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July 12, 2013

Caroll Mortensen, Director
California Department of Resources Recycling and Recovery
1001 I Street,
Sacramento, CA 95812

Dear Ms. Mortensen,

COMMENTS ON CALRECYCLE'S WASTE MANAGEMENT SECTOR PLAN

The Bureau of Sanitation (Bureau) commends the California Department of Resources Recycling and Recovery (CalRecycle), California Air Resources Board (ARB) and other state agencies for their efforts to increase landfill diversion and reduce GHG emissions, and developing a scoping plan on how to achieve these goals. The Bureau appreciates the opportunity to provide comments on the Waste Management Sector Plan.

The Bureau is concerned that the plan, in its current draft, does not allow the City of Los Angeles (City) to provide its 4 million residents with the best available technology to process post source-separated municipal solid waste (MSW). We believe that the State's approach should be technology neutral with emphasis on increasing recycling, landfill diversion, and greenhouse gas (GHG) emissions reduction while fostering job creation. Any technology to be implemented should be measured against current practice with a full life-cycle analysis of the current practice versus the proposed technology. In addition, we believe that funding should be provided to help offset the increased cost to municipalities. The City has spent considerable time and resources on this subject and the City would like to request that, if a statewide working group is established, we be given the opportunity to participate.

First, we would like to highlight several key issues that CalRecycle needs to consider in developing this plan to meet Assembly Bill (AB) 341 and AB 32 goals.

- The City supports statewide programs to reach a Zero Waste Goal.
- The City supports beneficial use at landfill sites.

- The City does not support the proposed paradigm change to reach 75% recycling rate mandate by 2020 as currently drafted.

- The City supports recycling and remanufacturing infrastructure development through incentives.

- The City supports extended producer responsibility, source reduction, and facility development.

- The City supports the use of Alternative Technologies to process post source-separated municipal solid waste.

- There is no potential conflict between waste-to-energy (WTE) facilities and recycling as several studies have shown that communities with WTE in their solid waste management have higher recycling rates than communities that do not.

- MSW Thermal technologies should be given full diversion credit as this alternative treatment to process post source-separated MSW would preserve landfill space and reduce fugitive methane emissions from landfills.

- MSW Thermal technologies, especially waste-to-energy (WTE) technology, should be eligible for renewable energy credit for several reasons: (1) Federal laws have recognized it. (2) WTE is capable of producing more electricity from the same mass of waste as compared to landfill gas to energy technology with lower air emissions. (3) Sixty-seven percent of the carbon dioxide (CO_2) emissions is biogenic. (4) MSW is recognized as a biomass resource to generate renewable energy.

- MSW Thermal technologies should not be included in the cap and trade program as GHG emissions reduction are realized in the solid waste and electricity generating sectors when utilizing this alternative for post-source separated MSW treatment.

- The current definition for gasification needs to be revised as it is technically infeasible to implement.

- Grant funding should be allocated to local governments to help offset the increased costs related to recycling and additional infrastructures needed to meet state goals.

- The state and local agencies should streamline the permitting process for the new facilities needed to meet the 75% mandate by 2020.

In addition to our comments specific to the waste management sector plan, please see below for the detailed discussions for each item.

I. RECYCLING, REUSE, AND REMANUFACTURING

The City Of Los Angeles Supports Statewide Programs To Reach A Zero Waste Goal

The City of Los Angeles (City) generates over 10 million tons per year of solid waste. The City, having a robust, comprehensive recycling program, has already achieved a 76.4% landfill diversion rate with a goal of becoming a zero waste city by 2025 thereby reducing landfill reliance, increasing source reduction, recycling, and landfill diversion, and reducing GHG emissions.

