CWCCG
California Wastewater Climate Change Group

c/o California Association of Sanitation Agencies
1225 Eighth Street, Suite 595
Sacramento, CA 95814

November 1, 2013

Mr. Mike Tollstrup
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814
E-mail: mtollstr@arb.ca.gov

Re: California Wastewater Climate Change Group Comments on the First Update to the Climate Change Scoping Plan Discussion Draft

Dear Mr. Tollstrup:

The California Wastewater Climate Change Group (CWCCG) appreciates the opportunity to comment on the 2013 Update to the AB 32 Climate Change Scoping Plan Discussion Draft. The CWCCG is a statewide group 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. The CWCCG's mission is to address climate change policies, initiatives, and challenges through a unified voice advocating for wastewater community perspectives. CWCCG members are focused on helping the State achieve its multiple mandates and goals by 2020. These include: (1) providing 33 percent of the State's energy needs from renewable sources; (2) reducing carbon dioxide equivalent emissions to 1990 levels; (3) reducing the carbon intensity of transportation fuel used in the State by 10 percent; and (4) recycling 75 percent of the solid waste generated in the State.

The original intent of the 2013 Update to the AB 32 Climate Change Scoping Plan (Scoping Plan Update) was to define the California Air Resources Board (CARB) climate change priorities for the next five years and lay the groundwork for reaching post 2020 goals (i.e., 2050 goals) set in Executive Orders S-3-05 and B-16-2012. Not only is the Scoping Plan Update tasked to show California's progress toward meeting the near-term 2020 greenhouse gas (GHG) emissions reduction goal as defined in the 2008 Scoping Plan, it will also align the State's longer-term GHG reduction strategies (i.e., 2050 goals) with other State policy priorities for six focus areas (energy, transportation, agriculture, water, waste management, and natural and working lands).

Overall, there was a lack of specific actions in the Scoping Plan Update related to the wastewater community and publicly owned treatment works (POTWs). The following table provides a summary of CWCCG comments and recommendations to improve the Scoping Plan Update for CARB's consideration. Following the table, we have provided background information and more detail in support of our comments and recommendations for your reference.

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Issue	***Comment/Recommendation***
Progress toward 2020 GHG emissions reduction goal	Appendix C (Status of Scoping Plan Measures) was not available in time for review. CWCCG highly recommends that CARB provide additional time for public review of the data associated with the "GHG Emissions Trend" in Appendix C. Key contributors to the GHG emissions reductions should be identified before examining the optimal approach to achieving realistic reductions beyond the 2020 goal.
Post 2020 Focus Area: Energy	CWCCG would like to work with CalRecycle and CARB on developing the necessary incentives, addressing long-term risks to public agencies, and reducing cost and regulatory (including permitting) barriers to get in place the necessary equipment for pre-processing hauled-in waste streams to a digestible form, infrastructure for anaerobic digestion, and equipment necessary for processing biogas into a pipeline grade or transportation biofuel.
	The Scoping Plan Update does not specifically acknowledge opportunities for cogeneration systems at POTWs - there are only general recommended actions for the energy sector on pages 85 and 86. CWCCG encourages CARB to consider POTWs for existing and future opportunities with cogeneration systems and bioenergy generation projects, examining interconnection issues, as well as research, development and demonstration of bioenergy and cogeneration technologies.
Post 2020 Focus Area: Transportation	CARB staff has calculated that transportation fuels from wastewater biogas may have the lowest carbon intensity available. To support the recommended actions on page 90, CWCCG would like to work with CARB to identify opportunities and barriers in installing on-site facilities for direct energy production from biogas and/or conversion of biogas to transportation fuel. Investment in this area will help ensure that wastewater biogas is used to produce ultra-low carbon fuels and clean, renewable electricity instead of flaring (i.e., wasting) a valuable fuel supply.
Post 2020 Focus Area: Agriculture	Studies have shown that land applied finished compost and anaerobically digested sewage sludge (biosolids) and organic waste serve to increase carbon storage in the soil compared to synthetic fertilizer controls. CWCCG recommends that this type of carbon storage be considered for inclusion in the Scoping Plan Update.
Post 2020 Focus Area: Water	The Scoping Plan Update does not provide specific key recommended actions for the wastewater community in terms of funding, technology, and administration. In addition, Appendix D (containing the Focus Group White Papers) was not available in time to review prior to the close of the comment period. CWCCG would like to work with CARB to identify barriers and determine funding options (such as cap-and-trade GHG Reduction Funds) available to POTWs for pursuing these opportunities.
Post 2020 Focus Area: Waste	The Waste Management Sector Plan should emphasize the existing anaerobic digestion capacity available at POTWs as a means of meeting State waste diversion goals. CWCCG is working with CalRecycle and CARB to estimate and include the substantial existing anaerobic digestion capacity available at POTWs as it is available for immediate use to receive hauled-in organic waste streams. Preliminary data suggests that the vast majority of POTWs with anaerobic digestion have some level of excess capacity that can be leveraged.
	CWCCG would like to work with CalRecycle and CARB on developing the necessary incentives, addressing long-term risks to public agencies, and reducing cost and regulatory (including permitting) barriers to get the necessary infrastructure for both compost and anaerobic digestion in place.
Post 2020 Focus Area: Natural and Working Lands	The key recommended actions for natural and working lands should consider use of biosolids from POTWs as a means for carbon sequestration and fire prevention.
Figure 3 (page 16)	The Scoping Plan's Figure 3 shows "wastewater treatment" as the State's fifth largest source of anthropogenic methane. However, the majority of this source is largely (~70%) related to septic tanks (see the figure on the last page based on the 2011 Inventory of U.S. Greenhouse Gas Emissions and Sinks). CWCCG recommends separating these sources not owned or operated by municipalities from the estimate of other "wastewater treatment" related emissions consistent with how these emissions are treated in the EPA inventory.

