

**Subcommittee on Solid Waste Management
Agenda – September 18, 2013
Room 216, Cross State Office Building
9:00 a.m. – 12:30 p.m.**

- 9:00 a.m. Welcome and Overview**
Subcommittee Objectives and Goals; Overview of Meeting Agenda
➤ *Subcommittee Chairs*
- 9:10 a.m. Overview of Solid Waste Management Landscape in Maine**
Hierarchy, Regulated Community, Commercial Ban, Commerce Clause, State Plan, LDs
➤ *Subcommittee Staff*
- 9:30 a.m. Issues and Challenges Facing the State - Invited Presenters**
- A Former Legislator's Perspective
➤ *Bob Duchesne (9:30 a.m.)*
- Landfill Facility Operations
➤ Juniper Ridge Landfill, Casella Waste Systems
Wayne Boyd, JRL Division Manager and Jeremy Labbe, JRL Environmental Manager and Abbie Webb, Senior Environmental Analyst (9:50 a.m.)
- Crossroads Landfill, Waste Management
Jeff McGown (10:10 a.m.)
- Waste-to-Energy Facility Operations
➤ ecomaine
Kevin Roche (10:30 a.m.)
- Mid-Maine Waste Action Corporation - MMWAC
Joe Kazar (10:50 a.m.)
- Pennobscot Energy Recovery Company - PERC
Bob Knudsen, USA Energy Group, LLC (11:10 a.m.)
- Municipal Review Committee - MRC
Greg Louder (11:30 a.m.)
- 11:50 a.m. Subcommittee Discussion**
Subcommittee Members
➤ Objectives and Goals
➤ Information Requests
➤ Future Meetings (Dates, Agenda Items, Invited Speakers)
- 12:30 p.m. Adjourn**

Subcommittee on Solid Waste Management
Overview of subcommittee duties

Request for authorization to meet. Letter from ENR to Presiding Officers requesting authorization for subcommittee to meet over the interim identified the duties of the subcommittee (letter is attached):

“Duties. The subcommittee will be charged with reviewing issues relating to solid waste management, including issues raised in:

- A. LD 694, An Act To Clarify Solid Waste Policy;
- B. LD 907, An Act To Encourage Recycling;
- C. LD 1363, An Act To Ensure Landfill Capacity and Promote Recycling;
- D. LD 1483, An Act To Promote and Enhance State Policy and Preserve and Support Existing Methods of Disposal of Municipal Solid Waste; and
- E. The September 20, 2012 letter from the Government Oversight Committee to the Joint Standing Committee on Environment and Natural Resources.”

Brief summary of bills.

LD 694 – An Act To Clarify Solid Waste Policy

- Proposed changes to public benefit determination.
- Enacted as 2013 PL, chapter 243 which made changes to the public benefit determination law for state-owned facilities.

LD 907 – An Act To Encourage Recycling

- Proposed the imposition of an across the board fee for solid waste disposal with the fee going to municipalities for recycling.

LD 1363 – An Act To Ensure Landfill Capacity and Promote Recycling

- Proposed changes to the definition of “waste generated in the State.”
- Directed DEP to identify best practices to reduce amount of solid waste disposed in landfills, increase recycling and generate revenue from recycling for municipalities.
- Proposed a moratorium on licenses to expand solid waste disposal facilities. A moratorium was enacted in 2013 Resolves, chapter 46.

LD 1483 - An Act To Promote and Enhance State Policy To Preserve and Support Existing Methods of Disposal of Municipal Solid Waste

- Proposes to impose an assessment on disposal of solid waste at landfills. Disbursements would be made to municipalities that use waste-to-energy facilities for disposal.
- Carried over.

OPEGA Letter.

- In-state vs. out-of-state waste definition
- Executive branch oversight of state-owned landfills
- Role of Juniper Ridge Advisory Committee and ability to be effective
- Risks associated with 1 company controlling most solid waste operations in Maine.

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State of Maine
ONE HUNDRED AND TWENTY-SIXTH LEGISLATURE
COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

May 20, 2013

The Honorable Mark W. Eves,
Chair of the Legislative Council
The Honorable Justin L. Alford
Vice-chair of the Legislative Council
126th Legislature
State House
Augusta, Maine 04333

RE: Request for subcommittee to meet over the interim

Dear Chair Eves and Vice-chair Alford:

The Joint Standing Committee on Environment and Natural Resources requests that a subcommittee of the joint standing committee be authorized to meet over the interim to review certain matters related to solid waste management.

Members. The subcommittee will be comprised of 5 members of the joint standing committee, appointed by the chairs.

Duties. The subcommittee will be charged with reviewing issues relating to solid waste management, including issues raised in:

- A. LD 694, An Act To Clarify Solid Waste Policy;
- B. LD 907, An Act To Encourage Recycling;
- C. LD 1363, An Act To Ensure Landfill Capacity and Promote Recycling;
- D. LD 1483, An Act To Promote and Enhance State Policy and Preserve and Support Existing Methods of Disposal of Municipal Solid Waste; and
- E. The September 20, 2012 letter from the Government Oversight Committee to the Joint Standing Committee on Environment and Natural Resources.

Meetings. We request authorization for the subcommittee to meet up to 6 times during the 2013 interim for the purpose of conducting the review and authorization for the subcommittee to request additional meetings from the Legislative Council.

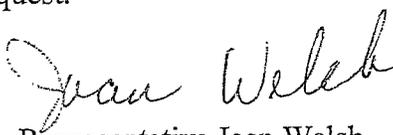
Staff assistance. We request the Legislative Council provide staffing services to the subcommittee for this review.

Compensation. We request approval for subcommittee members to receive the legislative per diem and reimbursement for travel and other necessary expenses related to their attendance at authorized meetings of the subcommittee.

Thank you for your consideration of this request.



Senator James Boyle
Senate Chair



Representative Joan Welsh
House Chair

c: Members, Joint Standing Committee on Environment and Natural Resources
David Boulter, Executive Director, Legislative Council
Marion Hylan Barr, Director, Office of Policy and Legal Analysis



SEN. ROGER J. KATZ, CHAIR
REP. DAVID C. BURNS, CHAIR

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MAINE STATE LEGISLATURE
GOVERNMENT OVERSIGHT COMMITTEE

September 20, 2012

TO: The Honorable Thomas B. Saviello, Senate Chair
The Honorable James M. Hamper, House Chair
Environment and Natural Resources Committee

FROM: Roger Katz, Senate Chair *RK*
David Burns, House Chair *DB*
Government Oversight Committee

Re: Request for OPEGA Review of Operation and Oversight of the Juniper Ridge Landfill

On August 14, 2012 the Government Oversight Committee (GOC) again discussed the request for an OPEGA review involving the Juniper Ridge Landfill (JRL). While we ultimately decided not to task OPEGA with conducting a review on this topic at this time, GOC members felt strongly that there were areas of potential concern raised by the requestors, or held by GOC members, that deserved consideration by the Environment and Natural Resources Committee (ENR) in its policy-making and oversight roles. These are:

- **Current statutory language defining what is considered in-state versus out-of-state waste.** There was considerable concern among those impacted by the JRL that the need to expand the landfill was being driven by waste that originates outside the State of Maine. Statute currently considers waste brought in from out-of-state that undergoes some processing at an in-state facility to be waste generated in-state, and thus eligible for disposal at JRL. Should these definitions be revisited?
- **Executive branch oversight of JRL and other State-owned landfills, particularly given the dissolution of the State Planning Office (SPO).** Is there a structure and well-defined roles and responsibilities that will provide for effective oversight of the operation of JRL and adherence to terms and conditions of related contracts, permits and licenses in the post-SPO administration?

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- **Role of the Juniper Ridge Advisory Committee and factors affecting its ability to be effective in that role.** The Advisory Committee was created in a 2003 Resolve, Chapter 93. Advisory Committee members expressed concerns from their experience in trying to fulfill the roles and responsibilities assigned them, including frustrations that their voices were not being heard. What are the barriers to the JRL Committee effectively fulfilling the role envisioned in statute and how should those barriers be addressed?
- **Risks associated with one company controlling most of the solid waste operations in Maine.** Some GOC members expressed concern about the potential that one company, i.e. Casella, could end up owning and/or operating most of all the State's solid waste facilities and this would effectively result in a monopoly situation. Some members were additionally concerned because of less than favorable experiences their municipalities or constituents had with Casella and a lack of trust in this particular company, as well as the potential for the voices and concerns of citizens to be drowned out by the lobbying efforts of large corporations. What are the risks associated with a monopoly type situation for solid waste and how should the State address them or avoid such a situation?

We encourage your Committee to consider these matters and would appreciate hearing the results of any discussions or efforts you may undertake related to them. The GOC was provided a number of documents in the course of considering this request for an OPEGA review that we would be happy to share with ENR and OPEGA Director Beth Ashcroft is available to brief you on additional details of our discussions at your request.

Enclosure

cc: Susan Johannesman, Legislative Analyst, Office of Policy and Legal Analysis
Patricia Aho, Commissioner, Department of Environmental Protection
Representative Wayne Mitchell

Prepared for 2013 Subcommittee on Solid Waste Management
Overview

1. **State Hierarchy.** A hierarchy for solid waste management is established in statute. Title 38 MRSA §2101 provides:

“§2101. **Solid waste management hierarchy**

1. **Priorities.** It is the policy of the State to plan for and implement an integrated approach to solid waste management for solid waste generated in this State and solid waste imported into this State, which must be based on the following order of priority:

- A. Reduction of waste generated at the source, including both amount and toxicity of the waste;
- B. Reuse of waste;
- C. Recycling of waste;
- D. Composting of biodegradable waste;
- E. Waste processing that reduces the volume of waste needing land disposal, including incineration; and
- F. Land disposal of waste.

It is the policy of the State to use the order of priority in this subsection as a guiding principle in making decisions related to solid waste management.

2. **Waste reduction and diversion.** It is the policy of the State to actively promote and encourage waste reduction measures from all sources and maximize waste diversion efforts by encouraging new and expanded uses of solid waste generated in this State as a resource.”

2. **State Goals.**

State recycling goal: It is the goal of the State to recycle or compost, by January 1, 2014, 50% of the municipal solid waste tonnage generated each year within the State. (38 MRSA §2132, sub-1).

- According to DEP’s Waste Generation and Disposal Capacity Report for CY 2011, Maine’s municipal solid waste recycling rate for 2011 is 42%.
- Municipalities are not required to meet the state recycling goal but they must demonstrate reasonable progress toward that goal, as determined by the department.

State waste reduction goal: To reduce the biennial generation of municipal solid waste tonnage by 5% beginning on 1/1/09 and by an additional 5% every subsequent 2 years. The baseline for calculating the reduction is the 2003 solid waste generation data gathered by SPO. (38 MRSA §2132, sub-1-A)

- According to DEP’s Waste Generation and Disposal Capacity Report for CY 2011, “in 2009, the tonnage of municipal solid waste generated was 1,777,498 tons and in 2011 generation was 1,675,375 tons, a difference of 102,123 tons and a 5.75 percent reduction.”

Revisions to the goals: The department shall recommend revisions, if appropriate, to the state recycling goal and waste reduction goal.

3. State Plan.

State waste management and recycling plan. Based on the priorities and recycling goals established in statute, the department shall prepare an analysis of, and a plan for, the management, reduction and recycling of solid waste for the State.

- The department shall revise the analysis by 1/1/14 and every 5 years after that time.
- Last state plan was submitted to the Legislature in 2009.
- The statute provides:

“§2122. State waste management and recycling plan

The department shall prepare an analysis of, and a plan for, the management, reduction and recycling of solid waste for the State. The plan must be based on the priorities and recycling goals established in sections 2101 and 2132. The plan must provide guidance and direction to municipalities in planning and implementing waste management and recycling programs at the state, regional and local levels.

1. Consultation. In developing the state plan the department shall solicit public input and may hold hearings in different regions of the State.

2. Revisions. The department shall revise the analysis by January 1, 2014 and every 5 years after that time to incorporate changes in waste generation trends, changes in waste recycling and disposal technologies, development of new waste generating activities and other factors affecting solid waste management as the department finds appropriate.”

The statute identifies elements that must be included in the plan. (38 MRSA §2123-A is attached)

The department also submits an annual report on the statewide generation of solid waste, statewide recycling rates and available disposal capacity. (38 MRSA §2124-A)

4. Waste Disposal.

A. Waste-to-Energy Facilities:

- WTE facilities combust municipal solid waste to generate electricity.
- Two types: (1) Mass burn; and (2) Refuse-derived fuel technology where front-end process residue is removed prior to incineration.
- The combustion process generates material that requires disposal, typically in landfills. “Residue” is waste remaining after the handling, processing, incineration of solid waste and includes: (1) Front-end process waste (waste removed prior to incineration); and (2) Ash (a by-product of combustion). “Bypass” is municipal solid waste intended for incineration at a waste-to-energy facility but is diverted because the facility cannot accept it (facility shutdown, operational capacity).

- Three waste-to-energy facilities:

PERC

- Located in Orrington
- Limited partnership
- Refuse-derived fuel technology (front-end process waste requires disposal)

ecomaine

- Located in Portland
- Nonprofit quasi-municipal organization owned by 21 communities
- Mass burn facility

Mid-Maine Waste Action Corporation

- Located in Auburn
- Not-for-profit quasi-governmental organization created by 12 municipalities
- * MERC, in Biddeford, closed in 2012.

See attached Table 2 from DEP's Waste Generation and Disposal Capacity Report for CY 2011.

B. Landfills:

- Two state-owned landfills (Owner, State of Maine through the Bureau of General Services:
 1. Juniper Ridge Landfill
 - Operated by Casella Waste Systems pursuant to an Operating Services Agreement
 - Acquired by State in 2003
 2. Dolby Landfill
 - Acquired by State in 2011 as part of an effort to secure a buyer and operator for the East Millinocket and Millinocket paper mills
- * (Carpenter Ridge landfill site located in T2R8 is undeveloped)
- One commercial landfill – Crossroads Landfill in Norridgewock, owned by Waste Management
- Nine municipally-owned landfills
- Nineteen municipal construction and demolition debris landfills

See attached Table 1 from DEP's Waste Generation and Disposal Capacity Report for CY 2011.

5. Waste Processors. Processing facilities reduce the volume or change the chemical or physical characteristics of solid waste.

- According to DEP's Waste Generation and Disposal Capacity Report for CY 2011, there are 2 large-scale commercial CDD processors in the State.

6. Composting. According to DEP's Waste Generation and Disposal Capacity Report for CY 2011:

- 27 licensed to compost fish and food wastes
- 18 licensed to compost sludge and septage
- Over 100 licensed to compost leaf and yard waste, mostly at municipal transfer stations.

7. Commercial Ban.

- **New facilities**: State statute establishes a ban on new commercial solid waste disposal facilities. The law provides that, effective 1989, the DEP may not approve an application for a new commercial solid waste disposal facility.
- **Expanded facilities**: Statute establishes a limitation on the expansion of existing commercial solid waste disposal facilities. Prior to 2011, the law allowed expansion only if it was contiguous with the existing facility and located on property owned on December 31, 1989 by the facility. The law was amended by the 125th Legislature to allow an existing commercial landfill to expand onto contiguous property that was acquired after 1989 if it is not under order or agreement to close. Title 38 MRSA §1310-X(3) provides:

“3. **Expansion of facilities.** The department may license an expansion of a commercial solid waste disposal or biomedical waste disposal or treatment facility after September 30, 1989 if:

- A. The department has previously licensed the facility prior to October 6, 1989;
- B. The department determines that the proposed expansion is contiguous with the existing facility and:
 - (1) Is located on property owned on December 31, 1989 by the licensee or by a corporation or other business entity under common ownership or control with the licensee; or
 - (2) For a commercial solid waste disposal facility that is a commercial landfill facility that is not under order or agreement to close, is located on property owned by the licensee; and
- C. For a commercial solid waste disposal facility the commissioner or the department determines as provided in section 1310-N, subsection 3-A that the facility provides a substantial public benefit.

The department may not process or act upon any application or license an expansion of a commercial landfill facility pursuant to this subsection until the applicant demonstrates to the department that it is in full compliance with the host community agreement pursuant to section 1310-N, subsection 9, if any, on the existing facility and until a host community agreement amendment is executed to account for the proposed expansion.

An expanded facility may not receive a property tax exemption on real or personal property.”

8. Commerce Clause and out-of-state-waste.

- General rule: States cannot ban the importation of solid waste.
- Exception: States have discretion to control the flow of solid waste when they are acting as “market participants” rather than regulators. A state acts as a “market participant” when it owns the facility.
- See attached memo from Assistant Attorney General Jerry Reid to the Joint Standing Committee on Natural Resources, dated May 13, 2010.

State Plan Contents
38 MRSA § 2123-A

§2123-A. State plan contents

The state plan includes the following elements.

1. Waste characterization. The state plan must be based on a comprehensive analysis of solid waste generated, recycled and disposed of in the State. Data collected must include, but not be limited to, the source, type and amount of waste currently generated; and the costs and types of waste management employed including recycling, composting, landspreading, incineration or landfilling.

2. Waste reduction and recycling assessment. The state plan must include an assessment of the extent to which waste generation could be reduced at the source and the extent to which recycling can be increased.

3. Determination of existing and potential disposal capacity. The state plan must identify existing solid waste disposal and management capacity within the State and the potential for expansion of that capacity.

4. Projected demand for capacity. The state plan must identify the need in the State for current and future solid waste disposal capacity by type of solid waste, including identification of need over the next 5-year, 10-year and 20-year periods.

