The Honorable Jaclyn A. Brilling

Secretary, New York State Department of Public Service

Three Empire State Plaza

Albany, New York 12223

Case Reference "Case 03-E-0188 – Retail Renewable Portfolio Standard"

SUMMARY OF COMMENTS: Include Waste to Energy and the Onondaga County Resource Recovery Facility in the Portfolio of Renewable Energy Facilities for New York State. Waste To Energy should be included in the Portfolio, but if generic inclusion of WTE is precluded, the specific analysis of the Onondaga County Resource Recovery Facility merits its individual inclusion.

COMMENTS

On behalf of Onondaga County Resource Recovery Agency (OCRRA), I wish to thank the New York Public Service Commission for this opportunity to comment on the development and implementation of a Renewable Energy Portfolio Standard (RPS) in New York. My comments reflect the provision in the Administrative Law Judge Recommended Decision that would exclude waste-to-energy and the Onondaga County Resource Recovery Facility from its rightful and fair place as an essential source of renewable energy. Almost one half million citizens in the Syracuse area would be negatively impacted by the ALJ decision and we ask that you therefore give careful consideration to the following discussion. The PSC should include the Onondaga County Resource Recovery Facility (OCRRF) as a renewable source. Here is why:

1. Waste to Energy in the OCRRA service area supports recycling. The OCRRF is a fundamental component of a total solid waste system. That system recycles over 65% of the trash in the local community. The community is served

with award winning environmental programs. The non-recyclable trash in the community is the material converted into power in the OCRRF waste to energy plant. The OCRRF is permitted under a condition that 40% of the processable waste in the community shall be recycled. Waste To Energy is compatible with recycling and indeed recycling is a requirement for the OCRRF. Revenues from the OCRRF pay for environmental programs recognized by New York State and the USEPA as excellent and award winning. We seek the inclusion of the Onondaga County Resource Recovery Facility as a renewable portfolio asset, it specifically supports an award winning environmental and recycling program. Excluding the OCRRF from the portfolio would undercut those programs.

2. The environment is protected and improved by the OCRRA system.

A. Landfill footprints and impacts are mitigated. In Onondaga County, Waste-To-Energy does not displace recycling; it displaces landfilling of trash. Recycling and waste-to-energy are not competing but complementary and co-essential means of waste management. Non-recyclable waste volume is reduced by about 90% due to processing in the OCRRF, thereby vastly reducing the heavy footprint created by landfilling 'raw' garbage. In Europe, Waste-To-Energy is a mandatory technology used to mitigate the impact of landfilling – *it is required there to preserve the environment.* Again, the OCRRF is the only solid waste disposal facility in New York with a specific (and significantly large) recycling condition in its permit. Typical landfills do not have recycling conditions and do not generally support recycling. Including landfill gas to energy in the RPS, but not including the OCRRF, would be an error.

B. Greenhouse gas emissions are reduced. Decomposition of organic compounds in landfills leads to the emission of methane, a potent greenhouse gas that is avoided when trash is processed in a waste-to-energy facility. Greenhouse gas emissions from waste-to-energy processes are much lower than from landfills (Schmidt 2001, Batchelor 2002.) It has been estimated that the combustion of trash in the existing waste-to-energy facilities reduces the annual release of carbon dioxide, a greenhouse gas, by 33 million tons. (Themelis 2002.)

C. Fossil Fuels are avoided through Waste To Energy at the OCRRF. The generation of electricity by means of waste-to-energy provides greater environmental benefits than any other source of renewable energy for the simple reason that in addition to the benefit of reducing the use of fossil fuels, as all other renewable energy sources do, it also avoids the environmental impacts of landfilling and transporting waste to a landfill. Prior to the construction of the OCRRF, trash from the Syracuse area was trucked to landfills in Pennsylvania. Millions of truck miles a year were used to move the trash. The OCRRF avoids the trucking of waste to landfills and the associated diesel emissions and diesel combustion related to moving 2,000,000 pounds of non-recyclable garbage every business day.

