

COVANTA ENERGY

for a cleaner world

COVANTA ENERGY



...for a cleaner world

May 2008

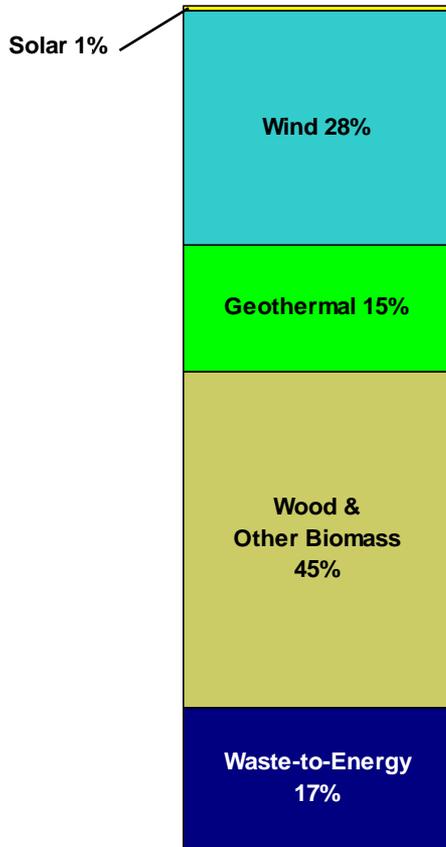
Leader in US Renewable Electricity through Waste



- 34 Waste-to-Energy Facilities
- 6 Wood Waste Facilities
- 5 Landfill Gas Facilities

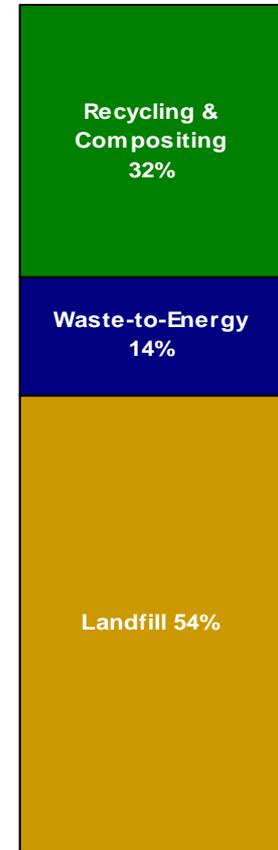
- 15 Million Tons of Waste Safely Disposed Of Annually
- Over 5% of the Nation's Waste Disposal

- 7,800 GWh Produced from Covanta Operated Facilities
- About 8% of Nation's Non-Hydroelectric Renewable Electricity



Annual U.S. Renewable Generation = 96,000 GWh

Source: US Department of Energy, Energy Information Administration 2006 Report



Annual U.S Waste Disposal = 245,000,000 Tons

Source: US EPA Basic Facts (www.epa.gov/msw/facts.htm)

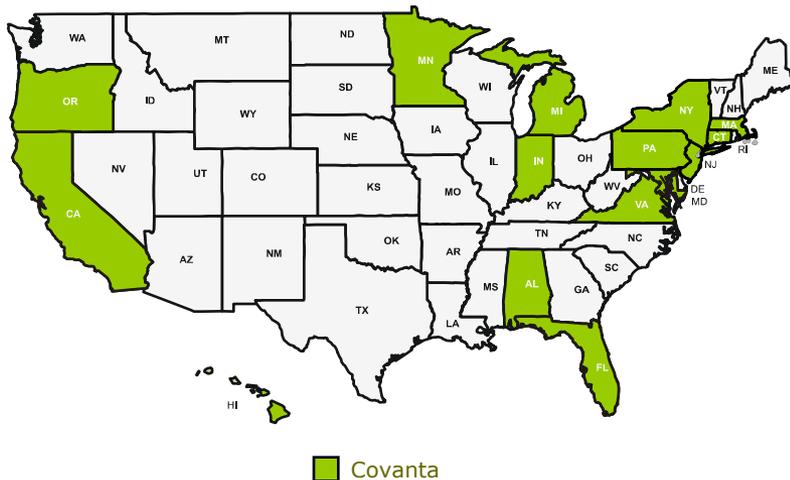
Covanta Core Business: Energy-From Waste (EfW)

- ❑ Mid-80's – 1995: surge in development & construction of EfW
- ❑ Covanta (then OMS) developed, constructed and began operating 21 projects + acquired operating contracts of 6 existing facilities
- ❑ 2006: Covanta acquired American Ref-Fuel
 - 6 northeastern EfW facilities, one ash landfill, 2 transfer stations
- ❑ 2007: Covanta expands Florida facilities
- ❑ 2007: Covanta acquired Energy Answers
 - 2 MA EfW facilities, ash landfill and NY transfer station
- ❑ 2008: Covanta acquires Peabody, MA Ash Landfill
- ❑ Continuous improvement in emissions control and abatement
- ❑ Expanding into other solid waste issues including transfer stations, ash disposal, wood waste-to-energy, landfill gas
- ❑ Actively investigating alternative, complementary EfW technologies

