CALIFORNIA ASSOCIATION of SANITATION AGENCIES

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March 8, 2013

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

Re: California Association of Sanitation Agencies (CASA) Comments Regarding Allocation of Cap and Trade Auction Proceeds and California Air Resources Board Draft Concept Paper

Dear Chairman Nichols and Board Members:

The California Association of Sanitation Agencies (CASA) appreciates the opportunity to provide comments on the Cap-and-Trade Auction Proceeds Investment Plan Draft Concept Paper (Concept Paper). CASA is a statewide association of municipalities, special districts, and joint powers agencies that provide wastewater collection, treatment, and water recycling services to millions of Californians. Many of CASA's members are actively involved in anaerobic digestion (AD) activities that produce biomethane, biogas, clean bioenergy, and low carbon fuels for use in California. CASA appreciates the leadership of the California Air Resources Board (CARB) on climate change issues and looks forward to working together in developing an investment plan that best achieves the goals of AB 32.

CASA's wastewater agencies already make significant contributions to meeting the goals of AB 32, and are focused on promoting reductions in greenhouse gas (GHG) emissions and increasing utilization of renewable energy. Currently, approximately 60% of wastewater plants employ anaerobic digestion, representing 94% of the wastewater flow in the state. The facilities utilize biogas to produce heat and power, and most of these plants satisfy around 40% of their energy needs from methane produced through anaerobic digestion, which eliminates the need to purchase that power from fossil fuel based sources. However, many of these agencies could drastically increase their energy generation and distribution capacity, and as a consequence their contributions to meeting GHG reduction and renewable energy generation goals, if additional funding were available for the types of resource recovery, bioenergy development, and green infrastructure projects described herein. One of our member agencies has been very successful in this regard and now

generates electricity in excess of their plant demand, with additional support more agencies could achieve this standard. Moreover, the types of projects and initiatives CASA is proposing for funding with some portion of the cap-and-trade revenues fit squarely within the ideas outlined by the Concept Paper, the Governor's proposed budget, the AB 32 scoping legislation, and numerous other statutory goals.

CASA is also a member of the Bioenergy Association of California (BAC), an association established to promote sustainable bioenergy production, the recognition of bioenergy-produced electricity as a valuable renewable energy source, and biogas as a renewable, low-carbon substitute for natural gas that can also be converted to a renewable liquid fuel. As BAC notes in its comment letter on the Concept Paper, bioenergy provides numerous societal benefits including greenhouse gas destruction, landfill diversion, and organic nitrogen fertilizer production. Bioenergy is critical to providing many of the reductions called for in the AB 32 Scoping Plan as more than 20% of the reductions identified therein depend on bioenergy development. CASA fully supports BAC"s comments pertaining to increased investment in bioenergy, including at wastewater treatment facilities.

CASA believes funding programs that support the development and utilization of clean bioenergy and infrastructure at wastewater treatment plants is the ideal use of cap-and-trade funds for three primary reasons. First, using cap-and-trade funds in support of increased utilization of biogas and bioenergy at wastewater treatment plants provides some of the clearest co-benefits of any available investment opportunity. By coupling existing infrastructure and capacity with simultaneous GHG reductions, and by producing clean energy, low carbon fuels, and petroleum-intensive fertilizer substitutes, wastewater treatment plants can provide the types of dual benefits from a single investment that few other opportunities can offer. Second, investments in development of clean energy and fuels at treatment plants can simultaneously help satisfy the state's 33% renewable energy by 2020 mandate and the goal to recycle 75% of our solid waste by 2020. Finally, the ubiquitous nature of wastewater treatment plants and the realities of their siting make them ideal candidates for meeting the environmental justice goals of AB 32 and subsequent scoping legislation.

A. Opportunities Presented by Investments in Bioenergy Production at Wastewater Treatment Facilities

The realization of co-benefits appears to be (and indeed, should be) one of CARB's primary concerns when deciding how to invest cap-and-trade funds. In this vein, investments to support increased utilization of anaerobic digestion and bioenergy/biofuel production and utilization at wastewater treatment plants should be at the top of the priority project programs list.