It is incumbent upon the state agencies to take innovative actions and creative funding solutions to meet AB 341 and AB 32 goals. The City's experience over the last 30 years has revealed that 1). When dealing with millions of tons of materials, it is critical to have access to all possible alternatives for diversion, 2). Statewide source reduction and Extended Producer Responsibility (EPR) requirements will have a greater impact on diversion at a much lower cost than recycling, and 3). Infrastructure and program development for the management of solid waste is getting more expensive, and public acceptance and siting is challenging and takes much longer than anyone anticipates.

The City Supports Beneficial Use At Landfill Sites

The City collects over 550,000 tons of green materials annually. The City policy is to keep the yard trimmings we collect from use as ADC, but for emergencies, or service interruptions by our own facilities or contractors, this option needs to remain available. In addition, Construction and Demolition (C&D) materials beneficial use in wet weather road construction should be counted as diversion. The City requires all mixed C&D to go to a certified processor instead of a landfill, far exceeding the requirements of most jurisdictions in this regard, but to use some of the inert material to build roads makes sense. We emphasize that all options must be available for the beneficial reuse of this material.

The City Does Not Support The Proposed Paradigm Change To Reach 75% Recycling Rate Mandate By 2020 As Currently Drafted

The City supports the 75% diversion goal as adopted by the State legislature. The paradigm that communities have been working with for many years is proposed to change to a 75% 'recycling' goal rather than a 'diversion' goal. All reuse and recycling currently done at landfill sites is discarded, with the list including alternative daily cover, road base materials, and 'solid waste residuals used as fuel'. We strongly disagree with casting aside current recycling infrastructure and programs, which have developed slowly since 1989, and expect that a new paradigm, new infrastructure, and new programs, can all be developed within eight years. The City would like to receive assistance with necessary funding, environmental review, and permitting and siting concerns, which will help to expedite achieving this goal. Any proposal to require jurisdictions to enforce the mandatory commercial recycling measure is an unfunded mandate, and thus will shift the fiscal burden to municipalities that are struggling financially and do not have the resources to enforce AB 341.

CalRecycle staff estimate that an additional 22 million tons of material statewide must be recycled each year to meet a 75% recycling goal. At about 10 tons per truck, that is 2,200,000 additional truckloads of material in need of recycling facilities. If each recycling facility managed 300 tons per day (five days per week), that would require at least 280 new facilities. Infrastructure development also has to include all ancillary facilities, such as composting for anaerobic digestate, pre-manufacturing processes, and remanufacturing facilities to complete the loop into new products. If the proposed paradigm change is codified without modification, this new stream would also include all the C&D, yard trimmings, and other materials beneficially reused at landfill sites that would have to be diverted from their current, primarily local uses.

For each recycling and remanufacturing facility, there are local impacts due to the delivery and handling of these materials. It is important to note that financing, siting, and permitting of recycling, composting and alternative technologies facilities is a long process. Unless the siting, financial assistance appropriated, and the permitting pathway is streamlined, it is unclear how CalRecycle believes that this will be accomplished in eight years.

The City Supports Recycling And Remanufacturing Infrastructure Development Through Incentives

The City's Solid Waste Integrated Resources Plan (SWIRP), also known as the Zero Waste Plan, has a zero waste goal by 2025 and will require the development of multiple facilities to accept, process, and recycle materials collected by both public and private haulers. It is estimated that 5-10 recycling/composting and 5-7 alternative technologies facilities will be needed for the City alone to reach zero waste. The City would like to engage in a dialogue with CalRecycle staff to quantify the number and type of typical facilities the State/City will need to site, permit, and build to reach 75% waste diversion by 2020. Policies must allow, encourage, and support the development of these facilities. Additionally, emphasis has to be placed on developing and incentivizing local markets to assist in GHG reduction and analyzing the full life-cycle benefits of all materials recycled.

