WASTE MANAGEMENT

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California Energy Commission
Dockets Office, MS-4
Re: Docket No. 09-ALT-1
1516 Ninth Street
Sacramento, CA 95814-5512

Via Email: docket@energy.state.ca.us

Subject: Docket 09-ALT-1 -- 2010-2011 Investment Plan

Dear Energy Commission:

Thank you for the opportunity to provide comments regarding the preparation of the AB 118 Investment Plan for 2010-11. Waste Management (WM) is the leading provider of comprehensive waste and environmental services in North America. By using renewable energy resources in place of fossil fuels, WM's landfill gas and waste-to-energy projects produce energy equivalent to 14 million barrels of oil annually. WM is committed to more than doubling this renewable energy output by the year 2020.

WM's Commitment to Low Carbon Transportation Fuels

WM currently operates approximately 700 heavy-duty natural gas vehicles in California – representing about 20% of our California Fleet. We have been steadily increasing our Natural Gas truck deployment at a rate of about 10% per year as we continue to replace vehicles and modernize our fleet.

Currently, WM and our partner, Linde, are operating a landfill gas to LNG plant at our Altamont Landfill near Livermore, California. This plant produces approximately 13,000 gallons of low-carbon bio-LNG per day; this bio-LNG is among the lowest carbon fuels available in California today with an expected reduction in carbon intensity of about 85% below that of traditional diesel. WM is currently using this low-carbon bio-LNG to fuel our fleet at multiple locations throughout California. Construction of this first-of-its-kind commercial scale landfill gas to LNG plant would not have been possible with out the funding support of several state agencies – including the California Energy Commission.

The low carbon intensity of the LNG we produce is, in large part, due to the waste-derived nature of this fuel. Waste-based fuels are derived from materials that would have been otherwise disposed or wasted (e.g., landfill gas, yard waste, agricultural waste, etc.). With waste-based fuels, there is no carbon penalty frequently associated with crop-based biofuels. The carbon intensity of waste-based fuels is further reduced if the energy needed to produce and transport these fuels is also waste-derived and is especially low if fueling is conducted near the source of the fuel (e.g., at the waste facility).

Waste Management is currently evaluating the siting of additional landfill gas to energy plants in California similar to the one at our Altamont Landfill. In addition, WM is also looking at other technologies that may be used to produce bio-transportation fuels by diverting and processing wastes before they are disposed in a landfill. Currently, over 25 million tons of biogenic organic wastes are disposed in California landfills each year. WM expects to play a leading role in diverting these wastes into useful energy and co-products. Two prominent examples of technologies that WM will be seeking to site in California in the near future include:

- **Harvest Power Bio-Methane:** WM has invested in Harvest Power (http://www.harvestpower.com/) to expand next-generation organics recycling facilities across the United States and Canada. Waste Management joins founding investors Kleiner Perkins Caufield & Byers (http://www.kpcb.com/) and Munich Venture Partners (http://www.munichvp.com/). Harvest has significant expertise in organic waste management, from building and operating large-scale organics recycling facilities to marketing compost products. Harvest owns and operates the largest food and yard waste composting facility in North America, located in Richmond, British Columbia. Harvest is also developing innovative high solids aerobic and anaerobic digestion and composting technologies, which accelerate the decomposition of organic materials to produce renewable energy that offsets the use of fossil fuels. The process creates clean biogas that can be converted into electricity, *liquefied natural gas, or compressed natural gas for transportation fuels*, and also generate high-quality, nutrient-rich compost products. Waste Management and Harvest are actively working to develop several potential projects here in California.
- **Terrabon Bio-Gasoline:** Waste Management has also partnered with Terrabon LLC (http://www.terrabon.com/). WM will assist Terrabon in securing organic waste streams that Terrabon will use to produce *high-octane bio-gasoline* using its MixAlco™ technology. MixAlco is an acid fermentation process that converts biomass into organic salts. The resulting non-hazardous organic salts, or bio-crude, will be then shipped by truck, rail or pipeline to a refinery or other centralized processing facility where it would be converted to a high-octane gasoline that can be blended directly into a refiner's fuel pool, *avoiding many of the blending and logistic challenges presented by ethanol*. Terrabon recently successfully completed the production of gasoline from waste biomass at its advanced biofuels research facility in Bryan, Texas. Waste Management and Terrabon are actively working to develop potential projects here in California.

