

*Barron County Waste-to-Energy
and Recycling Facility
(Almena, Wisconsin)*

*Bristol Resource Recovery Facility
Operating Committee
(Bristol, Connecticut)*

Ecomaine (Portland, Maine)

City of Harrisburg, Pennsylvania

*City and County of Honolulu,
Hawaii*

*City of Huntsville Solid Waste
Disposal Authority
(Huntsville, Alabama)*

*County Sanitation Districts of
Los Angeles County
(Whittier, California)*

Kent County, Michigan

*Lancaster County Solid
Waste Management Authority
(Lancaster, Pennsylvania)*

Marion County, Oregon

*Mid-Maine Waste Action Corp.
(Auburn, Maine)*

*Northeast Maryland Waste
Disposal Authority
(Baltimore, Maryland)*

*Pollution Control Financing
Authority of Camden County
(Pennsauken, New Jersey)*

*Spokane Regional Solid Waste
System (Spokane, Washington)*

*Wasatch Integrated Waste
Management District
(Layton, Utah)*

*York County Solid Waste Authority
(York, Pennsylvania)*

** In coordination with the
U.S. Conference of Mayors/
Municipal Waste
Management Association*

LOCAL GOVERNMENT COALITION FOR RENEWABLE ENERGY

December 15, 2010

Via E-mail

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

Re: Waste-to-Energy and the Air Resources Board's Proposed Regulation to Implement California's Cap-and-Trade Program

Dear Sir or Madam:

This letter (together with the attached support documents) is submitted by the Local Government Coalition for Renewable Energy (Coalition), an alliance of local government entities that own state of the art waste-to-energy (WTE) facilities and are actively engaged in various WTE-related state and federal regulatory and legislative matters (for which the Coalition works in coordination with the U.S. Conference of Mayors/Municipal Waste Management Association). The points that follow in this letter focus on the Board's proposed regulations to implement California's cap-and-trade law, the Global Warming Solutions Act of 2006 (AB 32), which will subject WTE facilities to regulation of greenhouse gas (GHG) emissions and require the purchase of allowances for non-biogenic CO₂e emissions (approximately one-third of WTE facilities' CO₂e emissions are non-biogenic). Unfortunately, the Board's action is inconsistent with the policies that underlie AB 32 as they relate to WTE facilities.

In that regard, the Initial Statement of Reasons (ISOR) that accompanies the Board's proposal emphasizes that one of the key principles that underlies the proposed cap-and-trade regulations is the importance of "establish[ing] the price signal needed to drive long-term investment in cleaner and more efficient types of fuels and energy resources." ISOR at I-4; *see also id.* at ES-1 (same). But the fundamental purpose of WTE facilities (their *raison d'être*) is to process a specific type of material or "fuel," municipal solid waste (MSW), to the extent such MSW is not otherwise recycled. **In other words, fuel-switching is not an option.** Moreover, although WTE is the more capital-intensive alternative for managing the non-recyclable portion of MSW, the Coalition members (and the communities they serve) invested in WTE technology for one reason – **it is the responsible thing to do and one of the best environmental solutions for managing non-recyclable MSW, including mitigation of GHG emissions.** Put another way, WTE is unlike the other combustion sources to which the Board's proposed regulations are directed, and while none of those other source categories would be disadvantaged by recognizing the environmental benefits that distinguish WTE, failure to recognize those distinctions will discourage

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WTE and simultaneously encourage increased landfilling even though landfilling results in more GHG emissions, on a ton-for-ton basis, than WTE. Thus, as the U.S. Environmental Protection Agency (USEPA) has recently advised congressional staff, WTE yields “significant reductions of CO₂” and has a “better [GHG] profile than landfilling with energy recovery.” *See* Attachment 1, slides 25-26; *see also id.* at slides 6, 8.¹ The Board’s proposed cap-and-trade regulation is difficult to reconcile with those facts because it will increase the cost disparity that already provides significant encouragement to landfilling in California relative to WTE. That, in turn, will mean **more waste management sector GHG emissions in California rather than less.**

Based on those points as well as other related points discussed below, the Coalition respectfully submits that the Board should modify its proposed cap-and-trade regulation to remove the CO₂e allowance requirement for WTE facilities. Alternatively, the Board should provide free CO₂e allowances for California’s WTE facilities pending further investigation by the Board of the considerable environmental benefits of WTE, including GHG mitigation, and additional rulemaking to rescind that counterproductive CO₂e allowance requirement for WTE facilities.²