TABLE 2 - SUMMARY OF MAINE'S FOUR WASTE TO ENERGY FACILITIES - 2011

FACILITY	MUNICIPAL TONS OF WASTE RECEIVED	COMMERCIAL TONS OF WASTE RECEIVED	SPOT MARKET WASTE TONS	OTHER TONS OF WASTE RECEIVED	TOTAL TONS OF WASTES RECEIVED	BYPASS TONS*	FRONT END PROCESS RESIDUE TONS*	METALS RECOVER'D TONS	ASH TONS*	COMBUSTED TONS
Maine Energy	55,019	199,692		4,565	259,276	3,261	42,690	6,226	50,051	157,048
Ecomaine	63,567	68,030	36,328	9,353	177,278	874	N/A	3,301	41,891	131,212
Mid ME Waste Action Corp	37,484	14,313	19,732		71,529	10,572	N/A	2,077	17,673	41,207
PERC	196,420	105,959	11,596		313,975	164	60,624	9,152	55,565	188,570
TOTALS	352,489	387,994	67,656	13,918	822,058	14,871	103,214	20,756	165,131	518,084
					% of total	1.81%	12.56%	2.52%	20.09%	63.02%

* Definitions for these residue streams are found on the next page

The following Table 3 shows the breakdown of source of the wastes received by each Waste-To-Energy facility:

Facility	In-state tons	Out of State tons	Total Tons
ecomaine	174,312	2,966	177,278
Maine Energy	89,385	169,891	259,276
Mid Maine Waste Action Corp	71,410	119	71,529
PERC	222,813	91,162	313,975
Totals	557,920	264,138	822,058

Tables from DEP's Waste Generation + Disposal Capacity Report for Calendar Year 2011

TABLE 1- ACTIVE LANDFILLS, WASTE TYPES, TONNAGES AND REMAINING CAPACITIES - 2011 DATA

Landfill	MSW (tons)	CDD (tons)	Special Wastes, Residues	Other cover materials landfilled (cubic yards)	Waste Fill Rate (tons)	Cubic Yards of Capacity Consumed (est.)	Cubic Yards of Capacity Remaining (est.)	Years of Licensed Capacity Remaining at current fill rate
Augusta (Hatch Hill)	26,438		450	17,719	26,888	56,711	1,075,366	17.9
Bath	10,282	1,575	339	18,300	12,196	38,340	298,800	8
Brunswick	3,543			500	3,543	14,286	349,678	24
Presque Isle	5,573	1,283	2,723	1,906	9,579	15,669	284,331	18
Tri-Community	14,460	2,566	1,962		18,988	42,003	1,704,366	41
ecomaine*			43,303		43,303	41,891	1,057,926	23.5
Lewiston		893	35,658		36,551	16,915	627,108	37
Crossroads	70,841	75,967	120,913		267,721	276,524	3,730,095	13
Juniper Ridge	125,565	150,536	427,759		703,860	689,044	5,866,775	8.5
MidCoast Solid Waste (Rockport)		2,822			2,822	7,950	73,175	9
Rockland		25,890			25,890	40,350	242,700	6
Totals	256,702	261,532	633,107	38,425	1,151,341	1,239,683	15,310,320	

*ecoMaine excavated 1,418 tons MSW to combust

Table 1 from DEP's Waste Generation + Disposal Capacity Report for Calendar Year 2011

Memorandum

To: Joint Standing Committee on Natural Resources

From: Jerry Reid, AAG, Chief, Natural Resources Division

Date: May 13, 2010

Subject: Commerce Clause Limitations on State Regulation of Solid Waste; Legal Restrictions on Unlined Landfills

I. Commerce Clause

You have requested advice from this Office concerning the limitations that the Commerce Clause of the U.S. Constitution places on the ability of states to regulate the flow of solid waste. In this memorandum, I have attempted to summarize the essentials of this issue in a manner that is concise and accurate, but not unnecessarily technical. As you will see, some of the tests courts use to evaluate potential Commerce Clause violations are subjective, leaving room for interpretation and argument. In fact, the Supreme Court cases in this area often sharply divide the Court. This means that it can be difficult to predict with confidence how various legislative proposals might fare under judicial review. However, the caselaw does provide certain guideposts that are helpful to bear in mind during the drafting and consideration of this type of legislation, and this memorandum attempts to identify and explain them.

A. The Commerce Clause Prevents States from Banning the Importation of Solid Waste.

The clearest and most important effect of the Commerce Clause on the regulation of solid waste is to prevent states from banning its importation. This principle was established in the

landmark Supreme Court case of *Philadelphia v. New Jersey*, 437 U.S. 617 (1978). In determining whether legislation constitutes an impermissible ban, courts evaluate whether the law discriminates against interstate commerce. In this context “discrimination” means giving in-state economic interests preferential treatment as against their out-of-state counterparts. *Oregon Waste Sys. v. Department of Env'tl. Quality*, 511 U.S. 93, 99 (1994). If the court concludes a law’s discriminatory treatment is motivated by simple economic protectionism, it will almost certainly be found unconstitutional. *Id.* A law discriminating on its face against out-of-state interests will be upheld against a Commerce Clause challenge only upon a showing that it is the only means to advance a legitimate local purpose. *See Maine v. Taylor*, 477 U.S. 131, 138 (1986) (upholding a state ban on the importation of baitfish to prevent the spread of communicable fish-borne disease).

B. States Have Discretion to Control the Flow of Solid Waste When They Are Acting as “Market Participants” Rather Than Regulators.

Courts have recognized an important exception to the general rule preventing states from banning out-of-state waste from their landfills. When states act as “market participants” rather than regulators, states may restrict the type of waste they accept without running afoul of the Commerce Clause. *United Haulers Assn. v. Oneida-Herkimer Solid Waste Management Authority*, 550 U.S. 330, 344 (2007). A state acts as a “market participant” when, for example, it owns the landfill in question, as the State of Maine owns the Juniper Ridge Landfill. Under these circumstances, the State may limit the waste it accepts for disposal at the facility based on type, volume, place of origin or other characteristic in the same way that any private, commercial operator of a landfill is entitled to make such business decisions. State actions that are protected by the “market participant” doctrine include purchasing, selling, hiring or subsidizing of services. *Reeves, Inc. v. Stake*, 447 U.S. 429, 437 (1990).

The premise upon which courts have recognized this exception is that when a state is acting as the owner of a public landfill, its decisions are presumed to be motivated by legitimate public health, safety and welfare interests. By contrast, when a State exercises its regulatory authority in a manner that benefits local businesses and burdens out-of-state competitors, courts often find the law to be economic protectionism that violates the Commerce Clause. *United Haulers*, 550 U.S. at 342.

Most lower courts have also held that when a state, by law, directs the proprietary activities of a municipality, the state is acting as a market participant rather than a regulator. *National Solid Waste Mgmt. Ass'n. v. Williams*, 146 F.3d 595, 597 (8th Cir. 1998); *Smith Setzer & Sons v. South Carolina Procurement Review Panel*, 20 F.3d 1311, 1319-20 (4th Cir. 1994); *Big Country Foods Inc. v. Board of Educ.*, 952 F.2d 1173, 1179 (9th Cir. 1992); *Trojan Tech. Inc., v. Pennsylvania*, 916 F.2d 903, 911 (3rd Cir. 1990).¹ The basic premise for this conclusion is that local governments are simply political subdivisions of the state, and therefore the state may direct their purchasing decisions in the same way it may do so for any of its agencies. While the Supreme Court has yet to address the issue, the weight of legal authority indicates that state legislatures may control municipal decisions governing the purchasing, selling, hiring or subsidizing of solid waste services just as they may control those decisions at the state level.

C. Conclusion

Court decisions reviewing solid waste legislation under the Commerce Clause can be fact-specific, and often turn on the application of legal standards that are subject to differing interpretations. For instance, judges on the same court will often disagree on the extent to which a law burdens out-of-state interests, or whether a law should be considered an exercise of

¹ The Seventh Circuit reached a contrary conclusion in *W.C.M. Window, Inc. v. Bernardi*, 730 F.2d 486, 494 (7th Cir. 1984).

regulatory or proprietary authority. Given this subjectivity, we recommend that the Committee work closely with both its legislative analyst and the Attorney General's Office when considering this type of legislation in order to achieve its policy objectives while minimizing constitutional risks.

II. State and Federal Regulations that Effectively Prohibit Unlined Municipal Landfills

You have also asked for citations to state and federal regulations that have the effect of prohibiting unlined municipal landfills. At the federal level, the Environmental Protection Agency has promulgated regulations requiring composite liners in municipal landfills pursuant to the Resource Conservation and Recovery Act ("RCRA"). 40 CFR 258.40. The Maine DEP has also adopted such requirements in its Chapter 401, *Landfill Siting, Design and Operation*. 06-096 CMR ch. 401(2)(D)(1). These regulations appear to be the most pertinent to your interest.



RECOVERING REPRESENTATIVE

Formerly 2 STATE HOUSE STATION

AUGUSTA, MAINE 04333-0002

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**A Brief Legislative History of Solid Waste Management,
presented to the Environment and Natural Resources Subcommittee
September 18, 2013**

Inherent, unavoidable conflicts within solid waste policy lead to recurring crises:

- a) *Money.* Just about everyone agrees that we should not be throwing our trash in a hole and covering it over. But the cheapest solution is to throw our trash in a hole and cover it over.
- b) *Market.* It's very hard to site a solid waste facility, especially a landfill. But it's even harder in a densely populated urban area. That pressures the solid waste marketplace to send southern New England's urban trash to rural northern New England whenever it can.
- c) *Cash flow.* Facilities need trash. For efficiency and solvency, waste-to-energy facilities need to run at capacity. Even landfills need a regular trash flow for cash flow to service the debt. The more we reduce, reuse, recycle, the more these facilities have to scrap over the remaining trash they need.
- d) *Government.* Getting rid of solid waste is a local government responsibility, but most solid waste policy is set by state government. Municipal needs don't always match up with state goals.
- e) *Size does matter.* Large, modern landfills require a lot of cash flow to service the debt. With an ever-decreasing number of places to put landfills, significant new capacity tends to attract waste from a long distance. Any proposal for new landfill capacity in Maine is unlikely to serve exclusively the solid waste needs of Maine.

History:

1980's: The era of the local town dump comes to an end.

- New federal mandates.
 - Unlined municipal landfills leaking to groundwater.
 - A proposed landfill in Township 30 runs into a firestorm.
 - Proposals emerge to site new private landfills in Maine for Massachusetts waste.
-
- Legislature imposes moratorium, revamps state law, sets ambitious recycling goals, and establishes a policy to phase out private landfills.
 - Waste Management Agency created to oversee recycling efforts and site a state-owned landfill.

Early 90's: Municipal recycling capacity improves as the state issues bonds to support funding, but Waste Management Agency unable to site a landfill.

Late 90's: Waste Management Agency dismantled. Recycling peaks, then begins to ebb.

- Governor King shuts Waste Management Agency during economic downturn and budget crunch.
- Most Waste Management Agency duties assigned to State Planning Office.
- In 1997 Lincoln Pulp & Paper offers its permitted landfill site, Carpenter Ridge. Site is relatively small and remains undeveloped.
- State relies primarily on waste-to-energy facilities, plus existing private landfills (Pine Tree in Hampden and Crossroads in Norridgewock), and a few remaining municipal landfills.
- With the acquisition of the Carpenter Ridge site, SPO ceases attempts to site landfills elsewhere.
- Imports and exports of solid waste are about equal, with not much solid waste crossing the border in either direction.

Early 00's: Casella buys Pine Tree Landfill. Waste importation skyrockets.

- By 2006, 437,037 tons are imported vs. 75,980 tons exported. State now importing five times more than it exports.
- Still without a state-owned facility, the state agrees to a major expansion at Pine Tree Landfill, expected to be enough capacity to serve local needs for a couple of decades. But increased importation from Massachusetts exhausts the local capacity at rates of up to four times what was predicted. The facility closes in 2009.

2003: Juniper Ridge Landfill is authorized and acquired as a state-owned landfill. Casella is the only bidder and is selected as the operator.

- In a three-way deal to save the Georgia Pacific paper mill in Old Town, the mill offers its sludge dump for sale to the state. Casella supplies the funds to buy the site in return for being selected operator. Georgia Pacific uses the funds to acquire a used biomass boiler. As a condition of the deal, Casella is required to provide to the mill cheaper fuel processed from construction and demolition debris. The debris may be imported and the residue landfilled at Juniper Ridge. This unwittingly opens up multiple cans of worms:

- 1) The decision effectively reverses the rationale underpinning Maine's entire solid waste policy. Instead of using landfill ownership to control out-of-state waste, it uses the landfill for economic development, encouraging the importation of out-of-state waste.
- 2) It isn't even clear if recycled CDD can be used as fuel safely. At the same time Maine is encouraging it, New Hampshire is in the process of banning it. Lead and arsenic from old paint and pressure treated wood can concentrate in the ash. Furthermore, this same boiler has a history of problems in Athens.
- 3) All of our statutes and management structures are geared toward owning and operating our own landfill. Legislated policy did not envision creating a large landfill and then turning it over to a private for-profit company with full rights to make all basic operational decisions. Putting the State Planning Office in charge of oversight and DEP in charge of regulation, while signing away the right to make basic operational decisions created a

difficult, confused situation. The state is tasked with regulating itself using a statutory policy that is intended to do something else.

- 4) Not much thought is given on how the creation of that much new privatized capacity affects the solid waste marketplace.

2006-2007: LD 141 enacts controversial new rules for CDD fuel which limits to 50% the amount that can be in the biomass fuel mix and sets contaminant standards.

- Koch Industries buys Georgia Pacific and closes the mill anyway.
- Red Shield is formed to buy the plant and experiences several contamination incidences, including two cases of belching leaded ash over the town of Bradley. Red Shield goes bankrupt in 2008. The new owner avoids CDD fuel.
- With all of the conflicts now apparent, the legislature creates a Blue Ribbon Commission on Solid Waste Management, chaired by Senator John Martin and Representative Bob Duchesne. It meets over the summer.
- During the time the Commission is meeting, the State Planning Office agrees to two changes to the operating services agreement with Casella. Though substantive, neither change is disclosed to the Blue Ribbon Commission, the Natural Resources Committee, or the Juniper Ridge Landfill Advisory Committee which is empowered by statute to comment on contract changes. The secret agreements don't come to light until revealed by a citizen FOIA request.

2008-2009: Recommendations of the Blue Ribbon Commission are slowly debated and most are eventually enacted.

- A citizen-initiated petition under the Administrative Procedures Act compels SPO to make a rule requiring itself to publically disclose any substantive changes to the Operating Services Agreement with Casella.
- After the negotiation of a deal that would let Casella take over Lewiston's landfill and import CDD, thus bypassing the state's solid waste policy, this committee decides that the public benefit determination test must be applied to municipal landfills, too. It stops short of applying the test to state-owned facilities, but later in 2009 requires the state to meet the same test as everybody else.
- The DEP and SPO disagree about how much capacity is left at Juniper Ridge and the state turns itself down for an expansion permit.
- The Legislature directs DEP and SPO to prepare a plan to consolidate solid waste management. The departments agree on a plan but fail to agree on how many positions go with each agency. The plan dies. Management isn't finally consolidated until the present administration abolished the State Planning Office.

2010-2011: The Legislature deals with the CDD problem and monopoly power.

- The Committee learns that 90% of the CDD going into Casella's recycling facility in Lewiston is from out of state and 90% of what comes out of the facility is going to Juniper Ridge either as residue or alternative daily cover. The facility is making surprisingly little fuel. This was complicated by the fact that the market for the fuel was dwindling because other states had stopped giving renewable energy credits for burning it.
- After punting on the question for several years, the committee was finally forced to make a decision on whether to allow the Crossroads landfill in Norridgewock an opportunity to expand. On the one hand, state policy envisioned closure of private landfills. On the other, the closure of the remaining private landfill would remove

the last major competition from the marketplace at a time when the state had largely privatized its own landfill and relinquished any operational control over it.

- The committee agreed to place a fee on disposal of CDD and dedicate the revenue to paying off long-standing obligations to communities for the closure of municipal landfills. Until then, CDD was the only waste stream which was not required to pay into the Solid Waste Management Fund. Casella has recently sold its CDD recycling facility in Lewiston to ReEnergy.
- The committee agreed to let Crossroads expand if it could acquire the adjacent property, and subject to getting DEP approval under the usual public benefit determination.

2012-2013: Maine Energy closes in Biddeford; DEP considers permit changes at Juniper Ridge.

- The state, on behalf of Casella, asks DEP to permit the remaining available capacity at Juniper Ridge, just over 21 million cubic yards. DEP determines that there is a public benefit to permitting part of the remaining capacity - 9.35 million cubic yards - but not the full amount requested by Casella.
- Maine Energy, one of the state's four waste-to-energy facilities, closes and is now dismantled following Biddeford's agreement with Casella to buy out the troubled plant.
- The state, on behalf of Casella, applies for a change in the Juniper Ridge permit that would allow it to take municipal solid waste. Though the rationale is that the southern Maine waste needs to go somewhere, the actual application would allow Casella to take the equivalent amount of MSW that was going to Maine Energy, not the actual Maine waste that was going there. That application is still pending before the DEP and a decision is expected soon.

Present: We've entered the next crisis. Waste-to-energy plants are more expensive than landfills, but they also do more than landfills. They greatly reduce volume and more efficiently extract energy from waste. No other waste management system accomplishes both. But there is a market failure to properly assess the avoidance costs created by the value of this duality. Fossil fuels are cheaper for electrical generation and landfilling is cheaper for waste disposal, but neither is sustainable. Until now, federal policy made up the difference by supporting waste-to-energy facilities through favorable electricity contracts. Those are expiring.

- With the closure of Maine Energy, there is just about enough leftover capacity at the remaining three plants to take care of the Maine waste that used to go there. Our current system can absorb the southern Maine waste.
- With the remaining capacity at Juniper Ridge, Crossroads, Carpenter Ridge, and possible Dolby, we have an ample supply of landfill capacity provided that the waste-to-energy facilities remain viable. Without them, landfills get the full volume of waste we were converting to energy and capacity becomes critical rapidly.

Mid-Maine Waste Action Corporation

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September 18, 2013

Subcommittee on Solid Waste Management
Joint Standing Committee on The Environment and Natural Resources
100 Statehouse Station
Augusta, ME 04333

Dear Members of the Subcommittee: Senator Boyle and Representatives Welsh, Grant, Campbell and Reed,

My name is Joseph Kazar and I am the Executive Director of MMWAC, the Mid-Maine Waste Action Corporation. Thank you for allowing me to introduce MMWAC to the Committee.

MMWAC is a quasimunicipal, non-profit solid waste management organization located in Auburn that was established in 1986 and is owned by 12 municipalities, serves 14 others through contracts, and a number of others through private haulers. We also serve area business and the public. Our service area centers in Auburn and includes many of the communities north to Livermore, east to Monmouth, south to Raymond, and west to Lovell. MMWAC's central mission is the operation of a waste-to-energy facility. We also conduct recycling activities, both related to the waste-to-energy process as well as recycling services offered to the public. Lastly, we operate a transfer station for the benefit of local business, residents and municipalities.

MMWAC owns and operates a 200-ton per day mass-burn incinerator, equipped with a 5-megawatt turbine generator, and advanced air pollution control equipment. Our plant takes regular household and commercial trash and through a modern incineration process destroys the organic matter with very high temperatures and captures the energy in the solid waste to create high pressure/high temperature steam. The steam turns the blades of a turbine to cause the attached generator to produce electricity to supply the local electric grid and to run the plant.