WM believes that these emerging technologies, as well as others, should be eligible to compete for AB 118 funds administered by the Energy Commission. These technologies are capital-intensive to deploy and although there is extensive private investment supporting their development, seed funding and support by the California Energy Commission will be extremely important in the near term development of these projects over the next 5 – 8 years. WM and our partners believe that these low-carbon alternative fuel technologies will be much more commercially viable with the advent of pending future GHG regulatory structures and low carbon fuel standards. However, securing substantial monetary value in the form of GHG or LCFS credits from the production of low carbon fuel is still speculative at best and at least 5 years, or more, in the future. In the meantime, reliance on available state and federal funds, such as AB 118 funding, is essential to jump-start near term deployment of these technologies.

For the bio-methane technologies, support from AB 118 is especially important to re-level the playing field between their potential uses for distributed generation of electricity versus production of renewable transportation fuels. Currently, the federal Investment Tax Credit and the Sec. 1603 "Grant in Lieu of Tax Credit" program are available to project developers only if they produce electricity and not if they take the same fuel and use it for transportation. We believe that both electricity production and transportation uses are important and need support, but the federally-supported "tilt" towards electricity production effectively discourages bio-methane based transportation fuel projects and thereby undermines California's and AB 118's policy objectives. Increased support from the AB 118 Investment Plan for bio-methane transportation projects would partially redress this imbalance.

WM Comments on Draft AB 118 Investment Plan for 2010-11

Support for Natural Gas and Bio-Methane Funding: In general, WM strongly supports the thrust of the Draft Investment Plan. We strongly support the allocation of $24 million to support the purchase of CNG/LNG vehicles, fueling stations and biomethane production, feasibility studies and quality testing. Availability of these funds will allow WM and other stakeholders to continue deploying natural gas vehicles, provide fueling infrastructure and develop new biomethane facilities – such as the Harvest Power technologies described above.

Natural gas and biomethane are perfect partners in the race to extremely low carbon "pathways". In order for low carbon biomethane to be practically available for California fleets, the intermediate step of converting fleets and fueling infrastructure from diesel to natural gas is, in most cases, essential. By itself, the conversion from diesel to natural gas will lead to a significant 20-30% reduction in fuel carbon intensity (http://www.arb.ca.gov/fuels/lcfs/lcfs.htm). In addition, it creates an essential pathway to achieve far greater reductions in carbon intensity in the form of biomethane (85% or greater reduction in carbon intensity).

Landfill Gas to Pipelines: One area that warrants further mention in the AB 118 Investment Plan is the possibility of directly injecting treated bio-methane from landfill gas into utility pipelines. This gas could be easily dedicated for use as transportation fuel. Currently, the placement of landfill gas is prohibited by rules adopted by the California Public Utilities Commission. However, several utilities are working with the Gas Technology Institute (GTI) to evaluate technologies that can reliably treat landfill gas to meet pipeline quality standards. Waste Management is supporting this effort through the Solid Waste Association of North America (SWANA). Given that the Draft Investment Plan identifies "New Construction or

Expansion of Biomethane Production, Feasibility Studies, and Quality Testing" (p. 63 and summary Table 21) we request confirmation that the Investment Plan would allow some AB 118 funds to potentially be made available, as needed, to support this effort.

Support for *"Bio-Gasoline"* Funding: Unfortunately, the Draft Investment Plan does not current contain a clear category to provide funding for "Bio-Gasoline" facilities such as the Terrabon Process mentioned above. However, under the "Ethanol" section of the Draft Investment Plan that begins on page 36 there is mention of the possibility of "biogasoline" becoming a viable alternative, provided an adequate "fate and transport" assessment is conducted. However, bio-gasoline produced from waste materials, using a process powered by waste-derived fuels, will have an extremely low carbon intensity. WM believes that the Terrabon process is an example of such a technology that should be eligible to apply for AB 118 Funding in 2010-11. To encourage this, we recommend that the "Ethanol" category be broadened and expanded to allow *any* bio-gasoline substitute to compete for available AB 118 funds during FY 2010-11 and beyond. This already seems to be the approach taken in the biomass based diesel category and natural gas category – any source of biomass diesel or biomethane would be allowed to compete for AB 118 funding in FY 2010-11. The same approach should be taken for "Bio-gasoline" whether it is ethanol or a direct bio-gasoline substitute – such as offered by Terrabon.

