WATER RECLAMATION
SOLID WASTE MANAGEMENT

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OF LOS ANGELES COUNTY

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Ms. Christina Zhang-Tillman
California Air Resource Board
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

Comments on Proposed Concept Outline for the California Low Carbon Fuel Standard Regulation

Dear Ms. Zhang-Tillman:

The Sanitation Districts of Los Angeles County (Sanitation Districts) appreciate this opportunity to comment on CARB's *Proposed Concept Outline for the California Low Carbon Fuel Standard Regulation,* dated March 2008 (LCFS). The Sanitation Districts provide environmentally sound, cost-effective wastewater and solid waste management for about 5.3 million people in Los Angeles County and, in the process, convert wastes into resources such as reclaimed water, energy, and usable recycled materials. The Sanitation Districts' service area covers approximately 800 square miles and encompasses 78 cities and unincorporated territory within the County through a partnership agreement with 24 independent special districts. The Sanitation Districts have also played a significant role over the years reducing air emissions and developing many state-of-the-art emissions controls for our solid waste management and wastewater treatment operations that are now industry standards.

The Sanitation Districts became interested in the LCFS during a presentation provided by Mr. John Courtis of CARB. Mr. Courtis's presentation, to the SCAQMD Home Rule Advisory Group Climate Change Subcommittee, included, among other things, an interesting discussion of various impacts of biofuel production. The potential loss of productive farming land due to biofuel production and the development of calculation methodologies to calculate the "true" carbon footprint of an alternative fuel (as many are not as GHG friendly as originally thought) was specifically discussed. The Sanitation Districts share these concerns and have started to evaluate the feasibility of truly sustainable farming.

The Sanitation Districts produce treated wastewater and biosolids from our wastewater facilities. At several large remote facilities, thousands of acres of otherwise non-productive or marginally productive farmland are employed to reuse treated wastewater to irrigate fodder crops such as alfalfa, sudangrass, and grain hay for animal feed. Recently, we began evaluating the potential for applying composted biosolids and treated wastewater at our remote facilities to grow biofuel crops. We believe that beneficial reuse of these wastewater treatment byproducts could provide a small but sustainable portion of California's clean transportation fuel production capacity. Moreover, utilization of biosolids as a soil amendment has the added benefit of potentially sequestering carbon when compared to commercial fertilizer use in California agriculture. We believe such use of non-productive or marginal farmland for biofuel crop production in conjunction with wastewater and biosolids reuse is a benefit to California and should be encouraged in the LCFS.

Considering that the March 2008 version of the proposed LCFS regulation outline does not address sustainability of biofuel production or associated land use conversion, we thought this would be an opportunity to provide information regarding the Sanitation Districts' efforts to develop renewable fuels. Our goal is to have the LCFS accommodate these avenues as far as possible.

Comments on Appendix B. Example Fuel Pathways

According to the proposed LCFS, providers, producers and importers of fuels used for land transportation within California, above a specified gasoline gallon equivalent per year, would be subject to compliance with the fuel standards, recordkeeping, reporting, third party auditing, and certification requirements, as well as LCFS credit generation, banking, and trading guidelines.

The proposed LCFS thoroughly accounts for *commercially* available transportation fuels, however, it is does not directly address non-petroleum fuels produced from waste streams such as landfill gas or digester gas or wastewater biosolids. Liquefied natural gas (LNG), compressed natural gas (CNG), hydrogen, and electricity are examples of "fuels" that can be produced from gaseous waste streams. Fischer-Tropsch biodiesels can also be produced from biosolids similar to what staff indicates for municipal solid waste. Methane can also be produced from the digestion of municipal solid waste. At this time, Appendix B only shows hydrogen and electricity as "fuels" produced from landfill gas. Accordingly, we recommend Appendix B be modified to include these other possible feedstock-fuel pathways.

Fuels produced from waste streams benefit the environment by providing a means to manage a continual waste stream, minimize the depletion of non-renewable natural resources for fuel production, and reduce greenhouse gases emissions.

According to the Energy Information Administration, the combustion of natural gas emits almost 30 percent less carbon dioxide than does oil, and just under 45 percent less carbon dioxide than coal. Despite possible increases of methane emissions, EPA in a major study[1] with the Gas Research Institute confirms that the reduction in emissions from natural gas usage strongly outweighs any effects of increased methane emissions. The Sanitation Districts believe that biogas produced from wastes contains only short term carbon cycle carbon and should therefore be given priority in the proposed LCFS.

We are concerned, however, that if these alternative fuels from waste were saddled with mandatory regulations as currently stipulated in the LCFS, that their development would be stifled. Waste fuels have unique and technologically challenging processing issues that will take time to overcome. They also generally tend to be extremely challenging to site in local communities. We think that incentivizing their development by means of a credit or offset generating mechanism is the more prudent strategy to further their advancement and help the LCFS mix.