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Again, CWCCG appreciates the opportunity to provide comments on the First Update to the Climate Change Scoping Plan Discussion Draft. We want to emphasize that POTWs have opportunities to be significant renewable energy providers, suppliers of a marketable renewable organic fertilizer/soil amendment product, suppliers of a sustainable water supply, and environmental stewards of our natural and working lands. In many cases, all that is lacking is the funding to develop the appropriate infrastructure and technological support to make these projects a reality.

Please contact me if you have any questions at (925) 705-6404 or sdeslauriers@carollo.com. We welcome the opportunity to further discuss the wastewater community's position.

Sincerely,

Sarah A. Deslauriers
Program Manager
California Wastewater Climate Change Group

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Progress toward the 2020 GHG emissions reductions goal

As previously stated, one of the goals of the Scoping Plan Update is to show California's progress toward meeting the 2020 GHG emissions reduction goal. While CARB presented the "GHG Emissions Trend" (slide 18 of the Kickoff Workshop presentation) showing a downward trend in the State's annual GHG emissions from 2008 on, a portion of it is related to the economic downturn. Unfortunately, Appendix C (Status of Scoping Plan Measures) was not available in time for review – this Appendix is to show the percent contributions of each control/reduction measure toward the annual reductions. It was also said during the Kickoff Workshop that each control/reduction measure would not be required to achieve the assigned emissions reductions originally outlined in the 2008 Scoping Plan. CWCCG highly recommends that CARB provide additional time for the public to review the data associated with the "GHG Emissions Trend" in Appendix C, then identify key contributors to the GHG emissions reductions before examining the optimal approach to achieving realistic reductions beyond the 2020 goal.

Post 2020 GHG emissions reduction goals

For post 2020 emissions reduction strategies, CARB is using six focus areas for laying the groundwork. The wastewater community has opportunities within each of the 6 focus areas that simultaneously contribute toward multiple 2020 and 2050 goals. However, there are also challenges or barriers that prevent publically owned treatment works (POTWs) from fully contributing towards each. CWCCG has developed the following comments by focus area, as well as specific recommendations, for CARB's consideration.

Energy (generation, transmission, and efficiency)

Within the energy sector, CARB identified various Actions for 2020 and potential efforts to consider in the Vision for 2050 to which POTWs can make significant contributions. Increasing the production and use of biogas (bioenergy) at POTWs provides numerous co-benefits (addressing many of the identified Actions for 2020 and 2050 Vision efforts) including: (1) reduced GHG emissions through the increased capture and utilization of biogas; (2) increased production of renewable energy displacing fossil fuel use, which helps meet the renewable portfolio standard (RPS) goals; (3) avoided landfill methane emissions from decomposition of high-strength waste (e.g., food waste); and (4) production of low and potentially net negative carbon intensity fuels designed to meet the low carbon fuel standard (LCFS).

