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CALIFORNIA



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March 8, 2013

Ms. Mary Nichols, Chairperson
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Dear Ms. Nichols:

**Subject: CITY OF LOS ANGELES, BUREAU OF SANITATION COMMENTS ON THE
CAP-AND-TRADE AUCTION PROCEEDS INVESTMENT PLAN DRAFT
CONCEPT PAPER**

The City of Los Angeles Bureau of Sanitation (Bureau) commends the California Air Resources Board and other state agencies in their efforts to reduce greenhouse gas (GHG) emissions in the state, and developing an investment plan on how to properly allocate the Cap-and-Trade Auction Proceeds to meet the AB 32 goals. The Bureau supports this endeavor and believes that we can facilitate in achieving these goals by implementing and expanding many environmental programs as described below. These programs provide a real opportunity for GHG emissions reductions, local job creation, and air quality improvement in disadvantaged communities in the City of Los Angeles (City). We would like to request the following programs and projects be considered eligible to receive funding from the Cap-and Trade Auction Proceeds.

I. Conversion of Heavy-Duty Diesel Trucks to Clean Fuel

We request that proceeds from the California's cap-and-trade auction program be allocated to fund the replacement of City of Los Angeles heavy diesel fuel vehicles into cleaner fuel vehicles such as natural gas or electric hybrid.

In 2000, the City embarked on a Clean Fuel Program to convert its entire solid waste collection fleet of over 700 heavy-duty diesel-powered to clean fuel. Today, the City is operating the largest municipal clean fuel solid waste collection fleet in the country with over 550 natural gas collection vehicles. The use of natural gas, a low carbon fuel, will help achieve the State's GHG emissions reduction goals under AB32.

To replace the remaining 150 diesel-powered solid waste collection vehicles at the cost of approximately \$300,000/vehicles, the City is in need of external funding, including those from the California's cap-and-trade auction proceeds. The new clean fuel natural gas powered collection vehicles will be deployed within the City of Los Angeles residential neighborhoods that include those



that have been identified among the top 10% disadvantaged communities in the State, i.e., those that are located in the zip codes of 90001, 90002, 90003, 90011, 90012, 90013, 90016, 90021, 90023, 90026, 90031, 90033, 90037, 90039, 90044, 90047, 90058, 90059, 90061, 90063, and 90065. The use of heavy-duty vehicles operating on low-carbon, natural gas fuel in municipal solid waste collection operation helps reduce the emissions of GHG and many criteria and toxic air pollutants in these disadvantaged neighborhoods.

In addition to solid resources collection fleet, the Bureau needs to replace 3 existing diesel-powered vacuum tankers with those operating on clean fuel natural gas.

As shown in Table 1, based on the fuel usage by the in-use natural gas vehicles, the estimated annual volume of liquefied natural gas consumed by the new clean fuel vehicles is over 1 million gallons, thereby reducing the GHG emissions by a total amount of more than 7,000 MTCO₂e during the seven- year service life as expected for these vehicles.

Table 1: Estimated Annual Greenhouse Gas Emissions Reduction from Deployment of City of Los Angeles’ Clean Fuel Vehicles.

	Number of Vehicles	Total Annual LNG Fuel Consumption (gallons)	Total Annual Greenhouse Gas Emissions Reduction* (MTCO ₂ e)
Existing Clean Fuel Fleet	554	3,737,562	3,697
Additional New Clean Fuel Vehicles	153	1,032,215	1,021
Total	707	4,746,977	4,718

*: CA-GREET Models (California Air Resources Board, 2009)

II. Reduce Reliance on Landfilling

It has been well documented that communities of color tend to suffer the most from landfills and the operations that center around them. Mayor Antonio Villaraigosa directed City staff to institute programs that will increase diversion and recycling, and eliminate dependence on urban landfills. The Mayor set up an intermittent goal of 75% diversion by 2013 and Zero Waste by 2025.

The Bureau, through a comprehensive stakeholder driven process that included City residents, local businesses, Labor, community groups, nonprofit organizations, faith organization, etc., developed the Solid Waste Integrated Resources Plan, aka the Zero Waste Plan. The Zero Waste Plan identifies various policies, programs, and facilities needed to increase landfill diversion, source reduction, recycling, and composting. The Zero Waste model assumed specific capture rates related to various policies and programs, based on research, existing municipal programs, or expert opinions, to estimate landfill diversion tons based on full implementation of these specific policies and programs. Table 2 shows the GHG reduction potential realized from full implementation of these Zero Waste

policies and programs. Under the Mayor leadership the City has implemented multiple programs and the City has achieved 75% diversion from landfills.