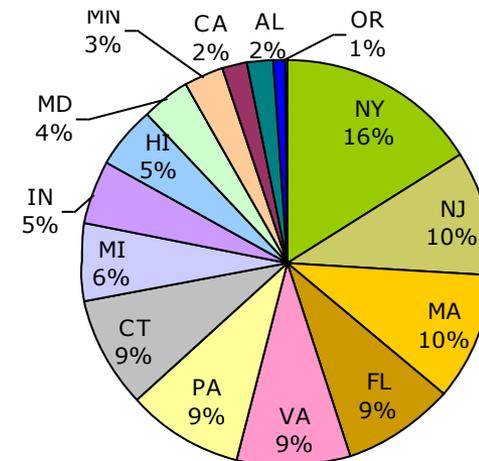
Covanta Footprint

- #1 position in the U.S. EfW industry
 - Significant presence in the densely populated Northeast region
 - Operate in 15 states
- International presence
 - Independent power facilities in Asia and Europe

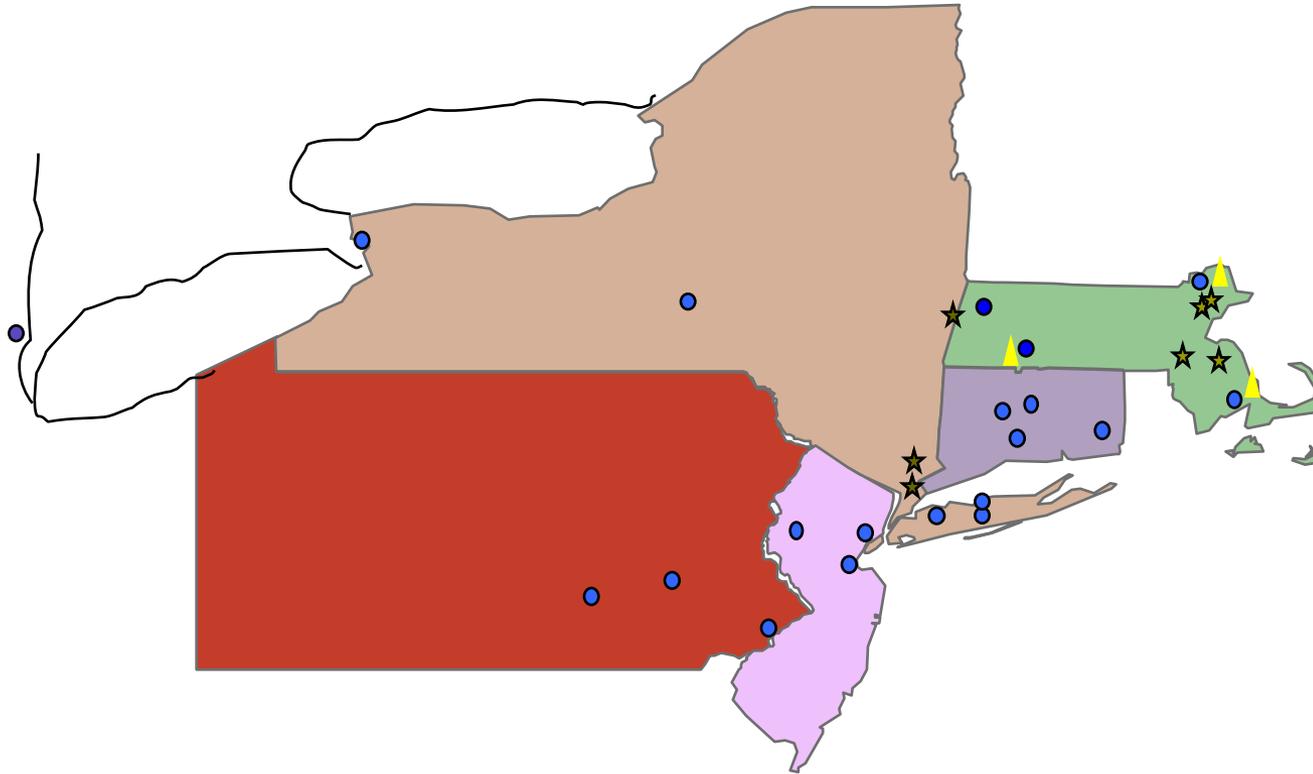
Covanta Facility Locations by State



Annual Tons Processed by State



Concentration in Northeast Corridor



● Energy-from Waste Facility

▲ Landfill or Ash Monofill

★ Transfer Station

EfW – Community Benefits

- ❑ Long term, stable post-recycling waste pricing
- ❑ Annual payment to community which hosts the facility
- ❑ Clean Renewable Power – less demand for fossil fuel power (oil & coal)
- ❑ Recycling:
 - Ferrous Metals Recovery (~10,000 tons in 2007)
- ❑ Reduces - landfill usage and Greenhouse Gases
- ❑ Minimized truck traffic
- ❑ Community Relations Programs / Charitable Contributions
- ❑ Provides local employment
- ❑ Several million spent in local businesses annually

Covanta in Connecticut

- ❑ Owns and/or operates 4 of the 6 existing EfW facilities
- ❑ Provides Energy Management and Environmental Services under long term Service Agreements with the CRRA and the Bristol Resource Recovery Facility Operating Committee (BRRFOC)
- ❑ Operating for close to 20 years in a safe, environmentally friendly & compliant manner, and have:
 - Produced 13 million MWhs; enough to power over 93,000 homes annually
 - Safely managed ~ 24 million tons of MSW resulting in the avoidance of burning 5M tons of coal or 24M barrels of oil
- ❑ A Success Story in Effective Public – Private Partnerships
 - Good corporate citizen in our Client Communities
 - Donate time and funding to CT schools and local charities each year