In addition, increased energy generation and cogeneration (i.e., combined heat and power - CHP) capacity at POTWs may provide the most reliable (i.e., sustainable) source of distributed generation currently available, with the added benefit that POTWs will always need to be located relatively close to the customers they serve (be a local source of energy). Resource recovery and energy generation activities will generally be conducted onsite at the treatment facilities, making energy generation and distribution at numerous treatment facilities a key component to distributed generation.

Many POTWs already have anaerobic digestion infrastructure in place, and they are increasingly providing the option to receive hauled-in organic waste (such as fats, oils, and grease (FOG) and food waste) and processing it prior to anaerobically digesting it. Enabling POTWs to accept more FOG and food waste would reduce the need for its disposal at landfills, reduce GHG emissions from landfills, and increase biogas production. This is just one example of a project that can be done within the wastewater community providing many co-benefits.

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In order to maximize the benefits associated with these activities, CWCCG would like to work with CalRecycle and CARB on developing the necessary incentives, addressing long-term risks to public agencies, and reducing cost and regulatory (including permitting) barriers to get the necessary equipment for pre-processing hauled-in waste streams to a digestible form, infrastructure for anaerobic digestion, and equipment necessary for processing biogas into a pipeline grade or transportation biofuel in place.

The Scoping Plan Update does not specifically acknowledge opportunities for cogeneration/CHP systems at POTWs. Instead, there are general key recommended actions for the energy sector on pages 85 and 86. CWCCG encourages CARB to consider POTWs for existing and future opportunities with cogeneration/CHP systems and bioenergy generation projects, examining interconnection issues, as well as research, development and demonstration of bioenergy and cogeneration/CHP technologies.

Transportation (fuels, infrastructure, and land use)

The transportation sector emits the largest percentage of GHG emissions statewide, and as a result represents the largest opportunity for making improvements. CARB listed the LCFS as one of the Actions for 2020. CWCCG members can help this sector (and the State) achieve GHG emissions reduction goals for 2020, as well as RPS and LCFS goals, through production of renewable transportation fuel from wastewater biogas. CARB staff has recently calculated that transportation fuels from wastewater biogas may have the lowest carbon intensity available (as low as negative 63 grams carbon dioxide equivalent (CO_2e) emissions per megajoule). In support of the key recommended action on page 90 of "supporting the development of large-scale renewable and low carbon fuel production facilities," CWCCG would like to work with CARB to identify opportunities and barriers in installing on-site facilities for direct energy production from biogas and/or conversion of biogas to transportation fuel. Investment in this area will help ensure that wastewater biogas is used to produce ultra-low carbon fuels and clean, renewable electricity instead of flaring (i.e., wasting) a valuable fuel supply.

Agriculture

CARB identified nitrogen management as one of the "Opportunity Areas for GHG Reductions for 2050" within the agriculture sector. CWCCG supports the inclusion of nitrogen management (specifically, developing replacement fertilizing materials that reduce GHG emissions) to improve water quality and provide other co-benefits. Land application of biosolids should be considered an efficient recycling practice that avoids use of fossil fuel intensive synthetic fertilizer (requiring approximately 0.22 gallons per pound of inorganic nitrogen) and sequesters carbon in the soil. Studies have shown that land applied finished compost and anaerobically digested sewage sludge (biosolids) and organic waste serve to increase carbon storage in the soil. Over a 34-year reclamation project (Tian et al, 2009), the mean net soil carbon sequestration was 1.73 (0.54-3.05) megagrams of carbon per hectare annually in biosolids-amended fields as compared with -0.07 to 0.17 megagrams of carbon per hectare annually in fertilizer controls, demonstrating a high potential of soil carbon sequestration by the land application of biosolids. CWCCG recommends that this type of carbon storage be considered for inclusion in the Scoping Plan Update.

Tian, G.; Granato, T. C.; Cox, A. E.; Pietz, R. I.; Carlson, C. R.; Abedin, Z. *Soil carbon sequestration resulting from long-term application of biosolids for land reclamation*. J. Environ. Qual. 2009, 38, 61–74.