Table 2 - Annual Greenhouse Gas Emissions Reduction Potential from Implementation of Zero Waste Programs and Processing Residual Waste through Alternative Technology¹

Programs/Policies/Technical Assistance	Estimated Annual Diversion Tons ²	Annual Greenhouse Gas Emissions Reduction (MTCO ₂ e) ³
1. Increase Textile Diversion	8,994	(21,656)
2. Bulky Item Reuse and Recycling	7,073	(28,378)
3. Single Family Food Scraps	23,031	(20,471)
4. Social Marketing/Media Campaign	55,717	(148,622)
5. Modify Residential Collection Rates	135,345	(361,025)
6. Community Beautification Grants ⁴	-	
7. LAUSD Zero Waste Curriculum ⁴	-	
8. Increase Diversion at C&D Facilities	62,268	(2,911)
9. Mandatory Source Separated Recycling Ordinance for Single Family Residential	159,623	(425,785)
10. Mandatory Organics Separation Ordinance for Single Family Residential	141,372	(125,659)
11. Resource Recovery Center Ordinance	21,790	(58,124)
12. EPR and Packaging Reduction	149,129	(388,975)
13. Ban Certain Material from Disposal	139,349	(371,705)
14. Expand Recycling Ambassador Program	18,033	(48,102)
15. Recycling Ambassador Reinforcement for Residential	21,524	(57,414)
16. Multi-Family Recycling	48,543	(194,763)
17. Multi-Family Yard Trimmings	1,725	(72)
18. Multi-Family Food Scraps	10,649	(9,465)
19. Modify Multi-Family and Commercial Collection Rates	276,778	(738,289)
20. Requiring all commercial haulers to provide recycling services to all of their customers	70,604	(188,332)
21. Require All Businesses to Have Recycling	83,646	(223,121)
22. Provide More Public Area Recycling	213	(568)
23. Mandatory Source Separated Recycling Ordinance for Multi-Family and Commercial Generators	165,854	(442,406)

24. Mandatory Organics Separation Ordinance for Multi-Family and Commercial Generators	190,731	(169,532)
25. Multi-Family Recycling Ambassador Program	14,654	(39,089)
26. Expand Commercial Technical Assistance	4,435	(11,830)
27. Recycling Ambassador Program Reinforcement for Multi-Family and Commercial	21,017	(56,062)
Totals from Diversion Programs	1,832,097	(4,132,356)
Residual Waste Processing through Alternative Technology	1,547,799	(1,582,295)
Totals from Diversion Programs and Alt. Technology	3,379,895	(5,714,651)

¹Assumes full implementation of programs in 2030

²Based on SWIRP Zero Waste Model, February 2013

³Calculated based on US EPA WARM (February 2012 version) in metric tons of carbon dioxide equivalent.

⁴No new diversion tons have been estimated for these programs.

The majority of the above policies and programs will be implemented between 2013 and 2020, with mandatory programs commencing by 2020. Based on a study done by the Institute for Local Self-Reliance in 2009, over **4,500 green jobs will be created through the full implementation of SWIRP**. It should be noted that some of the programs identified in Table 1 have either begun implementation or are currently being evaluated under pilot programs conducted by the Bureau.

In addition SWIRP identified the needed facilities, such as material recovery facilities (MRFs), anaerobic digesters, composting facilities, resource recovery parks, and alternative technology facilities. Below is a more detailed description of some of these facilities, and how they will assist the City in reducing GHGs.

II. Alternative Technologies:

The City of Los Angeles residents and businesses generate over 10 million tons of material per year. With 85-90% diversion from landfill, the City will still need to send 1 to 1.5 million tons of post source separated solid waste to landfills. To assist in achieving the City's Zero Waste and GHG reduction goals are to utilize safe, alternative technologies. These technologies are currently in use in European countries with high recycling and diversion rates. In February 2007, the Bureau released a Request for Proposals for the establishment of Alternative Technology facilities to process its post source separated municipal solid waste, aka black bin waste, for resource recovery and energy production. The Bureau received proposals from around the globe, which had been reviewed, and evaluated.

At present, the Bureau is negotiating with two vendors, namely, Green Conversion Systems (GCS) and Urbaser to establish Alternative Technologies facility (ies) in the City. It is estimated that the GCS technology would achieve GHG emissions reduction of 145,348 metric tons of carbon dioxide equivalent (MTCO_{2e}) annually by processing 1,000 tons per day (tpd) of black bin waste as compared to landfilling, based on the U.S. Environmental Protection Agency (EPA) Waste Reduction Model (WARM). The GHG reduction is equivalent to removing approximately 28,500 vehicles from

the road per year. Moreover, Urbaser's proposed technologies would achieve GHG emissions reduction of up to 52,272 MTCO₂e annually by processing 1,000 tons per day (tpd) of black bin waste as compared to landfilling 1,000 tpd of black bin waste, based on the U.S. EPA WARM. The GHG reduction range is equivalent to removing approximately up to 10,249 vehicles from the road per year.

