c/o California Association of Sanitation Agencies
1225 Eighth Street, Suite 595
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October 30, 2015

Mary Nichols, Chair
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Submitted electronically:
http://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=slcpdraftstrategy-ws&comm_period=1

Re: California Wastewater Climate Change Group and California Association of Sanitation Agencies Comments Regarding the Draft Short Lived Climate Pollutant Reduction Strategy

Dear Chairman Nichols and Board Members:

The California Wastewater Climate Change Group (CWCCG) and California Association of Sanitation Agencies (CASA) appreciate the opportunity to comment on the Draft Short Lived Climate Pollutant (SLCP) Reduction Strategy (Draft Strategy). We especially look forward to proactively working with the Air Resources Board (ARB) and related agencies to collaborate as partners in achieving the shared vision and goals of this strategy. The CWCCG and CASA are statewide groups of municipalities that collect and treat over 90 percent of municipal wastewater in California, many of whom also provide recycled water services and actively participate in the beneficial use of biosolids and biogas. Our joint mission is to address climate change policies, initiatives, and opportunities through a unified voice advocating for wastewater community perspectives. Our members are focused on helping the State achieve its multiple mandates and goals by 2030 and beyond, including:

- Reducing carbon dioxide equivalent emissions to 40% below 1990 levels
- Providing 50% of the State's energy needs from renewable sources
- Reducing carbon intensity of transportation fuel used in the State by 10 percent
- Effectively eliminating organic waste disposal in landfills
- Increasing soil carbon under the Healthy Soils Initiative and Forest Carbon Plan
- Reducing SLCP emissions (specifically, methane emissions 40% below 2013 levels)

CWCCG and CASA agree with ARB that publicly owned (wastewater) treatment works (POTWs) are part of the solution. In addition to providing the essential public service of cleaning water and treating biosolids, the wastewater sector can maximize resource recovery from a wide array of waste streams and potential end-products. POTWs can do this while reducing the release of SLCPs and by maximizing the use of existing infrastructure (i.e., anaerobic digesters, power generating units, and biosolids treatment facilities).

We estimate that the wastewater sector has existing excess capacity to co-digest up to 75% of the food waste and FOG currently being landfilled. The acceptance of hauled-in organic waste such as fats, oils and grease (FOG), food waste (source separated), vegetative

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food waste (cannery, food processing, etc.), and others for anaerobic digestion at POTWs is a steadily increasing practice, and an important management option for this valuable waste stream.

Similarly, the receipt of some types of green waste for co-composting with biosolids is a common means of managing biosolids and is an increasing practice. Therefore, POTWs can receive a large fraction of diverted organic waste from landfills using existing infrastructure. ***We are working to determine the excess capacity for green waste at existing biosolids compost facilities and will provide that as soon as possible.***

The following comments on the Draft Strategy are organized by category. Specific comments and suggested text changes to the Draft Strategy are provided in Appendix A.

Funding Allocation

CalRecycle and the California Department of Food and Agriculture (CDFA) estimate that $100 million over the next five years are needed to build the necessary infrastructure in the waste sector to meet the landfill organic diversion goals. We believe this number to be too low, and in fact, waste industry representatives have estimated that the real number will be between $1 and $2 billion by 2020. This number includes new composting and anaerobic digestion facilities, however, it does not include what is needed for POTWs to modify their infrastructure to accept diverted organic waste. This indicates that there is a very significant funding gap if the Draft Strategy goals are to be met. We recommend that ARB prioritize cap-and-trade revenues toward this infrastructure, especially the funding for POTWs that are willing to utilize their excess digester capacity to accept diverted organic waste. These types of projects are cost effective when compared to building new anaerobic digestion facilities, and will kick-start the management of organic waste sooner than new infrastructure projects.