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Water

The CWCCG appreciates CARB acknowledging wastewater as a "resource for energy production and environmental protection" and agrees with CARB's plan to look into "funding programs that capture multiple benefits, including energy efficiency, water quality, and water supply" as stated in the Kickoff Workshop. However, the Scoping Plan Update was not as specific as we had hoped in providing key recommended actions for the wastewater community in terms of funding, technology, and administration. In addition, Appendix D (containing the Focus Group White Papers) was not available in time to review prior to the close of the comment period. As detailed in the comments provided for the other focus areas, POTWs have opportunities to significantly contribute toward achieving multiple State goals by 2020 and 2050. However, there are regulatory and financial barriers that are preventing POTWs from realizing their full potential as renewable energy providers, suppliers of a marketable renewable organic fertilizer/soil amendment product, suppliers of a sustainable water supply, and environmental stewards of our natural and working lands. In many cases, all that is lacking is the funding to develop the appropriate infrastructure and technological support to make these projects a reality. CWCCG would like to work with CARB to identify barriers, and determine options (such as cap-and-trade GHG Reduction Funds) available to POTWs for pushing these goals forward.

Waste

The CWCCG applauds CARB for acknowledging anaerobic digestion as a viable alternative for processing organic and green waste streams and on equal footing with composting. We agree with the Waste Management Sector Plan's (Plan) statement that anaerobic digestion products include biogas, soil amendment/synthetic fertilizer alternative, and compost, which can be used as soil amendment (alternative to synthetic fertilizer) and as an alternative daily cover for landfills. The use of the resulting soil amendment/fertilizer also has the added benefits of increasing carbon storage in the soil, preventing soil erosion, and reducing fire hazard. Each of these uses of anaerobic digestion and compost products contribute to one or more of the State's 2020 goals in reducing solid waste at landfills, reducing GHG emissions, and increasing renewable energy production. We believe that the combined use of anaerobic digestion to create energy followed by compost can create the largest net benefit from both a waste minimization and air quality/climate perspective.

CalRecycle estimates that of over 10 million metric tons of compostable organic waste (approximately 30 percent of the total waste stream) currently sent to State landfills annually can be redirected to anaerobic digestion and compost facilities. POTWs across the State have significant existing available capacity in their anaerobic digestion facilities for receiving organic waste right now (many are already co-digesting with biosolids and more facilities are joining), making immediate use of the waste while supporting multiple State goals. The Plan should emphasize the existing anaerobic digestion capacity available at POTWs as a means of meeting State waste diversion goals. CWCCG is working with CalRecycle and CARB to estimate and include the substantial existing anaerobic digestion capacity available at POTWs as it is available for immediate use to receive hauled-in organic waste streams. Preliminary data suggests that the vast majority of POTWs with anaerobic digestion have some level of excess capacity that can be leveraged. We suggest conducting a study to determine the existing and future available anaerobic digestion capacity.

In addition to existing available anaerobic digestion capacity at POTWs, these facilities have infrastructure in place to handle wastewater from the dewatered digestate and the processing of digested solids including the effective management of biosolids and biogas management facilities for

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generation of heat and power. Finally, operators at these facilities are trained to operate anaerobic digestion facilities ensuring little disruption in operations and a quality product.

CWCCG would like to work with CalRecycle and CARB on developing the necessary incentives, addressing long-term risks to public agencies, and reducing cost and regulatory (including permitting) barriers to get the necessary infrastructure for both compost and anaerobic digestion in place. Permitting and construction requirements that have been enacted in various parts of the State have resulted in project planning, permitting, and construction to take six or more years to complete. Cost increases as a result of the delays and additional requirements have soared for these projects making their economic viability a significant question.

Additional comments specifically addressing items by page of Technical Document referenced were provided in a comment letter on the draft Waste Management Sector Plan submitted to CalRecycle July 12, 2013.

Natural and Working Lands

CWCCG supports the effort to enhance and maintain the capacity of natural and working lands to sequester and store carbon as part of the Actions for 2020 and the 2050 Vision, respectively. Protecting forest ecosystems provides many co-benefits as well, including improved water quality and supply, wildlife habitat, air quality protection, recreation values and more. Benefits should extend to POTWs since the use of biosolids to reclaim fire-ravaged land and to reduce the potential of future fires is a proven but underused strategy (adopted in Santa Ana Regional Water Quality Control Board Emergency Resolution following the Freeway Complex Fires of 2008). The key recommended actions for natural and working lands should consider use of biosolids from POTWs as a means for carbon sequestration and fire prevention.

