WASTE MANAGEMENT

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Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, California 95814

Via Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

SUBJECT: COMMENTS BY WASTE MANAGEMENT ON A PROPOSED CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS REGULATION, INCLUDING COMPLIANCE OFFSET PROTOCOLS

Dear Air Resources Board:

Thank you for the opportunity to provide comments on the design of the California Cap-and-Trade (C&T) Program to reduce greenhouse gas emissions. Waste Management (WM) supports the California Air Resources Board ("ARB") on its continued progress toward the implementation of Assembly Bill 32 ("AB 32"). WM is North America's leading provider of integrated environmental solutions. We work closely with our customers and communities to manage and reduce waste from collection to disposal while recovering valuable resources and creating clean, renewable energy.

- WM uses waste to create enough energy to power more than 1 million homes every year. By 2020, we expect to double that output, creating enough energy to power more than 2 million homes.
- As North America's largest recycler, WM managed more than 7 million tons of recyclable commodities in 2009. By the year 2020, we expect to increase the amount of material we manage to more than 20 million tons per year.
- By the end of 2009, WM had 119 landfill-gas-to-energy projects producing 540 megawatts of power, the equivalent of powering approximately 400,000 homes.
- At the end of 2009, we had more than 800 natural gas-powered trucks in our fleet, with plans to add 200 more in 2010. During the year, we also used technology to reduce the fuel usage of every truck in our fleet. When fully implemented, this is expected to save 9 million gallons of fuel per year.

- Our wholly owned subsidiary Wheelabrator Technologies owns or operates 16 waste-to-energy plants and five independent power production facilities in the U.S. that generate enough energy to power more than 900,000 homes.
- Through a joint venture with the Linde Group, we have built a plant that converts landfill gas into liquefied natural gas (LNG) for use as fuel in our trucks. The facility is currently producing 13,000 gallons per day of the lowest carbon fuel available in California.

While WM generally supports the adoption of C&T regulations by ARB, we wish to emphasize further consideration of the following points.

Waste Derived Resources and Energy

WM supports efforts of CARB to ensure that CO2 emissions from biomass energy and fuels are considered "carbon neutral" – particularly when the biomass fuel is waste derived. WM urges the ARB to continue in this vein and provide recognition of the GHG lifecycle benefits of converting waste materials and resources into recovered materials and renewable energy. As mentioned above, WM and Linde are currently producing the lowest carbon fuel available in California at our Altamont Landfill Gas to LNG facility. Further development of waste derived fuels and energy will lead to even further reductions in GHG emissions. The C&T regulations must be structured to encourage the further development of waste derived energy and renewable resources. *WM urges the CARB to develop protocols for generating GHG reduction credits for the production of waste-derived renewable resources, recyclables, energy and fuels.*

Ensuring Adequate Offset Supply

Carbon offsets from non-capped sectors in California's cap and trade program will be an essential cost containment mechanism available to covered entities. They will provide lower-cost emission reductions during all stages of program implementation. WM believes that the proposed rules establish a robust system for early offset creation, but encourages ARB to consider changes in order to move quickly to establish additional sources of offset supply.