COVANTA BRISTOL



COVANTA BRISTOL

650 Tons Per Day – EfW Facility

- ❑ In 1985, Covanta entered into a long-term Service Agreement with the Bristol Resource Recovery Facility Operating Committee (BRRFOC) to provide waste disposal services to 14 Connecticut communities. The facility started operation in 1988.
- ❑ Service Agreement: Client delivers waste and pays Covanta an O&M fee to operate the facility.
- ❑ In 2000, Covanta completed a CAAA retrofit of the facility to lower emissions and meet new Federally enforced air emissions guidelines.
- ❑ In 2006, Bristol installed a new Covanta patented Low NOx Nitrogen Oxide Control System.

COVANTA BRISTOL

650 Tons Per Day - EfW Facility

- ❑ The Facility generates 16 megawatts of renewable energy sold to Connecticut Light & Power (CL&P).

- ❑ The Bristol Facility:
 - Provides enough energy to power 13,000 homes each year.
 - Since 1988, has produced 2 million MWhs & has safely disposed of 3.7 million tons of MSW.

- ❑ Awards: OSHA VPP (2006), OSHA VPP Gold Star Among Stars recipient (2006), EPA Performance Track (2007).



COVANTA MID-CONN

2000 Tons Per Day – EfW Facility

- ❑ In 1991, Covanta entered into a long-term Service Agreement with the Connecticut Resources Recovery Authority (CRRA) to provide waste disposal services to 70 Connecticut communities. The facility started operation in 1921 as a coal burning plant modernizing to EfW in 1988.
- ❑ Service Agreement: Client delivers waste and pays Covanta an O&M fee to operate the facility.
- ❑ In 1995, Covanta completed the SNCR installation at the facility to lower NOx emissions and meet new federally enforced air emissions guidelines.

COVANTA MID-CONN 2000 Tons Per Day – EfW Facility

- ❑ Covanta and CRRA have discussed extending the Service Agreement which expires in May 2012.
- ❑ The Facility generates 68.5 megawatts of renewable energy sold to Constellation Energy Group and Connecticut Light & Power (CL&P).
- ❑ The Mid-Conn Facility:
 - Provides enough energy to power 56,000 homes each year.
 - Since 1988, has produced 8 million MWhs & has safely disposed of 14.2 million tons of MSW.
- ❑ Awards: OSHA VPP (2003), EPA Performance Track (2005), VPP Recertification (2007), OSHA VPP Silver Star Among Stars recipient (2007).



COVANTA SECONN 690 Tons Per Day -EfW Facility

- ❑ In 1988, Covanta entered into a long-term Service Agreement with the Connecticut Resources Recovery Authority (CRRA) to provide waste disposal services to 12 Connecticut communities. The facility started operation in 1992.
- ❑ Service Agreement: Client delivers waste and pays Covanta an O&M fee to operate the facility.
- ❑ In 1992, the facility installed a Ferrous Separation System to increase metal recycling.
- ❑ Between 2000 and 2004, Covanta completed a CAAA retrofit of the facility to lower emissions and meet new federally enforced air emissions guidelines.

COVANTA SECONN

690 Tons Per Day – EfW Facility

- ❑ The Plant generates 18 megawatts of renewable energy sold to Connecticut Light & Power (CL&P).
- ❑ The SECONN Facility:
 - Provides enough energy to power 15,000 homes each year.
 - Since 1992, has produced 2.3 million MWhs & has safely disposed of 3.8 million tons of MSW.
- ❑ Awards: OSHA VPP (1995), CT DEP Green Circle Award Winner (1998), OSHA VPP Gold Star Among Stars recipient (5 years 2002 through 2006), EPA Performance Track (2005-2007) & ASME – Solid Waste Processing Division (SWPD) Large Waste-to-Energy Facility of the Year (2006).

COVANTA WALLINGFORD



COVANTA WALLINGFORD

420 Tons Per Day - EfW Facility

- ❑ In December 1990, Covanta entered into a long-term Service Agreement with the Connecticut Resources Recovery Authority (CRRA) to provide waste disposal services to 5 Connecticut communities. The facility started operation in 1989.
- ❑ Service Agreement: Client delivers waste and pays Covanta an O&M fee to operate the facility.
- ❑ In 2000, Covanta completed the installation of three 25m BTU diesel fuel burners and enclosures surrounding the ATR's below each combustor to satisfy and meet new Federally enforced air emissions guidelines.

