MAINE STATE LEGISLATURE

Report to the Joint Standing Committee on Environment and Natural Resources
127th Legislature, First Session

Maine Solid Waste Generation and Disposal Capacity Report: For Calendar Year 2013

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I. Executive Summary

This report is submitted to the Joint Standing Committee on Environment and Natural Resources pursuant to 38 M.R.S.A. § 2124-A. It provides an overview of Maine's solid waste generation, diversion, and disposal activities for 2013, the most recent full calendar year of data available, and a projection of how those activities will impact available solid waste disposal capacity.

The report includes a projection of the solid waste disposal needs of Maine for the next 3, 5, 10, and 20 years. The report also projects how the fill rate at each solid waste landfill could affect the expected lifespan of that landfill.

The information in this report can assist policymakers with planning for future solid waste disposal capacity investment. This report evaluates Maine's progress toward our waste reduction and recycling goals and the impact on disposal capacity.

Highlights

- The total amount of solid waste generated in Maine in 2013 was 2,561,555 tons, a slight decline from 2012.
- From 2008 to 2013, Maine reduced the amount of MSW it generated and disposed of in landfills and incinerators by 9.8%.
- In 2013, a little over 300,000 tons of Maine MSW was destroyed through incineration, another 300,000 tons of Maine MSW and incinerator ash was landfilled, and more than 480,000 tons of Maine MSW was composted and recycled.
- Almost 47% of Maine's municipal solid waste, construction and demolition debris, and land-clearing debris, and 25% of other solid wastes were diverted from disposal in 2013. Using a calculation method that can be compared to other states, Maine's MSW recycling rate in 2013 was 41%.
- The capacity for disposal of MSW generated in Maine remains adequate into the foreseeable future based on the currently operating disposal facilities. This includes three waste-to-energy (WTE) incinerators, seven municipally-owned landfills, two state-owned landfills, and one commercial landfill.
- Diversion of organics from disposal remains the largest opportunity to reduce the disposal of Maine's solid waste stream in landfills and incinerators.

II. Introduction

Title 38 § 2124-A requires the Maine Department of Environmental Protection to annually submit a "Solid Waste Generation and Disposal Capacity Report" to the joint standing committee of the Legislature having jurisdiction over natural resources matters and the Governor, setting forth information on statewide generation of solid waste, statewide recycling rates and available disposal capacity for solid waste. The report must include an analysis of how changes in available disposal capacity have affected or are likely to affect disposal prices, an analysis of how the rate of fill at each solid waste landfill has affected the expected lifespan of that solid waste landfill, and an analysis of consolidation of ownership in the disposal, collection, recycling and hauling of solid waste.

Waste Management Hierarchy

Maine statute establishes a hierarchy for management of solid waste, to be used as a guiding principle in decision-making. 38 M.R.S.A. § 2101(1) states:

> 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.

Methodology

The most current, complete data available for this report is from the calendar year 2013, and comes from a variety of sources, including:

- solid waste data from the public and private processing, composting, and disposal facilities' annual license reports to the Department in accordance with 38 M.R.S.A. §§ 1304-C, 2205, and 2232, and from other states which receive waste for disposal from Maine;

- data from annual reporting by manufacturers implementing product stewardship programs in Maine; and
- recycling data voluntarily provided by commercial entities.

The Department combines the tonnages of waste processed and disposed, as well as recycled, composted, and reused, to estimate the total quantity of solid waste generated in Maine.

The Department receives landfill capacity estimates from each of the public and private facilities, and annual reports of the amount of waste being disposed at each facility. The Department projects the amount of waste expected to be disposed over time at current disposal rates to estimate the projected life span of each facility. Those calculations are then totaled to provide an estimate of remaining capacity at a statewide level. Further decreases in solid waste disposal rates will, therefore, extend the life span of Maine's disposal facilities.

This report focuses on municipal solid waste (MSW) as defined by Maine law. MSW is comprised of household baggable waste and construction demolition debris, including such items as furniture, tires, and metal. The report does include some sludge and ash tonnages considered 'special wastes', since the disposal of those wastes at landfills impacts the disposal capacity remaining at the disposal facility, one of the metrics tracked. Special wastes are wastes that are generated by other than households or typical businesses and, due to their quantity or chemical or physical properties, require particular handling. They include primarily ashes, sludge, and some processing wastes. Industrial wastes are not included in this report. Industrial wastes are not part of the waste managed by municipalities.

Some avenues of waste diversion are not reported and difficult to quantify. To estimate recycling, the Department combines municipal, commercial and private recycling tonnages and adjusts the figures to eliminate duplicate counting of recyclables.

