October 30, 2015

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 draft Short –Lived Climate Pollutant Reduction (SLCP) Strategy issued by the Air Resources Board (ARB) in September 2015. 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 dairy waste, including, but not limited to, emissions of methane, a highly potent greenhouse gas (GHG). Our experience with the technical, regulatory, and economic challenges of getting anaerobic digesters installed and operative on dairies has been extensive, and often frustrating. We are therefore highly appreciative of the level of engagement with the issue of dairy methane shown recently by state government through the passage of SB 605, the appropriation of cap-and-trade funds to the Department of Food and Agriculture (CDFA) for digester development, and now this draft SLCP Strategy.

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. Our comments on the SLCP Strategy are focused on achieving three basic goals:

* 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.

We would like to draw particular attention to the last of these goals. 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. This is why we feel it is essential that the Strategy for dairies rely on voluntary and incentive-based approaches.

Our comments are 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. The comments draw on our extensive experience working with California dairies on nutrient management and emissions reductions as

well as on our report, *Greenhouse Gas Mitigation Strategies for California Dairies*, which we prepared in July of this year and provided to ARB. The full text can be found here: <http://suscon.org/news/pdfs/GHG_Mitigation_for_Dairies_Final_July2015.pdf>, and a four-page summary can be found here: <http://www.suscon.org/news/pdfs/SustainableConservation_methanesummary_final.pdf>.

1. Targets

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. Table 6 on page 43 of the SLCP Strategy shows that 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. The Strategy acknowledges that the “optimal mix of technologies and manure management practices…will depend on dairy-specific factors and vary across the State.”

The draft Strategy does not include any explanation for how ARB arrived at these specific targets. It is 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. We believe it to be of paramount importance to determine how realistically achievable these targets are, and, if so, what sort of effort would be required to achieve them, before they are finalized.

Out of the range of approaches for emission reduction set forth in the draft Strategy, the only one for which emission reductions can be reliably calculated is anaerobic digestion. As a result, we can roughly calculate the feasibility and requirements of achieving the reduction targets using digesters, but not any other of the proposed strategies.

Based on ARB’s 2013 GHG inventory, the methane emissions per cow on a dairy with a digester are approximately 76% lower than the emissions from a dairy with an anaerobic lagoon. Based on this 76% reduction per cow and the total number of cows in the state (minus dairy heifers), our rough calculations show that it would take 60-80 digesters to reach the 2020 goal of 20% reduction, and 300-350 digesters to reach the 2025 goal of 50% reduction. It would not be possible to achieve the 75% by 2030 goal using digesters alone. The 2020 target could be reached with digesters on all dairies using anaerobic lagoons with more than approximately 3000 head, while the 2025 goal would require digesters on all dairies with more than approximately 1300 head. If one substitutes the 76% reduction figure with 90%, which was the highest number we found in preparing our report, the 2020 goal could be reached with 50-60 digesters (all dairies of about 3400 head or larger), while the 2025 goal could be reached with 200-250 digesters (all dairies of about 1600 head or larger). The 75% target could then be reached with 500-550 digesters (all dairies of about 875 head or larger). While these are very rough estimates, they indicate that meeting the targets set forth in the Strategy using digesters alone would be extremely challenging, if not impossible. Getting to the 75% target would require every one of over 500 digesters consistently operating at peak efficiency and achieving maximum reductions – a very optimistic assumption given the results of past and current digester performance in California.

Even achieving the 2020 goal of a 20% reduction in methane emissions requires making a number of equally optimistic assumptions concerning permitting, financing, digester developer and construction capacity, and the willingness of utilities and the transportation sector to provide markets and infrastructure for biogas use. Reaching the 20% goal in less than five years will require a drastic ramp-up of the digester industry in California, which will not happen without substantial and reliable investment in incentives, a subject which will be discussed more fully in the section on financing and investment.

As stated earlier, it will be extremely difficult if not impossible to achieve the longer-term reduction targets using digesters alone. Other strategies (dry systems, solid separation, etc.) will need to be employed as well. The SLCP Strategy puts several of them forth as ways to significantly reduce dairy methane emissions. However, not nearly enough research has been done on these strategies to be able to draw any reliable conclusions about what practices provide what emission reduction benefits, in what quantity, and with what impact (or benefit) on air and water quality and other environmental concerns. Additionally, we don’t have the data on current use of these strategies on dairies that would be necessary in order to establish baselines and monitor progress. For example, we don’t reliable, up-to-date data on the number of existing dairies using flush, scrape, or hybrid management systems, let alone an understanding of the specific manure management practices being implemented within these systems – such as solids separation, solids storage, and solids management – that could have an impact on methane emissions. It is essential that the state galvanizes intensive research into these strategies in order to identify and quantify their emission reduction potential, and then develops protocols and incentives in order to promote their adoption. A major commitment to this needed research and development can provide results that may not contribute to meeting the 2020 goal, but would be critical to meeting the more challenging 2025 and 2030 targets.

