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July 24, 2008

New Jersey Board of Public Utilities
Office of Policy and Planning
Attn: Draft Energy Master Plan Comments
Two Gateway Center
Newark, NJ 07102

re: Draft Energy Master Plan Comments

Dear Sir/Madam:

Covanta Energy has been following the process related to the development of New Jersey's Draft Energy Master Plan very closely. Based on the draft document, it's participation in the various workgroups and roundtables, and attendance and testimony at the hearings for the plan, we are offering these comments. Our comments are presented in two parts, first our general comments relating to energy policy and New Jersey's direction which we feel should underlie the finalization of the plan in all areas, followed by specific comments we have on the document itself.

The Board is to be commended on its inclusion of biomass as a viable renewable energy within Goal 3, meeting 22.5% of the State's energy needs with renewable energy. As you are aware New Jersey currently benefits from the renewable energy generated by 5 energy-from waste (EfW) facilities, namely facilities that process municipal solid waste (MSW) and generate electricity. Three of these facilities are operated by Covanta Energy. As a result of in-state EfW generation, New Jersey currently enjoys the following benefits:

- **Diversifying generation mix both within the renewable sector and as part of overall generation.** EfW facilities operate 24 hours a day, 7 days a week providing base load renewable energy, while simultaneously reducing fossil fuel dependence through the use of municipal solid waste as a fuel.
- **Improving New Jersey emissions.** The EfW process is an overall greenhouse gas reducer. This is consistent with the Plan's overall goal of reducing climate change. Emissions are further reduced by the enhanced recycling these facilities perform.
- **Adopting a sustainable practice.** Processing MSW at an EfW facility within New Jersey works towards reducing the 4.1 million tons a year that are exported, as a result reducing the associated transportation and environmental impacts. Moving away from in-sate land based disposal is also a sustainable practice achieved by EfW.

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The 2020 goals for renewable energy are aggressive, given the current state and challenges of some of the technologies referenced, both as part of the EfW sector, and overall biomass and renewables in general. While the draft EMP has recognized the role EfW can play in the biomass sector, there is inconsistency in that landfill gas collection is placed in Class I for its use of biomass, while EfW is placed in Class II. The draft EMP recognizes the negative impacts of landfills on GHG emissions, due largely to a lack or inefficient capture of methane produced. Since the only other commercial scale option for MSW in the biomass sector is EfW, we would encourage recognition in the RPS by making EfW a Class I renewable. Offering this recommendation in the draft EMP will move New Jersey towards acquiring an effective tool to reach the 2020 goals.

From the perspective of GHG emissions, the draft EMP combines EfW and landfill gas generation together in the CO_2 inventory. This suggests that the EfW GHG profile is being evaluated as a stationary CO_2 point source. A more holistic approach actually shows EfW to generate CO_2 credits when the avoided fossil consumption, recycling benefits, and avoided methane production at landfills are considered. In advancing some of these ideas feedback centers around EfW as an option in comparison to the GHG and emissions profile of other generating sources. On a GHG basis, the comparison of EfW as a stationary CO_2 point source to another source such as a combined cycle natural gas facility is incomplete as shown by the following demonstration originally prepared by Covanta regarding the Essex County Resource Recovery Facility for the Port Authority of New York/New Jersey:

