



WASTE MANAGEMENT

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Via Email: mansingh@arb.ca.gov

Manisha Singh
California Air Resources Board
1101 I Street
Sacramento, CA

Subject: Comments on Draft LCFS Regulation

Dear Ms. Singh:

Thank you for the opportunity to submit comments on the draft proposed LCFS regulations for which comments are requested as of today's date. Waste Management (WM) provides comprehensive waste and recycling services throughout California. We operate a Heavy-Duty fleet of over 3,000 vehicles in California – most running on diesel, including over 500 on various bio-diesel blends and including over 500 natural gas fueled vehicles. In addition, Waste Management operates 12 solid waste landfills that generate significant landfill gas and accept biogenic wastes in a variety of forms. WM has a partnership to develop a Landfill Gas (LFG) to LNG facility at our Altamont Landfill in the Bay Area in partnership with Linde/BOC and the Gas Technology Institute (GTI). We expect to produce over 13,000 gallons of Very Low Carbon Fuel (VLCF) in the form of LNG starting in 2009.

WM fully supports the implementation of a low carbon fuels standard and stands ready to participate in this new marketplace. In general, WM is in agreement with the latest updates CARB has made to the draft regulation. WM supports the following changes and requests that they remain in all future version of the LCFS regulation as currently written:

- ✓ **Section 95420 new definitions for Biogas CNG/LNG**
- ✓ **Section 95421 credit generation opt-in provisions for alternative fuels**
- ✓ **Section 95424 regulated party definitions for natural gas (fossil and biogas)**

We do have a few remaining concerns that were not addressed in these last updates and have one new concern.

- **Section 95420(a)(3) – Biomethane Definition.** We submitted comments in December 2008 about our concern over the definition of Biomethane. The January revisions included the addition of a new definition for “Biogas (also called Biomethane)”, but the original definition doesn’t appear to have been removed. Furthermore, the new Biogas definition is a bit too simplified to cover all of the probable sources of Biogas.

WM recommends the following language for a definition of Biogas:

Biogas means natural gas that that meets the requirements of 13 CCR §2292.5 and is produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical gasification. These processes are applied to biodegradable biomass materials such as manure, sewage, municipal solid waste, green waste, and energy crops to produce biogas, including landfill gas and digester gas.

Because *landfill gas* and *digester gas* are both clearly recognized by CARB to be very low carbon intensity sources of biogas fuels, and *municipal solid waste* and *other wastes* are likewise recognized by CARB to be very low carbon sources of biogas, we suggest that these terms be specifically included in the definition of biogas.

- **Section 95425(c)(2), p33 – LCFS Credit Trading Limitations.** As it is currently written, this section limits the purchase, sale, and trading of LCFS credits to regulated parties or a 3rd party acting on behalf of a regulated entity. We discussed this issue in our meeting on January 29th and understand CARB’s position with the major oil refiners that do not want to see carbon brokers involved in the LCFS program because of the poor experience they have had with the EPA RFS program.

While we appreciate the opinion of the oil refiners, WM still believes that this language could stifle the development of a proper trading market for LCFS credits. In a large-scale market-based program like the LCFS, WM would like to see third party carbon brokers able to “make a market” for these credits. This type of market making activity tends to increase the liquidity of these credits, stimulate firms to generate these types of credits, and improve price transparency. These activities also tend to make it easier for more companies to meet their compliance obligations under the new LCFS.

WM still respectfully suggests that this section be removed in its entirety.

- **Section 95425(c)(1)(A), p33 – 20% Credit Rollover Cap.** WM commented in December that it was concerned about the 20% rollover cap and its potential to hinder the formation of a robust trading market for LCFS credits. We discussed this issue in our meeting on January 29th and understand that this provision is going to be removed, but did not see that change in the January revisions.

We would just like confirmation that this provision will in fact be removed from the final version of the LCFS regulation.

➤ **95425, Table 7 – EER Values for Fuels**

WM was surprised with the January 2009 proposed change in the energy economy ratio (EER) for CNG and LNG ICEVs to 0.90. The December 2009 version had specifically referenced a 2007 TIAX study that showed the ratio for CNG to be 0.94 and for LNG to be 0.95. The December revision also stated that CARB had established the value at 1.0.

We would like to better understand the comments that were made on this topic and the data that led CARB to change the EER to 0.90. Natural gas engine manufacturers work continuously to improve the thermal efficiency of their engines and have made significant improvements over the past five years. Today's spark-ignited natural gas engines still experience a small thermal efficiency penalty (2% to 6%) compared to their diesel counterparts, while today's compression ignition natural gas engines are at parity with diesel thermal efficiency.

WM recommends that, given these current thermal efficiency comparisons, CARB should set the EER for CNG and LNG engines at a minimum of 0.95, if not leave it at 1.0 given the latest natural gas engines that are now comparable to diesel cycle efficiency.

➤ **95425(a)(3) - LCFS Credits and Deficits [Equation 1]**

WM is concerned that the LCFS credit/deficit generation equation inappropriately penalizes different fuels based on the EER. The way the equation is currently written, the EER gets used in multiple factors in this equation. The EER is integrated in to the $AFCI^{xd}_{compliance}$ factor denominator and the $E^{xd}_{displaced}$ numerator. In the case of an EER that is below 1.0, this effectively increases the carbon intensity of the new fuel and reduces the amount of conventional fuel displaced – a double penalty. For example, for conventional CNG, the 10% reduction in EER leads to a 34% reduction in the LCFS credits generated because of this double penalty.

WM recommends that the equation should be modified to eliminate this double penalty by removing the EER from the denominator of the AFCI equation. The EER should only be used in Equation 1 in the energy displacement factor ($E^{xd}_{displaced}$).

➤ **Biomass CO₂ Emissions Definition**

WM has communicated with CARB previously about our concern about the lack of distinction in the LCFS between fossil and biomass emissions of CO₂. That is, the CO₂ emissions from the combustion of these “biomass fuels” should be considered part of the near-term carbon cycle. We also understand from our January 29th meeting that CARB will be working with the Western Climate Initiative (WCI) to develop these definitions and come to agreement on how they should be used.

Likewise, we understand that the CARB Office of Climate Change will be initiating a series of discussions starting on February 18, 2009 regarding the carbon intensity of biomass

derived fuels. We are hopeful that this process will lead to an understanding similar to that being developed as part of the Low Carbon Fuel Standard.

WM certainly believes and understands that fossil fuel sources of energy used to produce or transport biomass fuels, as well as land use carbon intensity implications of energy crops, need to be included in calculating the overall carbon intensity of the fuel - as you have done and are doing. WM stands ready to assist CARB in any way possible to understand the true carbon intensity of biomass fuels – particularly those derived from waste biomass.

Please contact me if you have any questions regarding the information provided in this letter or wish to discuss these matters further.



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