We believe that the City implementation of Alternative Technologies for the processing of black bin waste will help the State achieve its AB 32 goals by increasing landfill diversion thereby preserving landfill space and reducing fugitive methane emissions from landfills as it is the second largest anthropogenic source of methane in California based on ARB's study released in 2009. In addition, these facilities reduce GHG emissions by generating biofuels, thereby avoiding CO₂ emissions from fossil fuel. The recovery of recyclables such as metals, glass, plastic and paper will result in less GHG emissions being generated. These facilities provide the opportunity for communities to manage their waste locally. Implementing this program will create green jobs, a boost to the Los Angeles local economy.

GHG emissions reduction from landfills, electricity generating sector, and transportation have been identified in the scoping plan as some of the key measures in meeting the AB 32 goals. The development Alternative Technologies facilities for energy and other resource recovery support these goals.

IV. Organics Diversion from Landfill

According to the AB 32 Climate Change Proposed Scoping Plan released in October 2008, recovering organic materials from the wastestream can substantially reduce GHG emissions by diverting it from landfill disposal and managing these resources for their highest and best use. Thus, providing incentives for organic material recovery is an effective way to secure GHG emissions reduction and support AB 32 goals.

The City collects 1,800 tons per day of curbside green materials. These materials are processed through composting and mulching. Currently, about 15% of the material is processed at City owned facilities, and the remaining 85% is processed by private contractors.

In addition, about 25% of the City's black bin waste consists of food waste. Highly biodegradable material such as food waste, buried at landfills (under anaerobic conditions), produces leachate and methane, both of which have potential for environmental and public health concerns. AB 32 goals also include capturing this methane, which has 21 times the global warming potential of carbon dioxide. Diverting food waste and other highly biodegradable organic material from landfills and treating them in controlled systems such as anaerobic digestion vessels allows for the controlled capture of methane. Furthermore, the methane can be reserved as a source of renewable energy (in the form of electricity, heat, and low carbon fuels such as compressed natural gas or liquefied natural gas), thereby meeting AB 32 Low Carbon Fuel Standards and the State Renewable Portfolio Standards requirements.

In CalRecycle's report "Current Anaerobic Digestion Technologies Used for Treatment of Municipal Organic Solid Waste" (2008), a life cycle analysis performed between landfilling, composting, and anaerobic digestion was cited, and demonstrated that compared to landfilling, anaerobic digestion decreased GHG emissions by -134,379 MTCO₂e/year. When anaerobic digestion is compared to open windrow composting, GHG emissions decreased by -93,470 MTCO₂e/year. In addition, when modeling the difference in GHG emissions between composting and landfilling of food waste for the City using the EPA WARM Model a net reduction of 0.45 MTCO₂e/ton of food waste can be realized. Thus, in comparison to landfilling, food waste material either processed through anaerobic digestion or composting will decrease GHG emissions. It should be noted that when modeling the difference in GHG emissions between composting and landfilling of yard trimmings for the City using the EPA WARM model, direct reduction in GHG are not realized mainly because landfilling provides carbon sequestration of highly lignified and cellulosic materials. However, GHG emissions reductions are realized through the indirect benefits associated with the reduced need for water and fertilizer, thereby meeting AB 32 intended goals.

Given the aforementioned benefits, organic diversion from landfills should be given full consideration for funding through the Cap-and-Trade Auction Proceeds. The funding is greatly needed to plan for, research, and construct locally available composting and anaerobic digestion infrastructure so GHG reduction benefits are realized, as well as job creation, other public health benefits and air quality improvements. Such public health and air quality improvements will definitely lessen the impacts and effects of climate change to disadvantaged communities, many of which are located in the Los Angeles region.

V. Installation of Solar Panels at the City's Closed Landfills

The City manages several closed landfills. These closed landfills carry long-term financial requirements, monitoring responsibilities, and often have limited redevelopment potential due to budgetary, technical, environmental, and regulatory issues. Innovative solutions are currently being explored to address the optimal use of these former landfills focusing on site sustainability and renewable energy generation.

As shown in Table 3, the Bureau believes that closed landfills provide a great platform for solar power generation which will reduce GHG emissions by lowering the use of electricity generated from fossil fuels, thereby fostering local job growth, and improving the air quality in disadvantaged communities in the City. In addition, the deployment of solar power systems at these sites can contribute toward achieving the City's Renewable Portfolio Standards (RPS) goal of 35 % by 2030.