> Although the combustion of MSW emits CO_2, the net effect of the Essex County Resource Recovery Facility and other energy-from-waste (EfW) plants is to reduce total GHG emissions. By disposing MSW, generating electricity, and recovering ferrous metals for recycling, EfW facilities avoid greenhouse gas (GHG) emissions that would otherwise occur due to 1) methane emissions from landfills, 2) CO_2 emissions from fossil fuel-fired power plants, and 3) CO_2 emissions from production of ferrous metal from virgin materials. The amount of emitted and avoided GHGs can be estimated using life cycle analysis. Covanta has developed a lifecycle model for EfW that is based on the approach used in EPA's MSW Decision Support Tool and yields comparable results.
>
> Table 1 provides the life cycle CO_2 emissions estimates for the Essex facility. The facility's total 2006 anthropogenic (fossil) CO_2 emissions are estimated to be 328,586 tons. This consists of 326,209 tons from MSW combustion and 2377 tons from fuel oil combustion. These figures do not include stationary or mobile ancillary equipment, such as diesel engines and loaders. For MSW, the anthropogenic CO_2 fraction is 33.5% of the total CO_2; this fraction is based on field test data. The landfill methane emission estimates assume Subtitle D landfills with an equal distribution of landfill gas venting, flaring, and energy recovery designs. Avoided power plant CO_2 emissions assume that power generated by the Essex facility avoids the CO_2 from the fossil portion of the New Jersey grid. The amount of CO_2 avoided by recovering ferrous for recycling is based on national average values. When these four emission effects are considered together, the Covanta Essex facility resulted in a net decrease of 807,446 tons of CO_2 equivalents in 2006, or 0.91 tons avoided CO_2E per ton of MSW combusted. Note that these figures do not include any additional avoided CO_2 emissions that may have resulted from not having to long haul MSW to out-of-state landfills.

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Table 1. 2006 Lifecycle CO_2 Emissions due to Essex EfW Facility (tons CO_2 Equivalents)

	Essex EfW Facility	Landfill	Net Emissions
Essex EfW Facility Anthropogenic CO_2 Emissions	328,586	0	328,586
Landfill Methane Emissions	0	739,590	-739,590
Avoided CO_2 from Fossil Fuel Fired Power Generation, NJ Fossil Grid	-411,199	-35,859	-375,340
Avoided CO_2 from Ferrous Metals Manufacturing	-18,725	0	-18,725
Totals	-103,715	703,731	-807,446

A similar analysis could be structured for Covanta's other two EfW facilities in New Jersey, and would show similar conclusions.

When the focus turns to other emissions of EfW, it should be considered that since 1990, the EfW industry as a whole has reduced its dioxin emissions to less than 1% of all known sources, and reduced mercury emissions to less than 3% of all man made sources. In 2003, USEPA recognized EfW as "having less environmental impact than almost any other source of electricity." (See Attachment 1). In addition the EfW industry, as a result of stricter emissions limits, has significantly reduced its environmental impact even further. Nearly all emissions have seen over a 90% reduction from 1990 levels. Table 2 below summarizes the data collected by USEPA. The USEPA memo included as Attachment 2 provides the details.

Table 2

Pollutant	1990 Emissions	2005 Emissions	Percent Reduction
CDD/CDF, TEQ basis*	4,400 g/yr	15.0 g/yr	99+%
Mercury	57 tons/yr	2.3 tons/yr	96%
Cadmium	9.6 tons/yr	0.4 tons/yr	96%
Lead	170 tons/yr	5.5 tons/yr	97%
Particulate Matter	18,600 tons/yr	780 tons/yr	96%
HCl	57,400 tons/yr	3,200 tons/yr	94%
SO_2	38,300 tons/yr	4,600 tons/yr	88%
NO_x	64,900 tons/yr	49,500 tons/yr	24%
*dioxin/furan emissions in units of toxic equivalent quantity (TEQ), using 1989 NATO toxicity factors			

When it comes to mercury reduction, the focus isn't only on it's own emissions technology at the facilities, Covanta also supports NEWMOA style model legislation that fosters product bans, as the most assured way of eliminating mercury in the waste stream is to remove it from products that have the potential to find their way into the waste stream. Needless to say, mercury which ends up in waste requires attention in any recycling or disposal methodology. In general, Covanta is continually pursuing new technologies and strategies to further reduce its emissions profile, whether it is focused on retrofits of existing facilities, or new EfW technologies as a whole. Currently in New Jersey Covanta is conducting a pilot of its new low NOx technologies at one of its facilities. We provide this information so that the draft EMP has the background to provide an accurate picture of the capabilities of currently available commercial EfW technologies.

Covanta also sees greater need for the Board to consider implementation strategies in choosing the direction of New Jersey's energy future. Currently the administrative procedures in place can significantly affect the time, and the effectiveness of any energy strategy. It is important for the Board to take the time to site and permit any type of facility into consideration, and to work with the applicable agencies to ensure the need of the projects is understood, and reflected in the time it takes to bring a facility from application to operation.