An investment in the development and increased use of bioenergy and biogas at wastewater treatment plants provides numerous co-benefits in the following areas: (1) reduced greenhouse gas emissions through the increased capture and utilization of biomethane; (2) increased production of renewable energy supplies that displace traditional non-renewable sources and help meet the goals of the renewable portfolio standards; (3) avoided methane emissions from decomposition of high-strength waste (e.g. food scraps) in landfills; (4) production of low and potentially net negative carbon intensity fuels designed to meet the low carbon fuel standards (LCFS); (5) carbon sequestration through land application

of biosolids and avoidance of petroleum-based artificial fertilizers.[1] It would be difficult for CARB to find another opportunity that provides so many different co-benefits through one investment platform.

These types of investments have numerous other benefits as well. Increased energy generation capacity at wastewater treatment plants may be the most reliable source of distributed generation currently available.[2] Treatment plants will always need to be located relatively close to the customers they serve, and those customers are in every community across the state. Resource recovery and energy generation activities will generally be conducted on site at the treatment facilities, making energy generation and distribution at numerous treatment plants a key component to distributed generation. In addition, many wastewater treatment facilities already have anaerobic digestion infrastructure in place and are increasingly providing an outlet for organic waste such as Fats, Oils, and Grease (FOG) and food waste by hauling it in for the purpose of introducing it to their anaerobic digestion system. This FOG and food waste acceptance eliminates their disposal at landfills, reduces GHG emissions from landfills and simultaneously increases biogas production.

In order to maximize the benefits associated with these activities, wastewater agencies need additional investment in certain infrastructure and development areas, including the construction of organic waste receiving and handling facilities to facilitate its introduction into anaerobic digestion, additional digester capacity in some cases, technology and equipment to comply with restrictive emission limits placed on internal combustion engines or turbines utilizing the biogas, and new technology and units such as microturbines, fuel cells, and others to use the biogas. The AB 32 Scoping Plan attributes nine (9) million metric tons of emission reductions to the diversion of urban organic waste from landfills. Wastewater treatment facilities could contribute far greater emissions reductions by capturing and converting their methane emissions to produce renewable electricity and low-carbon fuels. This approach creates a "two for one" advantage by simultaneously capturing methane, a significant greenhouse gas that might otherwise end up being released, and producing renewable energy or transportation fuel that displaces far more carbon intensive energy sources and fuels. In addition, diverting urban organic waste for the production of bioenergy, and ultimate utilization of the remaining material as compost and fertilizers, also provides enormous emissions reductions. Specifically, wastewater treatments plants are able to produce biosolids that, when land applied, can result in significant carbon sequestration as well as avoided GHG emissions that are associated with utilizing biosolids as opposed to production of alternative, petroleum-based fertilizers. If offset protocols under the CARB cap-and-trade program were developed for GHG emission reductions associated with avoided landfill emissions from anaerobic digestion of organic waste that would otherwise have gone to landfill and land application of biosolids, wastewater agencies could also contribute GHG offsets to capped entities to help them meet their emission reduction obligations.

[1] Biosolids from wastewater facilities that are land applied not only sequester carbon in the soil but also eliminate roughly 44 gallons of fossil fuel needed to produce every 200 pounds of inorganic nitrogen fertilizer. When factoring the number of acres to which biosolids can be applied, this is a tremendous GHG mitigation practice that should be maximized.

[2] CalRecycle, in its Program Environmental Impact Report (EIR) for AD facilities, has projected the need to develop 70 anaerobic digestion facilities that each process 50,000 tons per year or 210 facilities that each process 20,000 tons per year to meet the AB 32 Scoping Plan requirements. Doing so could yield 23.5 million diesel equivalent gallons per year of ultra-low carbon fuels.

Projects and programs supporting the conversion of biomethane to compressed natural gas (CNG), a low carbon intensity fuel, also fit neatly into the Concept Paper's "low-carbon transportation and infrastructure" goal, as it is a method of reducing GHG emissions through the development of advanced technology vehicle and vehicle infrastructure and is by definition part of the development of advanced biofuels. In addition, increased use of anaerobic digestion will reduce GHG emissions through "clean and renewable energy generation" as well as "distributed renewable energy generation, transmission and storage" and will be located at "state and local public buildings." CARB is considering the development of a low carbon fuel standard for biogas produced during anaerobic digestion and co-digestion at wastewater facilities. While this is not a widely employed practice at this time, it certainly could become so, especially if funding and incentives are made available. Orange County Sanitation District has been conducting a pilot demonstration project with UC Irvine to produce a hydrogen vehicle fuel through the use of a fuel cell. Compressed liquid or gaseous fuel can also be utilized and could fuel an agency's own fleet or others.