Making Use of Existing Capacity and Biogas Utilization

The ARB correctly pointed out POTWs are part of the solution in reducing SLCPs. Achieving significant reductions in SLCPs will require substantial investments in the form of incentives and direct funding. To help ARB understand the potential role POTWs can play in efforts to reduce SLCPs, CASA has prepared a preliminary estimate of existing excess capacity at municipal wastewater treatment plants for which food waste and FOG diverted from landfills could be accepted for co-digestion. ***We estimate that municipal wastewater treatment plants have capacity in existing digesters to accept up to 75% and possibly more of the food waste/FOG currently being landfilled.*** Of course, other factors will help determine the practical reality of being able to accept this fraction of food waste; including operational limitations, adequate funding to ensure cost-effectiveness, capacity which may be claimed by increased flow from connected users, and effective high level support for the recycling of resulting biosolids. This estimate does not yet include the compostable fraction of the organic waste (which includes woody waste and some yard waste). CASA is currently collecting data for estimating the excess capacity for the compostable fraction of the solid waste stream at existing biosolids composting facilities. Our intent is to provide ARB with a refined estimate of the funding needed to achieve this potential. CASA and the wastewater community look forward to working with you all to maximize the opportunity and in achieving our shared objectives.

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We concur with the Draft Strategy that opportunities exist to optimize investments and co-locate infrastructure ***or utilize existing infrastructure, especially excess digestion capacity that exists at many wastewater treatment plants***. It will be essential for California to work collaboratively "to overcome obstacles to financing and developing projects that use organic waste streams." We would like to participate in the suggested work group effort to identify and address the obstacles/barriers, as well as the incentives that will be needed to transform both markets and infrastructure to support the State's vision. We believe a proactive approach developed collaboratively with incentives will advance our shared goals much more effectively than through regulatory mandates as is suggested in the Draft Strategy. We therefore strongly request the deletion of the suggested regulatory approach of requiring POTWs to take diverted organics in recognition that it does not address the real challenge facing the State. The issue is not the willingness of POTWs to accept organic waste streams but the timely creation of the infrastructure and markets needed to make this enterprise successful.

We are concerned about the conclusion offered on Page 55 of the Draft Strategy that states, "A*s many of the State's wastewater treatment plants undergo renovation or reconstruction over the next 15 years..."* We are not aware that this is true, and so would appreciate having the opportunity to review the data ARB is relying upon to make this assertion along with the suggestion that methane gas from wastewater treatment plants may not be effectively utilized currently.

POTWs that produce biosolids as part of the treatment process typically manage those solids in anaerobic digesters and capture the methane which is managed through some form of beneficial use with less than 10% of it being flared. In cases where much of the captured methane is used beneficially, its use typically results in 40 to 70 percent of a POTW's power and heating demand being met. In some cases, this can exceed the power demand to operate the treatment plant and excess power can be sold. By generating and using power on-site, the facility can save on the cost of purchased power or natural gas by displacing the use of fossil fuel with on-site renewable power generation. It is the additional capacity within these digesters that provides the POTW community the immediate opportunity to help divert organic materials from landfills and assist the State in meeting its SLCP goals.

Biosolids/Digestate Utilization

Similarly, biosolids management at individual POTWs is a cost/benefit decision. While most biosolids are beneficially recycled to agricultural land, there are opportunities to expand composting and other uses of these materials. However, currently there are numerous county ordinances (not based on sound science or public policy) that limit the use of biosolids in unincorporated parts of those counties. As the Draft Strategy underscores, development of the markets that support beneficial use of biosolids is vital and the State will need to provide strong support at all levels of government, as well as funding, to ensure such markets are enabled and promoted.

