



“The Politics of Garbage”

Energy-from-Waste
A Proven **Renewable** Energy Source

May 21, 2009



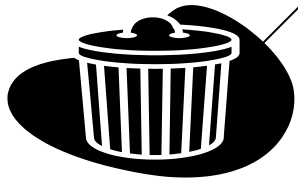
Industry Overview of Energy-from-Waste

- EFW disposes of 13% of the nation's waste (US EPA)
 - 87 facilities
 - 29 million tons per year
 - 36 million people served
 - 27 states
 - Generation capacity in excess of 2,700 MW
 - 16 million MWhrs of renewable power generated annually



Energy-from-Waste: A critical piece of the global warming solution

259 Million tons
of trash (MSW)
goes to landfills



Landfills



Renewable Energy Generated from
Landfills - 5 billion kWh

That's an average of only 20
kilowatt hours of electricity
per ton of waste

EfW



Renewable energy generated from WTE
Facilities - 15 billion kWh

That's 520 kilowatt hours of
electricity per ton of waste

Today's modern EfW facilities avoid in excess of 30 million tons per year of CO₂ equivalent by avoiding CO₂ from fossil fuel power plants and methane from landfills.

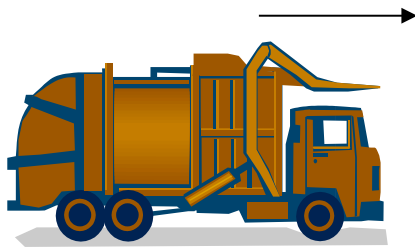


EfW Technology

EfW is a specially designed energy generation facility that uses household waste as fuel and helps solve some of society's big challenges

- Population growth → Safe, reliable waste disposal
- Climate change → Reduces greenhouse gas emissions
- Dependence on fossil fuels → Clean, renewable electricity
- Resource management → Recover metal for recycling

Municipal Solid Waste (MSW): 2000 lbs



→ Power: 560 kWh

→ Metal: 50 lbs



Ash: 10% of original volume

Solid Waste Management Hierarchy



The USEPA and others promote a hierarchy that identifies the following actions in descending order of preference:

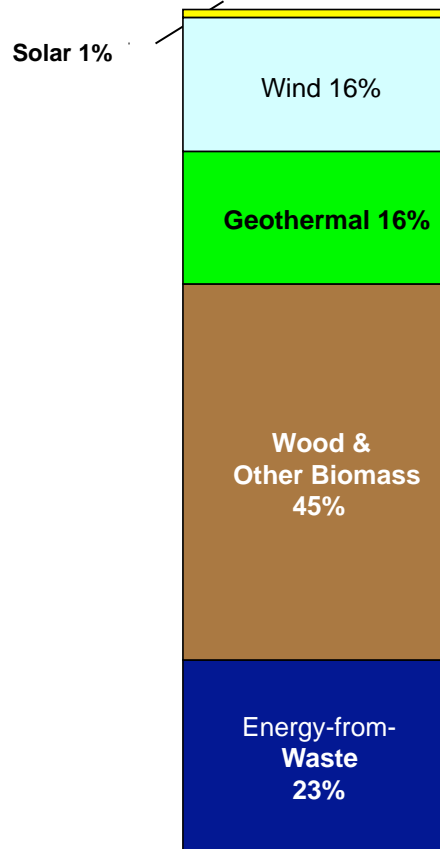
1. Source reduction
2. Reuse
3. Recycling or composting
4. Combustion with energy recovery
5. Landfill disposal or incineration without energy recovery



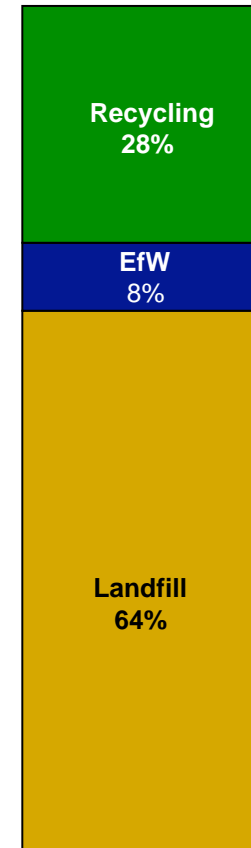
Covanta: Leader in Diversified Power Generation