The Bureau has identified about 26 acres as suitable landfill area for solar photovoltaic (PV) system installation with a potential of producing 13,400 MWh of energy in the first year of operation. The solar PV system will include solar PV modules, associated electrical conduit and wiring, electrical subpanels and controls, electrical equipment and meters, structural mounting and supports, and all other components necessary for the installation.

Table 3: Potential Solar Energy Generation and Estimated Annual GHG Emissions Reduction:

Potential Solar Energy Generation (MWh)	Estimated Annual GHG Emissions Reduction (in MTCO ₂ e)
13,400	9,454*

*EPA's Greenhouse Gas Equivalencies Calculator (based on an emission factor of 7.0555×10^4 metric tons CO₂ / kWh (non-baseload emission rate, eGRID2012 Version 1.0, U.S. annual non-baseload CO₂ output emission rate, year 2009 data)

VI. Deployment of Solar Compactors

The City's Waste Receptacle Program collects refuse from 3,000 white wire baskets located in heavily traveled pedestrian areas throughout the City, including commercial districts, bus stops, train stations, tourist attractions, sporting complexes, beaches, parks, office buildings, and school districts. Currently, the wire baskets do not provide the public the opportunity to segregate and recover recyclable materials, including California Redemption Value (CRV) beverage containers, as these are commingled with refuse and being sent to landfills for disposal. On average, 40 pounds of material per week is collected per white wire basket. The plan is to replace white wire baskets with solar compactors with recycling units to recover recyclables as it would provide segregation of recyclables from refuse throughout the commercial areas in the City, which will be collected and sent to City-contracted material recovery facilities for recycling, and resource recovery, thereby, conserving natural resources. Moreover, recyclables such as fruit juice boxes, orange juice and milk cartons, styrofoams, yogurt containers, grocery bags and film plastics, are the among the items most frequently are found along City's streets and beaches. Deploying these solar compactor units will reduce litter and blight throughout the City.

The goal of the proposed project is to recover 65% recyclables from the waste stream and reduce GHG emissions from the transportation and disposal of materials, landfill diversion, and production of these commodities from raw materials. The deployment of solar compactors will lower carbon emissions by reducing the number of truck trips to collect the material. For example, the City of Philadelphia in 2009 replaced 700 public wire trash baskets with 500 solar compactors and 210 recycling units. The installation of the solar compactors enabled them to deploy an on-street recycling program and at the same, the compaction mechanism reduced their collection demand thereby reducing truck trips, fuel consumption, and air emissions, including GHG emissions.

Implementing this project yields many economic, social, and environmental benefits, including improving the air quality in the City's disadvantaged communities as identified by CalEPA (Table 4).

Table 4: Disadvantaged Communities with Deployment of the Solar Compactors.

No. of Wire Baskets to be Replaced with Solar Compactors	Locations in Disadvantaged Communities
179	90002,90003,90011,90012,90016,90021,90023,90026,90031,90033,90037,90044,90059,90061,90065,90255,90270,91331,91342, 91352, 91402,91405, 91406,91605

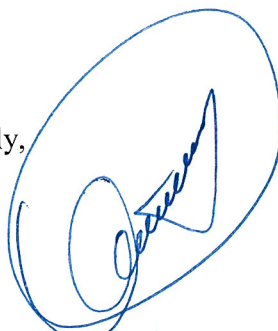
Lastly, we would like to request an opportunity to meet with you and/or your staff to discuss in detail how our projects/programs can join the state in its effort to achieve GHG reduction goals mandated under the AB 32, and suggest how proceeds from the cap-and-trade auctions can support the implementation of these strategies successfully in disadvantage communities within the City of Los Angeles.

VII Fats, Oil, and Grease

This renewable energy source can be diverted from landfill disposal for biofuel production. Restaurants and other food service establishments within the City are required to collect fats, oil, and grease (FOG) which are then taken to an anaerobic digestion facility for biofuel production. The Bureau is currently processing 1,000 gallons per day of FOG through an AD treatment process. FOG generates biofuels and other renewable energy sources. The Bureau can expand this program to 50,000 gallons per day if funding is made available to retrofit and upgrade the existing facility.

We appreciate the opportunity to comment on the CAP-AND-TRADE AUCTION PROCEEDS INVESTMENT PLAN DRAFT CONCEPT PAPER. If you need additional information or would like to discuss further these comments, please do not hesitate to contact me at (213) 485- 2210.

Sincerely,



ENRIQUE C. ZALDIVAR, DIRECTOR
BUREAU OF SANITATION

- c: Matthew Rodriguez, California Environmental Protection Agency
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