III. Solid Waste Generation and Characterization

Solid waste is commonly categorized based on the type and source of the waste. Municipal solid waste (MSW) is waste that is typically generated by households and commercial businesses. The industrial sector also generates significant amounts of solid wastes that are regulated as "special waste" under Maine law because they have chemical or physical properties that make them difficult to handle or potentially pose a threat to public health, safety or the environment.

Maine's solid waste management infrastructure includes municipal, commercial, and private industrial waste handling facilities. Once collected, solid waste in Maine is stored, transported,

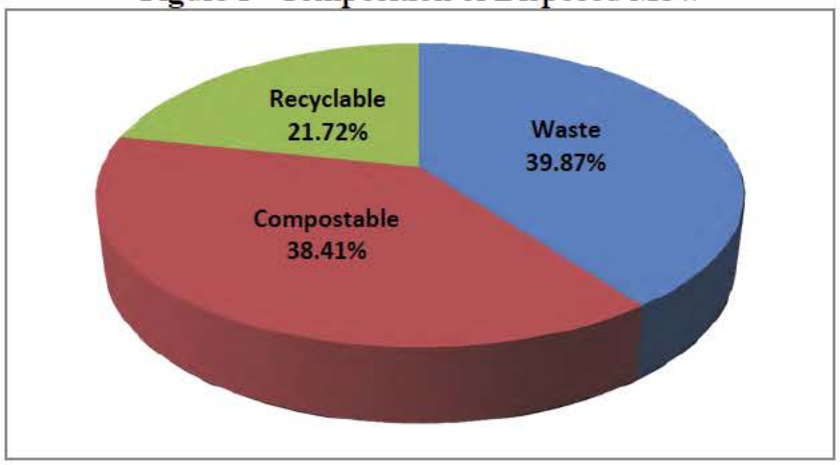
recycled, processed, beneficially used in place of virgin materials and as fuel, composted, digested, incinerated, and/or landfilled. Table 1 presents a summary of the types and amounts of solid waste generated in Maine in 2013.

Table 1 - 2013 Maine Generated Solid Waste Types and Amounts	
Waste type	**2013 Amount Generated (tons)**
Municipal Solid Waste (MSW)	1,161,578
Construction or Demolition Debris (CDD)/wood waste/land-clearing debris	696,213
Special wastes (see Table 3 for break out by waste types and amounts)	704,681
Total Maine Generated Solid Waste - 2013	**2,561,555**

These same three categories generated 2,574,104 tons of waste in 2012. The amount of MSW generated in Maine decreased by 12.6% from 2012 to 2013, the generation of special wastes decreased by 21.4%, and CDD increased by 58.9%.

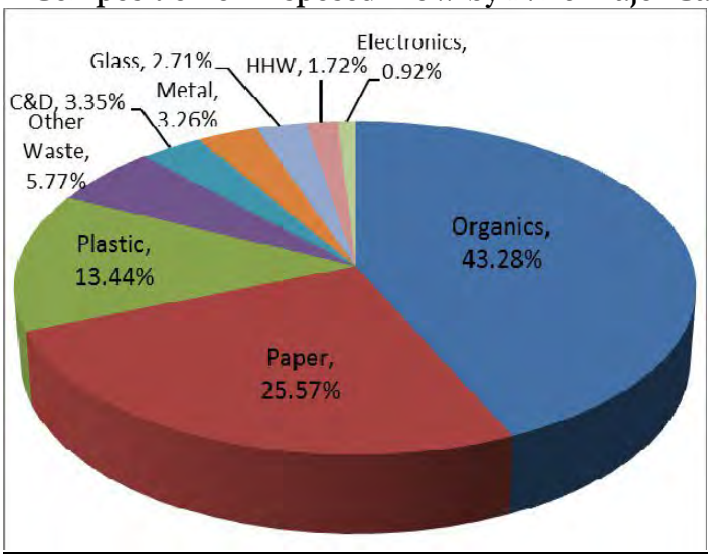
In 2011, the University of Maine undertook a study to understand the types of solid waste Maine residents are disposing of in the mixed MSW waste stream. Figures 1 and 2 are reproduced from that report[1] to show the percentages of MSW by material type that currently is disposed of in Maine.

Figure 1 - Composition of Disposed MSW



[1] *2011 Maine Residential Waste Characterization Study – School of Economics Staff Paper #601*; Criner, George K. and Blackmer, Travis L., University of Maine; http://umaine.edu/wcs/files/2012/02/2011-Maine-Residential-Waste-Characterization-Study1.pdf

Figure 2 - Composition of Disposed MSW by Nine Major Categories



The 2011 Maine Residential Waste Characterization Study documented organics, paper and plastics as the three largest components in MSW disposed of from Maine. Diversion of organics from disposal remains the largest opportunity to reduce Maine's waste stream.