3. **(Waste to) Energy from the Onondaga County Resource Recovery Facility is a clean source of reliable power.**

A simple fact. Municipal Solid Waste is a very non-homogeneous fuel and its heating value is far below that of fossil resources. Waste-to-energy goes beyond the power production and provides a sustainable waste management tool. Equipped with modern air pollution control systems, the OCRRF is a minor contributor to anthropogenic sources of most contaminants. The combustion of MSW for power production results in lower emissions than that of other combustion-based renewable resources. Reliable power is available from the OCRRF; it produces this clean energy reliably in all weather and around the clock. Sustainable, reliable power from the OCRRF is very cost effectively scheduled in the market place.

The search for renewable energy sources is motivated by the desire to reduce the use of fossil fuels. Waste-to-energy facilities in the U.S. produce about 550 kilowatt hours of power per ton of municipal solid waste, thus obviating the use of either 0.3 tons of coal or 1 barrel of fuel oil per ton of municipal solid waste combusted. U.S. waste-to-energy facilities are equipped with emissions control facilities that are superior to typical combustion units and, also to most coal-fired power plants. The technology here includes sophisticated computerized combustion control, dry scrubbers to control acid gas, carbon injection to control mercury and

organic emissions, selective non-catalytic reduction (SNCR) systems to control NO_x, and specially engineered fabric filters to control particulates.

Waste-to-Energy, serves two purposes: conserving non-renewable fossil fuels and also conserving land to be used in landfilling. The "fuel" for generating power from waste-to-energy plants does not create its own environmental problems as does the mining of coal or global problems related to the drilling of oil in the Middle East. The "fuel" for waste-to-energy plants is municipal solid waste that has already been produced and would have gone to a landfill. In a landfill the waste partially decomposes to create methane, other gases, and liquid wastes requiring extensive treatment. Hopefully the remaining solid, liquid, and gaseous residue does not leak from the landfill liner in a few decades to the detriment of our great-grandchildren.

For utilities the desirability of fossil fuels is based on their heating value, hydrogen content, handling characteristics, homogeneity (lack of byproducts), and energy content. For these reasons, natural gas is preferable to fuel oil, and fuel oil to coal. For a public utility boiler, it is obvious that municipal solid waste is at the very bottom of the list of 'desirable fuels' since it is a very non-homogeneous material consisting of all the solid products that citizens use, cannot or do not recycle, and discard. The heating value of trash is less than one half that of coal. Also, the heat-to-electricity conversion efficiency of waste-to-energy facilities is two thirds that of coal-fired power plants. Therefore, a comparison of emissions between waste-to-energy and fossil-fuel power plants, on the basis of kilowatt-hour of electricity generated, serves no purpose but to show the known fact that municipal solid waste is not as efficient a fuel as coal or oil.

If emissions comparisons are appropriate then it makes sense to compare emissions from other solid waste disposal options and other potential 'combustion' renewables. But first let's put dioxin into context. Currently, the main source of dioxins/furans emissions in the U.S. is "backyard barrel burning" of trash with about 628grams on a toxic equivalent basis of dioxins emitted out of an estimated total of 1,106grams TEQ from all sources combined (U.S. EPA 2000.) In contrast to

waste-to-energy facilities, which operate under highly controlled conditions designed to reduce formation and emission of air pollutants, backyard trash burning is not controlled. The low temperature burning and smoldering conditions typical of backyard trash fires promote the formation of dioxins/furans, particulate matter and polycyclic aromatic hydrocarbons (PAHs.) These pollutants form during backyard trash burning regardless of the composition of the material being burned (Chlorine Chemistry Council 2002.) Literally about one half dozen household burn barrels create the equivalent dioxin emissions of the OCRRF, which serves over 150,000 households and 450,000 citizens in the greater Syracuse area..