The Draft Strategy also states that we need to build market certainty and value for compost and other soil amendment products to secure financing for projects that utilize organic waste, and subsequently reduce emissions of SLCPs. Biosolids used as soil amendments from anaerobic digesters at California POTWs significantly improve soil health, increase crop yields, reduce the need for irrigation because of their high water holding capacity, sequester carbon long term in the soil, and avoid the use of fossil fuel based inorganic nitrogen fertilizer (i.e., nearly a quarter of a gallon of fossil fuel is required for every pound of inorganic nitrogen produced). Collaboration among state agencies, **wastewater agencies**, and

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local governments will help quantify the benefits of using compost and biosolids for fire and other reclamation projects, soil remediation, water conservation, and other beneficial uses.

Efforts to increase composting and anaerobic digestion— and capture the diverse benefits from doing so—can be promoted by showing an accounting of the benefits of using compost and other soil amendments that come from these processes. ARB is coordinating with CDFA and other agencies working on the Healthy Soils Initiative to quantify the benefits of using compost and other soil amendments.

We strongly encourage ARB to work with the Water Boards and CASA to include biosolids and biosolids compost in building healthy soils and understanding the significant body of research already conducted which demonstrates the plethora of benefits from their land application.

In summary, POTWs are capable of contributing toward multiple statewide goals utilizing approaches that optimize use of incentive funds while maximizing air quality, climate, soil, and water quality co-benefits. POTWs can:

- Significantly reduce emissions of methane by maximizing the use of existing anaerobic digesters and compost facilities through the receipt and management of hauled-in organic waste for co-digestion and co-composting.
- Sequester carbon in soil through the application of biosolids to agricultural land, thereby avoiding use of fossil fuel-intense inorganic fertilizer while improving soil health, crop yields, and water holding capacity.
- Increase the productive use of the captured methane through power generation, on-site heating needs, pipeline injection, or conversion to transportation fuel.
- Directly use biosolids to reclaim fire ravaged land and reduce the potential severity of future wild fires (the primary source of black carbon).

Support and funding are needed to advance these practices (which constitute the “low hanging” fruit in the reduction of SLCPs), as well as advancing research on emerging technologies (e.g., through demonstration projects and/or pilot programs). We strongly recommend allocation of cap-and-trade auction proceeds and additional incentives to fund POTW projects. We also agree that the State needs to build market certainty and value for energy, fuel, soil amendment, and other products resulting from composting and anaerobic digestion facilities.

The Draft Strategy states that a more thorough accounting of costs and benefits will be presented in the proposed Strategy by December. CWCCG and CASA would like to work with ARB on this and provide information that can be used in the economic analysis for both the Draft Strategy and in the 2016 Scoping Plan update.

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Again, CWCCG and CASA appreciate the opportunity to provide comments on the Draft Strategy and look forward to working with ARB and other agencies moving forward. Please contact us if you have any questions at (916) 446-0388 or via email at gkester@casaweb.org and sdeslauriers@carollo.com. We welcome the opportunity to further discuss the wastewater community's position in helping ARB proactively reduce SLCP emissions to achieve the commendable State goals and mandates for 2020, 2030, and 2050.

Sincerely,

Greg Kester
CASA Director of Renewable Resource Programs

Sarah A. Deslauriers, P.E.
CWCCG Program Manager

cc: Mary Nichols - Chair, ARB
Scott Smithline – Director, CalRecycle
Wade Crowfoot, Martha Guzman-Aceves, Graziella Kring – Governor Brown's Office
Ryan McCarthy, Mike Tollstrup - ARB
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Fran Spivy-Weber, Felicia Marcus, DeeDee D'Adamo, Tom Howard, Scott Couch, Annalisa Kihara, Johnny Gonzales - Water Boards
Ashley Conrad-Saydah - CalEPA
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Rob Oglesby - CEC
Karen Ross – Secretary, CDFA
Jenny Lester Moffitt – Deputy Secretary, CDFA
Julia Levin – Executive Director, BAC
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APPENDIX A

Specific comments and suggested text changes to the Draft Strategy are provided below. Additions are underlined and deletions are ~~struck through~~.