A. Background – Factual Context

1. Life-Cycle GHG Emissions Are Lower from WTE than Landfills with Energy Recovery

Using life-cycle analysis, USEPA’s solid waste management planning methodology shows that WTE reduces GHG emissions in three ways by: (i) generating electricity and/or steam, which reduces GHG emissions from fossil fuel sources; (ii) avoiding the potential methane emissions that would result if the same waste is landfilled; and (iii) recovering ferrous and nonferrous metals which, in turn, avoids the additional energy consumption that would be required if the same metals were produced from virgin ores. Attachment 2, pp. 1711-14; *see also* Attachment 3, Part B, Summary and pp. B-23 to B-32. USEPA’s analysis shows that WTE yields the best results (compared to landfills) on various bases, including maximum energy recovery and lower GHG emissions. Attachment 2, pp. 1711-14, 1716-17. Consistent with those findings, other scientific and engineering analyses show that WTE reduces GHG emissions by 0.5 - 1.3 tons of CO₂e per ton of MSW combusted rather than landfilled – and the low end of that range assumes a modern landfill with landfill gas recovery-reuse and a local electrical grid of relatively low carbon intensity. *See generally* Attachment 4, p. 1719; Attachment 2, p. 1712. Although federal policy makers have indicated that an evolving “best integrated material management strategy” would consist of 45% recycling, 10% landfilling and 45% WTE, *see* Attachment 1, slide 30, diverting just half of the MSW currently sent to U.S. landfills (and using an average of 1 ton of CO₂e avoided per ton of MSW processed) would reduce CO₂e emissions

¹ Attachment 1 is the PowerPoint program for the keynote address presented by Rick Brandes, Chief, Energy Recovery Branch, Office of Resource Conservation and Recovery, USEPA, at the 17th Annual North American Waste-to-Energy Conference, May 18, 2009, Chantilly, Virginia.

² Although the Coalition members employ mass-burn WTE technology, advances in waste conversion technology will continue to evolve and the points noted in this letter can be expected to apply to those emerging technologies as well, insofar as they are potential sources of GHGs.

by 135 million tons. See *The State of Garbage in America*, http://www.jgpress.com/images/art/1010/bc101016_s.pdf (BioCycle, Dec. 2010) (Table 3; calculation based on the approximately 270 million tons of MSW landfilled in the U.S. in 2008).³

WTE's significant role in mitigating GHG emissions is well established. For example, WTE's mitigation of GHG impacts is expressly recognized by the Intergovernmental Panel on Climate Change (IPCC), a leading forum of independent scientific experts. The IPCC emphasizes WTE's dual benefits of (i) displacing fossil fuel combustion and (ii) avoided landfill methane emissions. Attachment 5, p. 601. Similarly, the Kyoto Protocol's Clean Development Mechanism approves WTE as a source of tradeable GHG emission reduction credits that displaces electricity from fossil fuels and avoids landfill methane emissions from waste, see Attachment 6, pp. 1-3, and the February 20, 2007 joint statement of Columbia University's Earth Institute Global Roundtable on Climate Change (GROCC) identifies WTE as an important means to reduce carbon emissions from fossil fuel-based electricity and landfill methane. See Attachment 7, pp. 6, 9 and 11 (the signatories to GROCC's joint statement range from Dr. James Hansen, NASA Goddard Institute for Space Studies, to Environmental Defense). Another example is the World Economic Forum's January 2009 report, *Green Investing – Towards a Clean Energy Infrastructure*, which recognizes WTE as one of eight "key renewable energy sectors" and "particularly promising in terms of . . . abatement potential" for carbon emissions. Attachment 8, p. 27. In sum, as the-then Chief of EPA's Energy Recovery Branch emphasized last year, "[i]f you want to have an impact on greenhouse gas mitigation, focus on MSW [because there's] nationally significant energy available from MSW combustion [and] even if you have >50% recycling, you still have a significant amount of energy to recover." Attachment 1, slide 19.