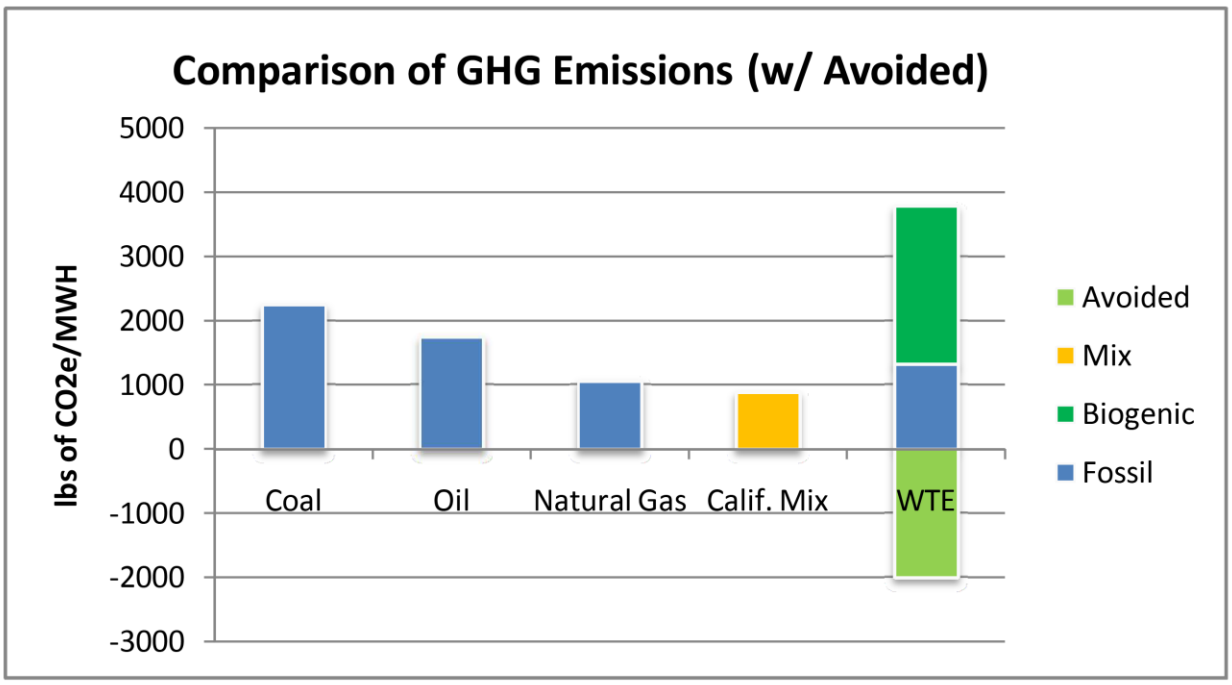
ARB has already taken the step of identifying four protocols that may be used to generate offset credits for early action. WM recommends ARB consider establishing clear criteria for additional project types that can quickly generate large volumes of offset credits. WM recommends that credits associated with waste diversion and waste-based energy projects be given a high priority. ARB should take every effort to identify protocols in addition to those developed by the Climate Action Reserve (CAR). By quickly identifying additional protocols, ARB will stimulate immediate investment in these project types, increasing the likelihood of availability of low-cost offset supply. At the same time, ARB must ensure that the offset protocols are of the highest quality and create offsets that are *real*, *additional*, *quantifiable*, *permanent*, *verifiable and enforceable.* WM recommends consideration of the following project types:

- **Transferability of Low Carbon Fuel Standard Credits (LCFS) to provide C&T offset credits.** The ARB has already developed protocols under the LCFS. These protocols can also be used to develop credits under the C&T program. This will provide additional economic stimulus for the development of alternative low-carbon fuels.

- **Collection and Destruction of Landfill Gas Methane.** Although the ARB has developed a robust early action measure to maximize control of methane generated in California landfills, there are still measures that can be taken to improve landfill methane control in California and elsewhere within C&T partner jurisdictions (e.g., WCI jurisdictions).
- **Recovery of low carbon energy and fuel from waste derived materials.** This can include the further development of landfill gas resources, anaerobic digestion facilities, and waste-to-energy facilities.
- **Recovery, recycling and reuse of waste derived materials.** Tremendous reductions in GHG emissions can result from the recovery, recycling and reuse of waste materials. Protocols that create credits for the use of recycled materials will have the added benefit of further stimulating the diversion of waste materials from landfills for beneficial use.

Waste-to-Energy

Unfortunately, the proposed regulations impose great hardship on existing and potential future Waste-to-Energy facilities. ARB is taking the unprecedented step of requiring that waste-to-energy facilities be subject to a GHG emissions cap. Throughout the world, these facilities are treated as sources of renewable energy rather that sources of GHG emissions.