We hope this information is of value relative to the inclusion of EfW as a clean, renewable energy source on par with others being considered. Because of its commercial demonstration and 24/7 operating cycle, EfW is an excellent opportunity to help New Jersey meet its 2020 energy and GHG goals.

Below, please find our specific comments on the plan:

Plan for Action (pg. 50)

The overall plan for action conclusion on page 50 is not an effective synopsis of what avenues are available to execute the strategy discussed within the draft EMP. Those items which are discussed, or are suggested through comments, which can provide the biggest or fastest pieces to achieving the overall objectives of the draft Energy Master Plan should be incorporated into this section. Covanta advocates that an action item specifically be added under the point "Stimulate growth in renewable and alternative energy technologies" that acknowledges and advocates for the stimulation of currently available commercial EfW generation.

Goal 3: Meet 22.5% of State's Electricity needs from renewable sources (pp. 62-63)

As mentioned previously in these comments, the environmental impact of EfW is on par or exceeds that of other RPS Class I sources, yet it is in Class II. Covanta suggests that the Board institute in this section an action item which recommends that the rule be revised to include EfW as a Class I renewable. The recommendation should include a formal request from the Board be submitted to request the change as soon as possible. This will then serve as one of many possible incentives to growing the EfW sector in a manner timely enough to assist the state in reaching its 2020 goals.

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Goal 4, Action Item 1 (pg. 68-69):
Covanta believes that the creation of some entity, whether a State Energy Council, or other mechanism be created to ensure that the priority of development of new and expansion of existing projects be able to get proper administrative review in a timely and effective manner. Current expectations of minor EfW capacity expansions (not requiring major physical modifications) from application to operation are 2 – 5 years, and for a new facility or major expansion of an existing facility are 5-7 years. Given the benefits of EfW explained earlier, streamlining this process, while still providing for a thorough review, needs to be a priority for any new generation. This is especially beneficial when you consider not only the immediate need for renewable energy, but add in the benefits of ceasing export of MSW, or ceasing its deposition into landfills.

In concert with our comments to the plan above, Covanta also believes the changes and comments below on the "Draft New Jersey Energy master Plan Implementation Strategies" follow along the overall message of the how to effectively realize the value of EfW within New Jersey's energy planning:

Biomass-fired Electric Production Capacity (pp. 36-37):
We feel an implementation strategy should be more specific. While the figures cited include the current capacity of EfW in New Jersey, it doesn't do much to specifically incentivize growth in largest portion of commercially available, proven biomass-fueled electric production capacity. The recommendations for this implementation items should specifically cite moving EfW to Class I, reducing reliance on landfills, and elimination of the export of a large portion of New Jersey's MSW.

Increase the RPS for 2021 through 2025 (pg. 38)
The value of RECs generated within the RPS are an important incentive to encourage renewable development. Along with the recommendations specific to EfW previously presented, facilities which utilize Combined Heat and Power (CHP) should qualify for recognition of providing energy in a form other than electricity in addition to its generation component. In most instances, the providing of heat provides an offset to other forms of energy, typically fossil fuel derived, and as a result this improvement in efficiency serves to meet the goals of the draft EMP in terms of efficiency and most likely GHG reductions.

Clean Energy Technology (pp. 53-54)
To the extent that funds are made available for the development of Clean Energy Technology, they should be equally available to any technologies in the RPS, whether Class I or Class II, and should be available for not only the development of new technologies as a whole, but R&D and development of improvements of newer technologies, which may serve to make existing generation more efficient, capable of higher yield or operate with less environmental impact.

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Should you have any questions regarding these comments, or require any additional background information, please do not hesitate to contact me at the numbers above.

Sincerely,

Kenneth E. Armellino, P.E.
Director
Environmental Science and Community Affairs

cc: S. Henderson (Covanta Energy)
J. Waffenschmidt (Covanta Energy)

ATTACHMENT 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 14 2001

Maria Zannes, President
Integrated Waste Services Association
1401 H Street N.W., Suite 220
Washington, DC 20005

Dear Ms. Zannes:

EPA recognizes the vital role of the nation's municipal waste-to-energy industry, and wishes to thank you for your environmental efforts.

