May 26, 2016

Honorable Mary Nichols, Chair

California Air Resources Board

1001 I Street

Sacramento, CA 95814

Dear Chairwoman Nichols:

Sustainable Conservation appreciates the opportunity to comment on the proposed Short –Lived Climate Pollutant Reduction (SLCP) Strategy issued by the Air Resources Board (ARB) in April 2016. Sustainable Conservation helps California thrive by uniting people to solve the toughest challenges facing our land, air, and water. We have been working for over 15 years with California’s dairy industry to develop and implement economically viable practices and technologies that reduce the environmental impacts of dairies, including, but not limited to, emissions of methane, a highly potent greenhouse gas (GHG).

Sustainable Conservation strongly agrees with ARB on the essential importance of reducing methane emissions from dairies in meeting the state’s overall GHG reduction targets. As was the case with our comments on the draft SLCP Strategy in October 2015, we are focused on achieving three basic goals through our participation in this process:

* ARB is successful in meeting its SLCP goals;
* Dairy methane emission strategies are developed and analyzed as part of an integrated approach that also addresses water and air quality issues; and
* Dairies remain viable in California and the emissions are not simply moved to other states or countries.

Sustainable Conservation’s comments on the draft SLCP Strategy focused on five principal aspects of the SLCP Strategy for methane: the targets for reduction in emissions manure management on existing dairies; the need for an integrated approach on the part of state agencies; the proposed regulation of new or expanded dairies; enteric fermentation; and financing and investment. We are disappointed that the proposed Strategy released in April 2016 failed to substantially address any of the concerns we raised in those earlier comments. As a result, we feel it necessary to reiterate many of these concerns here. We refer you to our October comments to revisit our full discussion of these issues.

In addition to failing to substantively address the troubling aspects of the draft SLCP Strategy raised in our prior comments, the proposed Strategy raises two additional areas of concern: a reliance on speculative and insufficient data in the economic analysis of dairy manure methane reduction, and a much-expanded scope of regulation.

**1. Targets/ Economic analysis**

The SLCP Strategy sets forth an overall goal of reducing the state’s methane emissions from all sources to 40% below 2013 levels by 2030. Almost half of those reductions are expected to come from the management of dairy manure alone. In order to achieve this the Strategy proposes that dairies reduce their emissions from manure by 20% by 2020, 50% by 2025, and 75% by 2030. Several strategies are proposed as means to achieve these targets: anaerobic digesters, switching from flush water lagoon systems to dry or slurry systems (“flush to scrape”), and pasture-based dairy management.

In our October comments, we noted that the Strategy did not include any explanation for how ARB arrived at these extremely ambitious targets. It was also not clear what degree of consideration was given to the feasibility of achieving these targets based on the current or foreseeable state of knowledge, technology, and investment potential. ARB appears to have made the effort to address the feasibility issue by including economic assessments of a range of dairy manure emission reduction measures in the proposed Strategy that are used to assert that the emission reduction targets can be achieved in economically viable ways.

The two sources cited specifically for these assessments are research studies from UC Davis (Evaluation of Dairy Manure Management Practices for Greenhouse Gas Emissions Mitigation in California, Final Technical Report to the State of California Air Resources Board, February [2016]) and Sustainable Conservation (Greenhouse Gas Mitigation Strategies for California Dairies, July 2015). We have not been able to ascertain whether the UC Davis study is available to the public, which makes it very difficult to know what it says and upon what data its conclusions are based. The authors of the report did prepare a poster for public presentations, which presented the following conclusions: “Mitigation of 10-70+% of manure management GHGs might be expected for these options at $30-200/Mg CO2eq when applied to most dairies…Estimates are preliminary and will benefit from better manure management inventory and emissions assessments, improved cost and emissions data, and expanded assessment of other alternative scenarios and nutrient management impacts.” In other words, an extraordinarily wide range of potential mitigation achieved, potentially huge costs per unit of CO2e, and an explicit statement that the study’s estimates are preliminary and based on incomplete data. We do not see this as an adequate basis for stating that achieving the methane emissions targets is feasible, much less economically viable. As we shall discuss below, we can say categorically that the conclusions of the other cited source document, which we prepared, do not provide that basis, either.