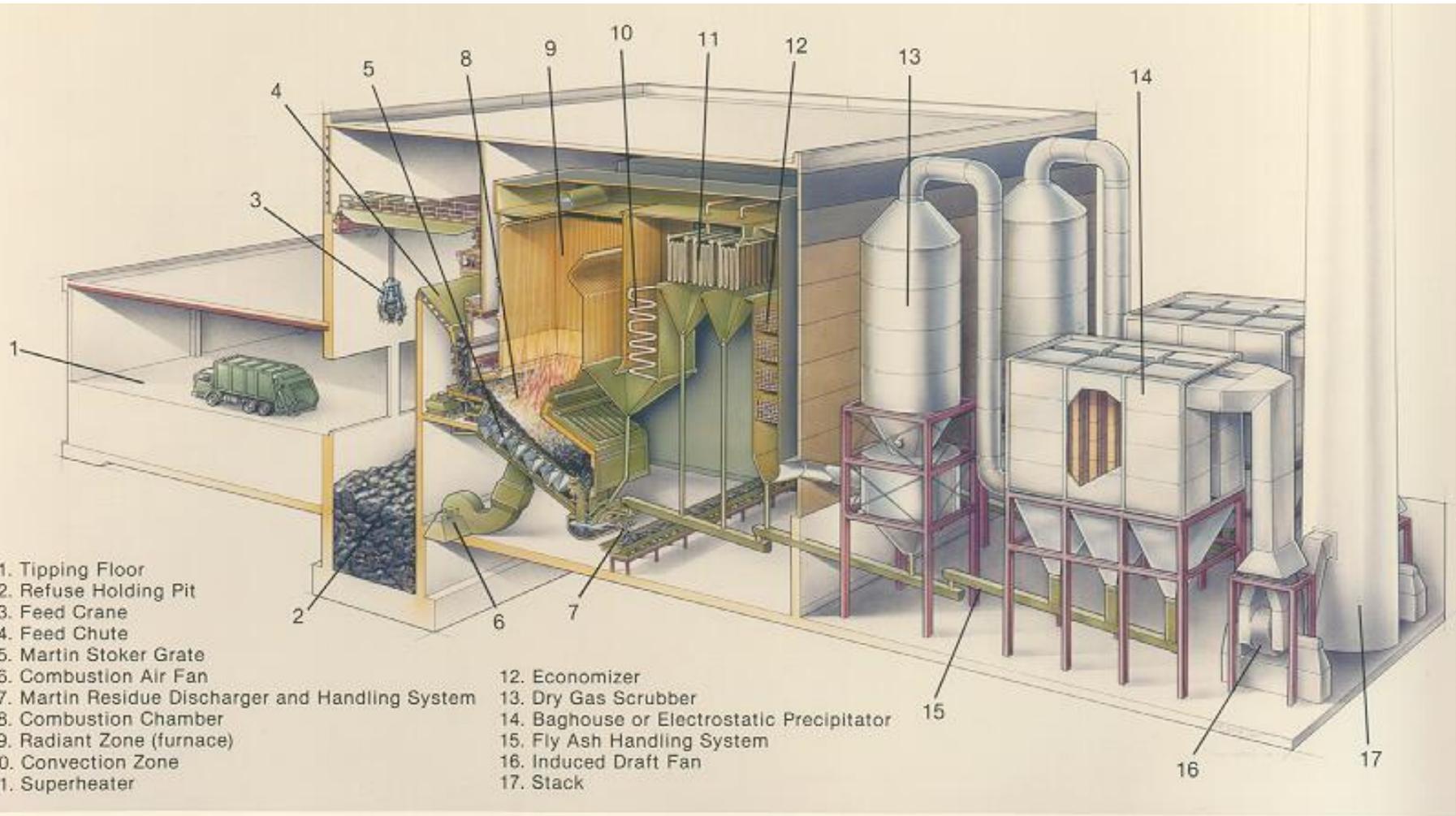
COVANTA WALLINGFORD

420 Tons Per Day - EfW Facility

- ❑ Covanta, CRRA and the municipalities are currently discussing extending the Service Agreement which expires in June 2010.
- ❑ The Facility generates 11 megawatts of renewable energy sold to Connecticut Light & Power (CL&P).
- ❑ The Wallingford Facility:
 - Provides enough energy to power 9,000 homes each year.
 - Since 1989, has produced 1 million MWhs & has safely disposed of 2.5 million tons of MSW.
- ❑ Awards: ASME Small Operator of the Year (2003) & EPA Performance Track (2007).

Energy-from-Waste Technology and Environmental Performance

How an EfW Facility Works

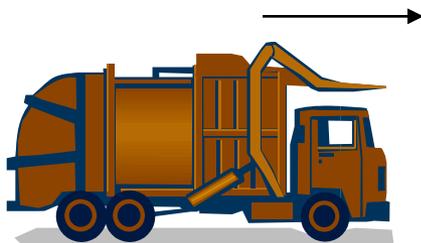


EfW Facilities

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 option
- Climate change —————> Reduces greenhouse gas emissions
- Dependence on fossil fuels —————> Clean, alternative electricity
- Resource management —————> Recovers metal for recycling