While we understand the need to establish ambitious targets in order to meet the challenge of achieving the Governor’s GHG reduction goals, we also think it important to point out that the targets for dairy manure methane reduction presented in the draft Strategy should be considered aspirational, given the current gaps in knowledge, technology, and resources. We are concerned that setting such targets, and then raising the possibility of mandatory measures if they are not met, will not lead to good results for either the dairy industry or ARB. We recommend that ARB consider establishing interim targets that, while still ambitious, have a more realistic chance of being achieved, while still maintaining more aspirational longer-term goals that can be implemented as more research, investment, and experience are developed. If the targets are not revised, it is vital that the state make a full-throttle commitment to providing dairies with the tools and resources they need to succeed in this effort, so that the targets are not only aspirational but also truly achievable.

2. An Integrated Approach

Sustainable Conservation is encouraged to see that the draft SLCP Strategy refers several times to the importance of state agencies, utilities, and other stakeholders working together to identify and resolve obstacles and develop coordinated approaches to furthering the state’s goals. We are concerned, however, 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.

As previously stated, research into non-digester strategies for methane emission reduction needs to include analysis of their impacts on other environmental factors, including GHGs other than methane (N2O, CO2) as well as air quality (NOx, VOCs) and water quality. It is no solution to implement a methane reduction practice that leads to a net reduction in environmental quality.

We appreciate that the draft Strategy recognizes the importance of including non-agency stakeholders in the working group addressing barriers. It is important that this working group include as wide a range of stakeholders as possible, and provide them with a strong voice in leading the discussion and determination of policies.

It is of particular importance that this effort include the investor-owned utilities and the Public Utilities Commission. In terms of digester development, it has been our experience that these entities have been the source of significant difficulty. The examples of “stubborn barriers” cited in the draft Strategy on page ES-4 – “connecting distributed electricity and biogas projects” – can only be addressed by the full and willing cooperation of the IOUs and the PUC. One hopes that their participation in this effort can be part of a larger evolution of the thinking of these entities to embrace the need to partner with others to build a more sustainable, resilient energy system in California instead of fighting against this need.

We also feel it is important to include organizations representing disadvantaged communities. California is committed to ensuring State funding benefits disadvantaged communities. SB 535 specifies that 25% of the Greenhouse Gas Reduction Fund (GGRF) is to be allocated to projects that provide benefits to disadvantaged communities, and

10% is allocated to projects located in areas of disadvantaged communities. In the context of this draft Strategy, it is important to note that methane reductions strategies, particularly digesters, are not necessarily beneficial to disadvantaged communities simply because they are sited near those communities. For example, without proper consideration for disadvantaged community needs and concerns, the construction and operation of a digester near a disadvantaged community could actually create negative impacts for that community – such as increased traffic, increased emissions from traffic and generators, odors and/or particulate emissions from digestate storage, etc. Therefore, it is critical that disadvantage 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.

While integrated, multi-faceted cooperation and coordination between government and non-government entities is essential to implementing the SLCP Strategy, it is also important to integrate that strategy with other, complementary initiatives in state government to provide mutual benefits. We think it vital that the SLCP Strategy align with the Healthy Soils Initiative (HSI) being led by CDFA. We very much appreciate the Strategy’s acknowledgement of the potential value of compost and soil amendments derived from dairy manure. We are concerned that dairy manure compost has not been adequately considered in the HSI discussions, which tend to focus on municipal organics and plant biomass. Coordination between the SLCP and HSI efforts can help ensure that dairy manure-derived compost and soil amendments receive appropriate attention for both their climate and soil health benefits.

3. Regulation of New and Expanded Dairies

We have three principal areas of concern about the proposal to subject all new and expanded dairies to mandatory manure management best management practices (BMPs) by 2018: the

definition of an “expanded” dairy; the content of the BMPs and their relationship to other regulatory requirements; and the future of carbon credits for dairy projects.