Upgrading of the emission control systems of large combustors to exceed the requirements of the Clean Air Act Section 129 standards is an impressive accomplishment. The completion of retrofits of the large combustion units enables us to continue to rely on municipal solid waste as a clean, reliable, renewable source of energy. With the capacity to handle approximately 15 percent of the waste generated in the US, these plants produce 2800 megawatts of electricity with less environmental impact than almost any other source of electricity. With fewer and fewer new landfills being opened, and capacity controls being imposed on many existing landfills, our communities greatly benefit from the dependable, sustainable capacity of municipal waste-to-energy plants.

We applaud the leadership taken by the Integrated Waste Services Association in coordinating research needs to continue to improve the performance of these plants. Your willingness to work with EPA and the State governments on responses to natural or man-made emergencies, including anthrax, is greatly appreciated. Our staff in the Office of Solid Waste and Emergency Response and the Office of Air and Radiation look forward to working with you on defining your research agenda and in addressing our national security concerns.

Sincerely yours,

Marianne Lamont Horinko
Assistant Administrator
Office of Solid Waste and
Emergency Response

Jeffrey R. Holmstead
Assistant Administrator
Office of Air and Radiation

ATTACHMENT 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 1 0 2007

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Emissions from Large and Small MWC Units at MACT Compliance

FROM: Walt Stevenson
OAQPS/SPPD/ESG (D243-01)

TO: Large MWC Docket (EPA-HQ-OAR-2005-0117)

This memorandum presents information on the overall emissions reductions achieved by large and small municipal waste combustion (MWC) units following retrofit of Maximum Achievable Control Technology (MACT). This memorandum is a companion to the memorandum titled "Emissions from Large MWC Units at MACT Compliance (note a). Consistent with Clean Air Act (CAA) section 129, large and small MWC units completed MACT retrofits by December 2000 and December 2005, respectively. The performance of the MACT retrofits has been outstanding. Emission reductions achieved for all CAA section 129 pollutants are shown below. Of particular interest are dioxin/furan and mercury emissions. Since 1990 (pre-MACT conditions), dioxin/furan emissions from large and small MWCs have been reduced by more than 99 percent, and mercury emissions have been reduced by more than 96 percent. Dioxin/furan emissions have been reduced to 15 grams per year* and mercury emissions reduced to 2.3 tons/year.

Emissions From Large and Small MWC Units

Pollutant	*1990 Emissions (tpy)*	*2005 Emissions (tpy)*	*Percent Reduction*
CDD/CDF, TEQ basis*	4400	15	99+ %
Mercury	57	2.3	96 %
Cadmium	9.6	0.4	96 %
Lead	170	5.5	97 %
Particulate Matter	18,600	780	96 %
HCl	57,400	3,200	94 %
SO_2	38,300	4,600	88 %
NO_x	64,900	49,500	24 %

(*) dioxin/furan emissions are in units of grams per year toxic equivalent quantity (TEQ), using 1989 NATO toxicity factors; all other pollutant emissions are in units of tons per year.

ATTACHMENT 2
(Continued)

The MACT performance data presented above is from the initial MACT compliance tests from all large and small MWC units. The inventory of large MWC units at MACT compliance identifies 167 large MWC units located at 66 MWC plants (note b). The inventory of small MWC units at MACT compliance identifies 60 small MWC units located at 22 MWC plants (note c). The baseline 1990 emissions data are from the large and small MWC emissions trend memo (note d and e). In combination, the above information defines the 1990 and 2005 emissions for large and small MWC units.

notes

(a) see docket A-90-45, item VIII-B-11.
(b) see docket A-90-45, item VIII-B-6
(c) see docket OAR-2004-0312, "National Inventory of Small Municipal Waste Combustor (MWC) Units at MACT Compliance (Year 2005)", dated November 1, 2006.
(d) see docket A-90-45, item VIII-B-7
(e) see docket OAR-2004-0312, "National Emissions Trends for Small Municipal Waste Combustion Units [year 1990 – 2005]", dated June 12, 2002.