The above chart compares GHG emissions (lbs of CO2e/MWH) from a typical waste-to-energy plant to GHG emissions from various fossil fuel sources and the average California mix of energy sources. At first blush, it appears that the overall GHG emissions from waste-to-energy are higher than the fossil fuel sources. However, as CARB recognizes, the bulk of these emissions (~65%) are from biogenic waste sources (green waste, paper, etc.) internationally

recognized as being part of the "near-term" carbon cycle that are not counted as part of a GHG C&T program. The remaining ~35% of emissions are from anthropogenic (fossil) sources, but these are waste sources that would be generated in any event as a waste (i.e., non-recyclable plastics). These are waste materials that are destined for disposal and, without waste-to-energy, would require disposal in a landfill. Even so, the fossil emissions of a typical waste-to-energy plant are lower than coal or oil-fired emissions and are only slightly higher than that of a combined cycled natural gas generating facility. Also demonstrated in this chart are the approximate avoided emissions associated with a waste-to-energy facility using a life-cycle analysis. This light green bar below the x-axis in the chart shows the avoided emissions associated with waste-to-energy facilities, including:

- Avoided fossil fuel emissions from other energy sources,
- Avoided landfill methane emissions, and
- Avoided emissions associated with recycling and recovery of ferrous and non-ferrous metals that is achieved in a waste-to-energy plant.

These are avoided emissions that are unique to waste-to-energy and that cannot be achieved by any of the other fossil fuel (or renewable energy) sources. Indeed, if an overall life-cycle assessment of the fossil fuel energy source were used to include energy production and transportation emissions, the emissions associated with the other fossil energy sources would be even higher.

WM firmly believes that it is inappropriate to include waste-to-energy under California's proposed cap-and-trade program given the significant GHG reductions achieved by waste-to-energy – ***at least not without full recognition of the life-cycle benefits associated with WTE operations.*** Regulation of stack carbon dioxide emissions as a point source ignores the energy and environmental benefits of waste-to-energy facilities that are more fully defined through a life cycle assessment. The significant savings in greenhouse gas emissions resulting from waste-to-energy is not theoretical, but proven by substantiated, peer-reviewed analysis of site-specific data.

The recognition of waste-to-energy as a GHG reduction technology is not without significant precedent. Other greenhouse gas regulatory programs, such as the European Union Emission Trading Scheme (EU-ETS), the Regional Greenhouse Gas Initiative (RGGI), and Congressional climate change legislation (sponsored by California's Congressman Waxman And Senator Boxer) under consideration should be viewed as potential models upon which to base a new California cap-and-trade program – at least with respect to waste-to-energy.

Under the EU-ETS, by far the largest mandatory GHG cap-and-trade program, waste-to-energy facilities are specifically excluded due to their ability to reduce GHG emissions from waste management (just as CARB has already recognized for mandatory commercial recycling). In fact, the European Environment Agency (EEA) attributes considerable reductions in waste management GHG emissions to increased levels of recycling and waste-to-energy.

Under RGGI, which regulates fossil fuel-fired utilities only, waste-to-energy facilities are specifically excluded because they burn municipal solid waste.

Further, the U.S. House-passed Waxman-Markey federal cap and trade bill (H.R. 2454), while capping fossil-fuel fired utilities, among other sources, specifically excludes waste-to-energy plants which burn five percent or less of supplemental fossil fuel (e.g., natural gas or fuel oil as a supplemental fuel). The U.S. Senate Environment and Public Works Committee approved the same exclusion in the Boxer-Kerry (S. 1733) bill. The House bill and the Senate Energy and Natural Resources Committee's approved *American Clean Energy and Leadership Act* (S. 1462) also establish a federal Renewable Portfolio Standard that recognizes waste-to-energy as a renewable energy source.

Finally, the net reductions achieved by waste-to-energy have been recognized internationally under the Clean Development Mechanism, as part of the Kyoto Protocol. Waste-to-energy projects can generate credits through the approved methodology AM0025, "Avoided emissions from organic waste through alternative waste treatment processes."

The goal of each of these programs is promotion of technologies and practices that lower the release of greenhouse gases into the atmosphere. Waste-to-energy helps to achieve that goal and therefore has been appropriately excluded from ***all other*** cap and trade regimes.