The MMWAC plant went into operation in 1992 and is equipped with advanced air pollution control equipment. Air emissions are controlled with an effective combustion system assuring extremely high burnout and destruction of organics, lime slurry scrubbers to neutralize acid gases, a carbon injection system to remove mercury and organics, and a highly efficient baghouse to remove particulates. At the end of the process we remove ferrous metal which is sold to a local scrap yard which then sends the material to steel mills to be made into new products.

Approximately 1 1/2 to 2% of the incoming trash is recovered in the form of this post-burn ferrous. The end result is an inert ash that occupies only 10% of the volume of the trash that was

MEMBER COMMUNITIES:

AUBURN • BOWDOIN • BUCKFIELD • LOVELL • MINOT • MONMOUTH • NEW GLOUCESTER • POLAND • RAYMOND • SUMNER • SWEDEN • WALES

processed, thus vastly extending landfill life. Since the organic material has been destroyed in the incineration process the ash does not create odors and does not cause settlement or leachate problems at the landfill.

Each year we handle 70,000 tons of municipal solid waste in the waste-to-energy plant and generate 22 million kilowatt-hours of electricity, of which 16 million are fed into the local grid.

MMWAC also provides recycling opportunities to residents and businesses and operates a transfer station to primarily handle construction, demolition and bulky waste, since we do not process those materials in the plant.

The USEPA is on record as stating that the waste-to-energy industry generates electricity with fewer environmental impacts than almost any other type of generator. In order to safely convert garbage into sterile ash and electricity we have made a heavy financial investment in sophisticated and expensive machinery and controls, as well as in the highly skilled and certified personnel who operate and maintain our plant. In order to support these expenses we rely on a combination of tipping fees paid by customers of the facility and electric revenue for our sales to the grid.

Tipping fees, which comprise the largest percentage of MMWAC's income, are market based, and tend to be driven by the landfills which have lower capital and operating expenses. To date our electrical income has been sufficient to make ends meet. The reason for this is a long term electric sales agreement that was provided for by a federal law called PURPA.

PURPA stands for the Public Utilities Regulatory Policies Act. This federal law came about in the early 1970's in response to the Arab Oil Embargo when the newly established oil cartel refused to sell oil to the US. At that time we were heavily dependent on foreign oil to run our homes, industries and power plants. The direct result of the embargo was a severe shortage of petroleum products, long lines at gas stations, rationing, and prices more than doubling in short order. Congress created the PURPA legislation to encourage domestic renewable energy development with the goal of making the United States energy independent. PURPA required local power utilities, in the pre-deregulation environment, to enter into long-term electric purchase agreements with qualified facilities such as MMWAC. These contracts paid the domestic renewable energy generator not just for the energy that was produced but also gave credit for the capital investments CMP and the other power utilities of the country would avoid by reducing the new generation capacity they would otherwise have had to create at great cost. This led to a contract that fairly compensated to Qualified Facilities and in the case of waste-to-energy facilities better allowed them to compete with landfills. These contracts had known rates for each year of the 20-year term, thereby facilitating financing of the facilities. In the case of MMWAC, a relatively small facility, \$43 million in bonds were raised, supported in part by this long term contract.

MMWAC's long-term PURPA contract expires December 31st of this year. It was only 4 or 5 years ago that the wholesale electric rates were within 5% or so of our PURPA rates. Today, with natural gas dominating as the fuel source for the region's electrical generation, and with the

wholesale price of natural gas dropping so dramatically, we expect to lose half of our electrical income when we enter the competitive wholesale electric market in January. This amounts to a loss of \$725,000 per year in income, or 11.3% of our revenue stream. If this loss were borne only by the municipal owners tip fees there would need to be an increase of \$45/ton in their contribution. If borne by all of MMWAC's users the increase would be closer to \$10/ton, but these other users are not owners, and can access competing facilities including landfills, and thus their tip fee needs to be market based. Without State policy that creates incentives for using waste-to-energy facilities, raising their tip fee will cause them to abandon our facility in favor of cheaper, but less desirable options.

Clearly the math doesn't look good for this waste-to-energy plant, and the industry as a whole, unless a solution is found to level the playing field.

MMWAC provides a positive impact in the community. We have 28 employees and an annual payroll of \$2.5M. These are highly skilled, good paying jobs with good benefits. An economic analysis of Maine's Waste-to-Energy (WTE) industry, conducted by UMO professor Todd Gabe concluded that MMWAC's positive economic impact, when considering multiplier effects, results in \$10.5 million annually in economic activity including 66 jobs. This economic activity helps support local business as well as local government.

MMWAC subscribes to, and supports the hierarchy. We provide recycling services at our facility and encourage our members and customers to recycle. Waste-to-energy has many advantages for processing post recyclable solid waste and we feel State policy should help ensure the long term health of the industry. Many of the benefits are environmental. With our highly engineered combustion system and strict environmental permitting solid waste is safely processed once and for all. This unfortunately has not been the case with all landfills. Some, actually many, have required remediation and became a burden for future generations. Landfills are definitely necessary and must be part of a comprehensive solid waste management system and we applaud the high standards that a number of our landfill operators subscribe to. If we want to minimize environmental risk however, we should maximize the use of waste-to-energy for post recyclable waste material.

Even if one were to argue that modern municipal solid waste landfills are completely safe and will not require future remediation it is a fact that they are very difficult to site, or to expand. Waste-to-energy preserves their valuable capacity by reducing volumes 90%. Not only that, but unlike landfills which have a finite and measurable capacity, waste-to-energy capacity does not get used up. MMWAC processes as much trash now as we did when the plant opened. This is due to good maintenance and operations. We fully expect the plant to be capable of sustained efficient operation for decades to come. We feel the highest and best value for our landfills is for them to handle incinerator ash, bulky and construction/demolition waste, special wastes and waste that exceeds the capacity of the State's three remaining waste-to-energy facilities.

Waste-to-energy has the obvious benefit of energy recovery. We recover the energy from the first ton of waste we process to the very last ton. Thankfully modern landfills often recover energy in the form of methane caused by the decomposition of trash. Unfortunately they don't capture and

recover all this methane, and with the widespread practice of operating landfills as dry as possible much of the energy in the solid waste is never recovered. MMWAC's energy is domestic, renewable and clean.

When it comes to greenhouse gases, the federal EPA has stated that waste-to-energy is a net reducer of greenhouse gases, measured as CO2 equivalents. It is estimated that for every tons of solid waste that we process we reduce greenhouse gases by 1 ton. This is yet another reason to promote waste-to-energy over landfilling when the plants have that extra capacity.

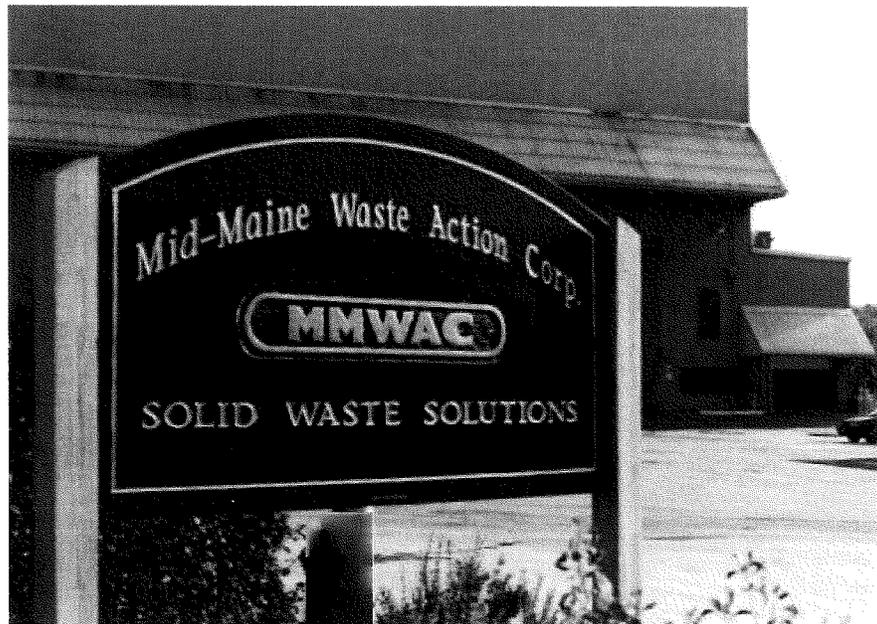
Thus, all these years later, there are even more reasons for the State's solid waste policies to continue to favor waste-to-energy over landfilling for municipal solid waste when the capacity exists. With the loss of the long-term PURPA electric power purchase contracts, and the drastically lower price for our wholesale electric sales, the industry needs the playing field leveled so that we can have a strong future for the benefit of our communities and the State as a whole. Allowing tip fee prices to be the only deciding factor in the choice of disposal method will not serve the State's long term interests.

Please see the attached Informational Brochure for more information. You are all welcome to visit our facility in Auburn if you would like a first hand view of our operation.

Thank you for allowing me this opportunity to introduce MMWAC to the Subcommittee.

Mid-Maine Waste Action Corporation

Informational Brochure



2013

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MID-MAINE WASTE ACTION CORPORATION (MMWAC) - BACKGROUND

MMWAC, or the Mid-Maine Waste Action Corporation, is a quasi-governmental organization, created as a not-for-profit corporation by twelve area municipalities in 1986. Those municipalities are: Auburn, Bowdoin, Buckfield, Lovell, Minot, Monmouth, New Gloucester, Poland, Raymond, Sumner, Sweden, and Wales. The Board of Directors of the corporation is composed of representatives of each of the twelve municipalities.

MMWAC was created to own and operate a solid waste system for the benefit of these twelve communities. Upon its creation MMWAC undertook a program that led to the replacement of the pioneering Auburn waste-to-energy facility, which had operated since 1981 using the Consumat technology. That plant was replaced with a 200-ton per day mass-burn incinerator, equipped with a 5-megawatt turbine generator, and advanced air pollution control equipment. The MMWAC plant is the newest waste-to-energy facility in the State and among the most advanced of its type in the Country. Air emissions are controlled with an effective combustion system assuring extremely high burnout and destruction of organics, lime slurry scrubbers to neutralize acid gases, a carbon injection system to remove mercury and organics, and a highly efficient baghouse to remove particulates.

This plant employs an energy recovery technology that complies with Maine's policy to encourage the following priority in waste management: waste reduction, waste reuse, recycling, waste-to-energy, and landfilling. The majority of municipal solid waste generated in Maine is processed in one of four different waste-to-energy plants. This is in contrast to the early-1980's and earlier when almost all municipal solid waste in the country was sent to landfills. Waste-to-energy plants were encouraged to reduce the need for landfilling solid waste in order to preserve land for higher uses, to reduce the threat of groundwater pollution from the older landfills, and to recover valuable energy from solid waste.

The MMWAC facility overcame an early history of problems that included equipment malfunctions and insufficient waste supply. Today it has become an industry leader in availability, which is a measure of its ability to operate reliably and at the highest possible capacity. Originally, the plant was projected to achieve an 88% yearly availability, processing 64,000 tons per year of solid waste. The plant has in recent years achieved 95% availability and has processed up to 73,600 tons per year. As reliability was proven year after year, new communities joined with MMWAC as contract customers to provide for their disposal needs. The plant produces its own electricity from the waste that is incinerated and sells excess power to the local electric grid.

MMWAC also operates a transfer station to efficiently transport construction and demolition waste (C & D) from local businesses and residents, other wastes not appropriate for incineration to secure landfills, and waste exceeding the plants capacity. This facility can process up to 25,000 tons per year. Lastly, MMWAC operates a recycling center for materials delivered by customers, as well as metal recovered from waste sent to the waste-to-energy process, diverting up to 2,000 tons per year from disposal.

THE WASTE-TO-ENERGY PROCESS AT MID-MAINE WASTE ACTION CORPORATION AUBURN, MAINE

Currently, much of the residential and commercial waste generated within 20-30 miles of the plant is transported to the waste-to-energy plant in Auburn, Maine. The plant is run by an organization called the Mid-Maine Waste Action Corporation (MMWAC), which is jointly owned by twelve towns in this region. The plant also services the solid waste disposal needs of many other towns and businesses in this area.

MMWAC's waste-to-energy plant has two identical process trains, each with a design capacity of 100 tons per day of municipal solid waste. The plant operates 7 days per week and 365 days per year. The waste-to-energy process converts solid waste into an inert ash residue, which minimizes landfill reliance in the State, and produces electricity from the fuel value of the trash. The enclosed diagram traces the waste-to-energy process.

Trucks are weighed and screened at the scale house before entering a covered "tipping area" (1). This is done to make sure the waste is acceptable for the plant to process, to determine where it came from, and to provide for billing. Trucks unload garbage into a pit (2) large enough to hold approximately 600 tons of solid waste, which is equal to three days supply for the furnaces.

An overhead crane or "grapple" (2) transfers the garbage into a chute, or "feed hopper" (3) that feeds the furnace. The waste is fed into the furnace by a "ram feeder" (4), which carefully controls the amount of waste introduced. This grapple is also used to remove any unacceptable waste from the plant that has accidentally been dumped into the pit.

Once in the furnace or "combustor" (5), the waste constantly tumbles to assure complete combustion. This tumbling is accomplished by the entire combustor rolling, or "oscillating" within a 210 degree arc causing the trash to tumble some 40 times during the typical one-hour combustion cycle.

Large combustion air fans draw air into the plant from the tipping area and pit, and then into the furnace. This causes a negative pressure inside the pit and tipping area, which prevents odors and dust from escaping. The air is used to maintain the furnace's high temperature, which provides for a very efficient and complete combustion process.

Combustion occurs in the furnace (5) and tranquilization chamber (6) where temperatures are maintained at 1,800-degrees Fahrenheit to destroy odors and organic compounds.

Hot ash residue tumbles to the bottom of the furnace and falls into a water-filled tank where it is "quenched". This area is called the ash extractor (11) and is the beginning of the ash conveyor system (12), which transports the ash residue to a metal scalper, which removes recyclable material. Fly ash is conditioned to eliminate dusting. The combined ash streams are then conveyed to a container for transport to a secure landfill.

The combustion process eliminates about 90% of the refuse volume by reducing it to ash. The remaining ash is sent to a state-of-the-art landfill. The landfill that is used has a multiple liner system, which collects leachate (contaminated liquid runoff) for treatment, preventing it from entering the groundwater below the landfill.

The 1,800-degree combustion gases in the tranquilization chamber (6) flow through several boiler sections where the heat is extracted from it to convert water to steam. The water to steam loop is within numerous parallel boiler tubes. The first section where this occurs is in the radiant section of the waterwall boiler (7), followed by the superheater (8), then the evaporator (9), and finally the economizer (10). The steam that is produced in this process is approximately 750 degrees Fahrenheit and 650 pounds per square inch pressure. This high temperature/high pressure steam flows through a turbine generator where up to 5 megawatts of electric power can be produced. Some of this power is used to run plant machinery, and the remainder is sold to the power utility offsetting the need for new power plants.

The turbine extracts much of the energy from the steam, which then condenses back into water in a section called the air cooled condenser. This section utilizes large, 12 foot diameter fans, to cool the water in the condenser tubes to optimum temperature and pressure. This section works much like a radiator in an automobile.

After the gases pass through the boiler sections, the temperature has been reduced as energy is transferred to the boiler tubes. This allows the gases to now be cleaned before they are released from the plant.

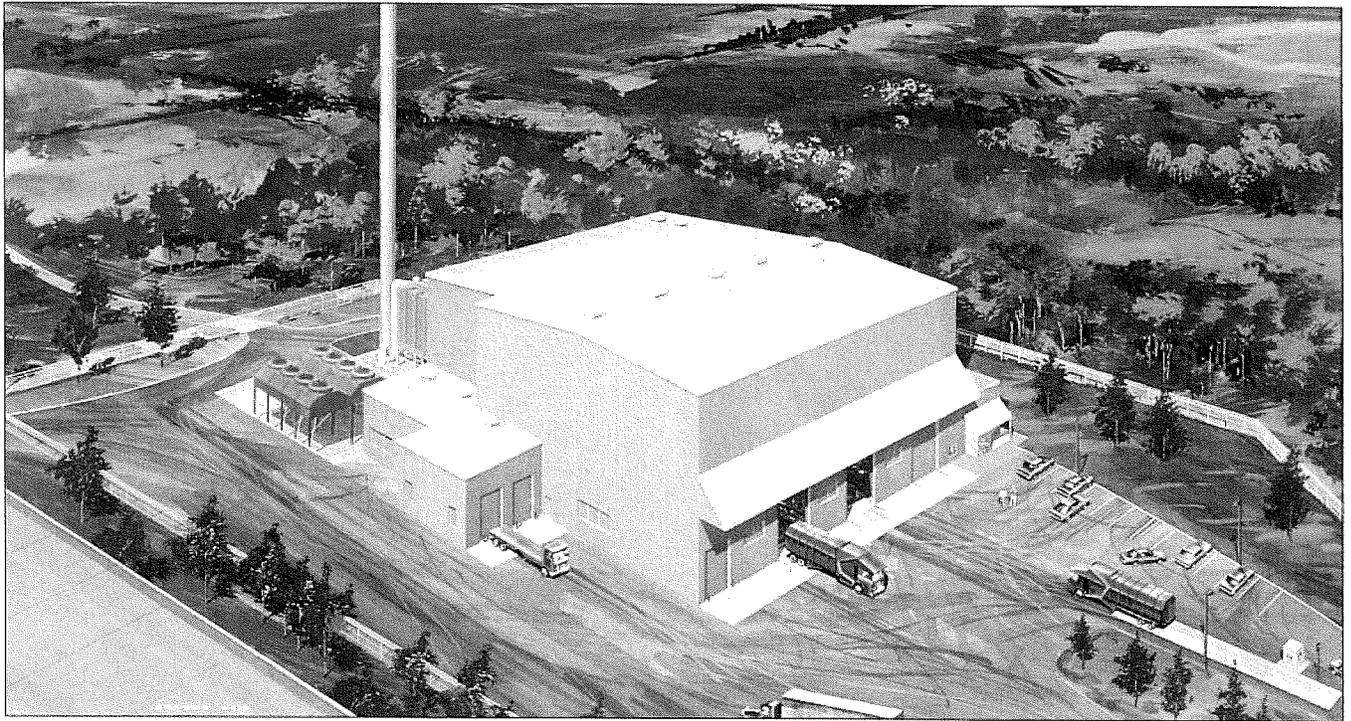
Acid gases are removed by modern equipment called a dry spray scrubber (13), where the gases are sprayed with the lime/water mixture and "scrubbed" clean. Activated carbon (13A) is injected into the scrubber to remove mercury and dioxin. The gases are next drawn through large fabric filters (14), which are not unlike huge vacuum cleaner bags. These bags are located in the "bag house" which contains hundreds of these specially designed fabric filter bags. Particles captured by the filters are collected at the bottom of the unit and are mixed with the furnace ash residue for landfilling.