Page 39:

> CWCCG/CASA agree with the conclusion that POTWs emit only small amounts of methane. Figure 5 shows "wastewater" as contributing 4 percent to the state's total methane emissions in 2013. However, if the same "wastewater" sources that were considered in the 2012 inventory (presented in the 2014 Scoping Plan Update), are also considered in Figure 5 of this Draft Strategy for the 2013 inventory, then nearly 50 percent of the "wastewater" methane emissions are related to industrial wastewater systems, and another 25% are related to septic systems not owned or operated by POTWs. CWCCG/CASA recommend separating septic system emissions from the estimate of "wastewater" related emissions (consistent with how these emissions are treated in the U.S. Inventory) and further noting the percentage of industrial wastewater versus POTW (or domestic) wastewater related emissions. The same argument applies to Figure 6 showing the percent breakdown of 2030 methane emissions sources assuming existing measures. This will improve ARB's inventory by providing a more accurate accounting of emissions from POTWs, and demonstrate how little methane emissions are actually emitted from these sources.

Page 54:

> The first paragraph under the *Wastewater Treatment, Industrial, and Other Sources* section states, 'California's 250 wastewater treatment plants are designed to remove contaminants from wastewater, primarily from household sewage." While this is true when referencing municipal wastewater treatment plants, "wastewater" in Figures 5 and 6 are likely including septic tank and industrial wastewater related emissions as well. We recommend making a consistent reference to "wastewater" throughout the Draft Strategy and clarify when speaking only of household (or domestic) wastewater as in this section of the Draft Strategy.

We recommend the following edits to the *Wastewater Treatment, Industrial, and Other Sources* section:

> "Wastewater treatment, industrial operations, rice cultivation, and other sources of organic waste account for about 9 percent of the State's methane inventory. California's approximately 250 major municipal wastewater treatment plants are designed to remove contaminants from wastewater, primarily from household sewage. Treatment of wastewater typically relies on physical, chemical, and biological processes to remove contaminants and produce environmentally-safe, treated wastewater (or recycled water ~~treated effluent~~) and biosolids.
>
> ~~A typical by-product of sewage treatment is a semi-solid slurry or sludge that undergoes further treatment before being suitable for disposal or land application. Most municipal wastewater sources contain organic constituents which are treated anaerobically. This treatment process produces methane.~~
>
> Anaerobic digestion is a typical part of the wastewater treatment process employed at many POTWs across the state. More than 90 percent of municipal wastewater flow in California is treated at POTWs that have anaerobic digestion as the solids treatment process. The anaerobic digestion process produces biogas (which includes methane). Methane emissions can be

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avoided by either treating the ~~wastewater and the~~ associated sludge under aerobic conditions (composting), or by capturing methane released under anaerobic conditions (anaerobic digestion). ~~Technologies are available to capture and use the m~~Methane generated by anaerobic digestion ~~these~~ facilities is captured and used for on-site heating needs, or as a source of renewable power or transportation fuel to benefit California's climate and energy goals. This power production generally provides between 40 and 70 percent of the POTW's energy needs (and in some cases 100%), significantly reducing demand from the grid and offsetting the need for fossil-fuel based power with a renewable energy source. In rare circumstances, biogas can be flared. ~~Approximately 150 of the State's wastewater treatment plants, which treat over 90 percent of total wastewater flow, currently use anaerobic digestion in their treatment process. About 110 of these plants use some or all of the captured methane to generate electricity.~~

Many municipal wastewater treatment plants have ~~large amounts of~~ spare capacity to potentially take in additional sources of organic waste for anaerobic digestion. These facilities can co-digest materials such as food waste, fats, oils and grease from food and other high-strength organic wastes. ~~Most~~ Many of the largest treatment plants are located close to population centers and could obtain and utilize significant amounts of food and other suitable organic waste streams from adjacent cities and towns. As such, municipal wastewater facilities provide an opportunity to help divert organic wastes from landfills and use them to produce renewable electricity, fuels, and soil amendments. ~~These facilities can be designed to co-digest materials such as fats, oils and grease from food and other organic wastes.~~