The proposed SLCP Strategy analyzes five strategies for dairy manure emission reduction:

1. Scrape conversion and onsite manure digestion producing pipeline-injected renewable natural gas as a vehicle fuel;
2. Scrape conversion and transport of manure offsite for centralized digestion producing pipeline-injected renewable natural gas as a vehicle fuel;
3. Scrape conversion, collection and open solar drying of manure onsite;
4. Scrape conversion and onsite manure digestion for onsite production of renewable electricity;
5. Conversion of dairy operations to pasture-based management.

While we are gratified to see that ARB now recognizes that it will be impossible to achieve its goals using digesters alone, we feel it important to point out that, out of all the practices incorporated into these strategies, the only one for which emission reductions can be reliably calculated is anaerobic digestion. Four of the five strategies rely on scrape conversion. As the proposed Strategy itself recognizes, very little data exists on which to base any conclusions about what converting a dairy from flush to scrape would cost, what this practice provides in terms of type and quantity of emission reduction benefits, and what the impact (or benefit) of scrape conversion is on air and water quality and other environmental concerns, animal health, and worker safety.

Both the GHG and other environmental impacts (good or bad) of a scrape system are completely dependent on how the manure is managed once it has been collected, but we don't have reliable, up-to-date data on the specific manure management practices currently being implemented within these systems that could have an impact on methane emissions or air and water quality. As we stated in our report, “[r]ealizing the full potential of the greenhouse gas benefits will depend on having a well-managed system for handling and storing the scraped manure. For example, if scraped manure is stored in slurry ponds there will be much less greenhouse gas abatement than if it is stored in a solid pile or composted…” (pp. 49-50). There is nothing in the Strategy to indicate that the assumptions upon which it bases its estimates of emission reduction from scrape conversion take these manure management factors into account.

The Strategy also claims that converting from flush to scrape will not generate any NOx. This statement fails to take into account the fact that it is generally understood that transporting and storing manure in more solid/slurry forms will require a significant increase in the use of vehicles and equipment that generate NOx and other criteria pollutants. Investments to minimize these emissions and/or purchase offsets to meet air quality requirements, particularly in the San Joaquin Valley where the vast majority of dairies are located, would be significant. It is not clear that these costs are considered.

Given the dearth of solid data about scrape conversion, we question not only the figures for capital and O&M costs for scrape conversion found in the Strategy, but any attempt to fix those figures. As we found in our report, “[a] range of factors influence the feasibility and cost of switching from flush to scrape systems, including barn layout, presence of gutters, slope and layout of manure alleys, presence of pumps, and manure storage systems. Because existing manure management systems vary, it is not possible to estimate the costs of converting from flush to scrape management for a generalized farm. However, anecdotal information suggests that transitioning from flush can trigger a cascade of barn structure and operating changes that are onerous and costly.” (p. 50).

To conclude, the assumptions upon which the Strategy’s economic assessment of scrape conversion, upon which four of the five proposed strategies for dairies rely, are certainly not justified by the conclusions of Sustainable Conservation’s report, and, based on what we are able to ascertain, are based on wildly divergent or incomplete information from the UC Davis study. It is essential that the state invests in intensive research into scrape conversion, and other non-digester strategies, in order to identify and quantify their emission reduction potential, environmental impacts, and real conversion and management costs before using them as the bases for assumptions about how realistic or achievable the proposed SLCP Strategy’s targets for dairy manure methane might be.

The economic analyses of the proposed emission reduction strategies are based on other speculative, overly-optimistic, or inadequately understood assumptions:

* Strategies 1 and 2 rely on dairy digesters producing pipeline-injected renewable natural gas for use as vehicle fuel. While this is the ultimate goal for many digester developers, it is very far from being realized. Refining biogas to the level of purity needed for pipeline injection or vehicle fuel is costly and technologically challenging. Fleets of trucks and other vehicles must be converted to natural gas engines. Pipeline injection of dairy biomethane remains effectively impossible in California due to regulatory hurdles and astronomical interconnection costs. In addition to these significant hurdles, the projections of revenue from vehicle fuel are predicated on RIN and LCFS credits, which are extremely volatile in terms of amount, and subject to political pressure. As a result of this uncertainty, the likelihood of obtaining financing from lenders for vehicle fuel projects is very slim. While Sustainable Conservation is highly supportive of the use of dairy biomethane as pipeline gas and vehicle fuel, we believe that it is extremely premature and over-optimistic to rely on it as a principal or economically viable method for achieving drastic reductions of manure methane emissions over the short time-frame proposed by the Strategy, at least without an immediate injection of significant incentives and resources by the state.
* Strategy 2 is also based on the creation of a centralized digester facility that would receive manure from multiple dairies. While this model is attractive in theory, it has yet to be demonstrated as viable in California. It is too speculative to serve as a means of meeting the SLCP targets in an economically viable way.
* Strategy 3 raises many of the concerns about the management of scraped manure raised earlier. It also does not include any consideration of air quality impacts from open solar drying of large amounts of manure.
* Strategy 4 is based on dairies digesting manure onsite and using microturbines to generate electricity. Microturbines are significantly more expensive and less proven in terms of reliability than the internal combustion engines currently in use on digesters in California. As is the case with pipeline injection, interconnection costs to the grid are extremely high. Dairies and digester developers have been consistently thwarted by utilities and the PUC in their attempts to obtain an adequate price for digester electricity. The SLCP Strategy identifies cap-and-trade offsets as a significant source of revenue for this strategy, but it also proposes to impose regulations that would make projects ineligible for this funding. It also sets forth a scenario in which these projects could receive RIN credits, which we have already identified as an extremely unreliable funding source.

While we understand the need to establish ambitious targets in order to meet the challenge of achieving the Governor’s GHG reduction goals, we believe that the many uncertainties surrounding all of the proposed strategies for achieving them create a situation where no conclusions should be drawn about their economic viability, least of all the positive ones reached in the Strategy. Far too much still needs to be learned about the costs, cross-media impacts, technical requirements, reliability, regulatory challenges, and feasibility of scrape conversion, centralized digester facilities, pipeline injection, vehicle fuel, and microturbines to use them as bases for determining whether the dairy methane targets can be met. This is particularly troubling in the context of the Strategy’s proposal to impose industry-wide regulation on dairies. We are concerned that setting targets before current gaps in knowledge, technology, and resources are addressed, and then making them mandatory if they are not met, will not lead to good results for either the dairy industry or ARB.

**2. Regulation**

Sustainable Conservation is extremely troubled by the proposal in the current version of the SLCP Strategy to develop manure methane emission reduction regulations applicable to all dairies, beginning in 2017. This is a significant expansion of the regulatory proposal in the draft Strategy, which would have applied only to new or expanded dairies. We also see it as a serious step in the wrong direction for ARB, and the goal of reducing GHG emissions, for several reasons:

**Leakage.** ARB and the Brown Administration can be proud of the leadership they have shown and the example they have set for the rest of the country and the world in developing effective ways to address the crisis of climate change. We applaud their desire to create programs and technologies that can serve as models that can be replicated elsewhere. We feel strongly that the SLCP Strategy for reducing dairy methane emissions needs to be such a model. It cannot serve that purpose if it results in dairies leaving California for other states or countries with weaker or non-existent environmental and GHG protections. We fear that this is precisely what is going to happen if the state moves prematurely to a mandatory approach to reducing dairy methane emissions, as proposed in the current version of the SLCP Strategy.

Sustainable Conservation is an environmental organization. We have worked with California dairies in order to achieve substantive environmental improvements, including real reductions of GHG emissions. Reducing emissions, not simply moving them elsewhere, is our goal. Contrary to the assertion made on p. 68 in the proposed Strategy, our experience shows that it is collaboration, not regulation, that will lead to “lasting emission reductions.” The state needs to keep dairies in California where those reductions can be achieved. The current regulatory proposal will not lead to “lasting emission reductions” but rather a simple transfer of those emissions to other regions.

**Emission credits.**  The current regulatory proposal states quite clearly that enacting regulations on dairy methane will eliminate the eligibility of new projects for credits for avoided methane emissions from the LCFS and cap-and-trade programs. It is puzzling that a document that takes great pains to try to demonstrate that its targets can be met in an economically viable way also proposes to remove important economic incentives from projects that are already economically challenged. As is the case with leakage, imposing regulations that reduce the economic viability of methane reduction projects will likely to move us in the opposite direction of the goal of real reductions in emissions.