An induced draft fan (15) then exhausts the cleaned gases to the 213 foot tall stack (16). During relatively dry, warm weather the stack emissions are virtually invisible. During colder or more humid conditions a whitish "plume" is visible which is primarily composed of water vapor from the lime/scrubbing stage.

MMWAC welcomes inquiries concerning its operations and encourages group tours. If you have any questions or would like to arrange for a tour, please call our facility at (207) 783-8805.

MID-MAINE WASTE ACTION CORPORATION

WASTE - TO - ENERGY FACILITY AUBURN, MAINE



GENERAL INFORMATION

Service Area

Communities throughout the Mid-Maine Region

Ownership/Operations

Public by Mid-Maine Waste Action Corporation (MMWAC)

Financing

Revenue bonds

Schedule

Acceptance August 1992; currently full operation

Capacity

Daily 200 tons; Annual 69,000-72,500 tons per year

ENVIRONMENTAL

Air Pollution Control Systems

Spray dryers for acid gas neutralization, carbon injection for mercury removal, and fabric filters for particulates

Residue Handling

Quench tanks, ram extractors, vibratory belt, and chain drag conveyors, ash conditioner, and metal scalping

Water System

Closed loop with zero process water discharge

COMBUSTION SYSTEM

Technology

Laurent Bouillet oscillating combustors with tranquilization chambers

Process Lines

Two at 100 tons per day

Boilers

Steaming rate of 50,000 lbs. per hour with 5200°F BTU waste; conditions 650 psig/750°F

Waste Handling

Storage pit with 600 ton capacity; two pit cranes with average capacity of 1 - 1.5 tons

Gas Temperatures

1800°F with 2 second gas residence time

Operations

24 hours per day, seven days per week

ENERGY RECOVERY

Type

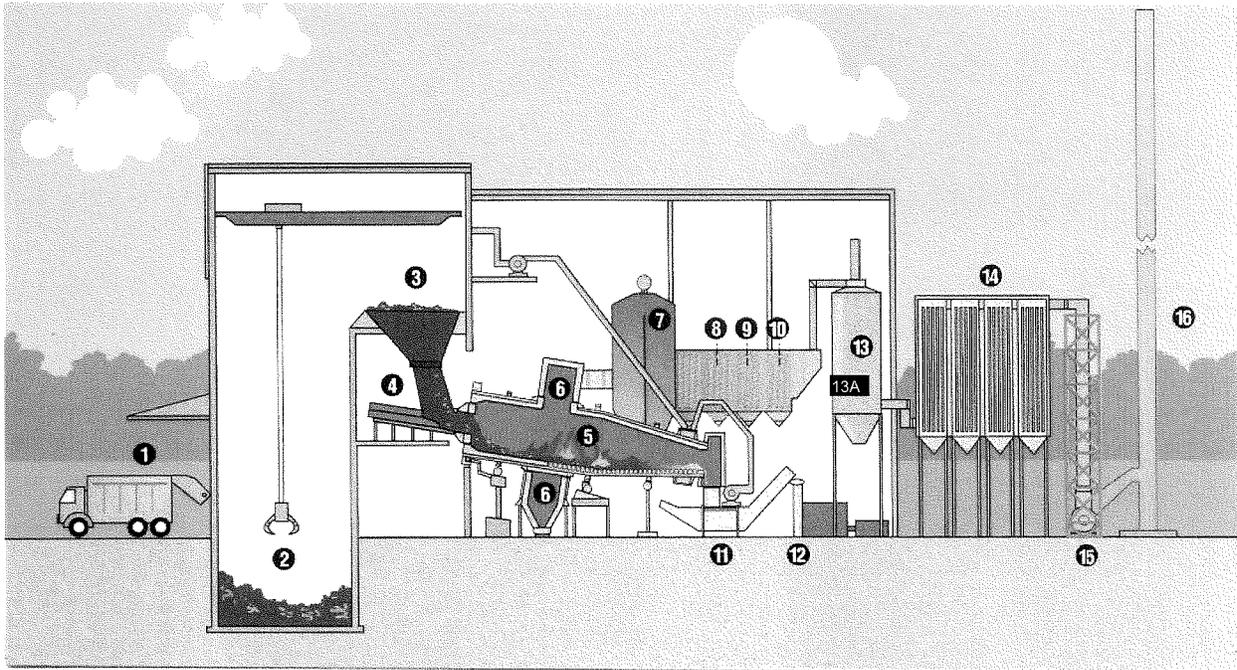
Electricity sold to Central Maine Power

Turbine Generator

3.6 megawatt output

Cooling System

Air cooled finned tube condenser

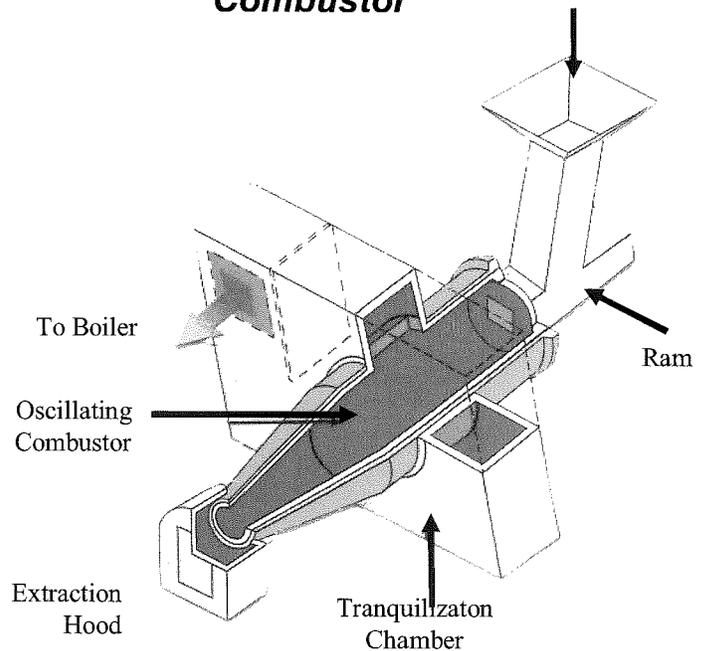


1. Tipping Area
2. Refuse bunker/crane grapple
3. Feed hopper
4. Ram feeder
5. Combustor
6. Tranquilization chamber
7. Waterwall boiler
8. Superheater
9. Evaporator
10. Economizer
11. Ash extractor
12. Ash conveyer
13. Dry scrubber
- 13A Carbon Injection
14. Fabric filter
15. Induced draft fan
16. Stack
17. Turbine generator (not shown)

**MMWAC Facility
Solid Waste Solutions**

Auburn, Maine

***Laurent Bouillet
Combustor***



Presentation to Environment & Natural Resources Solid Waste Subcommittee

September 18th, 2013

CASELLA RESOURCE SOLUTIONS

recycling • collection • organics • energy • bio-fuels • landfills



Overview

Jeremy Labbe P.E., Engineer & Environmental Manager

- Dynamically changing industry
- About Casella in Maine
- Landfills now versus 1980's

Abbie Webb, Senior Environmental Analyst

- Climate change perspective
- Three suggestions for this panel

A Dynamically Changing Industry

2012

- MERC closure
- PERC & Casella disposal agreement

2013

- KTI Biofuels sold to ReEnergy
- PERC issues RFEI for post-2018 operations
- Zero-Sort® recycling facility under development in Lewiston
- Wheelabrator MSW incinerator closure in Claremont, New Hampshire

Future

- Arising food waste and organics opportunities
- Next generation recycling
- Design for recyclability
- Utilization of JRL landfill gas for energy

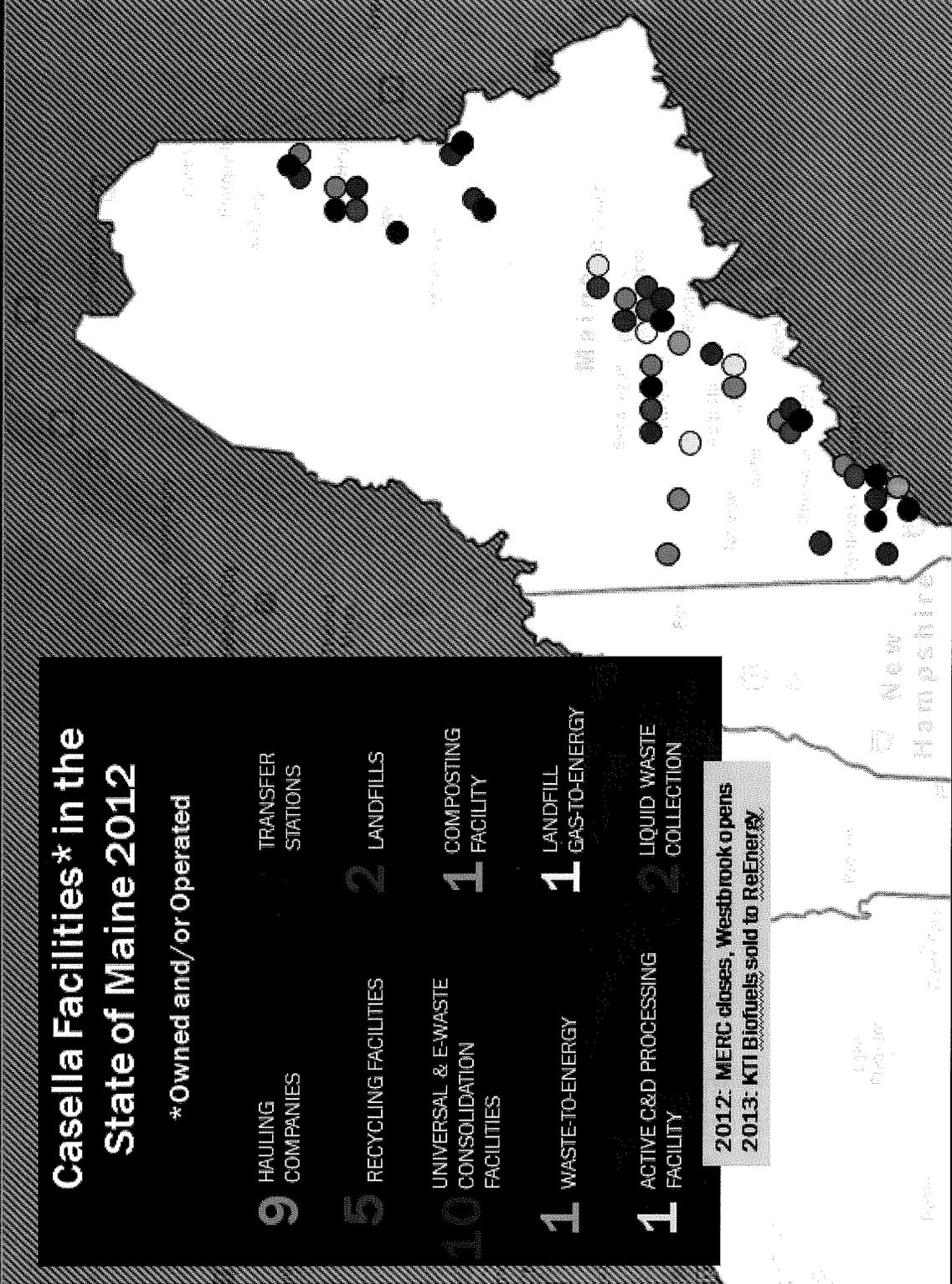
Casella in Maine

Casella Facilities* in the State of Maine 2012

*Owned and/or Operated

- 9 HAULING COMPANIES
- 5 RECYCLING FACILITIES
- 10 UNIVERSAL & E-WASTE CONSOLIDATION FACILITIES
- 1 WASTE-TO-ENERGY
- 1 ACTIVE C&D PROCESSING FACILITY
- 2 TRANSFER STATIONS
- 2 LANDFILLS
- 1 COMPOSTING FACILITY
- 1 LANDFILL GAS-TO-ENERGY
- 2 LIQUID WASTE COLLECTION

2012: MERC closes, Westbrook opens
 2013: KTI Biofuels sold to ReEnergy



Casella in Maine (cont)

Description	Details	Tons per year		
		2010	2011	2012
Recycling	Residential & Commercial, Including Zero-Sort®	115,798	109,532	184,617
Organics	Composting Land Application	55,000 160,000	75,409 127,392	49,446 143,220
CDD Processing	Inbound Outbound: Wood Chips Metal Fines ADC (Alternative Daily Cover) ABC (Aggregate, Brick, Concrete)	199,164	229,979	222,631
		14,074 2,434	18,123 2,903	28,492 4,784
		87,449	124,042	136,815
		2,400	244	4,048
Transfer Stations	Inbound Tires Metal	80,225 128 335	83,901 115 1,986	90,677 107 1,377
Universal & E-waste	CPU's (units) Light Tubes (linear feet)	6,000 77,400	6,650 72,850	6,435 241,728
Waste -to - Energy	Inbound Power Produced (MWh) Metal Recycled	274,878 149,262 6,676	259,276 152,045 6,204	240,116 143,480 4,658
Landfill	Disposal	620,856	703,880	637,302

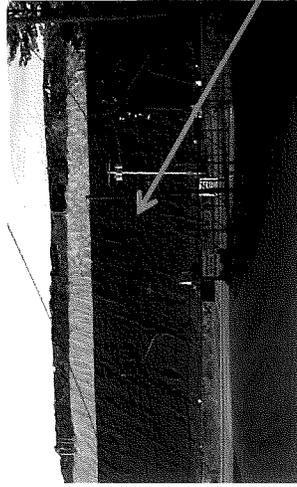
Landfills today versus 1980's

1980's Landfill

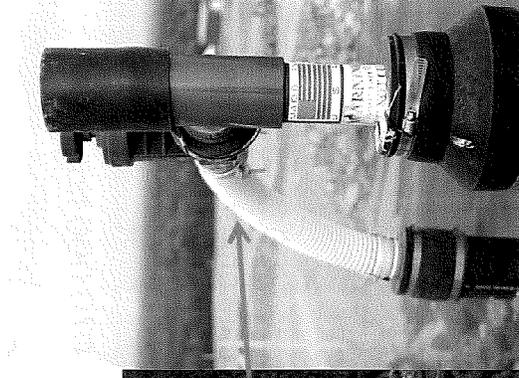
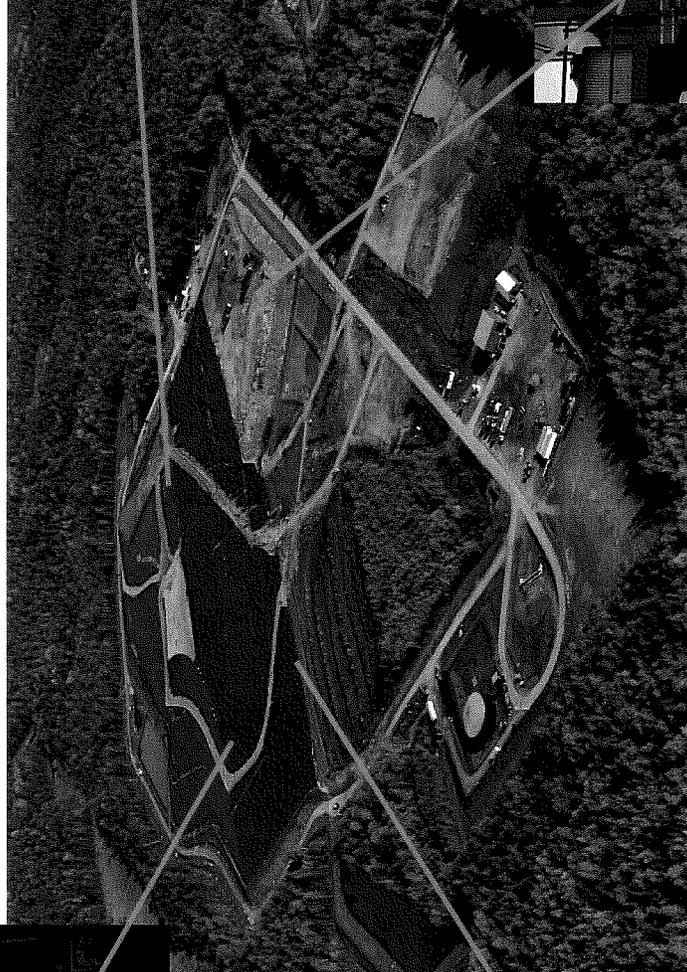
- Located in improper geologic locations → Located in optimum geologic area
- Hundreds of unlined municipal "dumps" → Lined landfill, four foot composite liner
 - No waste screening → Extensive waste screening
 - No compaction → Significant compaction
- Inadequate daily cover → Extensive daily cover
- Improper intermediate cover → Extensive intermediate cover
 - No vector control → Vector control
- No gas control in place → Extensive gas control in place
- No environmental monitoring → Extensive environmental monitoring
 - No automation → Advanced, real time remote monitoring
 - No recycling → Improved State recycling practices

...and NO Renewable energy recovery!