The City Supports Extended Producer Responsibility (EPR), Source Reduction, And Facility Development

In December 2008, the City adopted a resolution encouraging EPR policies statewide. The City would like to see policies implemented with extensive stakeholder participation, including local governments. EPR programs can capture toxic products and hard to recycle materials, as well as packaging. Manufacturers may choose to make products with less toxic materials, or that are readily recyclable if they are required to manage their materials at the end of their lifespan. Source reduction, through state actions on single-use products, packaging reduction, and other measures, should be championed and adequately funded to decrease the materials that jurisdictions must manage. The state must hold producers responsible for providing take-back programs and/or funding for managing these "hard to recycle products," by providing research and promoting technologies that can increase the recycling and/or recyclability of such materials.

II. MUNICIPAL SOLID WASTE (MSW) THERMAL TECHNOLOGIES

The City Supports Alternative Technologies

Landfills are archaic and cost millions of dollars to maintain for a 30-year period after they stop accepting waste. However, at this time there is no other solution for materials that, because of their composition or type of use, cannot be recycled or are no longer recyclable. Materials such as soiled paper, composite materials with layers of paper, plastic and/or aluminum, disposable diapers, pet waste, and hygiene products have no markets at this time. Facilities that sort commingled recyclables and mixed waste all have residual materials that are disposed in a landfill.

Alternative Technologies (AT) make use of these materials to capture additional recycled material and energy, and convert it into usable alternative fuels, biogas, and/or green energy. The City is moving forward with the development of AT facilities that will implement best available control technologies while bringing use to those materials that would otherwise be disposed. The Recovering Energy, Natural Resources and Economic Benefit from Waste for Los Angeles (RENEW LA) plan and SWIRP envisioned a series of AT facilities that would create useful products from residual waste materials.

The Bureau believes that prevention, reduction, reuse, and recycling should be first option when it comes to MSW management. Alternatives such as advanced thermal recycling (aka–second generation of the WTE technology), gasification, pyrolysis, and other MSW thermal technologies should be utilized for energy and other resource recovery instead of landfilling. These technologies should be considered as part of the solution to meet the state goals delineated in AB 341 and AB 32.

Potential Conflict With Recycling Goals

Contrary to misinformation spread by certain groups, it has been scientifically proven that thermal technologies complement recycling. As evident in Europe's waste management (Figure 1), countries with the highest recycling rates such as Austria, Germany, and Netherlands utilize WTE as part of their solid waste management. Additionally, a recent study by Dr. Eileen Berenyi found recycling rates to be five percentage points or more higher than the national average in U.S. communities with WTE facilities[1].