We should also refer again to a point noted above, specifically, that one of the three ways in which WTE reduces GHG emissions is by avoiding combustion of fossil fuel to generate electricity and/or steam. See Attachment 2, pp. 1712. The Coalition has been advised that the policy rationale for the Board's decision not to recognize the mitigating factors inherent in WTE may be a concern that operators of other types of electric power generation, such as combined cycle power plants, could make a similar argument. That rationale fails to account for several key factors. First, while other entities that generate electricity can choose to avoid fossil fuels, **disposing of garbage is not an option – it's a fact of life**. Thus, even with California's commendable recycling efforts, the need to dispose of MSW will continue in the state for the foreseeable future (and as we discuss below, WTE complements recycling efforts in California and will continue to do so under future diversion requirements). Moreover, unlike the process that underlies an electric utility's (or independent power producer's) decision to construct a new

³ Although a largely untapped resource in the U.S. (only 7% of our MSW is directed to WTE while 69% is landfilled), WTE has far greater use in many other nations that are at least equally conscientious stewards of the environment. See *The State of Garbage in America*, http://www.jgpress.com/images/art/1010/bc101016_s.pdf (BioCycle, Oct. 2010); Attachment 5, p. 601. This is not to suggest that landfills are not a necessary component of waste management infrastructure, which they are (each of the Coalition members rely on landfills as a component of their integrated waste management systems). But reliance on landfilling should be substantially reduced.

power generation facility, the factor that is first and foremost in a community's decision-making when it evaluates possible construction of a WTE facility is not production of electricity, but rather the need to manage the community's non-recyclable MSW in the most environmentally protective manner possible. WTE comes into play thereafter because it is the best option for managing the community's non-recyclable waste while at the same time maximizing environmental protection.

Not surprisingly, the cost of installed WTE capacity is far higher on a kilowatt hour basis (sometimes by an order of magnitude) than essentially any other available source of electricity. In that regard, the U.S. Department of Energy's most recent data for central station electric power generation technology alternatives show installed costs per kilowatt of capacity (in 2008 dollars) ranging from \$617 for conventional gas turbines to \$5879 for solar-photovoltaic. See <http://www.eia.doe.gov/oiaf/aeo/assumption/pdf/electricity.pdf>, Table 8.2. In contrast, under the contract for the Northeast Maryland Waste Disposal Authority's new WTE facility in Frederick County, Maryland, the cost per kilowatt of installed generating capacity will be \$7,200. Simply put, no one would ever build a WTE facility with the primary motivation of generating electricity.

2. WTE Has Numerous Additional Environmental Benefits

Aside from lower GHG emissions, WTE has many additional environmental benefits that further underscore its advantages. In that regard, WTE is a very clean and reliable energy source, reflecting state and federal requirements for the most advanced emissions control technology. Thus, as USEPA has emphasized, the level of emissions control achieved by modern WTE facilities "has been outstanding," with emission reductions for various pollutants in the 96-99% range subsequent to implementation of MACT (Maximum Achievable Control Technology) standards in the early 1990's, together with subsequent increases in the stringency of those MACT standards. See <http://www.regulations.gov/search/Regs/content-Streamer?objectId=0900006480276e8a&disposition=attachment&contentType=pdf>. Given that record, USEPA has recognized WTE as a renewable energy source that "produce[s] 2800 megawatts of electricity with less environmental impact than almost any other source of electricity." See <http://www.energyrecoverycouncil.org/-userfiles/file/epaletter.pdf>. In addition, EPA's hierarchy for "integrated waste management" recommends waste combustion with energy recovery over landfilling (as does the European Union). See *Municipal Solid Waste in the United States: 2007 Facts and Figures*, p. 11 (available at <http://www.epa.gov/osw/nonhaz/municipal/pubs/msw07-rpt.pdf>). It is also important to note that WTE communities outperform non-WTE communities in recycling, with recycling rates that are typically at least 5 percentage points above the national average (using a very conservative calculation) and in some cases lead the Nation in recycling. Attachment 9, pp. ii, 8.⁴ Although recycling rates are driven by state recycling policies that apply equally to WTE and non-WTE

⁴ The conservative bias in the WTE communities' recycling rate relates to the fact that the rate omits several recyclables that the national rate includes, and the national rate is a composite which includes WTE communities – the more accurate comparison would exclude WTE communities in calculating the national rate.

communities, WTE communities' recycling rates are generally higher than non-WTE communities in the same state. *Id.*, p. 11 and Figure 3.

WTE's efficiency and reliability are also very clear. Thus, WTE recovers approximately 600 kWh of electricity per ton of waste, which is approximately 10 times the electric energy recoverable from a ton of landfilled waste. Attachment 2, p. 1714; *see also* Attachment 3, p. B-29. In addition, WTE is the paradigm example of distributed, baseload generation that serves nearby load without the need for new long-distance transmission lines – WTE is available at all times (24 hours a day and 7 days each week) and is unaffected by days that are cloudy or calm. Finally, unlike landfills, WTE facilities “do not have a continuing cost in land.” *See* Attachment 4, p. 1721. That is because landfills require vast expanses which, for all practical purposes, cannot be reused. In contrast, WTE facilities have very modest footprints that are miniscule compared to landfills. Not surprisingly, The Nature Conservancy ranks WTE as one of the most environmentally protective alternative energy sources. *See* Attachment 10, p. 24.