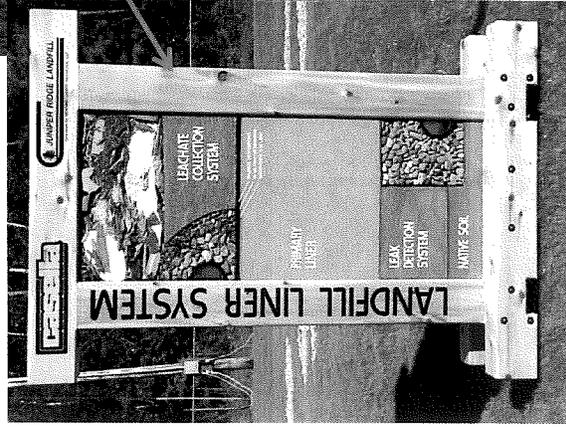
Juniper Ridge Landfill: Design



Daily & Intermediate Cover



Active Gas Collection



Landfill Liner System



Waste Compaction

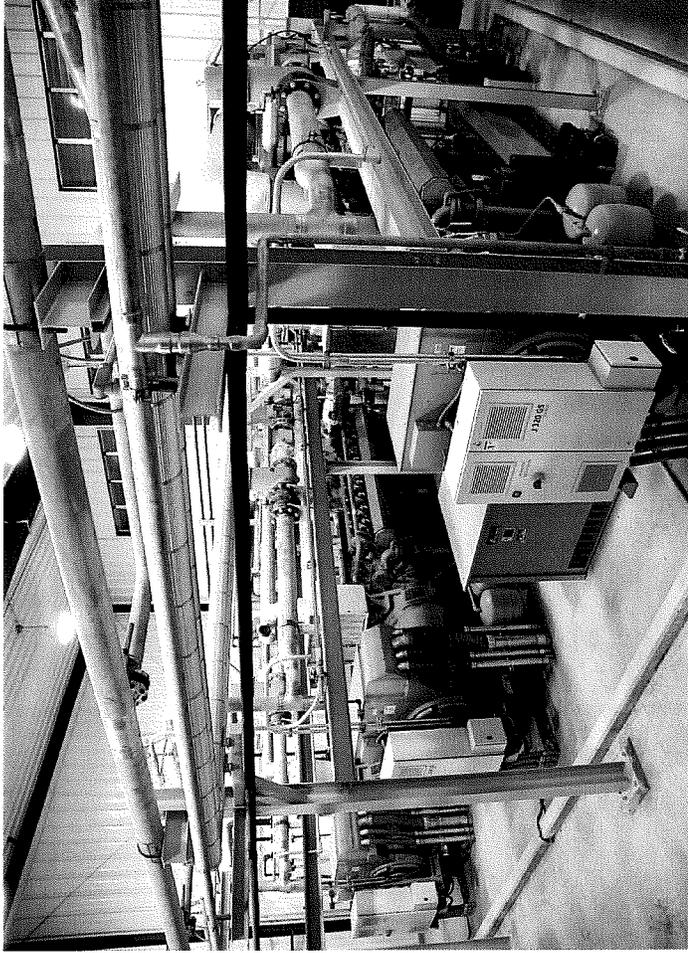
The future of landfills is now...

At Juniper Ridge Landfill

- Heat value of Juniper Ridge gas = 8,000 gallons of oil daily
- Not fossil fuel, biomass based renewable energy source

Nationwide

- EPA Landfill Methane Outreach Project (LMOP) lists 594 operational LFG projects nationwide, 2012
 - Two within Maine
 - Carbon sequestered (2012) equivalent to 20,000,000 passenger vehicles
- Estimated 2012 Energy Benefits:
 - Electricity for (1,070,000 homes)
 - Heating 736,000 homes
- 540 candidate landfills (includes JRL), could double benefits



Pine Tree Landfill Electricity Project, 3MW

Who uses LFG directly?



Landfills: Flexibility & Adaptability

Landfills are necessary in Maine

- Receive more than 30 different waste materials (JRL alone)
- Including residue and ash from waste-to-energy facilities
- Environmentally sound practices have changed the landscape of landfills

Volume reduction at landfills

- 60+% volume reduction through compaction
 - Additional volume reduced through decomposition
- Additional volume reduction through long term decomposition

Landfills are entirely consistent with recycling

- No incentive to dispose recyclable materials such as plastics
- Constructed on a cell-by-cell basis as needed

Climate Perspective

Technological, environmental, economic conditions have changed since 1980's

- Technology: Landfills were unlined, didn't collect gas, didn't produce energy
- Economics: Energy prices were high, landfill tip fees were expected to rise
- Environment: Climate change was poorly understood

Juniper Ridge Landfill today

- Designed and operated as a low emission landfill
- Carefully monitored and controlled bio-chemical system
- Meets and exceeds regulatory and industry standards
- Poised to produce energy (proposed UMO pipeline)
- Controls greenhouse gas emissions (85%+ efficiency)

→ Three suggestions

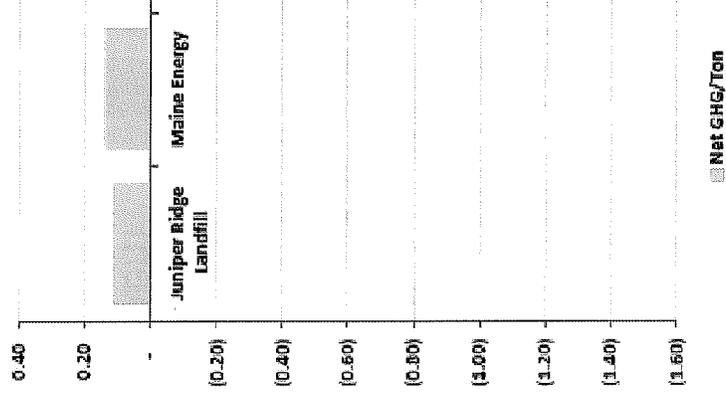


1) Think site-specific, Maine-specific

The environmental impacts of landfills and waste-to-energy facilities vary from site to site

It is not possible to say that one is always better than the other

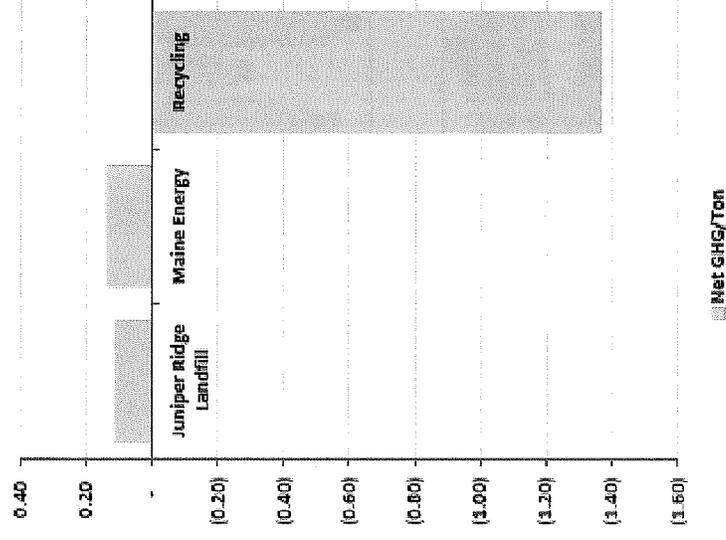
Decisions should be based on Maine facilities, not national averages.



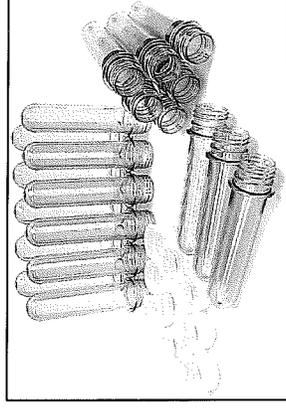
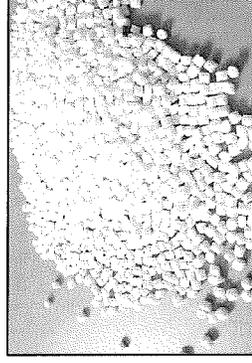
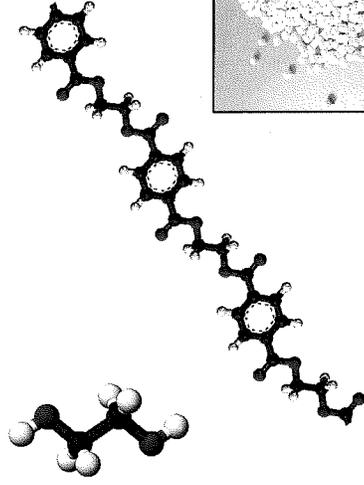
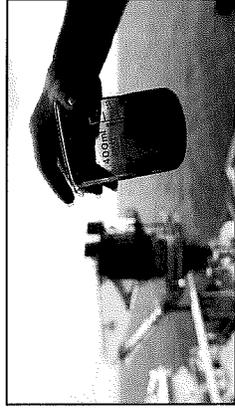
2) Focus on what's significant

The greenhouse gas benefits of recycling FAR outweigh the relatively minor differences between landfilling and combustion.

We are debating a relatively minor incremental difference when we should be focused on waste reduction and recycling



Recycling: Energy and Carbon Benefits

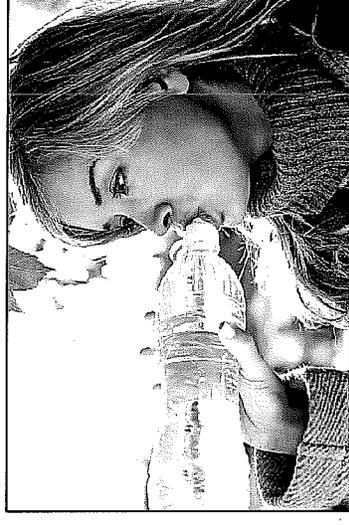
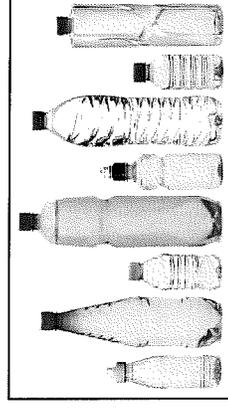


Plastic bottle example

Heat, Energy, Carbon, Chemicals at each step

How can we capture the most value?

- Reuse conserves micro- and macrostructure
 - Recycling conserves microstructure
 - Combustion uses the fossil fuel, emits CO₂
 - Landfill captures no value, sequesters fossil carbon
- Reuse and recycling cut upstream carbon & energy use



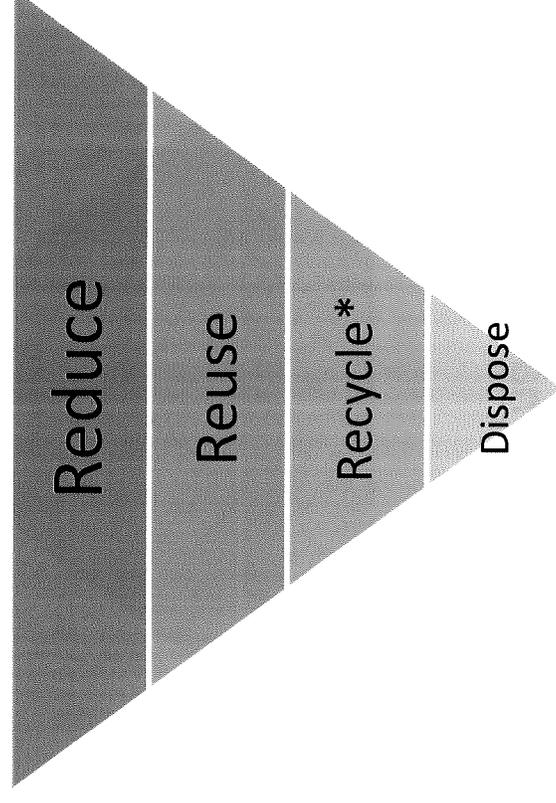
3) Emphasize top tiers of hierarchy

Industry is changing rapidly

Context has changed

Hierarchy should be applied to encourage...

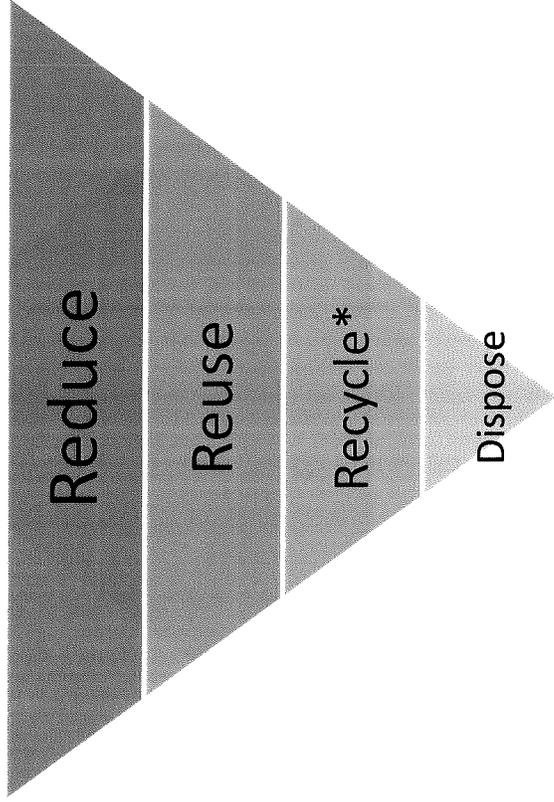
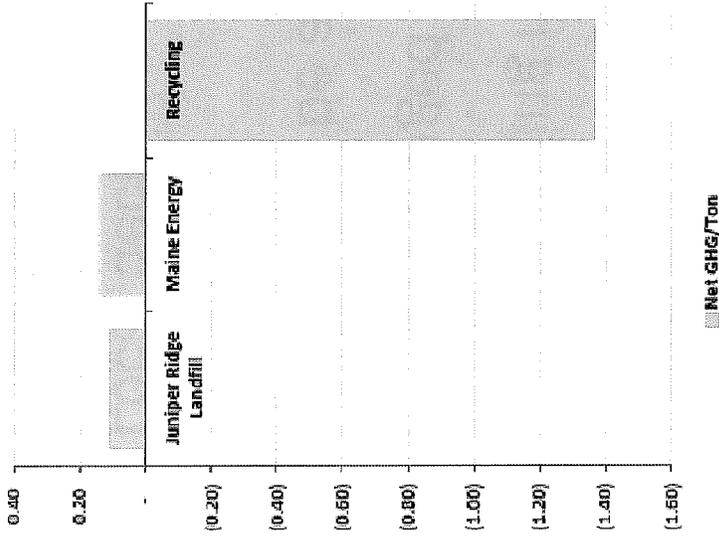
- Local decision-making
- Technological innovation
- Ongoing adaptation
- Stronger focus on “3Rs”



*both “traditional” recycling and organics recycling

Conclusion

Landfills have changed dramatically since the 1980s. The whole industry is changing rapidly. The solid waste hierarchy should be applied in a way that emphasizes waste reduction, reuse, and recycling. In the face of change we should encourage innovation, flexibility, and local decision-making.



*both "traditional" recycling and organics recycling



Jeremy Labbe, P.E.

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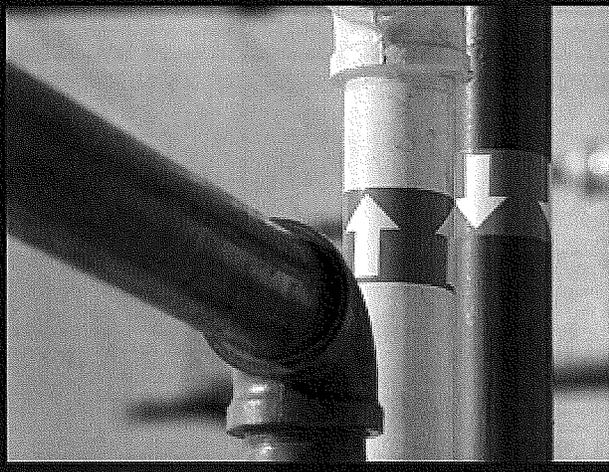
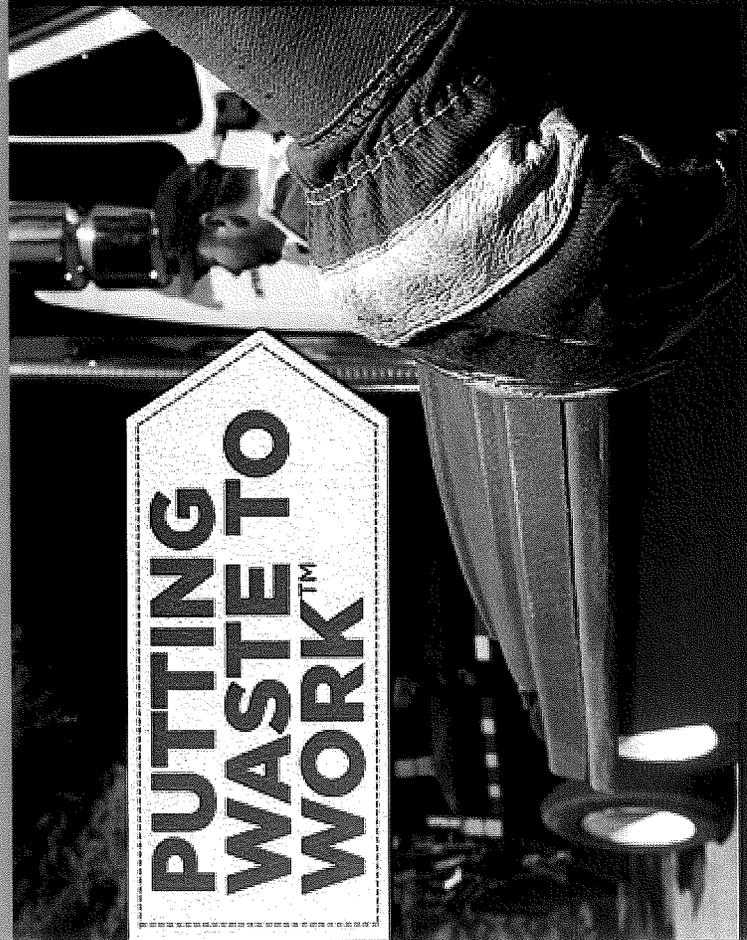
Abbie Webb

abbie.webb@casella.com

CASELLA RESOURCE SOLUTIONS

recycling • collection • organics • energy • bio-fuels • landfills

**PUTTING TO
WASTE™
WORK**



Our Role in the State of Maine.