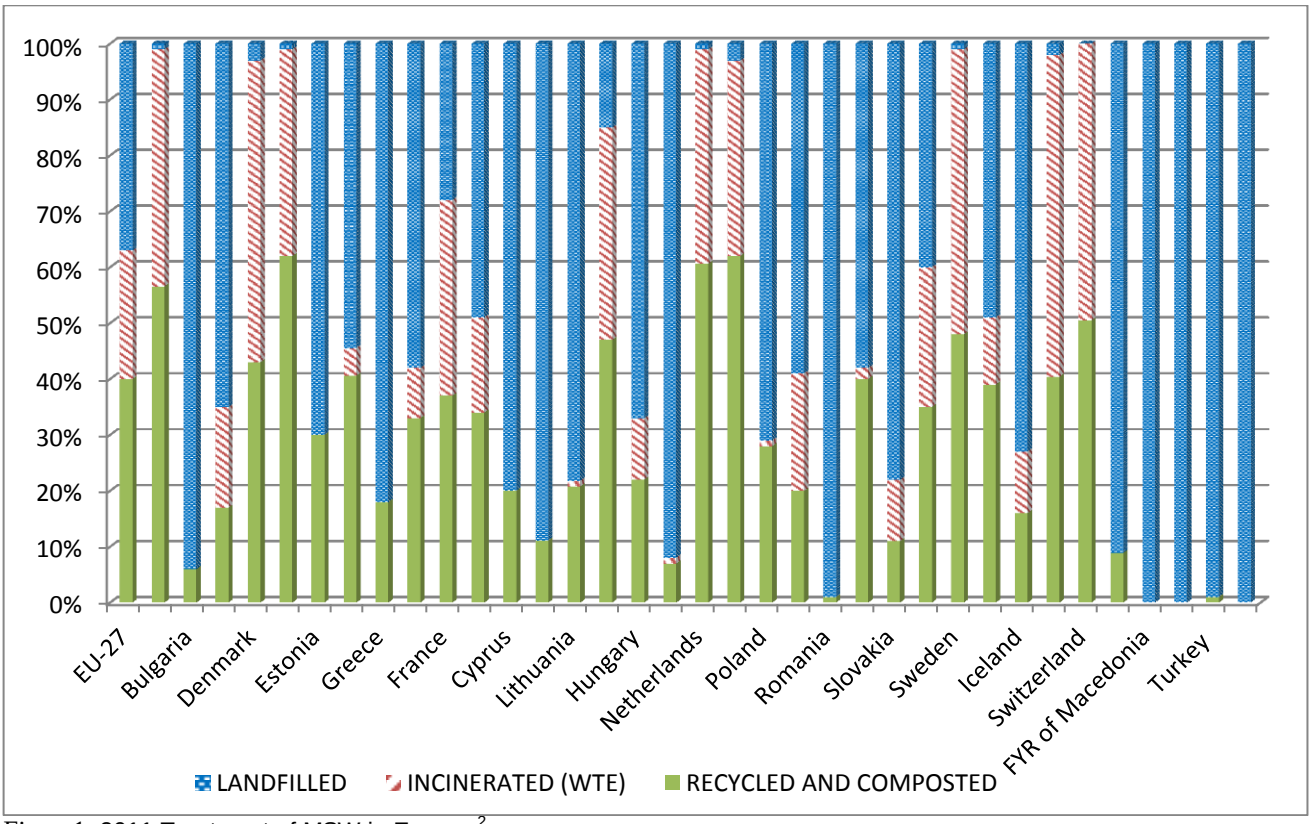

Figure1. 2011 Treatment of MSW in Europe [2]

Diversion Credit

Post source-separated MSW processed through thermal technologies instead of being landfilled should be given full diversion credits as this alternative treatment would preserve landfill space and reduce fugitive methane emissions from landfills, which are the second largest anthropogenic source of methane in CA[3].

Renewable Energy Credit

MSW thermal technologies should be eligible for renewable energy credit in the state for several reasons: (1) Federal laws have recognized WTE facilities to be a source of renewable energy for more than 30 years. The current CA statute should be revised to include all WTE facilities to align with the federal laws provided that "reduce, reuse, and recycle" of MSW have been implemented first. (2) A regular landfill operation takes in MSW and generates landfill gas, which is considered as a renewable energy resource, while sending the same MSW to a WTE facility for energy recovery is not. U.S. EPA's study has indicated that WTE is capable of producing more electricity from the same mass of waste as compared to landfill gas to energy technology with lower air emissions[4] (Figure 2). In 1995, the U.S. EPA implemented new, more stringent emissions standards for WTE plants. WTE facilities are now required to comply with the Maximum Achievable Control Technology (MACT) regulations. Moreover, the WTE industry has invested more than $1 billion in upgrades and replacements to its air emissions control systems resulting to significant air emissions reductions[5]. (3) Studies have shown that 67% of WTE's CO_2 emissions are biogenic [6]. In addition, the California Biomass Collaborative has identified MSW as a source of biomass feedstock in CA and the current statute recognizes biomass as a renewable energy resource. (4) MSW is also readily

available as feedstock to generate biofuels as compared to other fossil fuels, which require mining and excavation resulting to additional cost and additional GHG emissions from the transportation of these materials from long distances. (5) WTE can be an alternative source of renewable energy in addition to other sources, including solar and wind power. It should be noted that some of the renewable energy resources that have been codified are not continuously operational and subject to seasonal variations and/or adverse weather conditions.

