



WASTE MANAGEMENT

Public Affairs

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November 27, 2007

Mr. Steve Church
Research Division
California Air Resources Board
1001 "I" Street, PO Box 95812
Sacramento, CA 95812

Via electronic submittal: schurch@arb.ca.gov

Subject: Comments on the ETAAC Report Discussion Draft

Dear Mr. Church:

Waste Management wishes to express its support for the findings and recommendations outlined in the Economic and Technology Advancement Advisory Committee (ETAAC) Draft Report released on November 15, 2007. Our company has long been a leader in greenhouse gas and criteria pollutant reduction efforts, and we are actively working to reduce the climate change impact of our vehicle and landfill operations. The forward-thinking policies from the State of California and the ETAAC's findings will help California achieve its greenhouse gas reduction goals.

In particular, Waste Management wanted to thank the ETAAC for its recommendations on demonstration and incentive funding. Demonstration funding from the SCAQMD and the California Energy Commission have been critical in allowing Waste Management to develop and demonstrate advanced natural gas engine technologies, landfill gas-to-LNG production technologies and now hybrid electric and hydraulic hybrid technologies. The cost-effectiveness thresholds of traditional air quality improvement incentive programs have limited our fleet from implementing many promising emission reduction technologies still in their costlier infancy and demonstration phase. Additionally, we support revisiting current incentive programs to incorporate greenhouse gas reductions into current air quality improvement calculations.

However, as a company with long-term experience in developing and implementing emission reduction fleet programs, Waste Management respectfully submits that the ETAAC's draft report is lacking in its support of near- and medium-term emission reduction efforts for heavy-duty vehicles, including refuse collection vehicles. *In particular, our company would like to see*

explicit support for heavy-duty hydraulic hybrids and electric hybrids included in the final report.

Additionally, our company feels it is important to clearly identify refuse and possible other regulated heavy-duty vehicle sectors in the final report. The California Air Resources Board projected that the solid waste collection vehicle population would number 13,100 by the year 2010¹. Further, heavy-duty refuse vehicles are particularly amendable to hydraulic hybrid technology due to the frequent starting and stopping associated with this duty cycle. However, much of the ETAAC draft language emphasizes passenger and goods movement vehicle needs. Each transportation sector, however, faces distinct challenges and greenhouse gas reduction opportunities, and our company hopes the final language recognizes those distinctions.

The finance chapter of the draft report notes that demonstration financing should be focused on three areas: clean energy generation, energy efficiency technologies in industrial applications and clean transportation. It goes on to explain clean transportation as support for “low and zero [emission] transportation options including light, medium and heavy-duty plug-in hybrids, dedicated electric vehicles and hydrogen or other advanced fuels.” While Waste Management agrees that these are laudable final goals, we also hope that the finance recommendations will support more cost-effective near- and medium- term technologies, such as standard heavy-duty hybrid applications, including hydraulic hybrids, which are necessary for later plug-in technology and are still largely in their development stages.

Additionally, although hybrid technology alone may not help California achieve the necessary 25-29% reduction in greenhouse gas emissions, utilizing fully commercialized hybrid technologies with low carbon fuels could achieve substantial reductions. In transit applications, where diesel electric hybrid technologies have made the most commercial headway in heavy-duty applications, vehicles are currently achieving approximately 15% reductions in well-to-wheels greenhouse gas emissions over ULSD and CNG² and between 18-37% improvements in fuel economy (depending on average vehicle speed and use cycles.)³ In combination with lower carbon biodiesel or LNG from landfill gas, these well-to-wheels reductions could surpass the 29% mark. While transit and refuse applications are distinct, both are slow-speed, stop-and-start, fuel intensive vehicle applications that can maximize the greenhouse reduction and fuel economy improvement potential of hybrid technologies.

Also, the ETAAC report makes no reference of hydraulic hybrid research, development or demonstration support. Although hydraulic hybrids do not have the potential advantage of using electric grid power at a future time, early developments indicate fuel economy increased of 30-40% over traditional diesel vehicles. Fully developed hydraulic hybrid systems will not have the battery replacement costs of their electric counterparts and could also be combined with other low-carbon fuels for additional GHG reductions. For example, Waste Management is now

¹ Page 17, Staff Report: Initial Statement of Reasons, *Proposed Diesel Particulate Matter Control Measure for Heavy-Duty Residential and Commercial Solid Waste Collection Vehicles*, 2003

² Page 31, U.S. Department of Transportation, Federal Transit Administration, *Transit Bus Life Cycle Cost and Year 2007 Emissions Estimation*, 2007

³ Ibid, Page 11

demonstrating an LNG hydraulic hybrid in the SCAQMD that shows promise for future emission and GHG reduction compliance. Waste Management therefore respectfully requests that the report recognize all successful hybrid technologies as low-carbon technologies that could be especially well suited to some heavy-duty applications.

In conclusion, Waste Management has pledged \$500 million per year over a 10-year period in fleet upgrades and technology investments in order to accomplish its fleet sustainability initiatives. We recognize that a multifaceted approach to climate change must utilize multiple fuels and advanced fuel efficiency technologies. As such, we are examining biodiesel, renewable diesel, CNG, LNG, landfill gas as transportation fuel, electric hybrid and hydraulic hybrid options. Full commercialization of these low-carbon fuel technologies will help achieve substantial gains in greenhouse gas reductions, fuel economy and criteria pollutant emission reductions.

We hope that the final draft of the ETAAC report will reflect appropriate policy and incentive support for each of these promising low carbon fuels and low carbon fuel technologies. Waste Management looks forward to working with the State of California to reduce the carbon footprint of our fleet operations. Please don't hesitate to contact me if you have any questions or need any further information.

Sincerely,

Original signed by:
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