

Comparing Deposits With Enhanced Municipal Recycling – A Rhode Island Case Study

In 2008 the Rhode Island legislature requested a study of a beverage container deposit system for the Ocean State compared with alternative recycling systems. The Rhode Island Resource Recovery Corporation (RIRRC), a state agency that operates the state’s landfill and materials recovery facility (MRF), directed the study. Following a competitive bidding process, RIRRC awarded the study to DSM Environmental Services.

Key Findings¹

- “[C]learly supports making major and specific improvement to our existing curbside program as the most effective way to increase recycling. This alternative system was seen as far superior to an enhanced bottle bill.”²
- Rhode Island’s existing municipal recycling system already does a good job of recovering recyclable materials
 - RI recovers 450 lbs per household per year compared with Massachusetts at 433 lbs (which includes bottle bill redemptions in MA)
 - Comparisons with high performing systems in the region indicate there is still room for improvement, however.
- Enhancing the state’s municipal recycling system would provide more recycling at a lower cost than a deposit system. The enhanced system would also provide greater greenhouse gas reductions.

Comparison of Incremental Impacts

	Enhanced System	Bottle Bill
Increased Recycling Tonnage	25,500 tons (+27%)	10,100 tons (+11%)
Net Costs	\$6.3 - \$7.8 million	\$14.8 million (\$10.6 - \$23.1 million)
Net Cost per Ton	\$250 - \$310	\$1,050 - \$2,300
Greenhouse Gas Reductions	17,000 MTCE	9,700 MTCE

¹ Analysis of Beverage Container Redemption System Options to Increase Municipal Recycling in Rhode Island, DSM Environmental Services for the RI Resource Recovery Corporation, May 2009 Final Report.

² Transmittal letter from Michael J. O’Connell, Executive Director of RI Resource Recovery Corporation to Senate President M. Teresa Paiva-Weed.

- An enhanced municipal recycling system would increase municipal recovery 27 percent including both fiber (paper) and container materials; a deposit system would increase municipal recovery 11 percent, including only certain beverage container materials.
- The net cost of enhancing the municipal recycling system would be \$6.3 to \$7.8 million per year; the net cost for the deposit system would be \$10.6 million to \$23.1 million per year.
- The net cost per ton of additional recycling would be \$250 to \$310 for the enhanced system and \$1,050 to \$2,300 for the deposit system.
- Greenhouse gas reductions from the municipal system would be 17,000 metric tons of carbon equivalents vs. 9,700 metric tons with a bottle bill.

Background

Rhode Island's municipal recycling system captures an estimated 19 percent of municipal recyclables today. A state lawmaker proposed a beverage container deposit system or bottle bill in 2008 as a means of improving that recycling rate and generating additional revenue for the state through the taking of any unclaimed deposits for the state's general revenues.

The proposed bottle bill would be operated by RIRRC, which already runs the landfill and MRF for the state. RIRRC raised concerns about its ability to implement and operate the proposed deposit system without significant additional resources. To study the matter further, the legislature directed RIRRC to evaluate a deposit system against an alternative system. RIRRC sought bidders to identify the approach with "the greatest potential to achieve the highest diversion of recyclables" that would also be equitable, efficient, cost-effective, and economically sustainable.

Approach

Following the selection of DSM as the consultant to conduct the study, DSM began a stakeholder engagement process to gather input about the current recycling system and to develop parameters for the deposit and alternative municipal recycling systems. Once DSM specified the scenarios for analysis, the firm distributed summary characterizations of the proposed systems for comment from the stakeholders. DSM also compiled available data from state, NGO, and industry sources to characterize baseline generation and recovery figures for beverage containers and for other municipal wastes. After preparing a draft report and presenting initial findings to RIRRC and key legislators and staff, DSM provided a briefing on the results to stakeholders. The final report is now available at www.rirrc.org/content/index.php?id=about-us/whats-new/studies-and-reports/.

Enhanced Municipal Recycling

Key Assumptions

- All households with refuse collection receive curbside recycling as well
 - Recyclables collected in 64 gallon carts
 - Every other week collection
 - Single stream (commingled) recyclables
- Variable rate pricing for waste service to encourage recycling (pay more to dispose of more)
- Mandatory bar and restaurant recycling of containers
- State of the art upgrade of MRF including switch to single stream processing

Major Cost and Revenue Elements

- Costs: collect recyclables from additional households, purchase new carts, upgrade MRF, bar and restaurant program, MRF operations, collection truck upgrades, additional public education = \$14 million
- Savings/revenues: materials revenue, switch to bi-weekly collection, avoided disposal cost, avoided refuse collection cost = \$6.2 million
- Costs – savings/revenues = \$7.8 million annually (program costs). The net cost is reduced to \$6.3 million if environmental benefit estimates are included.

Proposed Deposit System

Key Assumptions

- 5¢ deposit on all nondairy plastic, metal, and glass containers
- State-run redemption center network and state collection and processing of material
- Retailer initiates deposit and turns over to state
- State retains unclaimed deposits to operate redemption and collection systems

Major Cost and Revenue Elements

- Costs
 - RIRRC operation of redemption centers and collection vehicles, upgrade MRF, bar and restaurant collection = \$14.1 million
 - Consumer travel to redemption centers (11.1 million additional miles driven) = \$6.1 million
 - Retail sales losses (only included in upper bound) = \$12.5 million
 - Gross = \$20.2 million to \$32.7 million
- Savings/revenues
 - Materials revenue, avoided disposal cost, avoided refuse collection cost, avoided litter collection costs = \$5.4 million
- Costs – savings/revenues = \$14.8 million annually (program costs). The net cost is reduced to \$10.6 million if environmental benefit estimates are included and increases to \$23.1 million if lost retail sales are included.