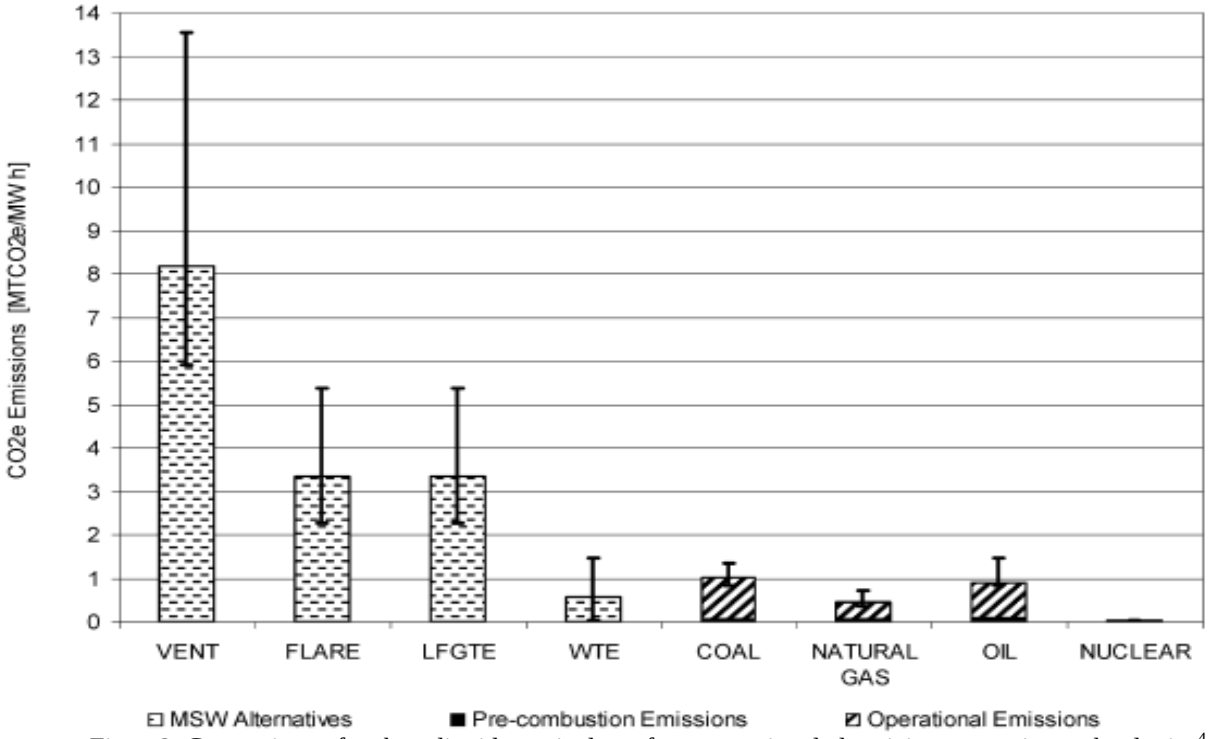

Figure2. Comparison of carbon dioxide equivalents for conventional electricity-generating technologies[4]

Cap And Trade

Several factors need to be considered prior to deciding whether to include or exclude WTE facilities from the cap and trade program: (1) A Life-Cycle Analysis (LCA) should be developed to compare GHG emissions from CA WTE facilities vs. CA landfills to determine whether GHG emissions reductions are realized by utilizing the former for landfill diversion and power generation. Currently, there is no official LCA data available for CA WTE facilities and existing data to evaluate fugitive emissions from landfills do not account for the majority losses found at landfills[9]. Moreover, landfill gas collection efficiencies vary based on waste composition, weather, and decay rate so using a national average value may not be representative of CA's landfill emissions. It should be taken into consideration that urban landfill space is depleting (Puente Hills Landfill Closure) and transportation emissions will increase once MSW is sent to distance landfills for disposal. The study should take into account the use of collection vehicles or rail hauling as transportation options to distant landfills. (2) Studies have shown that GHG emissions are realized when combusting one ton of MSW through WTE as it generates 550 kilowatt-hours of electricity (net) thereby avoids the mining of a quarter of a ton of coal or the importation of one barrel of oil[5]. In comparison to other fuel types, WTE facilities emit significantly less CO_2 than fossil fuel power plants since 67% of the CO_2 emissions from WTE facilities are biogenic[6]. In addition, it has been estimated that processing MSW through WTE rather than disposing it into a landfill reduces GHG emissions by 1.25 ton of CO_2 per ton of MSW