**Premature mandates.** As stated earlier, the targets for dairy manure methane emission reductions are extremely ambitious. They cannot be achieved by the use of anaerobic digesters alone, but alternative strategies are not adequately understood. To quote at length from the proposed Strategy, **“**[w]hile the need and potential to reduce methane emissions from dairy manure is clear, some potentially effective strategies are still in the development stage. In particular, the use of solid separators and converting flush systems to dry manure management systems could be potentially low cost methods to reduce methane emissions. However, little data exists to quantify costs and benefits associated with these practices. Additionally, some uncertainty remains regarding cross-media impacts and accounting of various dairy manure management practices. ARB and CDFA will continue to support research to eliminate information gaps and improve understanding of potential manure management practices and their associated methane reduction benefits, as well as potential air quality or water quality impacts.” (p. 69). We agree completely. Given these circumstances, it seems exactly backwards to propose turning the Strategy’s targets into mandates via regulation before ARB has an adequate understanding of whether the targets are achievable without massive leakage; what the costs, benefits, and cross-media environmental impacts of the strategies it is proposing are; and how the targets can be achieved in an economically feasible way. The result of such a premature action could be an industry and an agency locked into mandates they later discover can’t be met. We propose delaying any consideration of regulatory mandates until the research to “close information gaps and improve understanding” is complete, and the decision to proceed or not can be based on adequate data on costs, benefits, impacts, and feasibility.

**3. Enteric Fermentation**

The proposed Strategy continues to set a target of 25% reduction in enteric fermentation emissions based on a target set in 2009 by the Innovation Center for U.S. Dairy, a national dairy sustainability initiative. It remains unclear to us how a national target set more than five years ago is a reliable benchmark for methane reduction potential for California dairies moving forward. Using this goal does not seem to take into account the fact that California dairies were, and are, known to be leaders in feed and efficiency of milk production and were, therefore, likely expected to contribute less to the national target than less efficient dairy states. Additionally, it is not clear how the 25% reduction target in the proposed Strategy takes into account the feed and milk efficiency advances – and related methane reductions – that have occurred in California since the Innovation Center’s target was set over five years ago. This target should be revised accordingly based on current California-based data.

**4. An Integrated Approach**

Sustainable Conservation reiterates its support for the SLCP Strategy’s emphasis on the importance of state agencies, utilities, and non-agency stakeholders working together to identify and resolve obstacles and develop coordinated approaches to furthering the state’s goals. It is of particular importance that this effort include the San Joaquin Valley Air Pollution Control District, whose mandates concerning NOx and other criteria pollutants have come into conflict with previous efforts to reduce dairy GHG emissions. It is also vital that organizations representing disadvantaged communities are included. It is important to note that methane reductions strategies are not necessarily beneficial to disadvantaged communities simply because they are sited near those communities. It is critical that disadvantaged communities are represented in any working group related to this Strategy to ensure that they have a say in how “benefits to a disadvantaged community” are defined and measured related to SLCP investments of the GGRF.

We reiterate our concern that the scope of this approach not be overly restricted. It is vital that interagency cooperation address multiple environmental impacts and benefits – not just expediting the SLCP strategy. It should not only include a wide range of voices – it should also work to harmonize a wide range of environmental goals.

**5. Financing and Investment**

No matter what the particulars of the targets for dairy manure methane reduction may be, it is clear that achieving the goals of the SLCP Strategy is going to require substantial investment by the state for many years. The proposed Strategy cites CDFA’s estimate of a $500 million investment ($100 million a year for five years). We believe investment on this scale is going to be necessary to adequately incentivize the level and degree of investment and ramp-up needed to get to the 2020 goal of 20% reduction. In other words, it’s a start – significant continued investment will be needed to get to the 2025 and 2030 targets. It also needs to be noted that this estimate is for digesters only. As we have stated before, it is equally important for the state to make dedicated, specific investments in intensive research over the next several years to develop adequate data on other emission reduction strategies that will then need to be incentivized as well. The specificity of the targets ARB is setting needs to be matched with an equal degree of specificity about the state’s commitment to invest in achieving them.

**Conclusion**

Sustainable Conservation has appreciated the opportunity to contribute its unique experience and perspective on dairy methane issues to ARB’s work. As stated before, our primary goal is for the dairy industry in California to achieve real methane emission reductions. While we believe ARB shares this goal, we are concerned that the current version of the proposed SLCP Strategy will lead to the opposite result by precipitating significant leakage of methane emissions to other states and countries. We urge you to revise the Strategy in order to keep dairies in California and achieve real short-lived climate pollutant reductions.

Sincerely,



J. Stacey Sullivan

Policy Director