Support for Waste-Derived Transportation Fuels: The Draft Investment Plan makes several references throughout to the very low carbon intensity associated with fuels derived from waste feed stocks (see discussion under Biodiesel and the statement on page 60 under "Biomethane": " . . . biomethane derived from waste stream feed stocks has the *lowest carbon intensity value of any commercially viable alternative transportation fuel* (emphasis added)". This is true not only for biomethane or for waste-based biodiesel, but for *any transportation fuel produced from waste stream feed stocks* including, municipal solid waste, agricultural waste and forestry waste. As cited above, there are over 25 million tons of biogenic organic wastes disposed in California landfills each year. This provides a readily available and completely sustainable source of materials to produce low carbon transportation fuels – without the down side of GHG emissions associated with land use changes (e.g., as with crop-based fuels). WM recommends that a stronger emphasis be placed in the Investment Plan to encourage the development of low carbon transportation fuels from available waste stream feed stocks. This has the double-sided advantage of also contributing to the Waste Reduction Goals of the CalRecycle Department (formerly the California Integrated Waste Management Board – CIWMB).

Key Policy Objectives should be Overriding Goal of the Investment Plan: The Investment Plan identifies the following as key policy objectives:

- GHG reduction
- Petroleum Reduction
- Alternative and Renewable Fuel Use, and
- In-State Bio-Fuels Production.

The Plan should be more flexibly constructed to emphasize the attainment of these goals. As currently drafted, the Plan seems to break the available funding into discrete categories (e.g.,

Electric Drive, Hydrogen, Ethanol [or Bio-Gasoline], etc.). WM supports the ability to shift available funding between categories, as appropriate, to further the stated goals of the Investment Plan. This is particularly true with respect to the categorized funding for transportation fuels with markedly different carbon intensities. The plan should clearly emphasize the need to develop the lowest carbon fuels possible or clear pathways to achieve low carbon fuels.

An unfortunate outcome would be failure to fund very low carbon fuels simply because available dollars in a particular category are exhausted, while fuels with higher carbon intensity are still funded in another category. For example, what if funding category "A" was able to allocate all of its funds to projects with very low carbon intensities and additional projects with similarly low carbon intensities were left un-funded. At the same time category "B" was allocating funds to projects with much higher carbon intensities. It seems that strict adherence to funding categories could jeopardize attainment of the Investment Plans goals. Rather, the Investment Plan must clearly allow funds to be reasonably shifted between funding categories – particularly if the funding shift would clearly advance the above stated goals.

Summary of WM Recommendations

As discussed above, WM recommends and requests that the Investment Plan be further amended to address the following considerations:

- **Landfill Gas to Pipeline Feasibility and Testing:** Confirmation that AB 118 Funds may be used to support feasibility studies and quality testing needed to provide the technical foundation to allow appropriate treated landfill gas to be distributed as a transportation fuel in California utility pipelines.
- **Bio-Gasoline Eligibility:** The Ethanol category should be broadened and expanded to provide funding for any type of bio-gasoline substitute that is able to competitively seek and secure AB 118 funding.
- **Waste-Derived Transportation Fuels:** Greater emphasis should be placed in the Investment Plan on waste derived feedstocks to produce low carbon alternative transportation fuels – regardless of the various categories.
- **Investment Plan Flexibility to Meet Key Policy Objectives:** The Investment Plan should be structured to allow funds to be more clearly shifted between categories if such a shift would clearly support the stated objectives of the Plan. Ideally all proposed projects should be required to show how they would further the goals of the plan and be competitively evaluated based on these goals.

Thank you for the opportunity to provide these views for your consideration. Please contact me if you have any questions or require further information regarding the issues raised herein.
Sincerely,

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