Municipal Solid Waste (MSW): 2000 lbs



————> Power: 560 kWh

————> Metal: 50 lbs



Ash: 10% of original volume

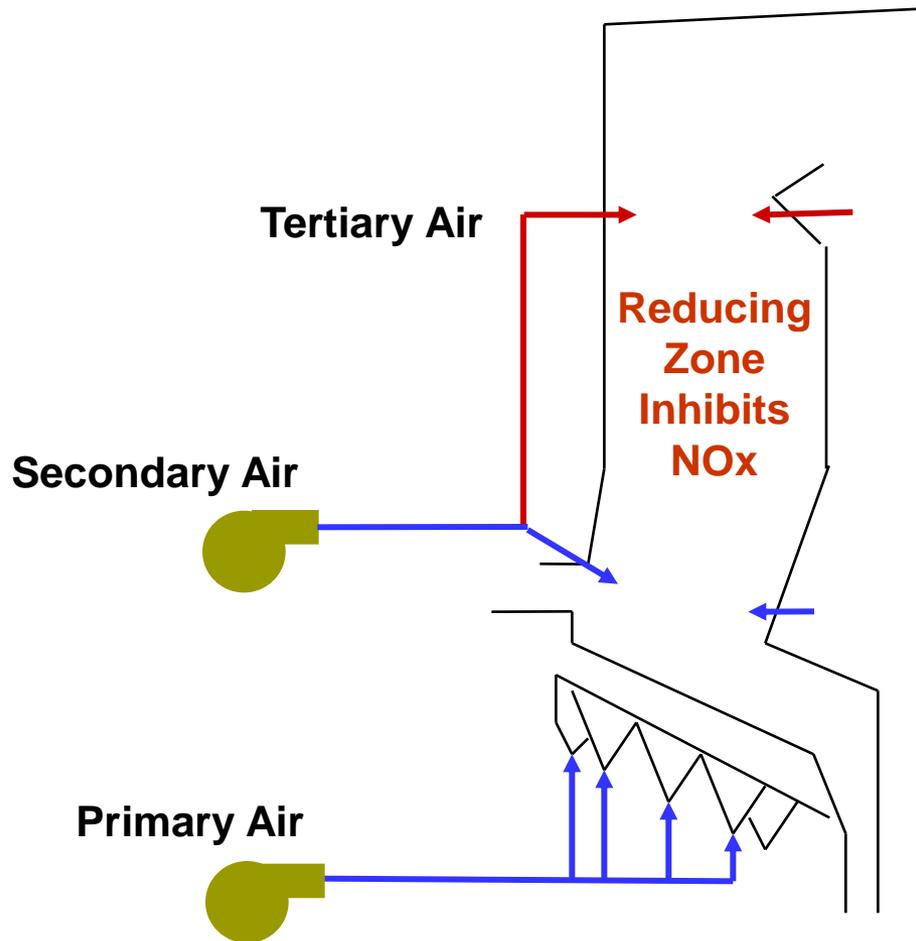
Technological Advances

- ❑ Mid-80's: addition of semi-dry scrubber and baghouse technology
- ❑ 90's: NO_x (SNCR) and mercury (activated carbon) controls
- ❑ Late-90's: CAAA mandated MACT emissions limits by December 19, 2000
- ❑ Mid-06: MACT standards revised
- ❑ 2008: Revised Connecticut 22a-174-38 (MWC regulation) revision to become effective

Technology Improvements

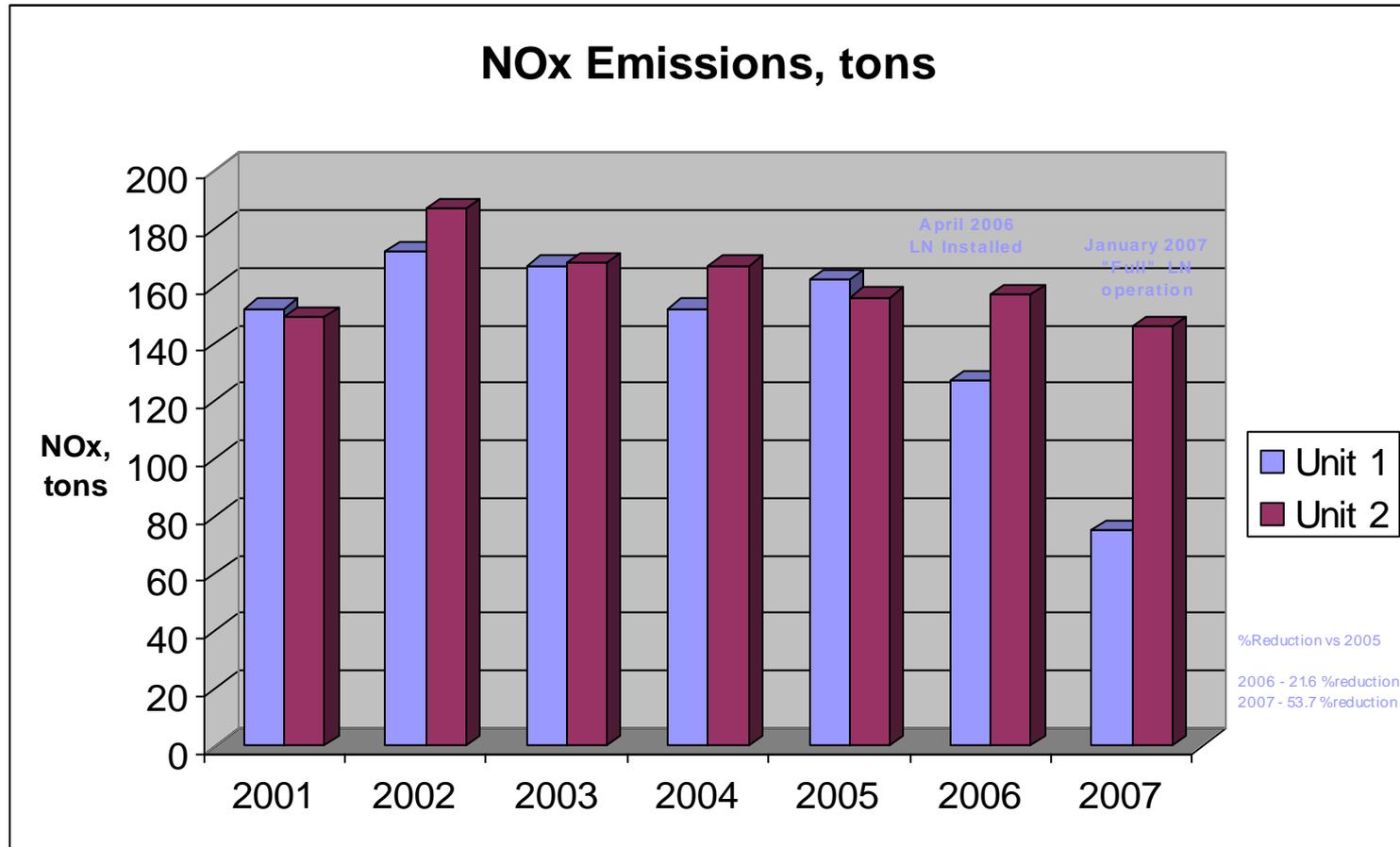
- ❑ Advanced SNCR injection developed to improve removal of NO_x
- ❑ Flow modeling of APC system to improve performance and minimize pluggage
- ❑ Advanced combustion control algorithms to minimize emissions and slagging
- ❑ Covanta-developed “Low-NO_x” technology for EfW