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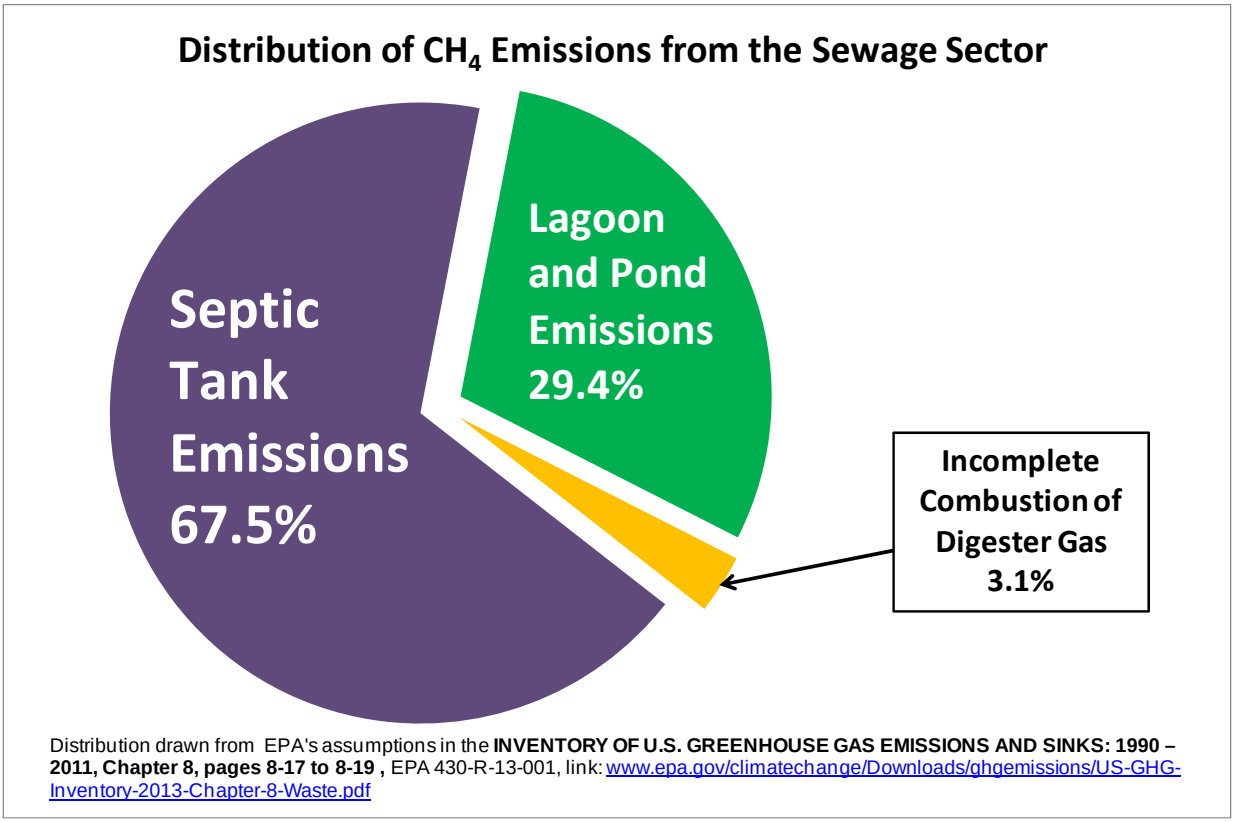
Page 16 - Figure 3: California Methane Emission Sources (2011)

Figure 3 on page 16 of the Scoping Plan Update shows "wastewater treatment" as the State's fifth largest source of anthropogenic methane. However, the majority of this source is largely (~70%) related to septic tanks (see the figure below based on the 2011 Inventory of U.S. Greenhouse Gas Emissions and Sinks). CWCCG recommends separating these sources not owned or operated by municipalities from the estimate of other "wastewater treatment" related emissions consistent with how these emissions are treated in the EPA inventory.



Distribution drawn from EPA's assumptions in the **INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990 – 2011, Chapter 8, pages 8-17 to 8-19 ,** EPA 430-R-13-001, link: www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Chapter-8-Waste.pdf