Diverting these organic materials into municipal wastewater digestion systems can support the capture and reduction of methane emissions from regional organic sources, further boost the beneficial use of methane gas at municipal wastewater treatment plants, and reduce flaring or non-contained releases of methane to the atmosphere. These facilities can also be designed to produce agricultural "biosolids," which ~~when composted~~ can be used to help sequester soil carbon, ~~and~~ reduce the use of fossil-fuel based fertilizers, and improve soil health and crop yields.

~~As many of the State's wastewater treatment plants undergo renovation or reconstruction over the next 15 years, ARB will work with the State Water Resources Control Board, Regional Water Quality Control Boards, and others to assess the feasibility and benefits of actions to require capturing and effectively utilizing methane generated from wastewater treatment. A p~~Programs based on collaboration with State agencies and ~~that rely~~ies on financial incentives ~~and/or regulatory actions~~ could be implemented to ensure that new and existing municipal wastewater treatment plants in California maximize use of excess capacity by accepting food waste and FOG for co-digestion and effectively utilize ~~fully implement~~ captured methane ~~capture systems (potentially~~ to produce on-site renewable electricity, satisfy on-site heating needs, transportation fuel, or pipeline biogas), ~~and~~ as well as beneficially recycling biosolids ~~maximize digestion of regional organic materials~~. ~~The potential actions could be tailored to each~~ municipal ~~wastewater treatment plant based on size or capacity, and other factors such as potential for co-digestion expansion or location of stand-alone digesters located at~~ municipal ~~wastewater treatment plants, proximity of co-digestion waste streams, and regional air quality standards and rules. The Water Boards could develop permit terms and other regulatory tools to support the program while achieving water supply, water quality, and related co-benefits. CalRecycle could require or incentivize landfill operators to divert organics, and to~~ municipal ~~wastewater~~

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~~treatment plants would be a potential recipient for some components of the organic waste stream (following pre-processing)~~.

~~Many wastewater treatment plants are permitted to~~ combust~~burn digester biogas through flaring and are classified as industrial facilities. Capturing the biogas to produce electricity, such as through a combined heat and power (CHP) system may result in re-classifying the facility's purpose as "electricity generation" and subject the plant to more onerous emission compliance and abatement equipment rules, even though the change in criteria pollutant emissions are minimal. In addition, the~~ beneficial use of methane generated at municipal wastewater treatment facilities faces many of the same hurdles faced by dairy digesters and waste ~~treatment~~management facilities. State agencies will work collaboratively to address these barriers, as they are for those hindering other productive uses of California's waste streams, in the dairy and landfill sectors, as well.

Coupled with improved monitoring to detect and fix leaks and fugitive emissions, as described for the oil and gas sector, California aims to reduce fugitive methane emissions from ~~wastewater,~~ industrial~~,~~ and other sources by 40 percent below current levels (2013) by 2030."

We recommend the following edits to the second paragraph on page 67:

"Local agencies also play a role in utilizing methane beneficially ~~reduction~~ at wastewater treatment plants. Many local agencies~~water districts~~ own and operate wastewater treatment facilities and are implementing strategies ~~to reduce methane emissions from wastewater treatment operations, such as capture~~ing methane for ~~use in fuel cells for~~ on-site energy production. Local strategies to improve management and utilization of organic waste throughout the State may also have the ability to help reduce methane emissions throughout the agricultural ~~and wastewater treatment~~ sectors. Wastewater treatment plants offer a tremendous opportunity to divert organics from landfills and utilize them for producing energy or fuel and soil amendments. Many treatment plants are located near population centers and could potentially utilize significant amounts of food and other organic waste streams that come from cities and towns. Collaboration amongst local and regional agencies, such as solid waste management and wastewater agencies, is the key to success."