Bristol Resource Recovery Facility Operating Committee

43 Enterprise Drive
Bristol, Connecticut 06010
www.brrfoc.org

(860) 585-0419
(860) 225-9811
Fax (860) 585-9875

Testimony of the
Bristol Resource Recovery Facility Operating Committee
to the Environment Committee
March 2, 2012

Proposed H.B. No. 5118

AN ACT CONCERNING THE RECLASSIFICATION OF TRASH-TO-ENERGY FACILITIES AS CLASS I RENEWABLE ENERGY SOURCES

Good morning Senator Meyer, Representative Roy and Members of the Environment Committee. My name is Jonathan S. Bilmes and I am the Executive Director of the Bristol Resource Recovery Facility Operating Committee, made up of 14 towns and cities in Connecticut representing over 10% of the state's population. We are concerned with the safe, environmental and cost-effective disposal of municipal solid waste and recyclables. In addition, since our Board is comprised of Mayors, Selectmen and Town Managers, we also represent the direct interests of our taxpayers, both residential and commercial. On behalf of the Bristol Resource Recovery Facility Operating Committee, I am presenting written testimony supporting the concepts in Proposed House Bill No. 5118, *AN ACT CONCERNING THE RECLASSIFICATION OF TRASH-TO-ENERGY FACILITIES AS CLASS I RENEWABLE ENERGY SOURCES.*

BRRFOC supports the concept of including WTE as Class I renewable energy source under the Connecticut Renewable Portfolio Standard (RPS). That is because (i) WTE is a first-rate source of renewable energy and (ii) the local governments that invested in environmentally preferred – but also more costly – WTE technology (either through long-term contracts or direct ownership) should share in the benefits of the Renewable Energy Credit (REC) revenue that will result. Moreover, in at least one critical respect WTE is different from every other renewable energy source given the reality that waste management is an essential requirement of all societies. After rigorous waste minimization, recycling and composting efforts, the remaining municipal solid waste either can be sent to landfills for disposal, or combusted at WTE facilities to produce clean, renewable energy.

Even though WTE's environmental and energy advantages are clear (see attached briefing paper), WTE-reliant communities such as BRRFOC also confront the reality that WTE facilities are usually more costly than the alternative of landfilling, which is true not only in terms of initial capital costs but also for long term operating and maintenance expense. That is why BRRFOC supports the concept of including WTE as a Class I renewable energy source under the Connecticut RPS providing that the resulting REC revenues reduces costs to our municipalities and area taxpayers.

WTE's environmental and energy advantages are further described in the attached briefing paper (please let me know if you would like the appendix of documents referenced in the briefing paper), and include the following:

- Production of clean, baseload (i.e., "24/7") energy with such low emissions that USEPA describes WTE as a renewable energy source that "produce[s] . . . electricity with less environmental impact that almost any other source of electricity"
- Recovering 10 times the energy (electric power) from municipal waste in comparison to methane recovery-reuse from landfilled waste
- Produces energy where it is used, i.e., "distributed" generation, which reduces the environmental impact and cost of transporting both waste and energy
- Substantially reduces GHGs by (a) displacing electric power generation from fossil fuels, (b) avoiding methane emissions from landfill disposal or municipal waste, and (c) facilitating post-combustion recovery and reuse of ferrous and non-ferrous metals.

Given these facts, it is not surprising that The Nature Conservancy ranks WTE as one of the most environmentally protective alternative energy sources.

Thank you for consideration of BRRFOC's views. If you have any questions, please do not hesitate to call me (860-585-0419).

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

Bristol Resource Recovery Facility Operating Committee (Bristol, Connecticut)

City of Ames, Iowa

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)

ecomaine (Portland, Maine)

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 (Camden, 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

America's Need for Clean, Renewable Energy: THE CASE FOR WASTE-TO-ENERGY

- America needs to dramatically increase its use of clean, renewable energy.
- Waste-to-energy (WTE) is one of the most environmentally protective sources of renewable energy.
- WTE is a largely untapped resource in the U.S., only 7% of our municipal solid waste (MSW) is directed to WTE while 69% is landfilled.[1]
- WTE has far greater use in many other nations that are at least equally conscientious stewards of the environment and is widely recognized as the best environmental solution for managing the non-recycled portion of municipal waste. *See* Attachment ("Att.") 1, p. 601 (for the reader's convenience, many of the sources cited here are reproduced in the Appendix).[2]
- As the former Chief of EPA's Energy Recovery Branch recently emphasized, "[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." Att. 2, slide 19 (keynote address, North American Waste-to-Energy Conference, May 18, 2009).