According to U.S. EPA data, wood-fired biomass plants and landfill gas power plants emit dioxins at higher concentrations than waste-to-energy plants, and yet, biomass and landfill gas technology are recommended by the Administrative Law Judge for inclusion in New York State's Renewable Portfolio Standard. Let's compare those emissions for context:

Table 1: Renewable energy sources: emissions per Megawatt-hour generated (in lbs per megawatt hour) [i]

Pollutant	Waste-to-Energy	Wood Waste	Landfill Gas To Energy
Particulate	0.085	0.62	0.8
NO_x	5.6	4.4	4.2
SO_2	0.49	0.50	0.00036
HCl	0.32	0.38	0.00034
CO	1.0	12	7.8
Dioxins/Furans	0.009×10^{-5}	3.34×10^{-5}	2.07×10^{-5}
Total Hazardous Air Pollutants [ii]	Nondetect	0.68	0.45
Non-Methane Organic Compounds	0.01 [iii]	Incl. in HAPs	2.12
Benzene	Nondetect	0.084	0.01
Toluene	Nondetect	0.018	0.15
Lead	0.00058	0.0010	Nondetect
Mercury	0.00027	0.000070	0.0000046
Cadmium	0.000040	0.000082	Nondetect
CO_2	3635	3900	4449

i) *Emissions listed on this table are derived from EPA emissions databases, EPA AP-42 factors or Dioxin Reassessment, depending on best available agency data. Emissions reflect energy*

generation only, and do not include fugitive emissions from landfills. Waste-to-energy and biomass are not considered sources of fugitive emissions.

ii) *The scope of hazardous air pollutants (HAPs) reported for each source is based on EPA AP-42. HCl is not included in this column, but is reported separately on this table.*

iii) *Waste-to-energy typically tests at non-detect levels for NMOC, but an assumed value of 1 ppmdv at 7% O_2 was used in this table as the worst case.*

The OCRRF historically operates at lower emission rates than the industry averages noted above. For example, in 2003 the Dioxin/Furan emissions (on an NY TEF basis) from the OCRRF were 3.10 x 10^{-10} pounds per megawatt of energy sold, *five orders of magnitude less* than the wood waste and landfill gas equivalent emissions. OCRRF mercury emissions in 2003 were approximately 0.0000665 pounds per mWh.

4. There have never been claims of environmental injustice lodged against the OCRRF. Allow no confusion on the record. An inaccurate generality has appeared in the global deliberations about waste to energy. Environmental injustice is not germane to the subject facility or believed to be applicable to any waste to energy facility in New York. (I note as an aside that the siting of upstate landfills for metropolitan trash might be carefully considered for environmental fairness.) We seek the inclusion of the Onondaga County Resource Recovery Facility, a well sited and well suited community asset. The OCRRF processes only Onondaga County non-recyclable trash; the waste created here is not a burden to the poor in Onondaga County or the poor or disadvantaged in other counties.

5. Public Policy/Multiple Public Benefits! In New York as well as the rest of the United States, government bodies are promoting renewable energy. The federal government has defined waste-to-energy as a source of renewable energy, as well as fifteen states that have renewable energy statutes or renewable purchasing mandates. One of the main drivers is the desire to reduce the dependency on fossil fuels. Waste-to-energy facilities in the U.S. produce about 550 kWh per ton of municipal solid waste, thus obviating the use of either 0.3 tons of coal or 1 barrel of fuel oil per ton of trash combusted. The OCRRF has historically produced even more, about 640 kWh per ton of non-recyclable trash. The Onondaga County Resource Recovery Facility helps to quench the thirst for imported oil. Also, since the Onondaga County Resource Recovery Agency is a non-profit public benefit corporation, the inclusion of the OCRRF in New York's renewable portfolio means that any potential economic benefit from your determination will be converted into

reduced costs for the residents and businesses of Syracuse and Onondaga County and will result in the ability to provide even more environmental program there.

The facts speak loudly in favor of acknowledging the Onondaga County Resource Recovery Facility as a renewable source of power. Specific consideration should be given to the facts regarding this facility as well as including waste to energy in general.