B. The Policies That Underlie AB 32 – and the Board's Proposed Cap-and-trade Regulation – Are Inapposite to WTE Facilities

As noted above, the Board's proposed cap-and-trade regulation is intended to serve as “the price signal needed to drive long-term investment in cleaner and more efficient types of fuels and energy resources” while at the same time “afford[ing] covered entities flexibility to seek out and implement the most cost-effective options to reduce emissions.” ISOR at I-4; *id.* at ES-1 (same). *See also id.* at II-51 and II-52 (“By establishing an overall limit on GHG emissions, the program establishes the price signal needed to drive long-term investment in cleaner and more efficient types of fuels and energy sources, while affording covered entities flexibility to seek out and implement the most cost-effective options to reduce emissions.”). Put another way, the objective of the proposed regulation is to provide a “cost-effective” means “to reduce our dependence on fossil fuels, stimulate investment in clean and efficient technologies, and improve air quality and public health.” *Id.* at ES-1, ES-3; *see also id.* at VIII-3 (“The cap-and-trade program does not specify how or where emissions reductions will be made. Reductions will be made by covered sources if the cost of making reductions is less than the cost of acquiring allowances and offsets.”). The quoted statements would appear to be intended to respond to AB 32's mandate, codified at Cal. Code § 38562(b)(6), that regulations implementing the new law are to consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, the environment and public health.

As shown above (point A), WTE already meets those objectives. Without repeating all of that information, WTE has lower pollutant emissions and recovers far more energy per ton of waste – approximately 10 times more – than the alternative of landfilling with methane recovery and reuse. We should also note that although AB 32 requires consideration of the relative impact of a source category's GHG emissions, *see* Cal. Code § 38562(b)(9), the GHG emissions from California's WTE facilities comprise only about 0.1% of the state's GHG emissions inventory. *See* <http://www.arb.ca.gov/cc/inventory/data/data.htm>. Moreover, a point that has particular relevance here is the reality that the concept of “cost-effective” allowance trading is not an option in the case of WTE facilities. Instead, WTE facilities will confront a continuing, long-

term requirement to purchase CO₂e emission allowances at substantial additional cost, which is a requirement that will not apply to landfill CO₂e emissions (the alternative of curtailing service and not processing waste would be self-defeating – the diverted waste would have to be landfilled, with the result that GHG emissions would increase significantly above the level emitted by WTE).⁵

A point noted at the outset of this letter bears repeating here: in a very real sense, the purpose of a WTE facility is to process fuel, specifically MSW, insofar as the fuel cannot otherwise be recycled. In that regard, the various “abatement options” the proposed regulation identifies for facilities in the industrial and power sector categories – steam efficiency, process heat efficiency, process improvements, fuel mix and fuel switching including use of renewables – are inapposite to WTE.⁶ That is because neither the use of a different fuel or less fuel than the affected communities deliver for processing is a feasible alternative for WTE facilities. In addition, WTE facilities are already highly efficient, and efforts to increase efficiency will continue entirely independent of the Board’s proposed cap-and-trade regulation since efficiency improvements increase energy (e.g., electric power) production and thereby reduce the net cost of recovering energy from waste. But the more important for present purposes is the fact that although improved efficiency increases energy production, it does not reduce the amount of fuel that requires WTE processing or the CO₂e emissions that result. Again, unlike other stationary combustion sources, the purpose of a WTE facility is to make full use of the available fuel, that is, to manage non-recyclable MSW through combustion with energy recovery, which is the best use of the portion of the waste stream that cannot be recycled.⁷ Consistent with these realities, none of the proposals for cap-and-trade regulation of GHGs considered by the 111th Congress would apply to WTE facilities. Similarly, the Regional Greenhouse Gas Initiative also excludes WTE from cap-and-trade regulation. The Coalition is not aware of any credible suggestion that exclusion of WTE could compromise the effectiveness of those other cap-and-trade programs.

In short, unlike the combustion sources that are a primary focus of AB 32, for all practical purposes WTE facilities’ only means to reduce their GHG emissions would be to curtail service to their communities. That course of action would mean more waste disposal in landfills,

⁵ This letter is not intended to suggest that landfills should be subject to the requirement to obtain CO₂e emission allowances, but rather that WTE should also be excluded from that requirement.

