCES BOARD (adopted Oct. 20, 2011).

applied to individual farms. However, the existence of the offset protocol for livestock facilities installing digesters proves that it is feasible to integrate livestock industry emissions with the cap-and-trade program. That offset protocol involves estimating a baseline emissions scenario using a methodology similar to the one offered by ALDF in its rulemaking petition. Importantly, that baseline estimate and reduction measurement must necessarily be accurate and certain, else ARB could not include the offsets in the market.[18]

D. ARB SHOULD RESOLVE ANY TECHNICAL OBSTACLES TO IMPLEMENTING CAP-AND-TRADE BY CONDUCTING ADDITIONAL RESEARCH RATHER THAN OUTRIGHT DISMISSING THE CAP-AND-TRADE APPROACH

SB 605 instructs ARB to "identify research needs to address any data gaps" in developing its comprehensive plan to control SLCPs.[19] As noted above, ARB has expressed some concern about the accuracy of current measurement methods for GHG emissions at individual farms. In line with SB 605's mandate, however, ARB should embrace this as a research opportunity to develop better measuring methods rather using it as an excuse not to consider a cap-and-trade control measure at all. For example, ARB could develop a more accurate model to calculate emissions from manure and enteric fermentation on factory dairy farms. Or, as ALDF previously suggested, ARB could develop an "uncertainty discount" that would account for uncertainty by reducing the assumed quantity of baseline emissions and reductions until a satisfactory confidence interval is reached.[20]

II. ANY CONTROL MEASURES THAT ARB ADOPTS SHOULD BE MANDATORY, NOT VOLUNTARY

The Concept Paper expresses optimism that methane emissions from manure management can be significantly reduced by implementing scrape systems or manure lagoon digesters. Yet it provides sparse details explaining how ARB might actually induce factory dairy farms to adopt such systems, leaving open the troubling possibility that ARB might never compel facilities to reduce their emissions with tough direct regulations.

In the short-term, the Concept Paper envisions the use of incentives to bring manure management projects online ahead of a self-imposed 2025 deadline to control manure methane emissions from the largest facilities. When that 2025 (or earlier) deadline arrives, the Concept Paper refers only to "*potential* regulation" on existing sources rather than articulating a plan to implement direct regulation to compel facilities to adopt better manure management techniques.

---

[18] *See* 17 CCR § 95972 (requiring that calculations used in cap-and-trade offset programs be sufficiently accurate and certain).

[19] Health & Saf. Code § 39730(a)(2).

[20] For an example of uncertainty discounting applied in the carbon sequestration context, *see* Man-Keun Kim and Bruce A. McCarl, *Uncertainty Discounting for Land-Based Carbon Sequestration*, JOURNAL OF AGRICULTURAL AND APPLIED ECONOMICS, 41, 1 (April 2009): 1-11.

ARB has tried voluntary compliance and incentives with the livestock industry, and it failed. As explained in its recent Scoping Plan update, ARB presently encourages the livestock industry to reduce GHG emissions through voluntary measures such as its offset protocol for certain livestock facilities installing a biogas control system. Despite these incentives, ARB has not seen the expected increase in the use of digesters to mitigate GHG emissions from livestock.

Accordingly, any emissions control strategy that ARB adopts should be mandatory – i.e. through cap-and-trade or direct regulation rather than incentivized voluntary compliance.

III. ARB SHOULD CONSIDER ANIMAL WELFARE IMPLICATIONS OF ANY STRATEGY IT PURSUES

Some of the strategies discussed in the Concept Paper involve potential animal welfare harms. For example, the Concept Paper suggested reducing enteric fermentation through "breeding for lower methane-producing animals, microbial interventions, and nutrition and animal management."[21] As explained previously in these comments, similar biological manipulation has caused detrimental effects for animal welfare in the past: cows bred for an ever-higher milk yield and forced to consume inexpensive corn feed suffer from chronic health problems, and egg-laying hens bred to produce more calcium-sapping eggs regularly suffer from avian osteoporosis.[22] Chickens raised for meat have been bred to suffer from a constant state of hunger so that they gain weight more quickly.[23] Other examples abound.

Beyond the policy implications of potentially requiring factory dairy farms to further harm their animals, certain animal detriments may actually render the control strategies impossible to implement due to conflict with existing animal protection laws. California's animal cruelty law generally prohibits causing animals "needless suffering."[24] It is not difficult to imagine that biological manipulation resulting in even more animal suffering at factory farms would be viewed as impermissible animal cruelty.

Accordingly, ARB must remain mindful while developing its strategy that tinkering with the biology of animals to obtain a desired attribute is akin to opening Pandora's Box.

*** * ***

ALDF appreciates ARB's acknowledgement that SLCPs originating from the livestock industry must be controlled, but is apprehensive that the approach outlined in the Concept Paper

[21] Concept Paper at pp. 21-22.

[22] *See* discussion *supra* at Part I.A.1.

[23] *Factory Farmed Chickens: Issues and Alternatives*, ASPCA, available at https://www.aspca.org/fight-cruelty/farm-animal-cruelty/factory-farmed-chicken-issues-and-alternatives.

[24] Pen. Code § 597(b).

is too narrow. ARB should seriously consider cap-and-trade as a mechanism that can effectively hold the livestock industry accountable for its enormous SLCP emissions and resulting impact on climate change. Whatever route ARB ultimately pursues, any control measures it adopts should be mandatory rather than voluntary because voluntary compliance is a failed policy with the livestock industry. Additionally, ARB should keep in mind at all times the potential animal welfare harms implicated by different strategies, particularly with regards to biological manipulation to control enteric fermentation.

Thank you for exploring this issue, and ALDF looks forward to continuing to work with ARB as the process moves forward.

/s/Christopher A. Berry, Esq.
Staff Attorney
ANIMAL LEGAL DEFENSE FUND
cberry@aldf.org
(707) 795-2533 ext. 1041

cc:

Craig Segall
Senior Staff Counsel
California Air Resources Board
Craig.Segall@arb.ca.gov