B. Focusing Investment on California Wastewater Treatment Facilities Aligns with the Governor's Proposal for Cap-and-Trade Investment and the Eligible Investments Criteria in the Draft Concept Paper

The Governor's Budget Proposal currently contains two top priorities for the investment of cap-and-trade auction proceeds: transportation and energy efficiency. Investments in bioenergy development at wastewater treatment plants can satisfy both of these priority areas. For example, biomethane converted into energy or CNG for use in electric or natural gas vehicle fleets operated by wastewater treatment agencies promotes the transportation goals. In addition, there are several opportunities to invest in programs and processes that will result in reduced energy use (and/or more on-site generation and energy self-sufficiency) for facilities engaged in wastewater treatment.

Moreover, various investment opportunities identified below qualify for one or all of the "eligible investments" criteria identified in the Concept Paper. For example, the projects and initiatives described below contribute to low-carbon transportation and infrastructure, increase energy efficiency through short term audits as well as the development of fuel cell technology and renewable energy generation, and perhaps most on point, meet the natural resource and waste diversion goals by developing renewable energy and biofuels from waste. There are also several opportunities to "reduce GHG emissions through energy efficiency" at treatment plants and many investment opportunities will reduce GHG emissions associated with water use by increasing energy efficiency and production at wastewater treatment facilities. Finally, because these projects will be undertaken by municipalities and special districts, they will be programs "implemented by…local and regional agencies" and can also involve "research, development, and deployment of innovative technologies, measures, and practices…"[3]

At the February 25, 2013 workshop held in Sacramento, representatives from several state agencies discussed the importance of using cap-and-trade funds to support the development of reduced and zero-emission vehicles, including investments in clean vehicles

[3] Concept Paper at p. 8.

and equipment. CASA agrees that this is a significant goal and an appropriate use of cap-and-trade revenues.

Again, wastewater treatment facilities are in a unique position to provide dual benefit in this respect. Biomethane converted into energy or compressed natural gas (CNG) for use in electric or natural gas vehicle fleets operated on site by the very agencies engaged in the initial resource recovery is an ideal way to provide numerous co-benefits. Many wastewater agencies have a consistent and readily available source of feedstock to produce the biogas that can ultimately be converted into a low carbon fuel that powers clean vehicles, the necessity to maintain vehicle fleets in support of the other services the agencies provide, and the infrastructure to take advantage of emerging technologies. In many instances, all that is lacking is the funding to develop the appropriate infrastructure and technological support to make these projects a reality.

Moreover, funds to support development of protocols and pathways to achieve the Low Carbon Fuel Standard (LCFS), particularly through the use of fuels derived from low-solids anaerobic digestion, will have enormous benefits in the long term. The AB 32 Scoping Plan attributes 15 million metric tons of CO2 equivalent emissions reductions to the Low Carbon Fuel Standard (LCFS), although it also states that just a 10 percent reduction in the carbon intensity of California's transportation fuels would result in 16.5 million metric tons of reductions in 2020.[4] Bioenergy produces the lowest carbon fuels in existence, in some cases fuels that are actually carbon negative because of the combined methane capture and fossil fuel displacement. CARB has already developed an internal pathway for high solids anaerobic digestion of food and yard waste, which was determined to have the lowest carbon intensity (CI) of any fuel. In fact, CARB has determined that the CI of renewable natural gas from anaerobic digestion (using dry fermentation of food waste with green waste) is approximately -15 grams of CO2e/MJ. CASA and other stakeholders, as well as CARB staff developing the pathway, expect that a pathway for low-solids anaerobic digestion would similarly result in emissions at or less than zero CI.

Unfortunately, despite the demonstrated importance of the LCFS in meeting the goals of AB 32, and despite the clear benefits of investing in processes that have a CI of zero or less, the Concept Paper does not include investment in projects and programs related to the LCFS under the specific transportation measures. CASA suggests that CARB, the Governor, and the Legislature give very strong consideration to using cap-and-trade funds to invest in programs that support conversion of biomethane from anaerobic digestion at wastewater treatment plants into a readily available low carbon fuel.

Energy efficiency has also been identified as one of the two primary targets for cap-and-trade funding, and many agency representatives specifically noted the need for investment in energy efficiency opportunities in the water sector. Wastewater treatment facilities provide an excellent opportunity to increase energy efficiency in the water sector, and investment is needed to conduct energy efficiency audits and take other actions that optimize the wastewater treatment process and result in GHG reductions as well as significant savings.