“Low-Nox” Advanced Combustion Control



**Total air
unchanged
Balance of plant
unaffected**

Bristol Facility: Effect of “Low-Nox”

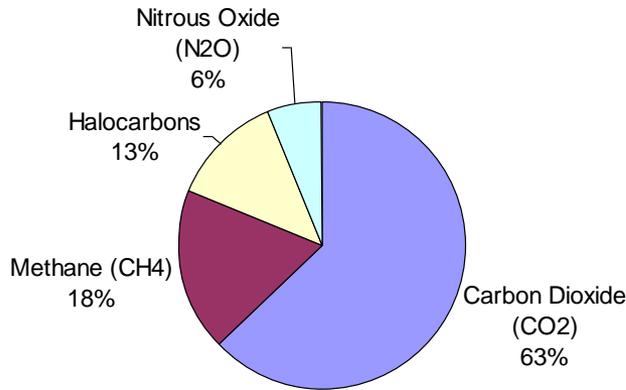


Energy-from-Waste Environmental Benefits

Solid Waste Management's Impact on Global Warming - the National Snapshot

Carbon dioxide and methane are the two major GHGs causing global warming

(IPCC 2001, 2007)

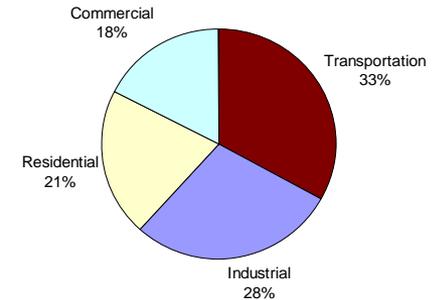


Carbon dioxide and methane together are 81% of GHG's

Methane is 21 times more potent than Carbon Dioxide

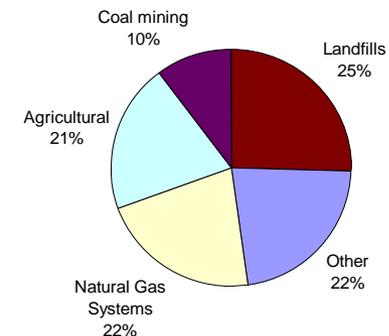
Reduction of both is required

Sources of Carbon Dioxide



40 % of carbon dioxide is from fossil fuel combustion for electricity *(EPA 2004)*

Sources of Methane



Landfills are the major source of man-made methane *EPA 2004*

- ❑ Methane is 21 times more potent a greenhouse gas than Carbon Dioxide
Source: (EPA: ES Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004)
- ❑ All solid waste landfills emit methane
- ❑ European Union is directing a 65% reduction in landfilling biodegradable solid waste as part of their effort to comply with Kyoto
- ❑ Landfills with methane capture recover only a portion of the methane produced:
 - Columbia University Earth Engineering Center estimates 60% capture
 - EPA inventory information on landfills, estimates 47% capture

The EfW Solution: Helping to Reduce GHG Emissions

□ Reduces Greenhouse Gas emissions

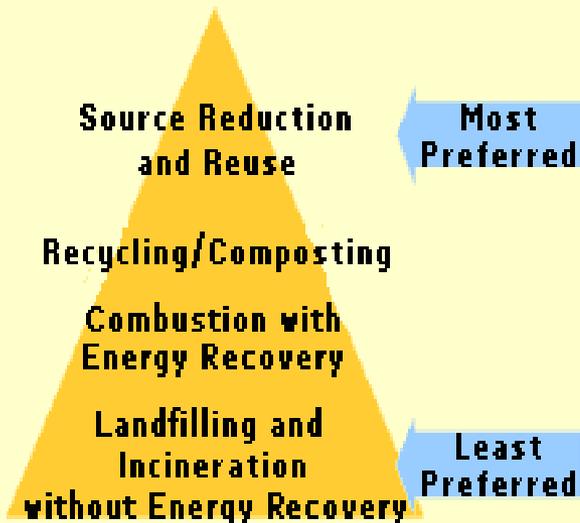
- Offsets methane emissions from landfills.
- Nearly one ton LESS of CO₂ is released into the air due to avoided land disposal, fossil fuel power generation and metals production, for every ton of trash combusted in modern WTE facility ⁽¹⁾
- WTE annually avoids 33 million metric tons of CO₂ that would otherwise be released into the atmosphere by burning fossil fuels to generate electricity. ⁽¹⁾
- EPA: WTE has “less environmental impact than almost any other source of electricity”
- EPA moved WTE above landfills on its hierarchy