CY 2012

CASELLA RESOURCE SOLUTIONS
Zero-Sort Recycling · Collection · Organics · Energy · Biofuels · Landfills



Casella Facilities* in the State of Maine 2012

*Owned and/or Operated

9 HAULING COMPANIES

TRANSFER STATIONS

5

RECYCLING FACILITIES

2

LANDFILLS

10

UNIVERSAL & E-WASTE CONSOLIDATION FACILITIES

1

COMPOSTING FACILITY

1

WASTE-TO-ENERGY

1

LANDFILL GAS-TO-ENERGY

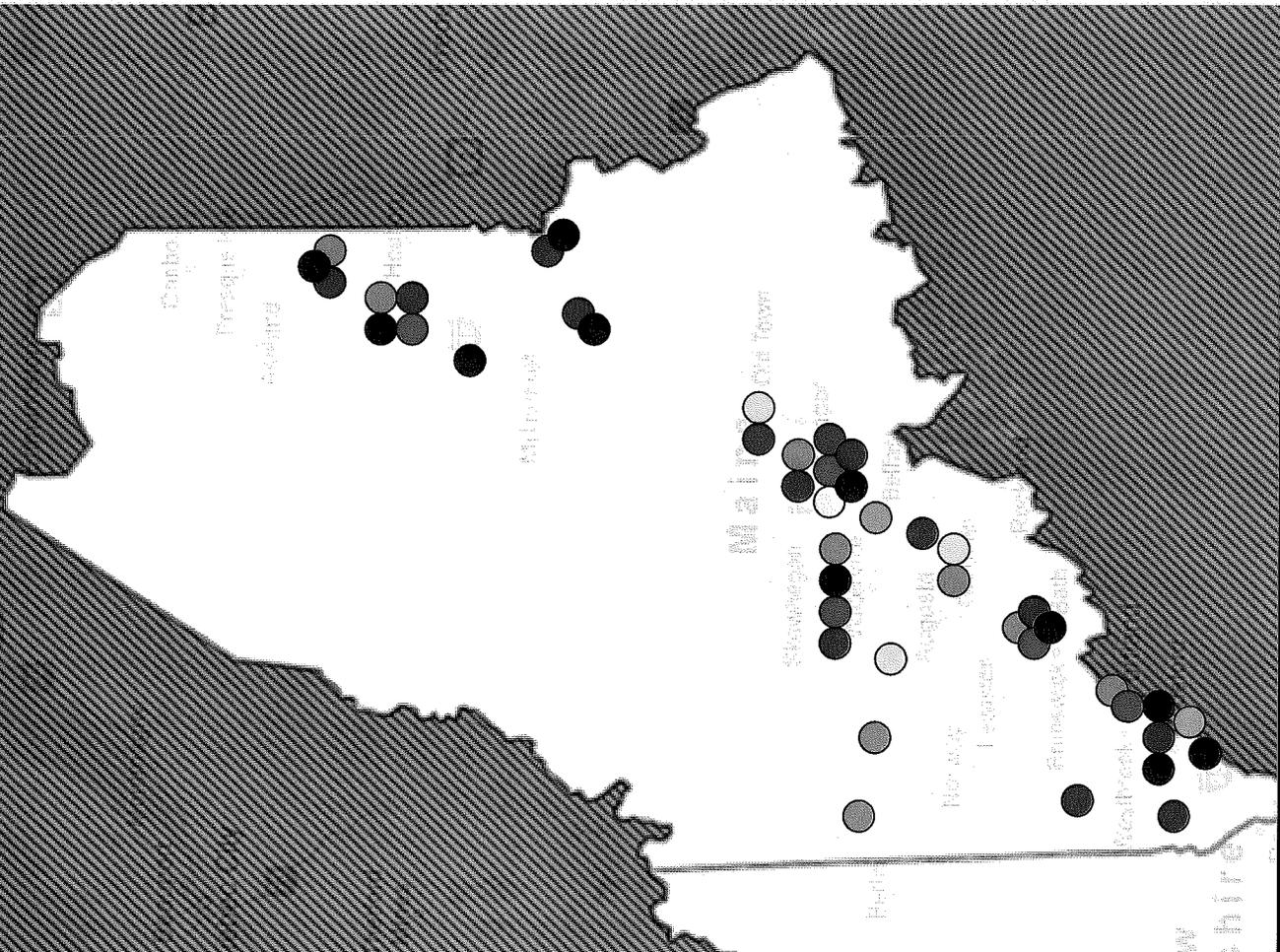
3

C&D PROCESSING FACILITIES

2

LIQUID WASTE COLLECTION

End of 2012: MERC closes Westbrook opens



Casella's Contribution to Maine's Economy (CY 2012)

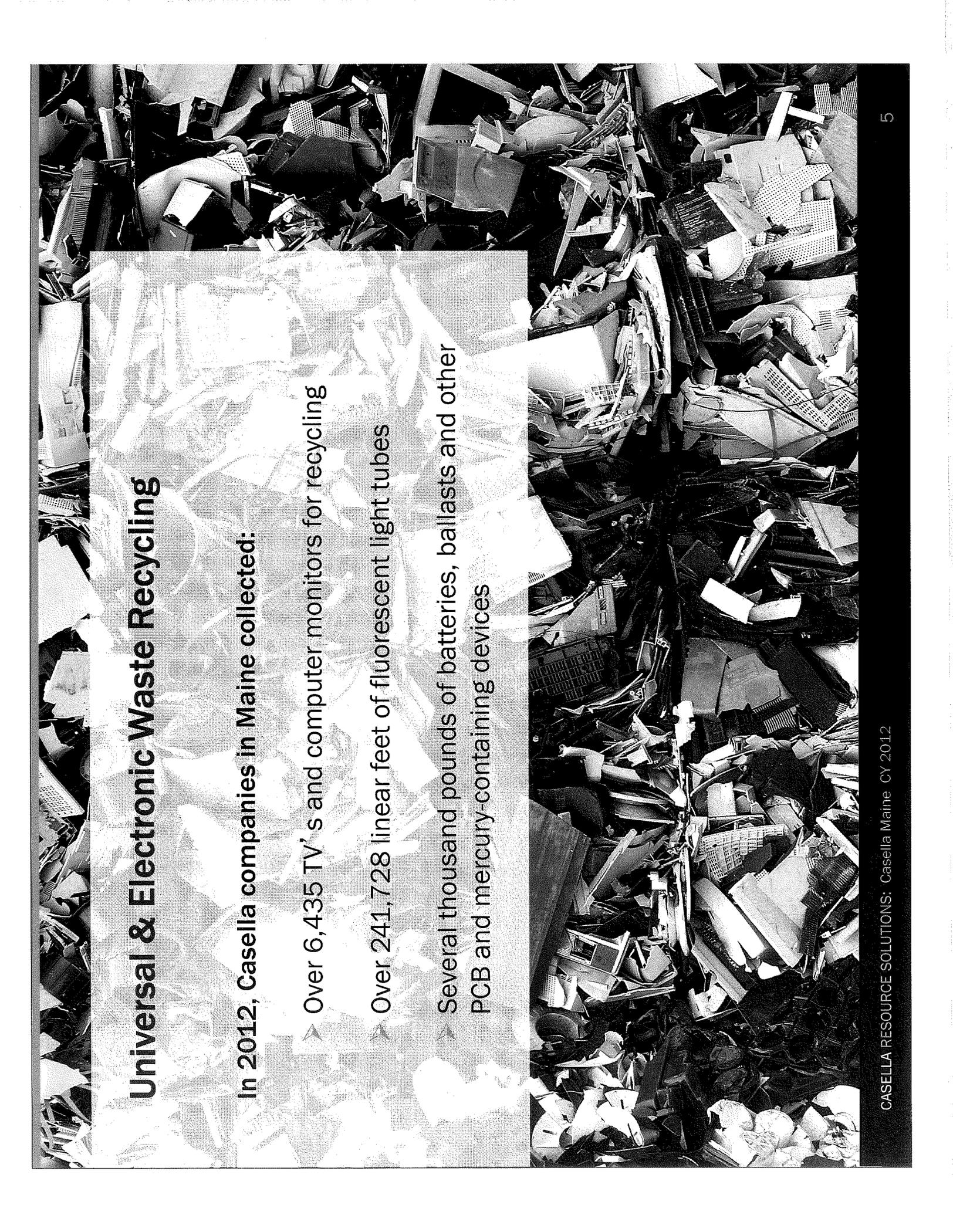
- Casella employs nearly 400 people in Maine
- 27.37 MM Annual Payroll (including benefits & taxes)
- 49.8 MM Annually Maine Sub-Contract Haulers & Other
Maine Suppliers
- 13.36 MM Annual Capital Expenditures
- 2.84 MM Annually Maine Taxes
 - Property, Fuel, Use Tax, Excise, Highway, Sales, Income, Fees
- 1.57 MM Annually Host Community Benefits
 - Biddeford, Saco, Lewiston, Alton, Old Town, Hampden, West Bath, Waterville

Recycling

In 2012, Casella handled 184,617 tons of recyclable materials in the State of Maine.

- Zero-Sort Recycling® collected in Eco-Maine communities is delivered directly to the State of Maine
- Zero-Sort Recycling® in all other communities delivered to Charlestown, MA
- Market recycled fiber directly to mills





Universal & Electronic Waste Recycling

In 2012, Casella companies in Maine collected:

- Over 6,435 TV's and computer monitors for recycling
- Over 241,728 linear feet of fluorescent light tubes
- Several thousand pounds of batteries, ballasts and other PCB and mercury-containing devices

Composting



Hawk Ridge Compost Facility

- Annual Input = 49,446 tons of biosolids and other waste materials
- Annual Output = 94,734 cubic yards high quality, Class A compost and mulches under the Earthlife™ brand name

Direct Land Application and Other Activities

- Over 143,220 tpy of Class B biosolids, short-paper fiber, wood ash, and other Maine generated materials reused for land application, landfill closure, animal bedding, and topsoil manufacturing programs

CDD Processing

KTI Bio-Fuels, Inc.

- **2012 Inbound Material - 222,631 tons**
 - 20,303 tons in-state
 - 202,328 tons out-of-state
- **2012 Outbound Material**
 - 28,492 tons of wood chips (Sappi, Re-Energy, Eco)
 - 4,784 tons of metal
 - 136,815 tons of fines ADC (Alternative Daily Cover)
 - 4,048 tons ABC (aggregate, brick, concrete)
 - 63,280 tons disposed (non-recyclable material)
 - 78% recycling percentage

Transfer Stations

Waste Material Handled in 2012

90,677 tons of material handled – primarily MSW, CDD

107 tons of tires

1,377 tons of white goods and scrap metal

Disposal Locations

- Tri-community, PERC, Eco-Maine, MERC, JRL

Waste-to-Energy

Maine Energy Recovery Company (MERC)

2012 Waste Processed - 240,116 tons

83,392 tons in-state received

156,724 tons out-of-state received

2012 Waste to Landfill

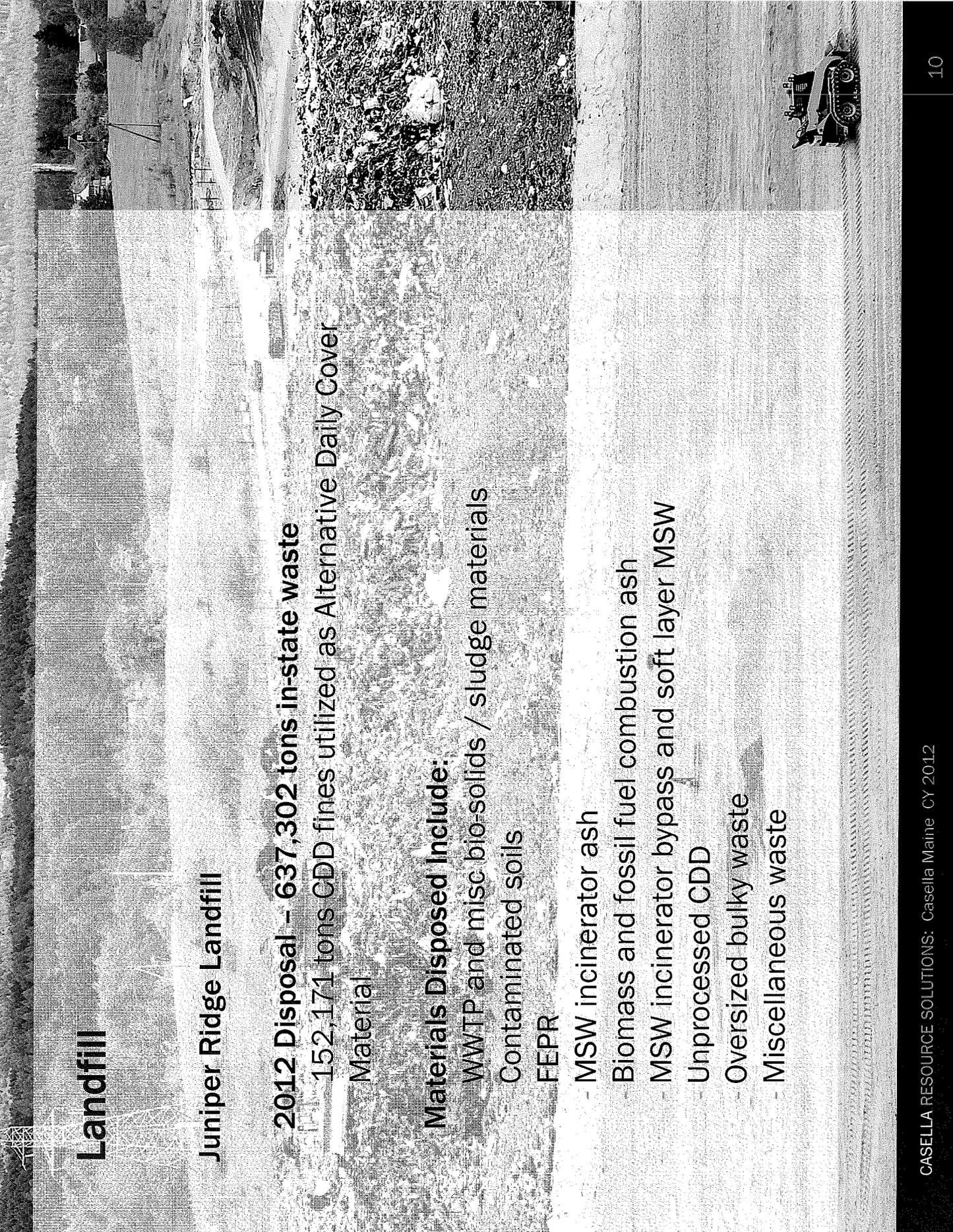
45,363 tons of ash

36,446 tons of FEPR (non-processable MSW)

Benefits

143,480 MWh of power produced

4,658 tons of metal recycled



Landfill

Juniper Ridge Landfill

2012 Disposal – 637,302 tons in-state waste

152,171 tons CDD fines utilized as Alternative Daily Cover Material

Materials Disposed Include:

- WWTP and misc bio-solids / sludge materials
- Contaminated soils
- FEPR
- MSW incinerator ash
- Biomass and fossil fuel combustion ash
- MSW incinerator bypass and soft layer MSW
- Unprocessed CDD
- Oversized bulky waste
- Miscellaneous waste

Resource Renewal

Description	Details	Tons per year		
		2010	2011	2012
Recycling	Zero-Sort® and Dual Sort	115,798	109,532	184,617
Organics	Composting	55,000	75,409	49,446
	Land Application	160,000	127,392	143,220
CDD Processing	Inbound	199,164	229,979	222,631
	Outbound:			
	Wood Chips	14,074	18,123	28,492
	Metal	2,434	2,903	4,784
	Fines ADC (Alternative Daily Cover) ABC (Aggregate, Brick, Concrete)	87,449 2,400	124,042 244	136,815 4,048
Transfer Stations	Inbound	80,225	83,901	90,677
	Tires	128	115	107
	Metal	335	1,986	1,377
Universal & E-waste	CPU's (units)	6,000	6,650	6,435
	Light Tubes (linear feet)	77,400	72,850	241,728
Waste -to - Energy	Inbound	274,878	259,276	240,116
	Power Produced (MWh)	149,262	152,045	143,480
	Metal Recycled	6,676	6,204	4,658
Landfill	Disposal	620,856	703,880	637,302

Awards & Recognitions

- 2012 Climate Leadership Award
- 2012 Vermont Governor's Award for Environmental Excellence
- 2011 U.S. Environmental Protection Agency Breathe Easy Award
- 2010 The National Biosolids Partnership's EMS, Platinum Certification
- 2004 The U.S. Composting Council Composter of the Year Award
- 2002 Maine Governor's Environmental Excellence Award
- 2001 The National Sludge Exemplary Management Award
- 2000 The Maine Governor's "Environmental Excellence Award" in the Sustainable Development Category
- 1991 The Environmental Protection Agency's Beneficial Use of Sludge Award

For more information, please visit:

casella.com

CASELLA RESOURCE SOLUTIONS

Zero-Sort Recycling · Collection · Organics · Energy · Biofuels · Landfills

Overview of History of Juniper Ridge Landfill

Purpose:

- a. Save the Old Town mill (then owned by Georgia-Pacific). Georgia-Pacific's conditions for not closing the mill:
 - i. Sell their paper-mill sludge landfill to the State.
 - ii. Use the proceeds to relocate a biomass boiler to the mill.
 - iii. Fuel the biomass boiler with low cost C&D wood fuel.
 - iv. Dispose of their mill wastes at the State-owned landfill at a discounted price.
- b. Accomplish the long-established (1989) public policy to replace commercial landfills with state-owned landfills.

Important Milestone Events:

2003

- c. Public hearing and work session on Resolve authorizing the landfill acquisition.
 - i. The It was clearly and directly explained during the work session that residue from solid waste brought into Maine and incinerated or processed was "Maine waste" and acceptable for disposal at a state-owned landfill.
- d. State Planning Office put operation of the landfill out to competitive bid. The RFP:
 - i. Anticipated FAME would finance the landfill purchase with revenue bonds to be paid back by the operator.
 - ii. Required the operator to supply the Old Town mill with large amount of C&D wood fuel that unavoidably would require use of out-of-state C&D.
 - iii. Required the operator to prepare an expansion application.
- e. State selected Casella's 30-year proposal (Casella had also submitted a 15-year proposal (lower cash payment to the State and lower benefits to Old Town).

2004

- f. Operating Services Agreement (OSA) between the State of Maine and Casella.
 - i. Rather than FAME financing as anticipated in the SPO RFP, Casella paid the State \$26 million upfront that was used to purchase the landfill.
 - ii. Expansion fully anticipated and in fact required of Casella.
 - iii. No public benefit determination required for state-owned landfills.
 - iv. Out of state waste prohibited but C&D processing residue specifically allowed.
- g. DEP approved an amendment (vertical increase) to the existing landfill license.

2006

- h. DEP denial of public benefit determination for the Pine Tree Landfill in Hampden. Closure of PTL increased disposal of Maine waste at JRL that had been disposed at PTL.
- i. First amendment to the OSA extending the deadline for Casella to prepare an expansion application from 2007 to 2009.
- j. Second amendment to the OSA related to the voluntary assignment by Casella of the C&D Fuel Supply Agreement to the new owner of the Old Town mill.
- k. Casella submits Preliminary Information Report (PIR), the first step in a landfill expansion process, to the DEP.

2007

- l. DEP issues Determination of Environmental Feasibility for JRL horizontal expansion based on review of the PIR.

2008

- m. State Planning Office and Casella issue a Preliminary Notice of intent to file expansion application for JRL.

2009

- n. As required by the OSA, Casella completes preparation of JRL expansion application.
- o. Legislation (LD 759) enacted requiring a state-owned landfill to obtain a public benefit determination prior to an expansion application.
- p. SPO and Casella submit public benefit determination application for 21.9 million yard JRL expansion.

2010

- q. DEP issues draft denial of JRL public benefit determination application. SPO and Casella withdraw the PBD application.