IV. Progress toward Maine's Waste Reduction and Recycling Goals

In keeping with the Solid Waste Management Hierarchy (38 M.R.S.A. § 2101), there are a variety of options employed for managing Maine's solid waste. Appendix B is a table that provides an overview of management options currently employed for the various components of Maine's solid waste stream. This table provides a qualitative assessment of the comparative use of the management options. The options are grouped by levels on the Hierarchy, with those listed to the left preferable to those toward the right due to the resulting preservation and use of materials. By examining Maine's waste stream by material type and current management options, we can identify opportunities for "moving up the hierarchy", decreasing disposal and increasing waste reduction, reuse, recycling and beneficial use.

A. Maine's Municipal Solid Waste Reduction Goal

Maine's statutory goals for waste reduction focus specifically on MSW. 38 M.R.S.A. § 2132(1-A) sets a State goal of reducing the biennial generation of municipal solid waste tonnage by 5% beginning on January 1, 2009, and by an additional 5% every subsequent 2 years. The baseline for calculating this reduction is the 2003 solid waste generation data gathered by the former State Planning Office (2,019,998 tons).

It is not possible to project the amount of waste that would have been generated without waste reduction efforts implemented by entities ranging from individuals (e.g., backyard composting) to corporations (e.g., light-weighting of consumer packaging), so the best alternative for measuring waste reduction is using the amount of MSW disposed. Over the past several years, the amount of MSW generated in Maine and disposed of in landfills and waste-to-energy incinerators has declined.

In 2013, Maine residents generated and disposed of 0.513 tons (1026 pounds) of MSW per person, a decrease from the 0.537 tons per person generated in 2012. In 2008, Maine residents and businesses generated and disposed of 755,086 tons of MSW (exclusive of CDD and Waste-to-Energy ash). The amount of MSW disposed of in 2013 is 9.8 % less than the amount disposed of in 2008.

The most recent regional comparisons of per capita disposal rates available (2010) show Mainers generated less MSW per person than any other New England state.

Table 2 - Per Capita MSW Disposal Rates – New England States 2010

State	Tons MSW Disposed 2010	2010 population	Tons per person
Maine	751,270	1,328,361	0.566
New Hampshire	748,028	1,316,470	0.568
Connecticut	2,371,767	3,574,097	0.664
Vermont	449,661	625,741	0.719
Massachusetts	4,830,756	6,547,629	0.738
Rhode Island	1,031,080	1,052,567	0.980

Municipal Solid Waste (MSW) Interstate Flow in 2010, January 30, 2013, Northeast Waste Management Association (www.newmoa.org)

B. Maine's Municipal Solid Waste Recycling Rate

In 1989, the Maine Legislature enacted 38 M.R.S.A. § 2132, establishing a goal to recycle or compost 50% of the state's municipal solid waste annually. The State remains committed to reaching the 50% goal in light of the value of reducing overall solid waste management costs, the positive impact on the environment, and a lessening of the need for additional solid waste disposal capacity.

The MSW recycling rate is calculated by dividing the total amount of MSW recycled by the total amount of reported in-state generated MSW in accordance with 38 M.R.S.A. § 2132 (3). The term "municipal solid waste" is not defined in Maine law, but has historically been interpreted as solid

waste normally managed by municipalities in Maine, including CDD. However, other states and the U.S. Environmental Protection Agency (US EPA) exclude CDD from their calculations of MSW recycling rates. This creates inconsistencies when trying to compare Maine's calculated MSW recycling rate with the MSW recycling rates of other states. To address this, the Department has calculated the recycling rate for MSW as defined by EPA, and a separate recycling rate that includes CDD. This approach allows Maine to perform an apples-to-apples comparison with other states' MSW recycling rates, while also enabling Maine to evaluate where further efforts are needed to improve diversion of the broader spectrum of disposed materials handled by municipalities in Maine.

All totaled, 46.72% of Maine's MSW, CDD and land-clearing debris was diverted from disposal and recycled or beneficially used (see Table 3).

To calculate Maine's MSW recycling rate, the Department gathered data from several sources:

- Data on the amount of MSW disposed of was obtained from annual landfill and incinerator reports to Maine and other states, and from voluntary reports from disposal facilities located outside of Maine, including Canada.
- To determine the amount of "traditional" recyclables (glass, paper, plastic and metals) recycled from Maine, the Department requested that large generators and brokers of recyclables voluntarily report the amount of each type of recyclable they recycled and where they sent it (this was needed to ensure materials that were handled by two reporting entities were not double-counted). Most businesses provided the requested data, although some concern about the Department's ability to keep the information confidential was expressed.
- Data on the recycling of electronics, tires, vehicle batteries, consumer batteries, mercury-added lamps and textiles was obtained through a combination of voluntary and mandatory reports from the specialized businesses that manage these consumer products. Along with voluntary reporting by major collectors of these items, this included data reported under Maine's product stewardship laws as well as data from hazardous waste manifests.