Any cap-and-trade program established by ARB should embrace the same goal as the international programs: to support technologies and methods that lower greenhouse gas emissions into our atmosphere. To some extent, CARB is heading in the correct direction with regard to solid waste management. ARB has recognized that the Climate Action Reserve (CAR) as a possible entity through which tradable GHG reduction credits may be generated. CAR has already adopted a GHG offset protocol for waste conversion technologies that recognizes the benefits of diverting organic waste from landfills to reduce methane emissions. Indeed, the GHG reduction credits derived by the CAR protocol for conversion technologies is based on reduced landfill emissions – very similar to what is achieved by a waste-to-energy facility. However, to evaluate waste-to-energy facilities accurately, ARB should also recognize the additional GHG reductions achievable by waste-to-energy through metals recycling and the recovery of energy resulting from this alternative to fossil sources.

California is only beginning to embrace the benefits of waste-to-energy in managing solid waste and producing renewable electricity – although three such facilities already exist in California. California's AB 939 (Sher, 1989) recognizes the benefits of these three facilities by allowing landfill waste diversion credit for these operations. Additionally, CalRecycle recently completed a solid waste GHG lifecycle analysis that documents the greatest future reductions in solid waste GHG emissions involve a framework that heavily emphasizes the recovery of energy from waste, including the increased use of waste-to-energy.

Subjecting waste-to-energy facilities to a California GHG Cap and Trade system without recognizing their overall lifecycle benefits will be inconsistent with other California integrated waste management policies and will jeopardize the continuing economic viability of these operations. Any program that places waste-to-energy under the cap would have the unintended

consequence of increasing the release of greenhouse gases since communities may choose to close facilities or cease pursuing new capacity rather than pay the cost of compliance with a cap-and-trade program. The potential closure or reduced operation by these facilities could easily result in more waste being disposed of in California landfills and reduced metal recycling & recovery, effectively a form of emissions "leakage" that ARB is aggressively attempting to minimize. By recognizing the net reductions in greenhouse gases achieved by waste-to-energy and not regulating it under a cap, ARB can insure that waste-to-energy continues as a viable means to reduce landfill disposal and increase metal recycling and recovery – along with associated GHG emission reductions.

CalRecycle recently completed a comprehensive life-cycle assessment of GHG reductions associated with waste management practices – by employing a life cycle assessment. For more information go to:

http://www.calrecycle.ca.gov/Temp/Climate/default.htm.

The initial conclusions of the CalRecycle life-cycle assessment is that *the greatest degree of GHG reductions from the waste and recycling sector is achieved by maximizing energy recovery from waste*.

WM strongly requests that waste-to-energy facilities be recognized for their avoided GHG emission benefits that are unique to this energy source – *consistent with other state, regional, national and international programs for the reduction of GHG emissions.* Rather than include waste-to-energy in the proposed cap and trade regulations based solely on the fossil fraction of the waste-derived fuel WM recommends that ARB simply recognize the additional GHG reduction benefits associated with waste-to-energy by allowing waste-to-energy plants to be evaluated on a life-cycle basis rather than purely on fossil-based emissions.

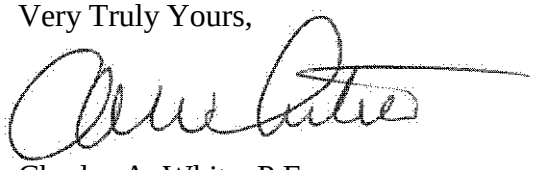
Summary and Conclusions

WM supports the Cap and Trade Framework proposed by the regulations and requests that the ARB:

- Continue to recognize the GHG benefits associated with waste derived energy and resources,
- Continue to recognize purely biogenic emissions of CO2 as carbon neutral.
- Rapidly develop additional protocols for generating GHG reduction credits associated with the diversion and use of resources that would otherwise be wasted.
- Recognize the additional GHG reduction benefits associated with waste-to-energy by allowing waste-to-energy plants to be evaluated on a life-cycle basis rather than purely on fossil-based emissions.

Please contact me if you have any questions regarding these comments on the proposed Cap and Trade Regulations being considered by the ARB.

Very Truly Yours,



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