⁶ Of course, WTE is itself a renewable energy source, *see* <http://www.libraryindex.com/pages/1532/Renewable-Energy-Defined>, which is routinely recognized by state and federal government. That includes the USEPA, the U.S. Department of Energy, the Biomass Research and Development Act of 2000, and the Public Utility Regulatory Policy Act, as well as laws and regulations in nearly 25 states. *See* <http://www.energyrecoverycouncil.org/waste-energy-produces-clean-renewable-a2984>. In fact, the federal government’s obligation to purchase “renewable energy” under section 203 of the Energy Policy Act of 2005 specifically includes WTE.

⁷ Californians, both WTE communities and non-WTE communities alike, have a strong incentive and considerable success in removing recyclables from the waste stream. For example, California’s recycling rate for beverage containers – glass, plastic and aluminum – reached a new record of 86% for the 6-month period January through June 2010. *See* <http://www.calrecycle.ca.gov/BevContainer/Rates/BiannualRpt/6MonPeriod.htm>. Recycling is not yet feasible, however, for all discarded material.

however, and higher GHG emissions than if the same waste is processed at WTE facilities. The only other alternative – purchasing CO₂e allowances – will mean a substantial permanent addition to the cost of WTE, the environmentally preferred method for managing non-recyclable MSW, which is already more costly than the less preferred alternative, landfilling. Of particular importance, and as explained in other comments, that sizeable new cost burden will jeopardize the ability of California's WTE facilities to continue to operate. Finally, each of the scenarios just noted is clearly inconsistent with Cal. Code § 41516, which encourages WTE facilities as a means to "help alleviate the environmental and economic problems associated with municipal waste disposal, while at the same time producing additional supplies of energy and raw materials." For all of these reasons, the Board's proposed cap-and-trade regulation, as it relates to WTE facilities, is arbitrary and capricious. *See Motor Vehicle Manufacturers Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (an agency regulation is "arbitrary and capricious if the agency has . . . entirely failed to consider an important aspect of the problem" implicated by the regulation).

Recap and Conclusion

The Board's proposed regulations to implement AB 32, as they relate to WTE facilities, will further exacerbate the cost disadvantage that WTE already confronts relative to landfilling, and the result will be less WTE, more landfilling and more – not less – waste management sector GHG emissions in California. The twofold question that underlies evaluation of the public policies implicated here is the following: (i) will landfilling or WTE processing of California's non-recyclable MSW provide better environmental protection, including lower GHG emissions; and (ii) will the policy choices reflected in the Board's proposed cap-and-trade regulations encourage more landfilling in California relative to WTE? The answers are clear: while science and engineering demonstrate that WTE is better for the environment than landfilling, the proposed regulations will have the effect of encouraging more landfilling and discouraging WTE. The fact that the Board's proposal would regulate other combustion-electric power generation sources of GHG emissions (i.e., those with non-biogenic CO₂e emissions above the proposed annual 25,000-ton threshold) is not a sound reason to subject WTE facilities to cap-and-trade regulation. That is because none of the other affected sources will be disadvantaged by recognizing the environmental benefits that distinguish WTE, but the failure to recognize those benefits will discourage WTE with the consequences already described.

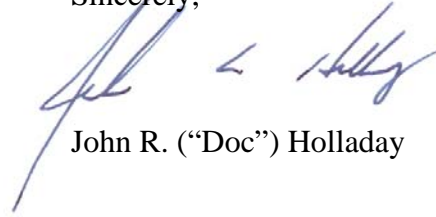
Given these factors, the Board should modify the proposed regulations to remove the CO₂e allowance requirement for WTE facilities. Alternatively, the Board should provide free CO₂e allowances for California's WTE facilities pending further investigation by the Board of the considerable environmental benefits of WTE, including GHG mitigation benefits. That would be followed by additional rulemaking to rescind the counterproductive CO₂e allowance requirement for WTE facilities.

* * *

Thank you for considering the Coalition's comments on these matters. If you have questions regarding any of the points noted above, please call me (at 256-880-6054 – I am the Executive Director of Coalition member Solid Waste Disposal Authority of Huntsville,

Alabama, and serve as an informal chairperson for the Coalition), or our counsel (Scott DuBoff and Matt Schneider, at 202-965-7880).

Sincerely,

A handwritten signature in blue ink, appearing to read "John R. Holladay", is written over the word "Sincerely,".

John R. ("Doc") Holladay

cc: Coalition Members