Table 3 - 2013 Maine's MSW Recycling Rate Calculation	
Waste Type and disposition	**Tons**
Maine MSW landfilled in state	201,044
Maine MSW disposed of at waste-to-energy facilities in state (amount destroyed through combustion)	305,865
Maine MSW incinerator ash landfilled in state	106,049
Maine MSW disposed of out-of-state	68,165
Subtotal Maine MSW (exclusive of CDD) disposed	681,123
Paper, cardboard, plastics, metals, glass and textiles recycled - (voluntarily reported by materials processors and brokers)	230,915
Other MSW recycled (electronics, white goods and other metals not reported by brokers, tires, vehicle batteries, and asphalt shingles)	236,867
Reported MSW composted (includes leaf & yard waste, food scraps)	12,674
Subtotal Maine MSW recycled or composted	480,456
Total Maine MSW (exclusive of CDD)	1,161,579
Maine's MSW recycling rate (exclusive of CDD)	**41.36%**
Mixed CDD landfilled in state	294,526
Mixed CDD processed/disposed of out of-state	11,202
Land-clearing debris landfilled	2,974
Beneficial use of processed CDD and land-clearing debris as fuel	87,036
Other beneficial use of processed CDD and land-clearing debris	300,475
Total CDD and land-clearing debris	696,213
Maine's CDD & land-clearing debris recycling rate	**12.50%**
Maine's CDD & land-clearing debris 'diversion from disposal' rate	**55.66%**
Total MSW, CDD & land-clearing debris	1,857,792
Total MSW, CDD and land-clearing debris recycled (including wood waste used as fuel chips)	567,492
Total MSW, CDD and land-clearing debris diverted from disposal	867,967
Maine's combined MSW, CDD & land-clearing debris 'recycling rate'	**30.55%**
Maine's combined MSW, CDD & land-clearing debris 'diversion from disposal' rate	**46.72%**

C. Beneficial Use and Disposal of Other Solid Wastes

Maine generated 704,681 tons of wastes other than MSW and CDD in 2013. 25.2% of this solid waste was diverted from disposal to composting, agronomic utilization or other beneficial uses. Examining the various types of materials and the amounts utilized or disposed of as shown in Table 4 may provide insights into additional opportunities to increase diversion of some of these materials from disposal. However, Table 4 does not include all materials that could have become wastes, since many materials never enter the waste stream (e.g. recycled asphalt pavement).

Table 4 - 2013 Disposition of Maine Solid Wastes other than MSW & CDD (tons)								
Waste type	**Compost / N-Viro**	**Beneficial use – fuel substitution**	**Beneficial use - other**	**Land applied**	**Anaerobic digestion**	**Incinerated**	**Landfilled**	**Total**
Asbestos/Asbestos Containing Waste	-	-	-	-	-	-	8,320	8,320
Ash - Coal, oil and multi-fuel boiler	3,570	-	10,671	14,727	-	-	98,265	127,233
Ash - MSW Incinerator	-	-	-	-	-	-	113,905	113,905
Ash - unspecified	-	-	-	-	-	-	81	81
Ash- Burn pile/hot loads	-	-	22	-	-	-	1,494	1,516
Ash/Liming Agent - Other	-	-	125	6,982	-	-	-	7,107
Carpet Fiber and Padding	-	-	7	-	-	-		7
Catch basin grit and street sweepings	-	-	996	-	-	-	686	1,682
Contam. Soils – contam. unknown	-	-	-	-	-	-	2,780	2,780
Contam. Soils - non-petroleum	-	-	-	-	-	-	13,085	13,085
Contaminated soils - Oil	-	-	1,226	-	-	-	7,336	8,562
Dredge Spoils	-	-	11,457	-	-	-	-	11,457
Fish/Food Process Residue	1,455	-	524	37,456	1,057	-	296	40,788
Industrial/Industrial Process Waste	-	-	-	-	-	-	24,307	24,307
Other Special Wastes	-	4	-	-	1,158	3,060	57,549	61,771
Pulp/Papermill Sludge	3,557	16,672	-	-	-	-	50,365	70,594
Sandblast Grit	-	-	-	-	-	-	327	327
Short-Paper Fiber	-	-	1,330	3,309	-	-	8,865	13,504
Shredder Residue	-	-	-	-	-	-	11,602	11,602
WWTP Sludge - industrial	5,188	-	-	12	-	-	75,153	80,353
WWTP Sludge - municipal	47,876	-	-	8,229	-	-	49,595	105,700
Totals	**61,646**	**16,676**	**26,358**	**70,715**	**2,215**	**3,060**	**524,011**	**704,681**