[4] Climate Change Proposed Scoping Plan at p. 46.

C. Investments in Publicly Owned Treatment Works Can Help Achieve Real Progress in Environmental Justice Communities, and Can Spur Job Creation and Economic Development

The Concept Paper articulates the statutory requirement that at least 25 percent of program funding expended be directed to projects that benefit disadvantaged communities, and ten percent of that funding must be expended on projects located in disadvantaged communities. Increased use of biofuels, increased production of bioenergy, and investment in local, green wastewater treatment infrastructure can play a significant role in achieving these environmental justice goals set for the cap and trade investment funds. For example, biofuels developed from resource recovery operations at wastewater treatment facilities can replace highly polluting diesel emissions from heavy-duty vehicles, which tend to be concentrated in and near environmental justice communities. Bioenergy produced on-site at wastewater treatment plants, and in some instances fed back into the electrical grid for use elsewhere, can also reduce air pollution and greenhouse gas emissions caused by fossil fuel-burning power plants in and near environmental justice communities. Developing anaerobic digestion and methane capture onsite can also reduce potential odors and make waste handling much cleaner, with fewer impacts on neighboring communities.

Perhaps most importantly, there are a number of wastewater treatment facilities located within or directly affecting the top 10 percent of impacted communities identified by the CalEnviroScreen tool. Investment in wastewater infrastructure located in these areas can reduce emissions in these communities, create additional jobs in these communities, and generally meet the environmental justice goals identified in AB 32 and subsequent legislation. One of the most compelling aspects of focusing investment in these areas is the ubiquitous nature of wastewater treatment facilities throughout the state. Wastewater collection and treatment is a necessary function of every community, which means an investment in wastewater infrastructure will almost always create an opportunity to focus investment in communities identified by the CalEnviroScreen tool. Investment in these facilities and programs that would help facilitate the types of energy efficiency and transportation improvements that could be utilized at such facilities, would have direct benefits in those identified disadvantaged communities, and should make these investments a high priority for the cap-and-trade revenues.

Investing cap-and-trade funds in programs that support resource recovery efforts at wastewater treatment plants across the state is an effective way to simultaneously spur job growth and economic development while reducing GHG emissions. In part, this is because the recipients of these funds will be California municipalities and special districts whose primary goal is to best serve their customers. The money will necessarily be utilized in support of technology and infrastructure projects that will be developed and implemented here in California, and will produce results here, in California. Few other investment opportunities can guarantee such a result. The type of greenhouse gas reductions and clean energy infrastructure that wastewater treatment plants can develop, and the attendant jobs and economic development created, simply cannot be outsourced. Thus, these types of investments will achieve the identified goal of "fostering job creation by promoting in-state GHG emissions reduction projects carried out by California workers and businesses."[5]

[5] Concept Paper at p. 7.

In addition, electricity produced from organic waste, of which anaerobic digesters at wastewater treatment plants are an important contributor, provides approximately 5,000 direct jobs and generates $575 million in economic activity in California.[6] Expanding these types of activities and facilities will result in the creation of high value jobs. Moreover, bioenergy employs more people per megawatt than any other technology because of the ongoing need for feedstock collection, processing, and transport as well as the operation and maintenance of the bioenergy production facility. Many of these jobs, particularly those in the wastewater treatment facility arena, are and will continue to be located in economically disadvantaged communities.

D. Investing in Clean Energy At Wastewater Treatment Plants Will Help Achieve Other Statutory Mandates and Goals

In addition to its benefits for greenhouse gas reduction, investing in wastewater treatment plants to promote bioenergy development will help California meet several other statutory goals designed to promote the use of renewable energy and reduce greenhouse gas emissions. For example:

- The Governor's Clean Energy Jobs Plan Goal of 12,000 Mw of Clean, Distributed Generation: Anaerobic digestion and power production at wastewater treatment facilities is a clean, distributed generation source that can contribute to this goal.

- The 33 Percent Goal in the Renewable Portfolio Standard (SBX1_2): Biogas and biomethane produced through anaerobic digestion (AD) are eligible for the RPS and expansion of AD at wastewater treatment facilities can assist in meeting the RPS goals now and in the future.