***Here are the facts*:**

WTE IS RENEWABLE ENERGY – WTE's status as renewable energy (i.e., an energy resource that is replaced rapidly by recurring processes) is well established:

- WTE is widely recognized as renewable at both state and federal levels: e.g., Department of Energy, EPA, Biomass Research and Development Act of 2000, Energy Policy Act of 2005, Public Utility Regulatory Policy Act, and laws and regulations in nearly 25 states.[3]
- The World Economic Forum's January 2009 report, *Green Investing – Towards a Clean Energy Infrastructure*, recognizes **WTE as one of eight "key renewable energy sectors" and "particularly promising in terms of . . . abatement potential" for carbon emissions.** Att. 3, p. 27.

MODERN WTE FACILITIES – TRUE "GREEN" TECHNOLOGY – A very clean and efficient energy source:

- Reflecting state and federal requirements for the most advanced emissions control technology, WTE emissions have plummeted since the late 1980's (e.g., annual WTE emissions of dioxin have decreased by a factor of 1,000 to less than 12 grams), Att. 4, p. 1722, and WTE emissions are lower than landfill emissions for 9 of 10 major air pollutants, Att. 5, p. B-30.

1000 POTOMAC STREET, N.W., FIFTH FLOOR, WASHINGTON, D.C. 20007
(202) 298-1788

- As a result, USEPA recognizes WTE as a renewable energy source that "produce[s] 2800 megawatts of electricity with **less environmental impact than almost any other source of electricity**."[4]
- EPA's hierarchy for "integrated waste management" **recommends waste combustion with energy recovery over landfilling** (as does the European Union).[5]
- WTE's efficiency and reliability are clear as well:
  - 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**. Att. 6, p. 1714; *see also* Att. 5, p. B-29.
  - WTE is the **paradigm example of "distributed generation"** that serves nearby load without the need for new long-distance transmission lines (unlike other renewables).
  - WTE is also **base-load generation**, available 24/7 and unaffected by days that are cloudy or calm.
- The Nature Conservancy ranks WTE as one of the most environmentally protective alternative energy sources. Att. 7, p. 24.
- As is often the case with environmentally preferred alternatives, WTE can cost more (at least on a short-term and intermediate basis) – **And our communities accept the higher cost precisely because the result is better for the environment.**

WTE HELPS MITIGATE CLIMATE CHANGE – WTE's role in reducing greenhouse gas emissions (GHG) is widely recognized:

- As EPA's solid waste management planning methodology recognizes, WTE reduces GHG emissions in 3 ways by (i) generating electricity and/or steam without having to use fossil fuel sources, (ii) avoiding the potential methane emissions that would result if the same waste was landfilled, and (iii) recovering ferrous and nonferrous metals, which avoids the additional energy consumption that would be required if the same metals were produced from virgin ores. Att. 6, pp. 1711-14; *see also* Att. 5, Part B, Summary and pp. B-23 to B-32.
- Similarly, "key information" EPA provided to congressional staff demonstrates that **WTE yields "significant reductions of CO_2" and WTE has a "better [GHG] profile than landfilling with energy recovery."** Att. 2, slides 6, 8 and 26.
- **GHG emissions from WTE are primarily of biogenic origin** (approximately two-thirds). Att. 6, p. 1716. These emissions are already part of the natural carbon cycle because the biogenic carbon that comprises paper, food and other biomass in municipal waste is removed from the atmosphere as part of the plant growth-natural carbon cycle.
- The remaining petrochemical-based material (approximately one-third) can also be considered renewable (it's generated year after year), but if relegated to landfilling rather than combustion with energy recovery that material would represent the loss of a vast amount of valuable energy – **WTE recovers the energy equivalent of one barrel of oil from each ton of MSW.**

- EPA analysis also shows that **WTE yields the best results (compared to landfills) in terms of maximum energy recovery and lowest GHG and criteria pollutant emissions**. Att. 6, pp. 1711-14, 1716-17.
- In addition, EPA's key models for determining the life-cycle GHG emissions from the alternative MSW management methods show that WTE reduces GHGs by one ton for every ton of MSW that is directed to WTE rather than landfilled. *See* http://www.epa.gov/epawaste/nonhaz/municipal/wte/airem.htm (scroll to "Greenhouse Gases").
- The Intergovernmental Panel on Climate Change (IPCC), a leading forum of independent scientific experts on climate change, **emphasizes WTE's dual benefits of (i) offsetting fossil fuel combustion and (ii) avoided landfill methane emissions**. Att. 1, p. 601.
- 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**. Att. 8, pp 1-3.
- Similarly, the Feb. 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 methane emissions from landfills**. Att. 9, pp. 9, 11.[6]
- And the United Nations' recent (November 2011) report, *Bridging the Emissions Gap*, concludes that waste sector GHG emissions can be reduced 80% if there is significant diversion of currently landfilled waste to WTE. *See* http://www.unep.org/publications/ebooks/bridgingemissionsgap/ (select "Full Report"), pp 37-38.
- Finally, the Chief of EPA's Energy Recovery Branch referred to an evolving "best integrated material management strategy" of 45% recycling, 10% landfilling and 45% WTE. Att. 2, slide 30. But even at the 23% WTE rate the EU15 has achieved (and EU reliance on WTE continues to increase),[7] the additional reduction in CO_2e emissions in the U.S. would be 63.7 million tons, **which is equivalent to removing more than 12.5 million passenger cars from the nation's roads**.[8]