V. Municipal Solid Waste Disposal Capacity

In 2013, Maine's solid waste disposal facilities included three waste-to-energy (WTE) incinerators, seven municipally-owned landfills, two state-owned landfills, and one commercial landfill. The State has another landfill site, known as Carpenter Ridge, located in T2 R8 that remains undeveloped. The Department projects that capacity for disposal of MSW generated in Maine remains adequate into the foreseeable future based on the currently operating disposal facilities.

Table 5 shows the current and projected available disposal capacity in Maine by facility through 2033.

Table 5 - Available Licensed MSW Disposal Capacity in Maine					
Waste-to-Energy Facilities	*Annual capacity*	2013 (tons/year)	2018 (tons/year)	2023 (tons/year)	2033 (tons/year)
MMWAC – Auburn	70,000	70,000	70,000	70,000	70,000
ecomaine – Portland	170,000	170,000	170,000	170,000	170,000
PERC – Orrington	304,000	304,000	304,000	304,000	304,000
Total Waste-to-Energy capacity in tons	**544,000**	**544,000**	**544,000**	**544,000**	**544,000**
	2013 Fill rate (yd^3)	2013 available (yd^3)	2018 available (yd^3)	2023 available (yd^3)	2033 available (yd^3)
State-owned landfills					
Carpenter Ridge – T 2 R 8	N/A	not developed	Assume not developed	Assume not developed	Assume not developed
Dolby Landfill – East Millinocket	2,000	398,000	388,000	378,000	358,000
Juniper Ridge – Old Town	643,000	4,637,000	1,422,000	0	0
Municipal MSW landfills					
Hatch Hill (Augusta)	42,900	918,000	704,100	489,600	0
Bath	13,200	326,800	260,800	194,800	128,800
Brunswick	10,943	216,737	162,022	107,307	0
Presque Isle	16,767	1,725,400	1,641,565	1,557,730	1,390,060
Tri-Community	30,528	1,668,639	1,515,999	1,363,359	1,058,079
Municipal 'W-T-E ash' landfills					
ecomaine	24,469	747,599	625,254	502,909	258,219
Lewiston	13,346	595,024	528,294	461,564	328,104
Commercial landfills					
Waste Management Crossroads - Norridgewock	296,022	3,680,158	2,200,048	719,938	0
Total landfill capacity	N/A	14,913,357	9,448,082	5,775,207	3,521,262
Total landfill capacity in tons (MSW)*	N/A	8,948,014	5,668,849	3,465,124	2,112,757
Total tons MSW remaining disposal capacity*	N/A	**9,492,014**	**6,212,849**	**4,009,124**	**2,656,757**

Average weight of 1 cubic yard of landfilled MSW =1200 pounds *Assumes all remaining licensed landfill capacity will be used for MSW

Landfills

Landfills receive a variety of wastes. The types of wastes permitted for disposal differ among the facilities, as requested in their licensing applications. Included in that variety of wastes is: raw garbage; construction and demolition debris; residues, such as front end processing residue and ash from waste to energy facilities; contaminated soils; sludge; ash from biomass operations; and other special wastes. This report focuses on municipal solid waste, including construction and demolition debris, as well as the residues from the processing of those wastes.

However, in projecting the consumption of landfill capacity, the Department combined the tonnages of the various cover materials and the other special wastes that were landfilled, along with the municipal solid waste tonnages, to estimate the remaining life of the landfills since all these waste types consume landfill capacity. For that reason, those wastes and their impact on landfill capacity are included in this report.

Table 6 provides details on each of the landfills, the types and tonnages of materials received at each, and remaining disposal capacity, as reported to the Department.

Waste-To-Energy Facilities

In 2013, 44.2% of Maine's municipal solid waste was sent to waste-to-energy (WTE) facilities. Maine's WTE facilities received a total of 561,399 tons of MSW, of which 513,489 tons were from Maine sources, which represents an overall decrease in deliveries of 230,560 tons of MSW compared with 2012. Table 7 and Table 8 provide an overview of the three facilities and the management of the wastes delivered.

