

LOCAL GOVERNMENT COALITION FOR RENEWABLE ENERGY

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

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

Ecomaine (Portland, Maine)

*City of Harrisburg
(Harrisburg, Pennsylvania)*

*City and County of Honolulu
(Kapolei, Hawaii)*

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

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

Marion County (Marion, Oregon)

*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*

Waste-to-Energy and America's Need for Clean, Renewable Energy: THE CASE FOR WTE'S INCLUSION IN RENEWABLE ENERGY LEGISLATION

- ▶ America needs to dramatically increase its use of clean, renewable energy.
- ▶ Waste-to-energy (WTE) is one of the cleanest sources of renewable energy.
- ▶ Although a largely untapped resource in the U.S., WTE is widely recognized as the best environmental solution for managing the non-recycled portion of municipal waste.¹

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:

- Standard definitions of “renewable energy” routinely include WTE. See <http://www.libraryindex.com/pages/1532/-Renewable-Energy-Defined>.
- WTE is recognized as renewable at both state and federal levels: e.g., USEPA, Department of Energy, Biomass Research and Development Act of 2000, Public Utility Regulatory Policy Act, and laws and regulations in nearly 25 states. See <http://www.energyrecoverycouncil.org/waste-energy-produces-clean-renewable-a2984>.
- Federal government's obligation to purchase “renewable energy” under section 203 of the Energy Policy Act of 2005 specifically includes WTE.
- World Economic Forum's very recent (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.** Tab 1, p. 27.²
- A largely untapped resource in the U.S., WTE has far greater use in a number of other nations that are at least equally conscientious

¹ In addition to WTE, landfills are also a necessary component of waste management infrastructure, and landfill methane, like WTE, is a renewable source of energy. Federal energy legislation should include both WTE and landfill methane recovery-reuse systems in the definition of renewable energy.

² For the reader's convenience, many of the sources cited here are reproduced in the Appendix.

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stewards of the environment. See Tab 2, p. 601; *Municipal Solid Waste in the United States 2007 Facts and Figures*, p. 13 (Nov. 2008) (<http://www.epa.gov/osw/nonhaz/municipal/-pubs/msw07rpt.pdf>).

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), Tab 3, p. 1722, and WTE emissions are lower than landfill emissions for 9 of 10 major air pollutants, Tab 4, p. B-30.
- 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.**” See <http://www.energyrecoverycouncil.org/userfiles/file/-epaletter.pdf>
- EPA’s hierarchy for “integrated waste management” **prefers waste combustion with energy recovery over landfilling.** *Municipal Solid Waste in the United States: 2007 Facts and Figures*, p. 11.
- WTE’s efficiency and reliability are clear as well:
 - WTE recovers approximately 600 kWh per ton of waste, which is approximately **10 times the energy recoverable from a ton of landfilled waste.** Tab 5, p. 1714; *see also*, Tab 4, 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 (in contrast to sources such as solar and wind power).
- The Nature Conservancy ranks WTE as one of the most environmentally protective alternative energy sources. Tab 6, 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 shown by EPA’s *Municipal Solid Waste Decision Support Tool*, WTE reduces GHG emissions in 3 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 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. Tab 5, pp. 1711-14; *see also* Tab 4, Part B, Summary and pp. B-23 to B-32.
- Moreover, **GHG emissions from WTE are primarily – i.e., 77% to 82% – biogenic carbon or biomass.** Tab 5, p. 1716; Tab 7, p. 4. 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 *Decision Support Tool* also shows that **WTE yields the best results (compared to landfills) in terms of maximum energy recovery and lowest GHG and criteria pollutant emissions**. Tab 5, pp. 1711-14, 1716-17.
- A number of additional studies confirm that conclusion. For example, analysis by a lecturer from the Harvard University School of Public Health compared net GHG emissions from WTE facilities and landfills with gas recovery-reuse systems, and concluded that **GHG emissions from landfills are 45 times greater than from WTE facilities**. Tab 8, pp. 1423, 1427.
- WTE's mitigation of GHG is expressly recognized by the Intergovernmental Panel on Climate Change (IPCC), a leading forum of independent scientific experts on climate change. **The IPCC emphasizes WTE's dual benefits of (i) offsetting fossil fuel combustion and (ii) avoided landfill methane emissions**. Tab 2, p. 601 (the IPCC's work in climate change earned the 2007 Nobel Peace Prize jointly with former Vice President Al Gore).
- 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**. Tab 9, pp 1-3.
- In addition, 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** (signatories to GROCC's joint statement range from Dr. James Hansen, NASA Goddard Institute for Space Studies, to Environmental Defense). Tab 10, pp. 9, 11.
- Finally, at the Feb. 23, 2009 National Clean Energy Project Roundtable in Washington, **President Bill Clinton offered a strong endorsement of WTE: "We can close all these landfills, recycle the metal and glass and compost the organic material; and my favorite use is to use it as biomass fuel for generating electricity."** http://nationalcleanenergyproject.org/wp-content/uploads/2009/03/ncep_transcript.pdf (p. 46).

WTE ENCOURAGES RECYCLING – WTE is also entirely compatible with recycling and WTE communities' recycling rates outperform non-WTE communities:

- **WTE communities typically have recycling rates at least 3 to 5 percentage points above the national average** and in some cases lead the Nation in recycling. Tab 11, pp. ii, 7.
- A recent national survey shows that **WTE communities have a 33.3% recycling rate, which exceeds the national rate and is conservatively calculated** (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). Tab 11, pp. ii, 7.

- 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.** Tab 11, p. 10 and Figure ES-2.
- 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 52%** (which is also the highest in Oregon). See *2007 Oregon Material Recovery and Waste Generation Rates Report*, September 2008 (08-LQ-092), Table 4 (<http://www.deq.state.or.us/pubs/reports.htm#Recovery>)

RECAP AND CONCLUSIONS

WTE should be included in the RES because:

- ▶ It’s a renewable source of energy.
- ▶ Substantially reduces GHG emissions by displacing (a) electric power generation from fossil fuels and (b) landfill disposal of municipal waste.
- ▶ Clean, baseload energy with very low emissions.
- ▶ WTE recovers 10 times the energy (electric power) from a ton of waste in comparison to landfill methane recovery-reuse.
- ▶ WTE is “distributed” generation, i.e., energy is used where it is generated, which reduces the environmental impact and cost of transporting both waste and energy.
- ▶ Complements recycling programs rather than competing with recycling.
- ▶ And WTE is an underutilized energy resource.