- Covanta currently owns and/or operates 37 Energy-from-Waste facilities in North America, Europe, and Asia.
 - United States: operates 34 EfW facilities in 15 states
 - Europe: operates 1 EfW facility in Italy with 2nd project under development in Dublin
 - China: operates two EfW facilities
- Also operates a diverse global portfolio of other renewable and non-renewable energy plants that use a variety of technologies.
 - Operates six renewable biomass (wood) facilities in US
 - Operates four renewable biogas (landfill) facilities in US
 - Operates four renewable hydroelectric facilities; two in US and two in Central America
 - Operates six fossil fuel fired power generation plants in Asia
- Our facilities have earned a reputation for reliability, safety, efficiency, and environmental responsibility

Covanta Energy: Leader in Generating Renewable EfW



- **Established and strong base business**
 - 34 Covanta operated EfW facilities in US
 - Produce almost 10% of America’s non-hydro renewable electricity
 - 20-plus year operating track record
- **Critical infrastructure for municipal solid waste disposal**
 - Covanta converts over 15 million tons of waste into energy annually
 - Processes over 5% of post recycled U.S waste
 - Long-term mutually beneficial relationships with client communities
- **Domestic portfolio of other renewable energy facilities (biomass, landfill gas, hydro)**



Annual U.S Renewable Generation = 88,000 GWh

Source: US Department of Energy, Energy Information Administration 2004 Rep

Annual U.S Waste = 388,000,000 Tons

Source: joint study by Biocycle and Earth Engineering Center of Columbia University



Municipal Solid Waste is a Renewable Fuel

- Both sustainable and indigenous, two basic criteria for establishing what is a renewable energy source
 - US generates nearly 388 million per year of MSW or 1.2 tons per capita
 - Currently only 7.5% is used for fuel in EfW facilities while over 64% is buried in the ground to uselessly decompose while releasing CO₂ and methane
- EfW facilities use this renewable fuel to generate clean, reliable electricity while also providing safe disposal of municipal solid waste





The “PROBLEM”!



We need Renewable Portfolio Standard (“RPS”) inclusion to encourage the development of new EfW capacity



What is Renewable Portfolio Standard?

A State or Federal regulatory policy that requires an electric power provider to generate or purchase a specified percentage of the power it supplies/sells from renewable energy resources, and thereby guarantee a market for electricity generated from renewable energy resources.





Why is an RPS important to “US”?

Will move us towards a more definitive and consistent use of renewables:

- Reduces our reliance on fossil fuels which are proven to be inherently more detrimental to our environment
- Enhances the energy independence of the US because renewable fuels are not imported – they are “home grown”





Why is an RPS inclusive of EfW important to the industry?

“EPA recognizes the vital role of the nation’s municipal waste-to-energy industry .. enables us to continue to rely on municipal solid waste as a clean, reliable, renewable source of energy .. these plants produce 2,800 megawatts of electricity with less environmental impact than almost any other source of electricity”