TABLE 6 - Landfilled Waste Tonnage and Remaining Landfill Capacity – December 31, 2013

Landfill	MSW (tons)	CDD (tons)	Special Wastes (tons)	Capacity Consumed in 2013 (cubic yards)	Constructed Capacity Remaining (cubic yards)	Licensed Capacity Remaining (cubic yards)	Years of Licensed Capacity Remaining at current fill rate
Hatch Hill (Augusta)	29,226	(included in MSW)	12,028	42,900	918,600	918,600	21.4
Bath	9,202	1,230	301	13,200	112,800	326,800	24.8
Brunswick	3,515	(included in MSW)	0	10,943	216,737	216,737	19.8
Presque Isle	7,401	1,550	466	16,767	248,324	1,241,676	74.1
Tri-Community	23,387	1,039	1,772	30,528	568,639	1,668,639	54.7
ecomaine	2,546	0	48,469	24,469	169,690	169,690	6.9
Lewiston	0	541	17,607	13,346	595,024	595,024	44.6
Waste Management / Crossroads	75,574	67,426	155,969	296,022	2,422,600	3,680,158	12.4
Juniper Ridge	60,980	522,967	163,600	643,000	883,330	4,637,000	7.2
Mid-Coast Solid Waste Corporation	0	1,619	10	2,990	28,551	28,551	9.6
Rockland	0	21,455	3,666	39,067	177,000	177,000	4.5
Totals	**211,831**	**617,827**	**403,888**	**1,133,232**	**6,341,295**	**13,659,875**	--

Table 7 - 2013 Waste Handling by Maine Waste-to-Energy Facilities

FACILITY	Municipally Delivered MSW received	Commercial MSW received	Spot market MSW received	Other wastes received	Total waste received	Waste shipped as by-pass	Front end process residue produced	Metals recovered	MSW combusted	Ash produced	MSW destroyed through combustion
ecomaine	64,994	72,738	39,453	3,060	180,245	--	--	15,520	180,245	44,833	119,892
Mid Maine Waste Action Corporation	37,345	15,198	21,736	0	74,279	12,837	--	2,002	61,441	17,534	41,905
Penobscot Energy Recovery Corporation	192,629	105,866	8,381	1,157	308,033	7,330	53,585	8,074	239,042	53,577	185,465
TOTALS	**294,968**	**193,802**	**69,570**	**4,217**	**562,557**	**20,167**	**53,585**	**25,596**	**480,728**	**115,944**	**347,262**

All amounts expressed in TONS
By-pass waste includes non-processibles and bulky wastes

Table 8 – Tons of MSW Received at Waste-to-Energy Facilities - - by State of Origin								
Facility	Maine	MA	NH	Total Tons		% Maine	% MA	%NH
ecomaine	174,149	--	6,096	180,245		96.6%	0.0%	3.4%
Mid Maine Waste Action Corporation	74,157	--	122	74,279		99.8%	0.0%	0.2%
Penobscot Energy Recovery Corporation	265,183	41,692	--	306,875		86.4%	13.6%	0.0%
Totals	513,489	41,692	6,218	561,399		91.5%	7.4%	1.1%

VI. Solid Waste Industry Consolidation in 2013

The Waste Generation and Disposal Capacity Report is to include an analysis of consolidation in the ownership of the collection, recycling, hauling, and disposal sectors. This is performed to review Maine's solid waste industry for possible undue consolidation and the potential for unfavorable impacts on competition. The Department examines these industry sectors for conditions that may either create a decrease in services or a monopolistic situation.

For 2013, Maine's solid waste industry continued to be a mix of public and private investments and services that handled nearly 5,000 tons of materials each day. A review of that system and its components shows that the interrelated services of collection and hauling of recyclables and trash, and the processing or disposal of those materials, were provided in a consistent fashion, responding to Maine's solid waste management needs.

Disposal Facilities

During 2013, there were no noted changes in the ownership/operation of the licensed disposal facilities in Maine.

Collection and Hauling Services

Late in 2012, the hauling services of BBI Waste Services (Southern Maine) were acquired by Pine Tree Waste, a hauling company owned by Casella Waste Services, Inc. Additional acquisitions of relatively small hauling firms (operators who utilized a single truck or provided trash removal services as part of their broader menu of services) occurred in Southern/Mid-Coastal Maine. While these arrangements are typical, and occur on an on-going basis within the hauling industry, it is an activity that the Department will continue to monitor, from the perspective of a potential shift in market share.

Recycling Services

In 2013, Casella Waste Services, Inc., continued with their intent to partner with the City of Lewiston and convert the city's recycling facility into a 'Zero Sort®' materials processing facility. When this facility opens, it will become the second such facility serving Maine's municipalities and businesses. e*comaine*, a non-profit waste management company owned and operated by 21 municipalities in Southern Maine, established a single sort recycling program and facility in 2007.