Very truly yours,

Tom Rhoads
Executive Director
OCRRA

1 References

Batchelor, D., Eeraerts, D., Smits, P. (2002), Greenhouse Gas Abatement: Assessing Waste-to-energy and Landfill Disposal. *Waste Management World* **2** (5), pp. 43-47

Chlorine Chemistry Council (2002), Backyard Trash Burning: The Wrong Answer. The Chlorine Chemistry Council, Arlington, VA

Deyette, J., S. Clemmer, and D. Donovan (2003), Plugging in Renewable Energy – Grading the States. Union of Concerned Scientists, Cambridge, MA

Horinko, Marianne and Jeffrey Holmstead (2003), Letter to the Integrated Waste Services Association, U.S. EPA, Washington, D.C., online version at *http://www.waste-to-energy.org/epaletter.html*

IEA (2002), Renewables in Global Energy Supply - An IEA Fact Sheet. International Energy Agency (IEA), Paris Cedex, France.

Kaufman, S.M., N. Goldstein, K. Millrath, N.J. Themelis (2004), The State of Garbage in America. *BioCycle* **45** (1), pp. 31-41.

Kiser, J.V.L and M. Zannes (2002), The 2002 IWSA Directory of Waste-To-Energy Plants. Integrated Waste Services Association, Washington, D.C.

Kiser, J.V.L. (2003), Recycling and Waste-to-Energy: The Ongoing Compatibility Success Story. *MSW Management* **13** (4), pp. 92-103

Millrath, K. and N.J. Themelis (2003), Waste as a Renewable Source of Energy: Current and Future Practices. Proceedings of the ASME International Mechanical Engineering Congress and Expo, Washington, D.C., November 2003

Scharff, C. (2003), The waste site story - exploring the NIMBY syndrome. *Waste Management World* **3** (3), pp. 47-53

Schmidt, I., Kircherer, A., and Zwahr, H. (2001), Eco-Efficiency Analysis of Waste Management Options – Mechanical-Biological Treatment, Waste-To-Energy, and Landfilling (in German). BASF, Ludwigshafen, Germany

Stevenson, W. (2002), Emissions from Large MWC Units at MACT Compliance. Memorandum to Docket A-90-45, U.S. EPA, Research Triangle Park, NC

Themelis, N.J. and A. Gregory (2002), Mercury Emissions from High Temperature Sources in the Hudson Basin. Proceedings of 10th North American Waste To Energy Conference, Philadelphia, PA, May 2002.

Themelis, N.J. and C. Todd (2004a), Recycling in a Megacity. *Journal of Air and Waste Management Association* **54**, pp. 389-395

Themelis, N.J. and S.M. Kaufman (2004b), State of Garbage in America – Data Methodology and Assessment, BioCycle, April 2004, p. 22-26.

Thorneloe, S.A., K.A. Weitz, S.R. Nishtala, S. Yarkosky, and M. Zannes (2002), The Impact of Municipal Solid Waste Management on Greenhouse Gas Emissions in the United States. *Journal of Air and Waste Management Association* **52**, pp. 1000-1011

Toxics Release Inventory (webpage), Quantified U.S. Dioxin Sources Over Time. *http://trifacts.org/quantified_sources/quantified_sources.php*

U.S. Department of Energy (DOE), Homepage. *http://energy.gov/engine/content.do?bt_code=bioenergy*

U.S. EPA (2000), Exposure and Health Assessment of 2,3,7,8-Tetrachlorodiobenzo-p-dioxin (TCDD) and related compounds – part I Estimating Exposure to Dioxin-like Compounds, Volume 2: Sources of Dioxin-like Compounds in the United States. EPA/600/P-00/00Bb, Draft Final report, U.S. EPA, Washington, D.C.

U.S. EPA (2003), Municipal Solid Waste in The United States: 2001 Facts and Figures. Office of Solid Waste and Emergency Response, U.S. EPA, Washington, D.C.