WTE ENCOURAGES RECYCLING – WTE is also entirely compatible with recycling:

- **WTE communities outperform non-WTE communities in recycling, with recycling rates that are typically at least 5 percentage points above the national average** and in some cases lead the nation in recycling. Att. 10, pp. ii, 8.
- These points are confirmed by a June 2009 national survey that conservatively calculated (i.e., understated) the recycling rate for WTE communities. Att. 10, pp. ii, 6-11.[9]
- Although recycling rates are driven by state recycling policies that apply equally to WTE and non-WTE communities, **WTE communities' recycling rates are generally higher than non-WTE communities in the same state**. Att. 10, p. 11 and Figure 3.
- State laws and policies also discourage diversion of recyclable materials to combustion in a WTE facility:
    - For example, an Oregon county using WTE cannot "take any action that would hinder or discourage recycling activities in the county." Ore. Rev. Stat. § 459.153. That

statute is focused on WTE-reliant Marion County, which **consistently achieves one of the highest recycling rates in the nation – more than 56.2%.**[10]

RECAP AND CONCLUSIONS

- WTE – a significant source of renewable energy that substantially reduces GHG emissions by (a) displacing electric power generation from fossil fuels, (b) avoiding methane emissions from landfill disposal of municipal waste, and (c) facilitating post-combustion recovery and reuse of ferrous and non-ferrous metals.
- Clean, baseload energy with very low emissions.
- Recovers 10 times the energy (electric power) from a ton of waste in comparison to landfill methane recovery-reuse.
- "Distributed" generation, i.e., energy is used where it is generated, which reduces the environmental impact and cost of transporting both waste and energy; and
- WTE complements recycling programs rather than competing with recycling.

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1 *The State of Garbage in America*, http://www.jgpress.com/images/art/1010/bc101016_s.pdf (*BioCycle*, Oct. 2010).

2 *See also Municipal Solid Waste in the United States 2007 Facts and Figures*, http://www.epa.gov/osw/nonhaz/municipal/pubs/msw07-rpt.pdf, p. 13.

3 http://www.energyrecoverycouncil.org/waste-energy-produces-clean-renewable-a2984.

4 *See* http://www.energyrecoverycouncil.org/userfiles/file/epaletter.pdf.

5 *Municipal Solid Waste in the United States: 2007 Facts and Figures*, p. 11.

6 Signatories to GROCC's joint statement range from Dr. James Hansen, NASA Goddard Institute for Space Studies, to Environmental Defense.

7 http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/sectors/municipal_waste.

8 The 63.7 million-ton figure noted in the text for reduced landfill CO_2e emissions due to increased WTE usage was calculated based on: (i) data provided in *The State of Garbage in America* (BioCycle, Oct. 2010), *supra* n.1 (Table 2, which shows U.S. landfill disposal of approximately 270 million tons in 2008); and (ii) EPA's factor (cited in the text above) of one ton of landfill CO_2e emissions avoided per ton of WTE-processed MSW. Increasing WTE usage in the U.S. to 23% (from the current 7%) would reduce landfill CO_2e emissions by the previously noted 63.7 million tons, and using EPA data for annual CO_2e emissions per passenger car (5.1 metric tons), *see* http://www.epa.gov/otaq/climate/documents/420f11041.pdf, a 63.7 million-ton reduction in landfill emissions equals the annual CO_2 emissions of 12,490,000 passenger cars.

9 The WTE communities' recycling rate omits several recyclables that the national rate includes, and the national rate is a composite that *includes* WTE communities – the more accurate comparison would *exclude* WTE communities in calculating the national rate.

10 *See 2010 Oregon Material Recovery and Waste Generation Rates Report*, October 2011 (11-LQ-038), Table 1, http://www.deq.state.or.us/lq/pubs/docs/sw/2010MRWGRatesReport.pdf.