Department staff has a noted a move by many municipalities to adopt a single stream recycling program, which in many cases has led to the abandonment of long established recycling programs and facilities that had successfully been baling and marketing recyclables for many years.

VII. Disposal Prices

Disposal Fees

Disposal expenses are comprised of collection and transportation costs and tipping fees on the disposal of waste. Disposal fees or tipping fees are a major factor in solid waste management costs for municipalities and businesses. Current disposal fees range from $40 to $135 per ton at Maine's landfills and waste-to-energy facilities. These have stabilized in most instances, allowing predictability for municipal budgeting and long-term planning.

Tipping fees at each of the four waste-to-energy facilities have been fairly consistent and reflect the commitment of the municipalities who either own the facility or have long-term contracts for disposal services.

The State, in its operating services agreement with Casella Waste Systems, established a ceiling for tipping fees that sets an upper limit on how much can be charged for wastes delivered to the Juniper Ridge Landfill, which has had a stabilizing impact on pricing for the disposal of similar materials at other solid waste facilities.

Tipping fees at waste-to-energy facilities are influenced by revenues received from the sale of the electricity they generate. The revenues reduce operating expenses, yielding a reduction in the tip fee charged for solid waste. Should electricity sales revenue drop, tipping fees may increase. Conversely, should the electricity sales value increase, the possibility exists that lower tipping fees, or maintaining current fees, would occur.

Supracompetitive Prices

Supracompetitive, as applied to 'prices,' means prices that are higher than they would be in a normally functioning, competitive market; usually as a result of overconcentration, collusion, or some form of monopolistic, oppressive practice. State law requires the Department to determine whether changes in available landfill capacity have generated, or have the potential to generate, supracompetitive prices and if so, provide recommendations for legislative or regulatory changes as necessary.

Disposal capacity at Maine landfills is sufficient to meet current needs. At the time of this report, the disposal capacity situation does not appear to have generated, nor does it appear in the near term to have the potential to generate, supracompetitive disposal fees. In looking ahead, however, at that point when disposal capacity exists with fewer facilities than today, it is possible that prices will become supracompetitive. Where the actual date and timing of this is not known, nor predictable, it is critical that the Department maintains a firm awareness of this possibility and keeps the Governor and Legislature informed.

Appendix A - Definitions and Acronyms

The following definitions are provided to assist the reader in reviewing this document:

Beneficial Use – *to use or reuse a solid waste or waste derived product: as a raw material substitute in manufacturing, as construction material or construction fill, as fuel, or in agronomic utilization.*

Broker's Survey – *a biennial survey conducted of private sector recycling brokers and end-users to determine level and effort related to management of commercial recyclables.*

Bulky Wastes – *solid wastes that do not typically fit into a 30 gallon trash container, and may include such items as wood, large metal appliances and construction materials.*

Construction/Demolition Debris (CDD) – *wastes generated by building, remodeling and/or destruction activities and may include such wastes as wood and wood products, concrete and brick, gypsum board, shingles and other common components of buildings.*

Diversion Rate – *Waste diversion is the prevention and reduction of generated waste through source reduction, recycling, reuse (including beneficial reuse), or composting.*

Front-end Process Residue (FEPR) – *residual of municipal solid waste resulting from the processing of solid waste prior to incineration or landfilling, and includes, but is not limited to, ferrous metals, glass, grit and fine organic matter.*

Municipal Solid Waste (MSW) – *solid waste emanating from household and normal commercial activities.*

Special waste – *wastes that are generated by other than domestic and typical commercial establishments that exist in such an unusual quantity or in such a chemical or physical state that require special handling, transportation and disposal procedures.*

Supracompetitive – *when applied to prices means prices that are higher than they would be in a normally functioning, competitive market -- usually as a result of overconcentration, collusion or some form of monopolistic, oppressive practice.*

Universal Wastes – *a category of wastes that includes: PCB containing lighting ballasts, Cathode Ray Tube (CRT) containing devices, fluorescent lamps, other lamps containing hazardous wastes, and, mercury-added devices from commercial sources.*

Waste-to-Energy Ash – *residue from the combustion of municipal solid waste at waste-to-energy facilities. It may also contain fly ash from the facility's operation and is designated as a "special waste".*

Waste-to-Energy facilities (W-T-E) – *incinerators which receive municipal solid waste, and through combustion, recover energy and convert it into electricity, while reducing the volume of waste requiring disposal.*

The following acronyms are provided to assist the reader in reviewing this document:

CDD – *Construction or Demolition Debris - wastes generated by building, remodeling and/or destruction activities and may include such wastes as wood and wood products, concrete and brick, gypsum board, shingles and other common components of buildings.*