- The Bioenergy Procurement Requirements of SB 1122

- The Energy Storage Requirements of AB 2514: Bioenergy provides baseload (available 24/7) renewable electricity that can firm and shape intermittent renewables like wind and solar power without having to use fossil fuels to provide backup generation. Biogas can also provide onsite energy storage and generation for on-site use, helping to smooth out demand and providing other benefits to the electricity grid. Finally, bioenergy is one of the only sources of renewable natural gas to power fuel cells and make them a truly renewable form of electricity generation.

- CalRecycle's Anaerobic Digestion Initiative and Strategic Directives of SB 341: Increasing bioenergy will help the state meet the goals of SB 341 to increase clean energy from organic waste and reduce the amount of organics in the waste stream by 75 percent by 2020.[7] Diverting urban organic waste, which is also required by Assembly Bill 341 for production of bioenergy, compost and organic fertilizers also provides enormous emissions reductions.

[6] 2012 Bioenergy Action Plan at p. 2.

[7] 2012 Bioenergy Action Plan, page 14.

E. Specific Recommendations for the 2013-2016 Investment Plan

Because of the unique opportunities offered by increasing bioenergy production at wastewater treatment plants, CASA would recommend that a portion of the cap-and-trade revenues be allocated to programs supporting the development and implementation of the types of projects identified above. Specifically, we recommend investments that result in both energy savings at wastewater treatment facilities and increased use of renewable resource and power production in the form of biomethane and bioenergy. We also recommend investing in the development, production and use of low carbon fuels from organic waste at wastewater treatment facilities, including those in environmental justice communities. Finally, CASA promotes investment in energy efficiency audits and programs that focus on realizing optimal energy efficiencies at wastewater treatment plants.

A portion of the cap-and-trade proceeds should be directed to expand the development of energy from wastewater treatment facilities, including investments in biogas combustion technologies that meet the South Coast AQMD's Rule 1110.2, so that facilities do not resume flaring methane instead of converting it to renewable energy and fuels. South Coast AQMD Rule 1110.2 becomes effective January 1, 2016 and will impose emission limits on internal combustion engines using biogas that will be extremely difficult and or costly to comply with. South Coast agencies are and have been operating demonstration projects to determine whether new or old technologies will allow continual compliance. Unfortunately, the only viable alternatives to date (dual catalytic systems) are very costly and have not been proven over the long-term. These recently adopted air quality rules in the South Coast and San Joaquin Air Quality Management Districts may lead to increased flaring again unless the state invests in new technologies to meet the standards. Converting methane emissions that might otherwise be emitted from wastewater treatment facilities into bioenergy prevents the flaring of those emissions. Cap-and-trade revenues could be utilized for new technology and to make existing technology more cost effective while preserving the ability to use the renewable energy created.

Other specific suggestions for focusing cap-and-trade revenues include: funding the development of additional pathways and protocols that can be used by entities conducting anaerobic digestion activities, including programs that promote the production of low carbon fuels from wastewater treatment facilities and the development of GHG offsets from anaerobic digestion of organic wastes and land application of biosolids which can be used by entities under the cap to meet their emissions reduction obligations, funding various energy efficiency initiatives that focus on wastewater treatment plants; investing in the increased use of AD technologies at wastewater treatment facilities; and providing funding to commercialize new, cleaner and more efficient technologies on the distributed generation scale. We recommend that the State allocate a significant portion of cap and trade proceeds to bioenergy development to maximize greenhouse gas reductions and carbon sequestration, accelerate the commercialization of community-scale bioenergy technologies. These recommendations would also help the state to meet the requirements of SB 1122, SBX1 2, and the LCFS. CASA would also promote these efforts as the optimal method using cap and trade monies to directly benefit environmental justice communities.

Conclusion

California's wastewater treatment agencies are uniquely suited for maximizing the environmental returns on cap-and-trade investments. These entities are already making strides in reducing GHG emissions and increasing utilization of renewable energy, can also take advantage of the numerous co-benefits that can be realized through additional investment. Bioenergy is unique in its ability to capture and re-purpose greenhouse gases while producing renewable electricity, low carbon fuels, and healthier communities. Promoting these activities at treatment plants is also one of the most readily available opportunities to focus investment in disadvantaged communities across the state. For all these reasons, we encourage CARB and the other participating state agencies to promote allocating a significant portion of the cap-and-trade proceeds to these projects and programs.

If you have any questions regarding these comments on the Concept Paper or the proposals and concepts identified herein, please feel free to contact Greg Kester at (916) 446-0388 or gkester@casaweb.org.

Sincerely,

Roberta L. Larson

Roberta Larson
Executive Director