⁽¹⁾ According to EPA's Municipal Solid Waste Decision Support Tool.

EfW: Part of Connecticut's MSW Solution

Solid Waste Management Hierarchy



The Dec 2006 USEPA hierarchy identifies four tiers in descending order of preference:

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

EPA is consistent with Connecticut's policy established in the early 1980's. In fact, Connecticut was ***ahead*** of Europe and the rest of the U.S. through its preference for energy recovery over simply landfilling.

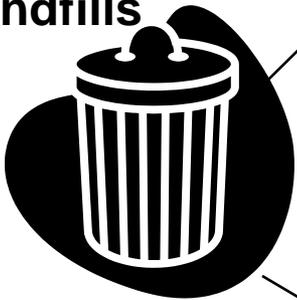
- Solid Waste Management Efforts
 - Connecticut MSW recycled – 30%*
 - Connecticut MSW processed at six regional EfW plants – 57%*
 - Connecticut MSW disposed out of state – 9%*
 - Connecticut MSW landfilled in state – 4%*

- **Connecticut utilizes EfW facilities more than any other state in the country**

* 2005 CT/DEP data

EfW: Part of the global warming solution

249 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

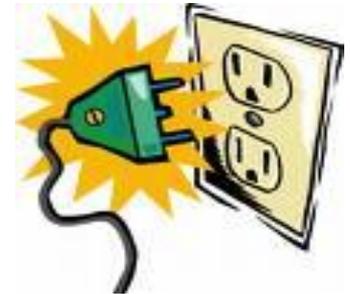
29 Million tons of trash goes to EfW

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

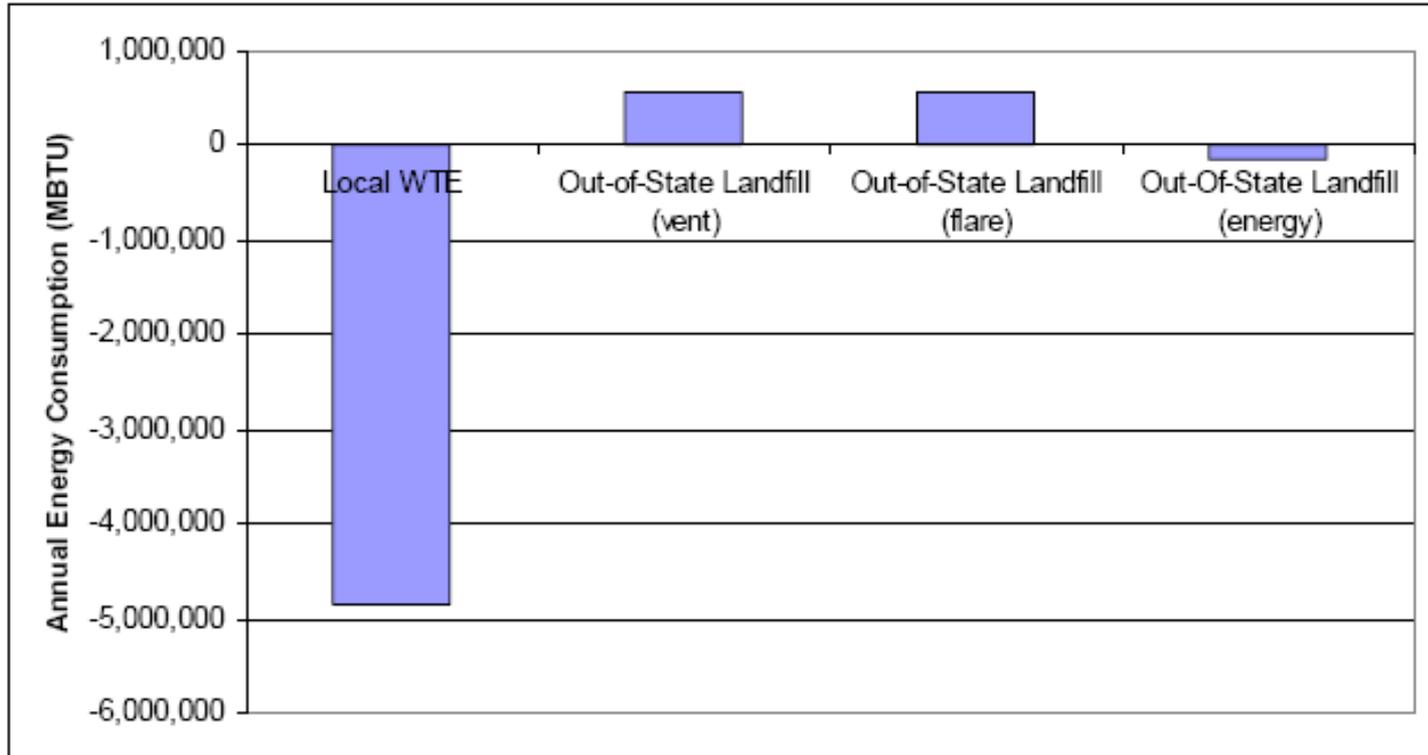
EfW: Reduces Dependency on Fossil Fuels

□ WTE is Clean, Reliable, Alternative Energy