2011

- r. SPO and Casella submit second application for public benefit determination for JRL expansion.

2012

- s. DEP partial approval of JRL public benefit determination application (approval for 9.35 million cy).

Financial Considerations:

- The State does not pay Casella to operate the landfill.
- Casella pays all of the landfill costs including: engineering design; permitting; construction; operations; leachate disposal; environmental monitoring; insurance, closure-post closure financial assurance; state disposal fees; and host community benefits.
- Financial benefits since 2004:
 - City of Old Town: \$9,334,984
 - Town of Alton: \$624,089
 - Landfill neighbors: \$3,108,589
 - State Solid Waste Management Fund: \$5,131,330
- Below market disposal fees for Old Town and Lincoln mills.
- Construction and demolition debris fuel supply agreement for Old Town mill.

Testimony of Kevin Roche, Chief Executive Officer of **ecomaine**
Before the
Joint Standing Committee on Environment and Natural Resources
Solid Waste Working Group

September 18, 2013

Senator Boyle, Representative Welsh, and members of the Solid Waste Working Group of the Joint Standing Committee on Environment and Natural Resources, my name is Kevin Roche. I serve as the Chief Executive Officer of **ecomaine**. Thank you for the opportunity to address you with regard to the operations of **ecomaine** and how we fit into the state's solid waste policy.

ecomaine provides municipal solid waste and recycling services to 47 communities in York, Cumberland, Franklin, Androscoggin, Oxford and Kennebec Counties. Our service area includes nearly 350,000 residents representing 25% of Maine's population. We also serve the recycling needs of several communities in New Hampshire.

ecomaine is a non-profit, tax exempt, municipal organization owned by 21 of its 47 member communities and run by a 29 member Board of Directors.

ecomaine owns & operates three integrated facilities:

1. A Single-Sort Recycling Facility
2. A Waste-to-Energy (WTE) mass burn facility with a capacity of 14.7 MW
3. A Landfill/Ashfill site for disposal of our ash

ecomaine and its member communities are committed to removing all possible waste from the waste stream. We took a major step to improve recycling in our communities with the installation of a state of the art single-sort recycling facility in 2007. The \$3.7MM investment remains the only single-sort facility operating in Maine. Now residents of **ecomaine** towns can throw all their recyclables into a single container and haulers don't need to sort recyclables curbside. In addition to our aggressive recycling programs, we are currently conducting a feasibility study on the recycling of food waste for our member communities.

ecomaine's waste-to-energy (WTE) plant processes up to 550 tons of municipal solid waste (MSW) a day (close to 200,000 tons a year). This represents 27% of the MSW disposed of in Maine each year. We operate dual mass-burn boilers which accept waste without the need for front-end processing. We produce over 100,000 megawatts of electricity a year - enough to power up to 15,000 homes.

Our landfill/ashfill site allows **ecomaine** to safely dispose of ash and other waste geographically close to the point of generation. We have enough landfill capacity to meet our expected needs until 2038. Having our own landfill also allows **ecomaine** more flexibility in managing our waste. The volume of MSW peaks in the summer, exceeding our needs for the WTE plant. We bury some raw waste at that time and then bring it to the WTE facility in the winter, when MSW volumes fall below the level needed to operate the plant. Another progressive effort that is underway is our metals mining operation. Prior to 2004, we weren't recovering metals from the ash at the Waste-To-Energy facility. In 2011, we began excavating and screening the landfilled ash and recycling the metals from it. This effort is only possible because we processed the waste and reduced it to ash. Can you imagine trying to recover metals from a traditional landfill containing raw waste?

ecomaine Operations

ecomaine provides all of these services with a staff of 70 full-time employees with an annual budget of just under \$20 million. The revenues necessary to provide these services are derived from three sources: tipping fees & assessments, sales of recyclable materials, and revenue from the sale of electricity.

Tipping fees generally range from \$40 - \$70 a ton, depending on the type of waste and the point of generation. The owner communities strongly believe in using waste-to-energy to dispose of MSW, thus avoiding the landfilling of raw waste. They understand that waste-to-energy provides many benefits over landfilling raw MSW, which ultimately amounts to storage of waste until a later date. This means paying a little extra today to avoid the long term storage of waste.

Revenue from the sale of electricity has fallen by 43% over the last 5 years from 7.8 cents per KWhr down to less than 4.5 cents. This loss of revenue makes our financial position more difficult. From strictly a short-term cost perspective, it would be cheaper for our member communities to shut down the WTE plant and send MSW directly to our landfill. However, our member communities are taking a more long-term view and remain committed to our mission statement outlined below.

***ecomaine** provides comprehensive long-term solid waste solutions in a safe, environmentally responsible, economically sound manner, and is a leader in raising public awareness of sustainable waste management strategies.*

Solid Waste Hierarchy

The owner communities of **ecomaine** are strongly supportive of Maine's Solid Waste Hierarchy, which is established in MRS A Title 38, Section 2101. The Hierarchy sets forth the following priority for solid waste disposal in Maine:

1. Reduce
2. Reuse
3. Recycle
4. Compost
5. Waste-to-Energy
6. Landfilling

This is the same hierarchy adopted by the US Environmental Protection Agency.

The Hierarchy has stood the test of time because it makes sense. Handling and disposal of waste is an expense imposed on municipalities and commercial generators. Finding ways to avoid that expense only makes sense. Reducing and reusing materials avoids disposal costs. Recycling saves limited resources and repurposes them, while generating revenue from the sale of cardboard, newsprint, plastic, and metal. Composting or anaerobic digestion turns organic materials, such as food waste, into nutrients for the growth of new food and other vegetation. Waste-to-energy takes waste and turns it into renewable energy, avoiding the use of fossil fuels.

Benefits of Waste to Energy Versus Landfilling

Maine's Solid Waste Hierarchy favors waste-to-energy over landfilling of raw MSW for several reasons. Waste-To-Energy reduces the volume of waste by 90%. That dramatically reduces the volume of landfill space needed to accommodate the waste. **ecomaine** has landfill capacity for 25 years at current fill rates. Without the volume reduction from Waste-To-Energy, our capacity would last only a few years. That is especially important given Maine's limited landfill space. The January, 2013, DEP Waste Generation and Disposal Capacity Report estimates current landfill space will be exhausted by 2020.

ecomaine maintains high removal efficiency of pollutants from emissions by using state-of-the-art air pollution control technology. **ecomaine** aggressively monitors air emissions from the combustion process. Our environmental management system is based on the international standard called ISO 14001 which requires environmental stewardship as part of **ecomaine's** daily activities. The system is a set of procedures that define how the organization will manage its potential impacts on the environment. In a rare accomplishment, all three of **ecomaine's** facilities are ISO 14001 certified.

Waste-To-Energy also reduces the risk of groundwater contamination from landfills. Raw MSW is full of organic material, including potentially dangerous chemicals which can leach into and contaminate groundwater if the landfill's containment system fails. Unfortunately, this does happen and the risks multiply as landfills get bigger. By contrast, the ash generated by a Waste-To-Energy facility is one tenth the amount in volume and is in a much more stable form.

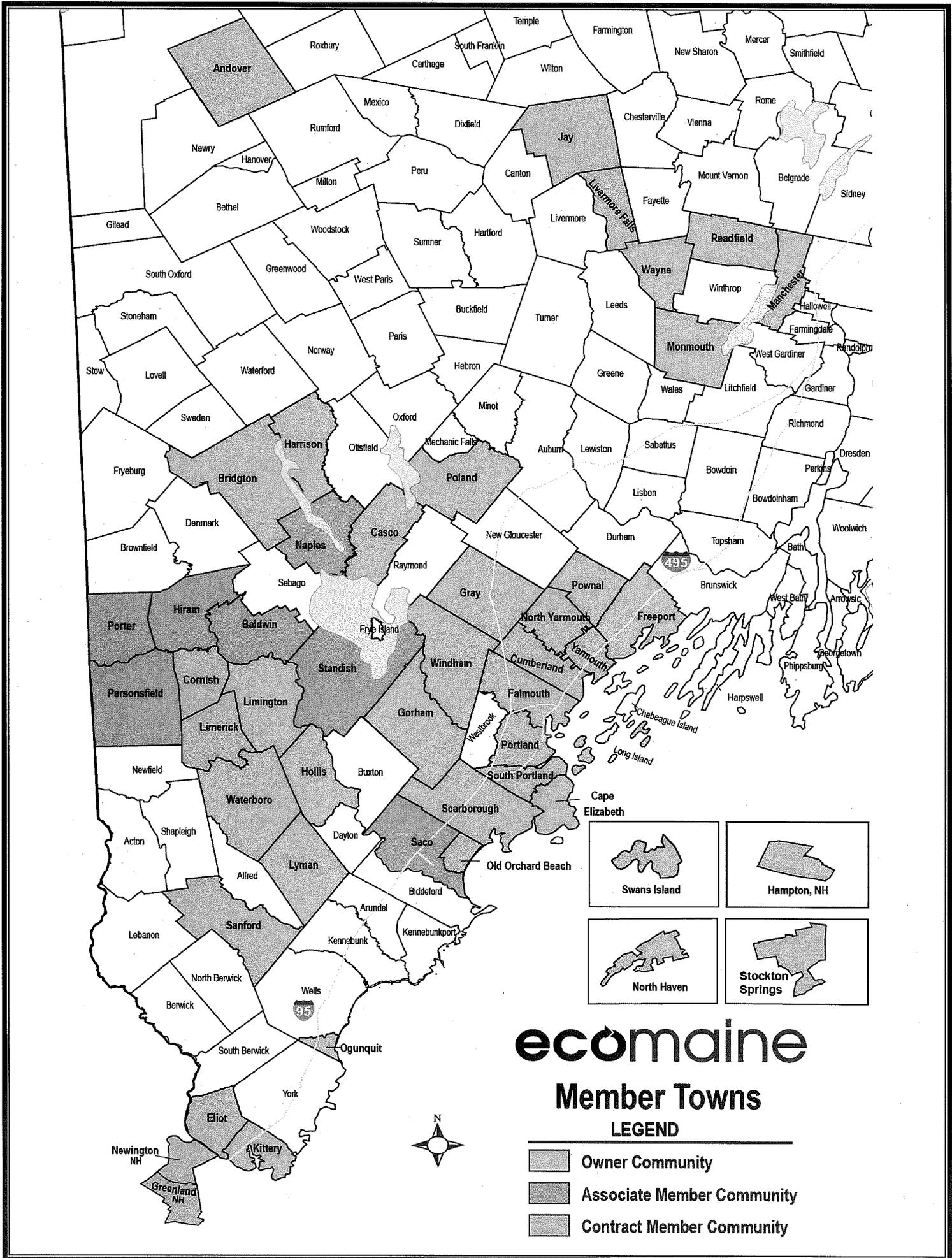
Raw MSW landfills also generate methane gas, which contributes to global warming at even greater rates than carbon dioxide. **ecomaine** knows this first hand. We still manage some raw landfills from before our Waste-To-Energy plant was built and must capture and burn off the methane gas generated in those landfills.

Waste-To-Energy uses the waste stream to generate renewable energy, avoiding the use of fossil fuels. Renewable energy benefits the economy and the environment by reducing the use of these limited resources. Advocates of landfilling raw waste note that power can be generated by capturing methane gas and burning it to operate turbines. This is certainly possible and we support power generation through landfill gas for already existing landfills, such as the one in Hampden. However, this process in no way compares to Waste-To-Energy. The power generated via landfill gas is only 1/10th the power generated by burning the same waste in a Waste-To-Energy facility.

Overall, Waste-To-Energy results in far fewer greenhouse gas emissions than landfilling raw MSW, even when power is generated using landfill gas. A 2006 article in the WM Journal reviewed a life cycle study conducted by the EPA. They concluded that Waste-To-Energy did the most to reduce greenhouse gas emissions into the atmosphere. (Source: Thorneleo SA, Weitz K, Jambeck J. Application of the U.S. Decision Support Tool for Materials and Waste Management, WM Journal, August 2006.)

Finally, I would ask you to consider the long-term impact of landfilling raw MSW versus Waste-To-Energy. Waste in a landfill only partially decays, especially if the landfill cap works well and prevents the intrusion of water. Eventually, these raw MSW landfills will need to be dealt with. In effect, they amount to long-term storage of waste. Waste-To-Energy, by contrast, renders the waste more stable and it is a permanent solution that deals with the waste today instead of leaving it for future generations to deal with.

ecomaine supports solid waste management policies that encourage the reduction, reuse, recycling and composting/digestion of waste and, for the waste that remains, encourage the use of Waste-To-Energy as the safest method of disposal.

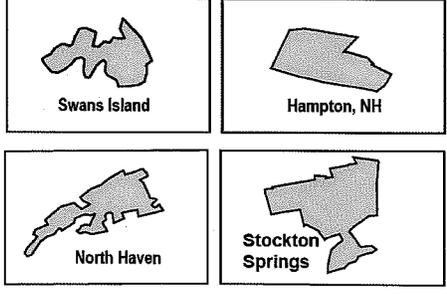


ecomaine

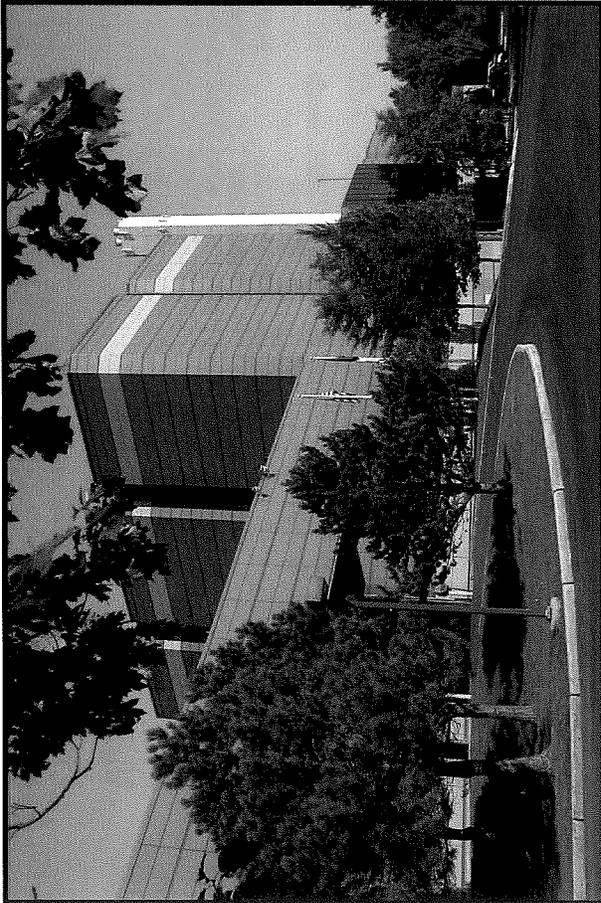
Member Towns

LEGEND

- Owner Community
- Associate Member Community
- Contract Member Community



Waste-To-Energy Plant

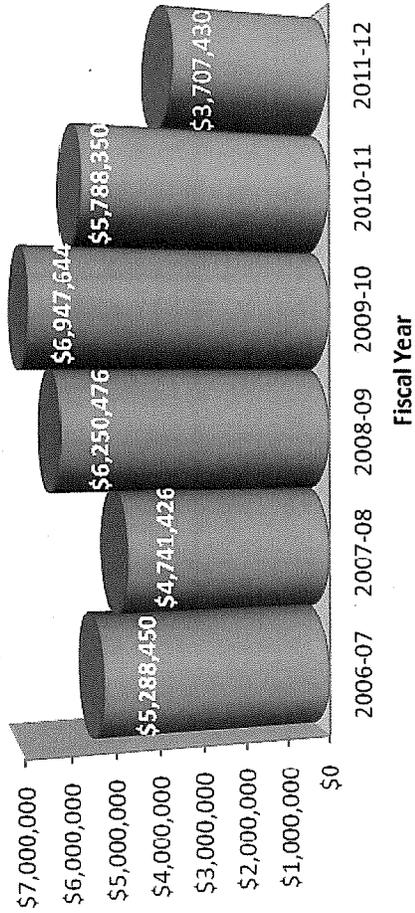


ecomaine is a non-profit waste disposal and recycling organization owned and operated by 21 municipalities. In addition, we have more than 20 communities that contract for our services. **ecomaine** is located in Portland, Maine and serves approximately 25 percent of the state's population.

The waste-to-energy (WTE) plant uses non-recyclable waste as fuel to produce steam-generated electricity and, in the process, reduces the waste bulk by more than 90 percent. The resulting ash is, then, moved to our landfill just two miles away. The WTE facility operates 24 hours per day and produces 100,000-110,000 megawatt hours of electricity annually, which is enough to power 10,000-15,000 homes.

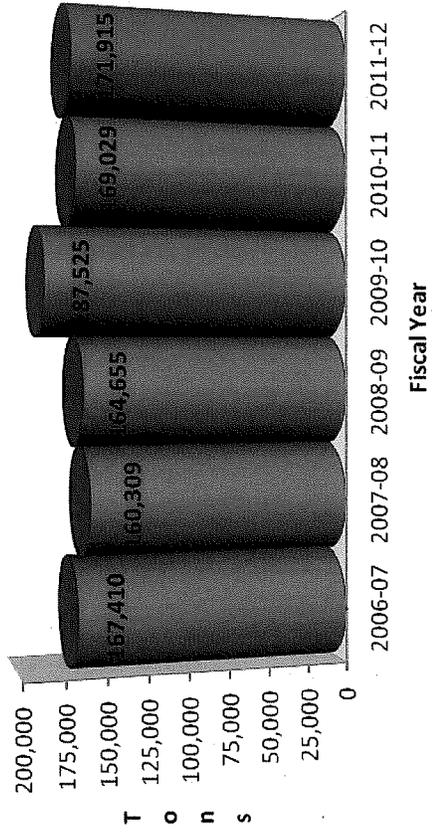
All of **ecomaine's** facilities have earned the International Standards Organization (ISO) 14001 certification for excellence in environmental management.