processed[5]. (3) Since these facilities operate continuously (24 hours per day, 7 days a week), they can provide base-load electricity[5]. In 2006, SB 1368, the California Greenhouse Gas Emissions Performance Standard Act, prohibits utilities from entering into long-term financial commitments for base load generation unless it complies with the CO_2 emissions performance standard of 1,100 lbs. per megawatt hour (MWh) or below that can be achieved by gas-fired combined cycle units. WTE utilizing MSW as feedstock has a CO_2 emission rate of 837 lbs. per MWh[7], which is lower than the CO_2 emissions performance standard, will be even lower once a LCA is developed. (6) It should also be considered that the Intergovernmental Panel on Climate Change has recognized the contribution of WTE facilities towards GHG emissions reduction. IPCC reported that the estimated GHG emissions from WTE facilities are "small, around 40 $MMTCO_2e$/yr or less than one-tenth of landfill CH_4 emissions"[8].

GHG emissions reduction from landfills and the electricity generating sector are realized when utilizing AT facilities, including WTE facilities, for waste disposal and should not be included in the cap and trade program as they contribute to some of the key measures in meeting AB 32 goals.

Moreover, these technologies will create green jobs, boost the local economy, create local renewable energy, recycling, and recyclable markets compared to the current landfilling practice.

If we are to consider "best use" of the waste we produce, we have to recognize the huge discrepancies between landfilling versus alternatives such as composting, anaerobic digestion and MSW thermal technologies. These all have to be universally and consistently resolved in order for us to accomplish our initial goal of 75% recycling by 2020, and the City's ultimate goal of zero waste by 2025.

Gasification Definition

If gasification is going to be utilized as an alternative to landfilling, the current definition needs to be revised as there are technical flaws in the definition making it technically infeasible to implement. ***First, the technology does not use air or oxygen in the conversion process, except ambient air to maintain temperature control. Second, the technology produces no discharges of air contaminants or emissions, including GHGs***. These requirements are technically infeasible as the existing gasification technologies that we are aware of utilize limited supply of oxygen for the gasification of organic material to produce synthetic gas (syngas). The syngas, comprised primarily of hydrogen (H_2) and carbon monoxide (CO), can be used to generate electricity or produce transportation fuels. In addition, it should be noted that all alternative technologies, including biological and thermal technologies, produce air emissions during the energy recovery process or when the syngas/biogas is used for electricity production. Accordingly, all alternative technologies produce air emissions. The real issue is whether these technologies are equipped with the latest Best Available Control Technology to mitigate emissions, and can meet stringent requirements set by the local, state, and federal agencies for all pollutants.

III. GRANT FUNDING

As previously noted, the City successfully diverts nearly 550,000 tons of green material from landfills each year by producing mulch and compost instead, and the high quality products are provided free-of-charge to residents for beneficial reuse. This alternative to landfilling, however, is at higher costs than the tip fee to landfill the material. With the fiscal challenges that we and other local

governments are facing, we ask that the CalRecycle allocate funding to local governments similar to what ARB and California Energy Commission have been doing in order to offset the increased costs related to recycling of the green materials and other organics, as well as to develop the additional infrastructure that are very much needed in order to reach our zero waste goal.