- Stream of post-recycling MSW will continue
- Recovery of the energy component of MSW is better than burying it in a landfill and contributing to methane production
- Recovery of ferrous and nonferrous is an important process that facilitates recycling and energy savings
- Most current renewable power sources in use can only operate under certain conditions (Solar, Wind, Hydro)
- EfW is able to operate and produce energy 24/7 and is sold as “base-load” electricity. It is **PROVEN TECHNOLOGY**

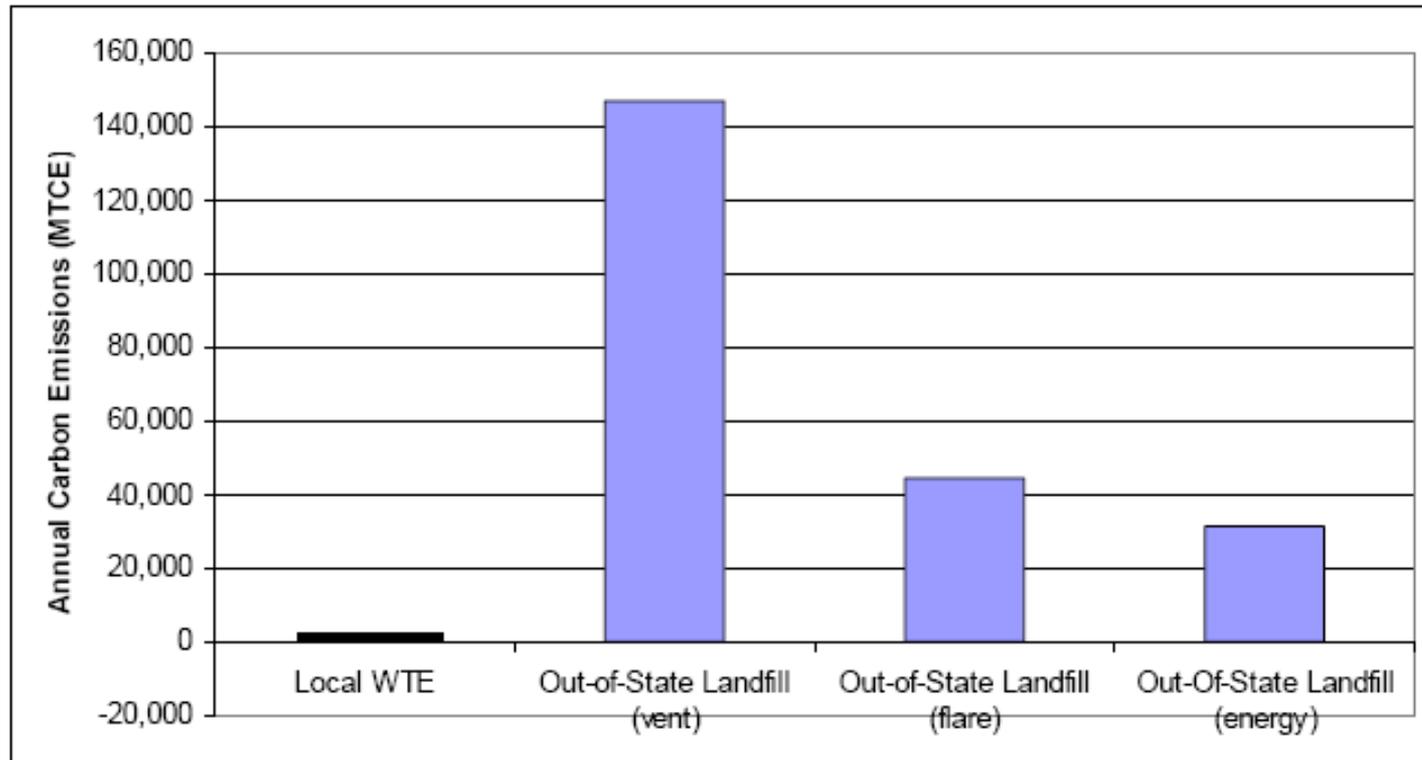


USEPA "Decision Support Tool" Analysis



Based upon disposal of 380,000 tpy "excess" MSW in CT

USEPA “Decision Support Tool” Analysis



Based upon disposal of 380,000 tpy “excess” MSW in CT

Covanta's new initiative: to continue reducing our environmental impact

- Legislative Goals
- Recycling Goals
- Technology Goals
- Community Relations Goals

Summary of EfW Benefits

- **Global** – Helps reduce greenhouse gas emissions by reducing landfill methane gas emissions
- **National** – Reduces dependence of fossil fuel by reliably generating clean, renewable energy
- **Local** – Creates local jobs, recycles and encourages recycling, and provides sustainable waste practice for post-recycling residue