The LCFS Should Encourage Development of Biofuel Projects

The Sanitation Districts are currently demonstrating the practicality of producing non-petroleum based transportation fuel at our Clean Fuels Facility located at the Puente Hills Landfill. This facility processes "rich" landfill gas drawn from the core of the landfill into compressed natural gas (CNG) for use by the landfill's water trucks and fleet vehicles. The clean CNG fuel provides many benefits, including reducing air emissions by burning CNG instead of conventional diesel fuel at the landfill and providing better management practices by not flaring excess landfill gas. Additionally, the Sanitation Districts are reviewing a proposal for a pilot plant unit to be located at our Joint Water Pollution Control Plant in Carson that would be capable of producing liquid fuel from gasified biosolids via the Fischer-Tropsch process. The air permit for the pilot plant is currently being processed by the SCAQMD. We are aware of many biosolids-to-energy conversion processes including biosolids-to-biogas, biosolids-to-syngas, biosolids-to-oil, and biosolids-to-liquids as reviewed by the Global Water Research Coalition[2], that could be implemented as potential credit generation avenues within the LCFS.

To encourage development of similar clean fuel projects, the Sanitation Districts again recommend that the proposed LCFS recognize waste-derived fuels as potential

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[1] See www.naturalgas.org Natural Gas and the Environment

[2] See State of Science Report: Energy and Resource Recovery from Sludge prepared by Hydromantis, Inc. and published in early 2008 by the Global Water Research Coalition, whose members include the Water Environment Research Foundation (WERF), UK Water Industry Research (UKWIR) and Stichting Toegepast Onderzoek Waterbeheer (STOWA). The report summarizes the current technological advances of energy and resource recovery from municipal wastewater biosolids.

credit generating opportunities. These should not be mandated in any way given the technological challenges associated with them and the extreme difficulty in siting such projects within the local community.

The LCFS Should Encourage Biofuel Crops on Marginal Farmland

Growing biofuel crops on land that has only limited suitability for farming human food crops should be encouraged. If nothing else, this practice avoids the negative aspects of removing productive lands from human food production in favor of biofuel crop production, with consequences on food inventories, food price increases, etc.[3]

In an effort to contribute to California's demand for alternative transportation fuels, the Sanitation Districts are actively researching the feasibility of growing biofuel crops to produce biodiesel, ethanol, and cellulosic ethanol at remote locations, Lancaster, Palmdale and California's Central Valley where soil conditions in many tracts are not ideal for farming human food crops. Some additional co-benefits of growing biofuel crops at these three locations include helping to control dust in the high wind areas, particularly at Lancaster[4] and Palmdale, by anchoring previously disturbed soils (from abandoned farms) with biofuel crops. In addition, also at Lancaster and Palmdale, the Sanitation Districts are re-using treated wastewater productively thereby avoiding use of imported, high carbon footprint potable water. In the Central Valley, we are seriously considering partnerships with the local farming community to push the use of composted biosolids as soil conditioner, thereby replacing commercial fertilizers to a degree, the largest cause of N2O emissions in California. In addition, there is research showing that application of biosolids to farming soils will result in net carbon sequestration.

The LCFS Should Encourage Alternative Power Projects

Given that the underlying goal of the LCFS is to reduce GHG emissions, the Sanitation Districts recommend broadening the scope of the proposed LCFS to incentivize alternative power project development by acknowledging them as possible credit generation sources.

The Sanitation Districts are currently producing clean, sustainable, alternative power at many of our facilities. Examples of our alternative power producing facilities include:

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[3] See Time April 7, 2008, "The Clean Energy Myth" by Michael Grunwald. See Page 41 for a startling photograph of the deforestation of Brazil's rainforest to plant soybean crops.

[4] See Antelope Valley Daily News feature article on February 16, 2006 showing windblown dust blanketing major roadways.

1. Fuel Cell Facility at the Palmdale Water Reclamation Plant processes digester gas and produces heat and electricity (250 kW at full power).
2. Microturbine Facility at the Lancaster Water Reclamation Plant processes digester gas to produce heat and electricity (250 kW at full power).
3. Microturbine Facility at the Calabasas Landfill processes landfill gas to produce electricity (300 kW at full power).
4. Cogeneration Engine Facility at the Valencia Water Reclamation Plant processes digester gas to produce heat and electricity (400 kW at full power).
5. Gas-to-energy facilities at the Palos Verdes Landfill, Spadra Landfill, and Puente Hills Landfill processes landfill gas to produce electricity (4 MW, 8MW, 51.4 MW net output, respectively).
6. The Total Energy Facility at the Joint Water Pollution Control Plant processes digester gas in combined cycle turbines to produce an average of 24 MW, sufficient to run the largest treatment plant west of the Mississippi.

Proper incentives in the LCFS can go a long way to encourage others in the waste industry to institute similar programs. These projects may also help California meet its 33% renewable portfolio standards goal.

In summary, given the technological challenges involved in advancing waste-derived alternative fuel and power projects and the extreme difficulties in siting such projects, the Sanitation Districts believe that mechanisms as credit generation (as opposed to direct regulatory mandates), will ultimately mature these technologies and assure their long term penetration into the economy .

The Sanitation Districts greatly appreciate this opportunity to provide these conceptual concepts and look forward to working with CARB to facilitate the proposed LCFS in our mutual goal of reducing GHG emissions.

If you have any questions regarding this transmittal, please do not hesitate to contact me at (562) 908-4288, extension 2113.

Very truly yours,

Stephen R. Maguin

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GMA:DLR:TTL:bb

cc: Mr. John Courtis