DEP – *Maine Department of Environmental Protection*

EPA – *United States Environmental Protection Agency*

FEPR – *Front-End Process Residue - residual of municipal solid waste resulting from the processing of solid waste processing prior to incineration or landfilling, and includes, but is not limited to, ferrous metals, glass, grit and fine organic matter.*

MSW – *Municipal Solid Waste - solid waste emanating from household and normal commercial activities.*

W -T- E – *waste-to-energy facilities - incinerators which receive municipal solid waste, and through combustion, recover energy and convert it into electricity, while reducing the volume of waste requiring disposal.*

Appendix B – Current Management of Maine's Solid Waste by Type

Waste categories & types	Source reduction	Reuse and re-purpose	Recycle	Compost	Beneficial Use			Processing		Disposal	
					Agronomic Utilization	Raw material substitution	Fuel Substitution	Anaerobic Digestion	Conversion (gasification /pyrolysis)	WTE incineration	Landfill
	Note: N = None, I = Incidental, L = Low, M = Medium, H = High, gray shaded = Not applicable (not possible)										
MSW											
Organics											
Food waste	L	L		L				L	N	H	H
Leaves & grass	I	L		M					N	L	M
Prunings & trimmings	I	L		M			L		N	L	M
Other organics	N			N				N	N	H	H
Paper											
Corrugated cardboard (OCC)	L	L	M	L					N	M	M
Newspapers (ONP)	M	M	M	L					N	M	M
Magazines/catalogs	L	L	M						N	M	M
High grade office paper	L	L	M	L					N	M	M
Mixed paper	L	I	M						N	H	H
Plastics											
#1 PETE/PET	M	I	H			N	L		N	L	L
#2 HDPE	L	I	H			N	L		N	L	L
#3 PVC	L	I	M			N			N	M	M
#4 LDPE	L	I	M			N	L		N	M	M
#5 polypropylene	L	I	M			N	L		N	M	M
#6 polystyrene (Styrofoam)	L	I	M			N	L		N	M	M
#7 miscellaneous plastics	L	I	M			N	L		N	M	M

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plastic films	N	I	L			N	L		N	H	H
large rigid plastics	N	L	L			N	L		N	H	H
Metals											
Aluminum cans/foil	M	I	H							L	L
Steel Cans	L	I	M							M	M
Metals - ferrous	N	I	H							L	L
Metals - non-ferrous	N	I	H							L	L
Glass											
Brown/amber glass	I	L	H			L				L	L
Clear glass	I	I	H			L				L	L
Green glass	I	I	H			L				L	L
Consumer products											
Pesticides & fertilizers	I									H	H
Rechargeable batteries			L							H	H
Primary batteries	I		I							H	H
Paint	I	L	I							H	H
mercury-added thermostats	H	I	L							H	H
Mercury-added lamps	I		L							M	M
mercury devices	I		L							M	M

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					Agronomic Utilization	Raw material substitution	Fuel Substitution	Anaerobic Digestion	Conversion (gasification /pyrolysis)	WTE incineration	Landfill
small appliances	I		I							H	H
cell phones & other hand-held electronics	I	I	L							H	H
TVs & computer-related equipment	I	M	H							I	I
other consumer electronics	I	M	L							H	H
Vehicle Batteries			H							N	I
Tires		M	I			M	H		N	I	I
Unused medications	L	I		N					N	H	M
Sharps			N						N	H	H
textiles		L	L				N		N	M	M
mercury auto switches	H		M							M	I
CDD/wood waste/OBW											
Mixed CDD			L						N	I	H
Metal			H							I	L
Clean C&D wood			N			N	M		N	I	M
Coated/contaminated C&D wood						N			N	I	H
Treated wood						N	L		N	I	H
Asphalt roofing material			N			M	N		N	I	M
Wallboard			L		L	N				I	H
Carpet	L	I	L				N		N	I	H

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					Agronomic Utilization	Raw material substitution	Fuel Substitution	Anaerobic Digestion	Conversion (gasification /pyrolysis)	WTE incineration	Landfill
Furniture & mattresses		L	L						N	L	H
Electrical			I							L	H
Asbestos -containing materials										I	H
Asphalt			H								L
White goods		I	H								I
Landclearing debris					L	N	L		N		L
PVC pipe and siding	N		I						?		H
Special wastes											
WWTP sludge				H	L		L	L	N		L
industrial process wastes					L	N	N		N		H
food processing waste				M				L	N		M
Shredder residues						?			N		H
Multi-fuel boiler ash						N					H
Wood ash					M	N					M
Coal ash						N					H
MSW ash											H
Burn pile ash											H
Contaminated soils						N					H
Dredge materials						M					M
Sandblast grit						N					H
Catch basin grit & street sweepings						N					H