Waste-to-Energy Revenues

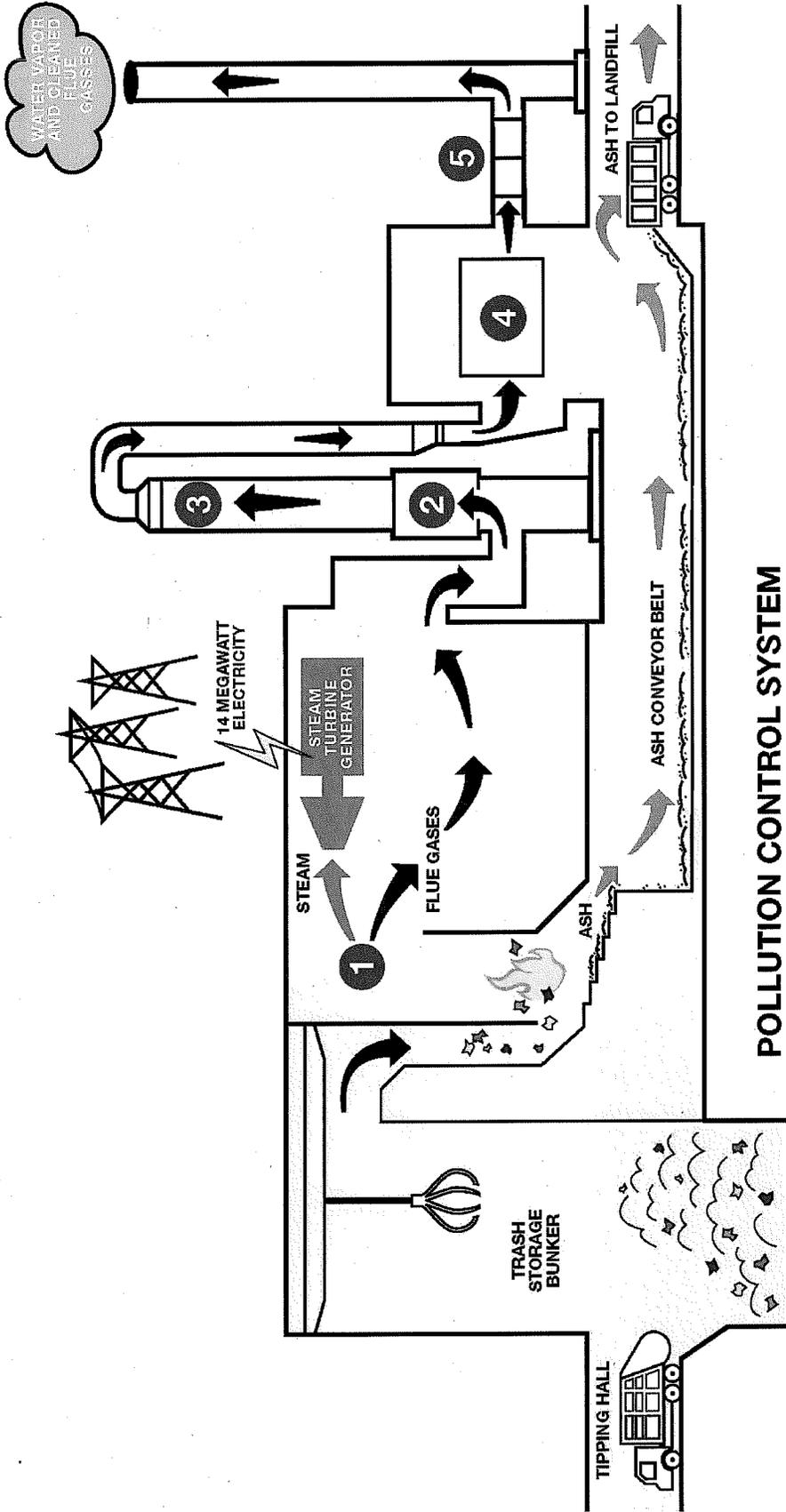


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Tons of Waste Received



Printed on 100% post-consumer recycled paper



POLLUTION CONTROL SYSTEM

- ① NITROGEN OXIDE REMOVAL SYSTEM
- ② MERCURY & DIOXIN REMOVAL SYSTEM
- ③ ACID GAS REMOVAL SYSTEM
- ④ PARTICULATE REMOVAL SYSTEM
- ⑤ POLLUTION CONTROL TESTS

Waste-to-Energy

- 90% reduction of trash volume
- Power generation
- Pollution control

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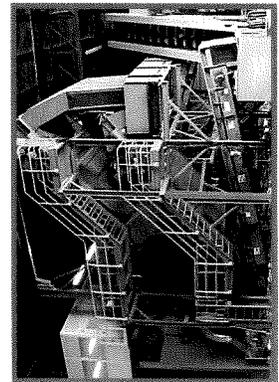
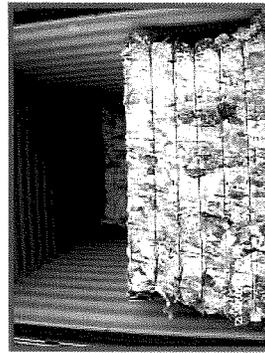
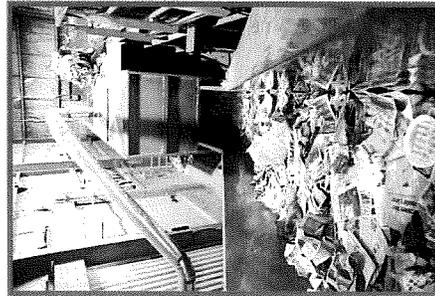
Single Sort Recycling

ecomaine is a non-profit waste disposal and recycling organization that includes 46 participating municipalities (a number that grows every year); 21 are owner-communities and 25 contract for services. It is located in Portland, Maine and serves approximately 25 percent of the state's population.

In 2007, **ecomaine** opened Maine's first (and still only), state-of-the-art single sort recycling facility, which allows residents to combine all their recyclable items into just one bin. As predicted, recycling percentages increased with the availability of single-sort recycling because participation is much easier,

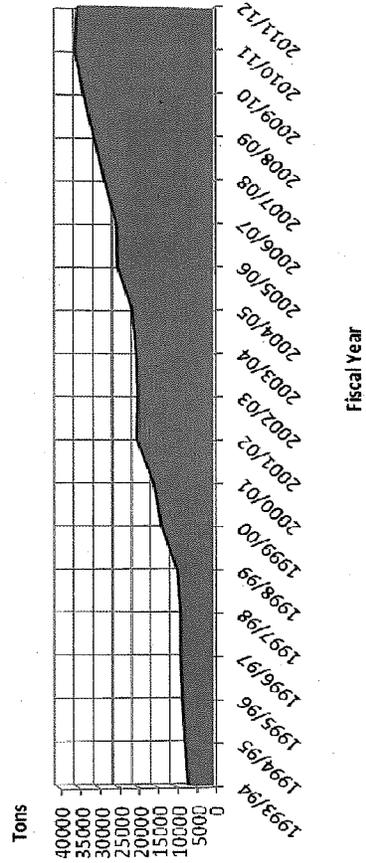
Though your recyclables arrive at **ecomaine** all mixed together (upper left photo), specialized sorting equipment separates it all as it travels along a conveyor belt.

All of **ecomaine's** facilities have earned the International Standards Organization (ISO) 14001 certification for environmental management.



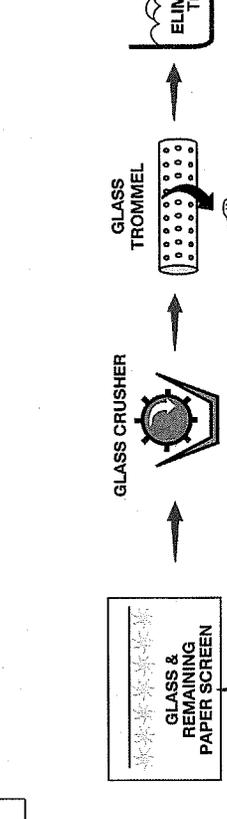
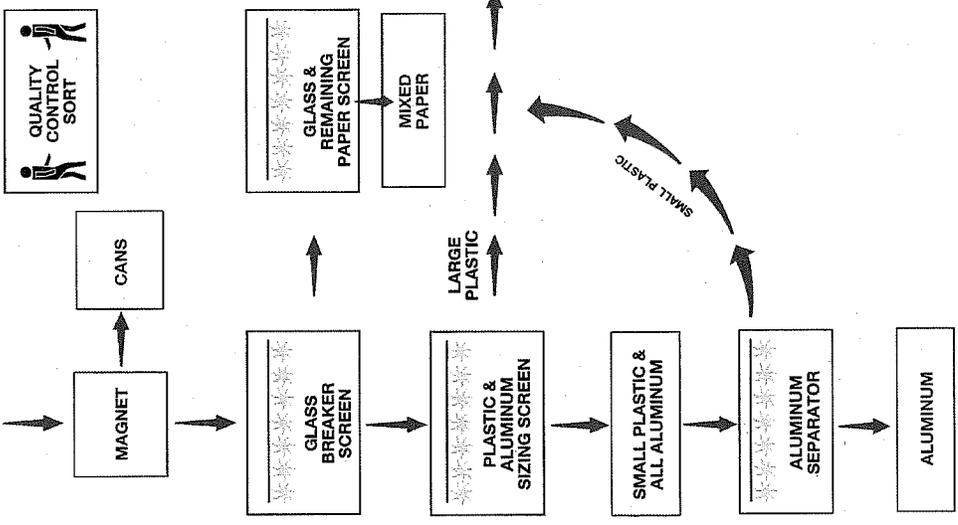
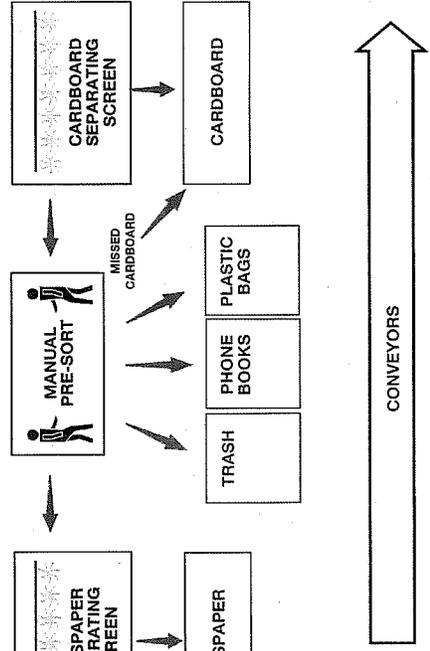
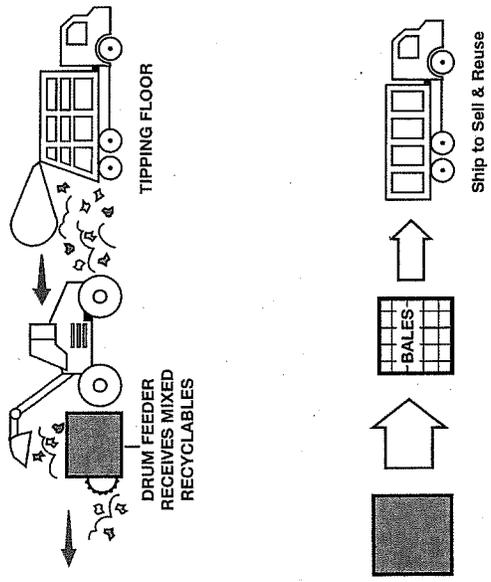
In FY 2011-2012, **ecomaine** processed 34,924 tons of recycling.

Recycling Total Tonnage



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Single-Sort Recycling Center
ecomaine
 the future of regional waste systems
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Ashfill/Landfill

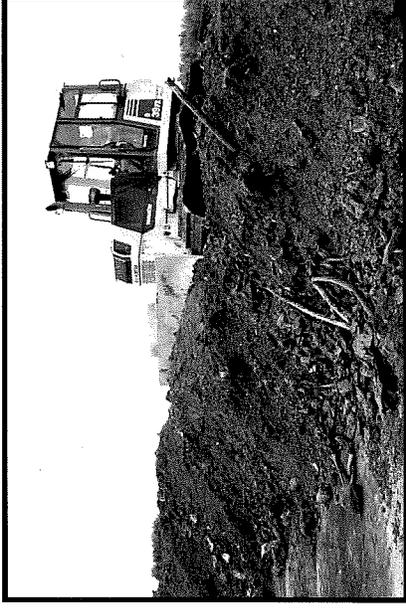
ecomaine is a non-profit waste disposal and recycling organization that includes more than 40 participating municipalities; 21 are owner-communities and the remainder contract for services. It is located in Portland, Maine and serves approximately 25 percent of the state's population.

After the organization was formed in 1978, it began baling trash and burying it on their landfill site, located in Scarborough and South Portland; ten years later the waste-to-energy plant was built, which burns trash to produce electricity and leaves only ash for disposal.

ecomaine completed construction on an ecologically protective, state-of-the-art ash cell in 2006 at a cost of \$6.84 million.

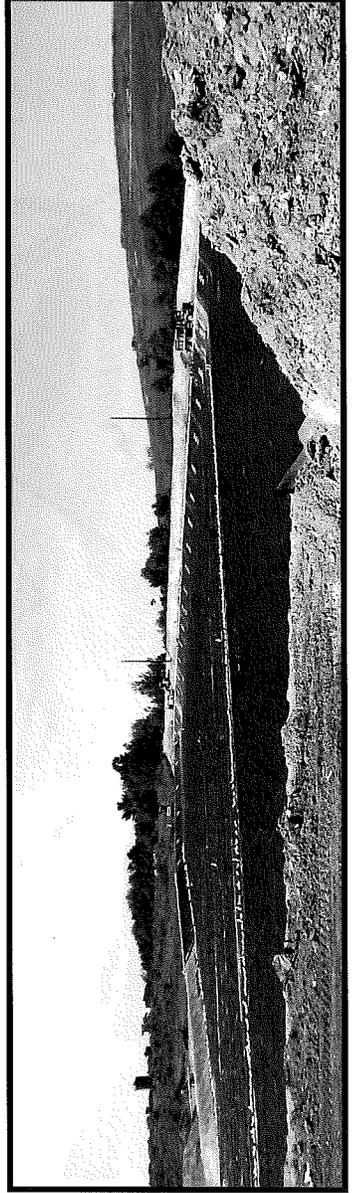
Beneath the entire landfill/ashfill is a grid of pipes that carry leachate (water that has come in contact with buried trash or ash) to a collection pond and, then, to the Portland sewer system for treatment.

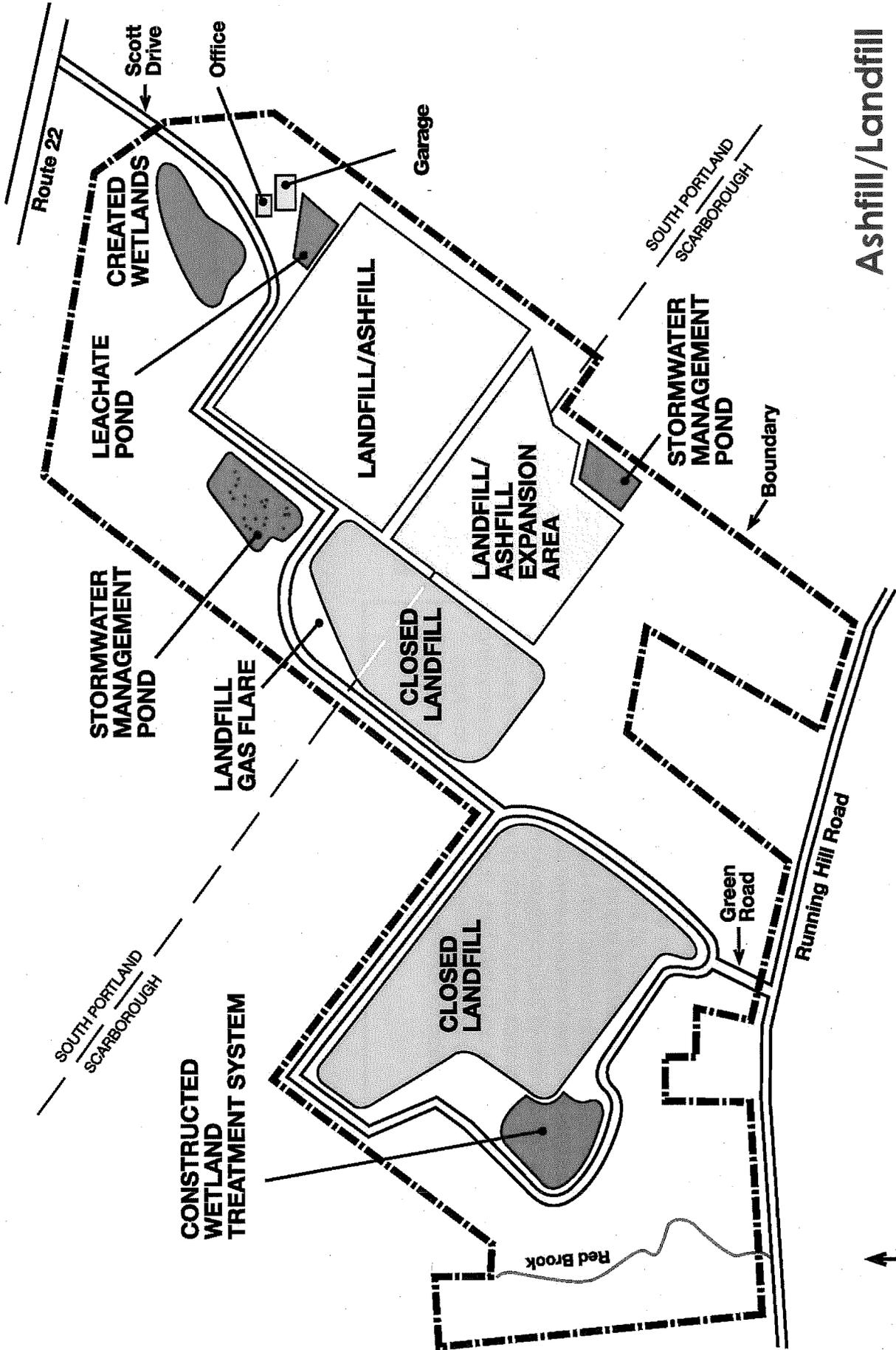
The ashfill/landfill consists of 240 contiguous acres and includes natural and constructed wetlands, and a variety of wildlife that includes foxes, deer, turtles, wild turkeys and other birds. It, as well as our recycling and waste-to-energy facilities, has earned the International Standards Organization's 14001 certification for excellence in environmental management.



Phase II of the ashfill expansion area, consisting of four acres, construction was begun in July, 2012. The photo below shows the first layer of 40 mil plastic cover being installed. Following the that protective plastic is a network of leachate collection pipes, then a layer of sand, a 60 mil plastic cover, more pipes, more sand, and, finally, a layer of screened ash. Site preparation cost: more than \$1.5 million.

ecomaine's ash-mining contractors (recovering and recycling burned metals from old ash) has averaged 875 tons of recovered metal per month. Each ton removed frees-up space for re-use and helps delay the need for future expansions.





Ashfill/Landfill

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