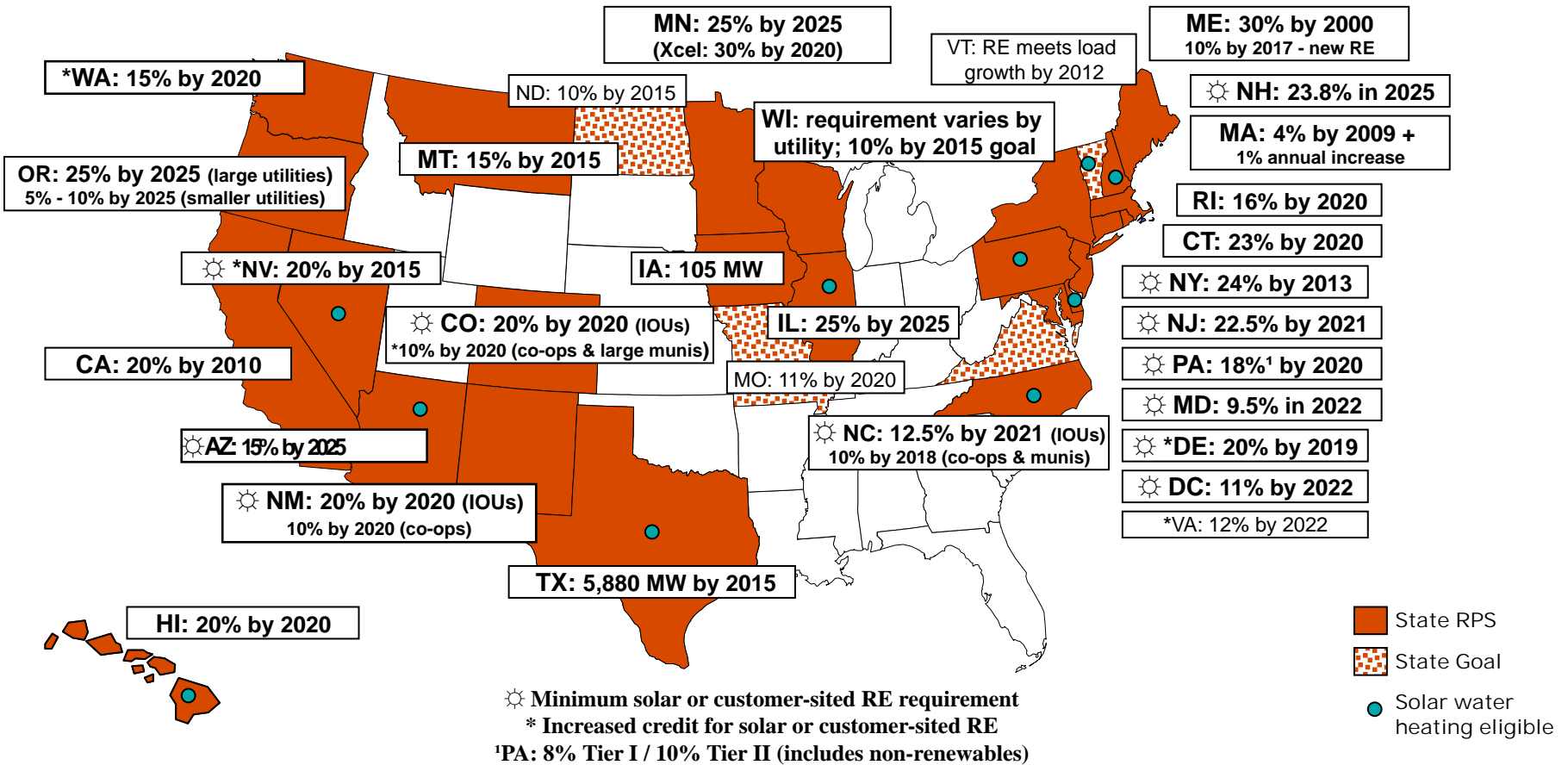
- US EPA (February 2003)



Domestic EfW Industry

- Manages over 29 million tons per year of municipal solid waste
- Generates a base load electric capacity of over 2,700 megawatts
- Offsets fossil-fuel fired electric generation resulting in net reduction of methane released to atmosphere

Renewable Portfolio Standards





Key Elements of a Successful RPS

- Establishes clear annual targets that must be met by any load serving entity selling electricity to end-users in the state (private, public, munis, etc.)
- Ensures aggressive targets to foster renewable energy innovation and development
- Clearly defines qualifying technologies/fuels
- Allows markets to foster technology development without favoring specific technologies or fuels
- Allows Renewable Energy Certificate (“REC”) trading as separate product from traditional capacity, energy, and ancillary service produced by a generator
- Establishes independently operated entity to operate trading markets and monitor/verify REC generation, use, and load serving entity compliance
- Contains compliance, enforcement, and penalty provisions
 - Defines Alternative Compliance Payment (“ACP”) in the \$50 to \$80/MWh range to be paid by any load serving entity that does not meet the RPS annual target
 - Uses the funds generated by the ACP to support renewable generation R&D and energy efficiency programs



EFW: A Proven Component of Our Energy Future

- 23 States and Washington DC define EFW as Renewable Energy
- To date 12 States and Washington DC define EFW as eligible for Renewable Portfolio Standards
- Efficiently recovers/exports over 650 KWhrs/per ton of MSW processed
- EFW is clean - “Exceeds requirements of the Clean Air Act” – US EPA
- Most advanced pollution controls of any energy generation source
- Reduces landfill requirements in excess of 90%
- Eliminates the release of toxic emissions and GHG’s (especially methane) from “raw waste” landfills
- EFW and recycling are compatible: recycling rates of EFW communities exceeds the national average by over 5%



The “Power” of EFW in Florida

One ton of MSW

Has the energy equivalent of

One barrel of fossil fuel oil or 10 MCF of natural gas!