We also recommend that CalRecycle provide a funding mechanism for the use of alternative technologies as part of its solution to divert post source-separated MSW from landfills. Currently, the tip fee to send materials to landfills is relatively cheaper as compared to alternative technologies providing no incentive to resort to alternatives to increase landfill diversion.

IV. BENEFICIAL REUSE OF BY-PRODUCTS

It should be considered that if no secondary markets can be found for the digestate produced by Anaerobic Digestion (AD) technology using MSW as feedstock, the material would be landfilled. As there is no precedent for the digestate's beneficial reuse, there should be state guidelines to ensure that the quality produced meets the current statute for compost material. Further, there should be a policy to promote its beneficial reuse, including providing financial incentives and strong public outreach efforts for public acceptance. It should be noted that the City generates Class A biosolids from our Hyperion Treatment Plant and is beneficially reused as fertilizer at a City-owned farm in Kern County. However, we still experience community opposition for this application.

Despite the fact that thermal technologies reduce the MSW volume by 90%, there is still a need to dispose the ash generated. Although there are beneficial reuse for ash as landfill roadbed material or daily and final landfill cover, CA has no existing regulatory framework for reuse of ash as aggregate and there is limited availability of landfills permitted to accept bottom and fly ash. CalRecycle should conduct a study to identify additional beneficial reuse for ash.

V. ADDITIONAL ACTIONS TO CONSIDER

CalRecycle may also wish to consider advocating additional ideas that would result in significant amounts of materials being moved from landfill disposal, including:

1. **Mandating action to require that all pallets used within California be designed for 50 or more uses**. The City also recommends modification of the State's Environmentally Preferable Purchasing program to require pallets that last more than 50 uses.
2. **Ban CRV**-covered containers and recyclables such as c**ardboard, white and mixed paper from landfill** disposal.
3. Phase in a **landfill ban on mixed construction and demolition debris over 5 years**.
4. **Expand EPR** programs to include batteries, carpet, mattress, packaging materials, etc. Require all large stores to take back film plastic of all kinds, packing materials, and cardboard.
5. **Implement a Blue/Green Dot system** to simplify source separated recycling for the consumer, by including on all recyclable items a standardized special symbol to identify it.
6. **Ban single-use carryout plastic bags statewide.**
7. Create incentives to convert **Brownfields sites** into neighborhood gardens and parks to create **demand for organic products**.

8. Create incentives for the **agriculture sector** to increase their use of processed **organic materials**.
9. Champion a **modification to state building codes** that would allow reclaimed lumber to be used under certain conditions.
10. **Partner with corporate offices** of businesses with multiple locations in California, to help them implement corporate greening policies which would enhance the implementation of AB341.
11. **Producer Responsibility for PET Carpet Manufacturers**. Work with PET carpet manufactures to take back PET carpet which is currently being disposed at landfills, and research viable technologies that can recycle this product.
12. **Create Additional Financial Incentives** for recycling used mattresses and carpet.
13. **Provide State funding and/or require private/producer funding**, to encourage further recycling and recyclability of difficult to recycle products.
14. **Provide incentives to increase local markets** for recycling, composting and resource/energy recovery.
15. **Establish a paradigm shift** where waste is viewed universally as a resource that can generate revenue when recovered or recycled.
16. **Provide funding for continued and consistent public outreach messaging Statewide.**

The Bureau supports the state's initiatives to increase landfill diversion and reduce GHG emissions. However, there is no single solution to achieve these goals as MSW is heterogeneous and different methods– prevention, reduce, reuse, recycle, alternative technologies (physical, biological, chemical, and thermal) – must be utilized to achieve the best results.

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,

ALEXANDER E. HELOU, ASSISTANT DIRECTOR
BUREAU OF SANITATION

c: Howard Levenson, CALRECYCLE
Edie Chang, ARB
BOS Executives
BOS Solid Resources Group

References:

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