**Expansion.** We assume that one of the principal concerns driving this proposal is to ensure that any growth in the size of the state’s overall dairy herd is subject to stringent methane emission controls. This is quite understandable, particularly as it applies to new dairies. The application of this mandate to “expansions at existing dairies” is more problematic. For some years the dairy industry in California has been undergoing a process of consolidation in which smaller dairies sell or go out of business and their herds are taken over by a larger operation. This does not necessarily, or even usually, lead to an expansion of the size of the state’s cumulative dairy herd or the amount of methane being emitted. Consolidation can result in greater efficiencies, and also can increase the economic viability of installing a digester. Creating a regulatory disincentive for consolidation does not address the concern over the impact of net growth of the state’s dairy herd, increases the likelihood of leakage to other states, and potentially creates a negative impact on the economic viability of digester projects. We recommend that this provision be revised to apply only to expansions that result in a net increase in the size of the state’s dairy herd.

**BMP contents**. Our concern here relates to earlier comments about the very incomplete state of our knowledge about the emission reduction potential of non-digester manure management strategies. We cannot see how BMPs for manure management can be created and implemented by 2018 when we have so much still to learn about what those practices are, what sort of reductions they will provide, and what other environmental impacts they may have. The only alternative we can see is to mandate that any dairy falling under the regulation install a digester, no matter how impractical or economically unsustainable. Such a requirement would result in significant leakage to other states.

We are also concerned about how these 2018 BMPs will be coordinated with the water quality BMPs being issued in 2019 for dairies under the Central Valley Dairy General Order. The potential for confusion, unnecessary duplication of effort, or conflicting requirements could be very high.

**Carbon credits.** We find the language of footnote 102 on page 45 to be confusing and potentially a poison pill for digester projects. Is the footnote saying that carbon credits would no longer be available for projects only on dairies that are subject to the new regulation, or is it saying that the credits will no longer be available for any dairy-based project? In other words, what constitutes the “sector”? Carbon credits are an important incentive for digester developers and investors. It would be extremely problematic to restrict or eliminate them for new projects. Achieving even the 2020 emission reduction target of 20%, which will require a remarkable commitment on the part of developers, would become more or less impossible. It would certainly create an insupportable situation for a dairy subject to the regulation and required to install a digester. This footnote urgently requires clarification and revision.

4. Enteric Fermentation

The draft Strategy adopts 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 is 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 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 draft 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..

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 draft 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 invest 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. We believe that ARB needs to be much more specific, either in the revised Strategy or the next AB 32 Investment Plan, about what it sees as the type and level of investment by the state needed to achieve the goals it is setting with the SLCP Strategy. 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.

We are pleased to see that the draft Strategy recognizes the need to develop markets and new financing mechanisms in order to promote manure-based products. Our report found that financing vehicle fuel or pipeline injection projects was extremely difficult, and recommended the development of loan guarantees and other government-sponsored mechanisms to help. The same is true for compost and other products. We hope that these ideas will be further developed for manure-based products as the Strategy evolves.

Conclusion

This draft SLCP Strategy is in many ways a strong start to the work of achieving reductions in emissions of these potent GHGs. As we have stated, we are supportive of its emphasis on using collaboration to overcome barriers, recognizing the potential of biomethane as vehicle fuel and pipeline gas, and fostering new and innovative markets in manure-based products. However, we feel that it falls short of fulfilling the mandate created by SB 605 in several key ways. Most significantly, it needs to be much stronger in its recognition of the data gaps and the need for investment in research to address these gaps, particularly in terms of non-digester strategies for methane reduction. This will also allow it to be stronger on prioritizing measures that provide environmental co-benefits.

The draft SLCP Strategy establishes highly ambitious, effectively aspirational, targets for the reduction of dairy manure methane emissions. In addition to very significant digester development, it appears to rely on the adoption of non-digester emission reduction strategies that are untested and still largely unknown quantities. In light of the current data gaps, we recommend that ARB consider establishing more realistic temporary targets based on existing knowledge and reassess these targets once the information is available to understand these strategies’ true reduction potential – with the targets presented in this draft Strategy as the ambition.

Additionally, the draft is ambiguous on some important elements that will be necessary to meet those targets: carbon credits, enteric fermentation, and a commitment to advocating for state investment commensurate with the tasks to be accomplished. In short, some parts of the draft appear to be less well thought out than others. Our hope is that ARB will actively consult with those with expertise on the issues so that they that can be clarified in a subsequent draft.

Sustainable Conservation has appreciated the opportunity to contribute its unique experience and perspective on dairy methane issues to ARB’s work throughout 2015. As stated before, one of

our primary goals is for ARB to succeed in its efforts to fulfill its methane reduction mandates, and we look forward to having the opportunity to continue our conversation as the SLCP Strategy is further developed.

Sincerely,



J. Stacey Sullivan

Policy Director