- EFW is a proven source of Florida renewable energy
- Annually Floridians generate 36.8 million tons of MSW* which is the energy equivalent of 36.8 million barrels of oil.
- Currently 6.7 million tons (18,536 tons per day) of MSW can be processed annually by Florida’s 11 EFW Facilities.
- This eliminates the need for 6.7 million barrels of oil or 67 million MCF of natural gas.
- 518 MW of renewable electrical energy is generated on a daily basis by Florida’s EFW Facilities
- Saving annually over 8,125 acre feet of precious landfill space through volume reduction.

More EFW Can Still Be Done...

- Over **23.5*** million tons of MSW is still being landfilled every year in Florida.
- EFW Technology can convert this waste into over **1880 MW**** of new Renewable Energy
- A significant number of highly developed areas of the State still heavily dependent on land filling raw MSW as their primary method of solid waste management.

– Orange County	1,701,507 TPY
– Duval County	1,638,875 TPY
– Brevard County	1,082,395 TPY
– Escambia County	846,605 TPY
– Polk County	686,482 TPY
– Volusia County	608,375 TPY
– Santa Rosa County	598,125 TPY
– Seminole County	502,094 TPY
– Okaloosa County	500,457 TPY

- New EFW capacity to manage the **8.2 million tons** of MSW available from these areas alone would increase the State's Renewable Energy generation by over **655 MW**** while increasing our energy independence by the equivalent of **8.2 million barrels** of oil each year.
- This will only be possible with the **right incentives**

Energy-from-Waste has a Long Track Record as Renewable

Policymakers have long recognized MSW as a renewable fuel

- Section 203 of the Energy Policy Act of 2005
- Bush's Executive Order 13423
- Federal Power Act
- Public Utility Regulatory Policy Act
- Biomass Research and Development Act of 2000
- Federal Energy Regulatory Commission regulations
- Statutes in two dozen States (including more than a dozen State RPS)





Why EfW needs to be included in a Federal RPS

- A Federal RPS without EfW has the ability to eliminate any State RPS that includes EfW – utilities in those States will be able to meet the requirement by simply purchasing renewable energy only from those renewable sources that are included in BOTH State and Federal programs
- A Federal RPS without EfW has the potential to effect the upgrade of EfW infrastructure and more importantly, negatively impact the ability to favorably finance and expand existing plants and build new EfW
- Inclusion of EfW in a Federal RPS sends a strong message to the public which reflects favorably on EfW as a secure waste management technology that has the added benefit of generating clean, reliable baseload electricity





Encouraging New EfW Development

The Future

- Renewables including EFW must be a part of changing our energy future
- Recent Supreme Court Ruling *United Haulers Association Inc. vs. Oneida-Herkimer* affecting the landmark 1994 flow-control decision in *C&A Carbone vs Clarkstown*
- New (and renewed) EFW contracted energy generation must be valued based on avoiding the most expensive fossil fuels
- Development of a functional and liquid wholesale electricity and renewable credit trading markets will stimulate growth
- Long-term fairly priced energy contracts will encourage new project financing
- Encourage/require Renewable Portfolio Standard (“RPS”) to encourage the development of new renewable energy generation



If You Remember Nothing Else!

- In the US alone, EfW prevents up to 30 million tons of greenhouse gas emissions annually including the prevention of a substantial volume of methane emissions from landfills.
- The US EPA has stated that EfW plants are a “clean, reliable, renewable source of energy” that “produces electricity with less environmental impact than almost any other source of electricity”.
- Energy-from-Waste means:
 - Reduced dependence on fossil fuel
 - Fewer landfills
 - Lower greenhouse gas emissions

An RPS that excludes EfW would discourage homegrown renewable energy generation and reverse nearly 30 years of Federal law, as well as 23 State laws (plus DC) that recognize EfW as renewable



Making **Energy** from
Waste
Makes Sense.



www.covantaenergy.com