



Why Universal Recycling in Vermont Requires Deposit Return

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Today there is a great level of interest around improving and increasing the levels of recycling for packaging and printed material. This is especially true given that recycling directly results in reducing greenhouse gas emissions and other pollution; increases in local and regional jobs; and a reduction in the amount of garbage for business and municipal government.

During the last legislative session, Bill H696 was introduced to enact a solid waste program under which producers of solid waste would be required to pay for and implement a program for the collection, recycling and disposition of designated solid wastes, including certain types of packaging. The bill would also repeal the existing beverage container redemption system (the “bottle bill.”).

The following fact sheet provides a rationale for why the existing Vermont bottle bill should not be repealed, rather improved and operated in conjunction with a curbside collection program.

1) Recycling requires a series of targeted strategies and programs, not just one curbside recycling program

Currently, Vermont’s deposit return program covers all beer, malt, carbonated soft drinks, mixed wine drinks; and liquor containers. Thanks to the economic incentive of a 5 or 15-cent refund, these containers are returned at a rate of approximately 85%. For beverage containers, the fact that the program collects from all locations of consumption is important given that many beverages are consumed and discarded away from home where recycling services are not available. Up to 50-70% of beverages are consumed in households, and the remaining 30-50% of beverages are consumed away-from-home, at bars, restaurants, offices, parks, educational institutions, and on-the-go¹.

Residential curbside recycling is a complementary program that offers a convenient recycling option for single family home owners, and in some cases condominiums and apartments. These programs offer recycling for paper, packaging materials and other recyclables generated in the home only.

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Both programs work together collectively to improve recycling in Vermont. The deposit return program is highly successful in recovering 85% of almost half a billion beverage containers sold each year in the state, and has the added benefit of being a litter reduction program. By comparison, other states that do not have deposit return have an average recycling rate of about 24% for the same containers.

The residential curbside program in Vermont can certainly do better. In an effort to improve overall diversion rates in Vermont, it is necessary to implement a comprehensive series of targeted strategies and programs, which include both the deposit return program; household curbside recycling; and recycling in the commercial sector.

Independent research from the Congressional Research Service (CRS), which prepares reports for the U.S. Congress, states that both a deposit return program and curbside recycling are necessary to achieve high recycling rates and that having both programs result in less costs for curbside recycling. Specifically,

“Both systems can serve as elements of comprehensive recycling programs. Neither constitutes a comprehensive program by itself. Neither excludes the use of the other.”

“Deposit systems skim potential sources of revenue from curbside programs, but they also reduce the operating costs of curbside programs. Local governments would appear to achieve greater diversion of solid waste from disposal at a lower cost per ton if both a bottle bill and a curbside collection program were in place.”ⁱⁱ

More recent research undertaken in Europe for the Campaign to Protect Rural Englandⁱⁱⁱ (a charity focused on preventing litter in rural England) takes a closer look at the notion that curbside recycling programs and deposit return are mutually exclusive. The report states that this argument is “pure speculation based on the unlikely scenario in which there is no effect on the logistics of the pre-existing system”^{iv}. In fact, the findings suggest that if the recovery of beverage containers through a deposit return program is very high (as is currently the case in Vermont), then there is limited need to include bottles and cans in a curbside program. The curbside system can concentrate on optimizing the logistics of collecting the remaining materials such as newspaper, phone books, paper, cardboard, and other household-generated container packaging.

2) Many states, provinces and countries, have ADDED or EXPANDED beverage container deposit programs when there was already an existing, robust curbside system in place, and in each case the results are positive: a dramatic increase in beverage container recycling, reduction in beverage container litter, and a continuation of curbside programs that can collect more materials than before.

- In 1991, the Seattle Solid Waste Utility conducted its own analysis to determine the impact of a national bottle bill on the economics of the City's recycling program, one of the oldest and most successful curbside recycling programs in the nation. The study, titled *Potential Impacts of a National Bottle Bill on Seattle's Curbside Recycling Program*, found that 42% to

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54% more beverage container tonnage would be diverted, while there would be an overall net system savings to the city between \$236,917 and \$632,774. They concluded, "A bottle bill would divert additional tonnage with no significant impact to either City costs or curbside recycling profits."^v

- In 2000, California expanded its program to include water, sports drinks, tea and coffee, juice and other beverages. This expansion added 3.5 billion containers to the program, and those containers now have an 82%^{vi} recycling rate. California is a model of success in comparison to other US States because it also has robust municipal curbside recycling. Due to a number of parallel recycling programs, the State-wide recycling rate is 65%,^{vii} which is among the highest in the country.
- In 2009, Oregon, New York and Connecticut expanded their programs to include water. In New York, water bottles had a recovery rate of less than 20% before the change. Today recovery rates for these new containers are significantly higher.
- In 2005, Germany began a container deposit program for nearly all beverage types (about 15 billion containers), and now these containers are being recovered at a rate of 98.5%^{viii}. The complementary residential curbside recycling system is focused on household-based packaging which is funded by industry through material-based fees. After the introduction of the deposit return program, program fees for the curbside system actually decreased^{ix}. Collectively, both programs report a recycling rate of approximately 75%.^x
- In 2007 Ontario, Canada expanded their deposit return program from beer only, to include wine and spirit containers. This program boasts a 92% recovery rate, and collects slightly more packaging by weight than the complementary curbside program.^{xi} The curbside program, which services more than 98% of the population, recycled approximately 50%^{xii} of all residentially-based packaging. In the case of Ontario, after the introduction of deposit return on all wine and spirit containers (mostly glass) industry fees for glass packaging in the curbside program were unaffected^{xiii}. In addition, municipalities, who are responsible for a larger share of the costs, report cost savings from the reduction in container glass handling in their system^{xiv}. In fact it was the municipalities that operate the curbside systems that almost unilaterally called for deposit return on wine and spirit containers due to the high costs of managing these containers^{xv}. It should be noted however, that non-alcohol beverages without a deposit have recycling rates of approximately 40%^{xvi}, even after nearly 17 years of comprehensive, mandated municipal curbside collection.

3) Repealing Vermont's deposit return program will increase litter in public areas; roadways; green spaces; and waterways. This will lead to an increase in clean-up costs to the State; cities; counties and private businesses.

Traditionally, mitigation of litter was a primary reason for the implementation of deposit return programs.

The litter problem has not changed. Container Recycling Institute reports that deposit-return reduces littering of used beverage containers by 70%-80% (by volume), and total littering by 30%-40%^{xvii}. In Hawaii, where a deposit-return program was introduced in



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October 2002, the amount metal cans, plastic and glass bottles in the litter stream were reduced by 39% (on a unit count basis) by 2007 (five years after the deposit return program was introduced)^{xviii}.

But perhaps even more important are the impacts of litter on waterways and marine life. Underwater cleanups show that beverage container litter makes up about 20% of marine debris (on a unit basis).

Increased litter means increased costs, and far too often these costs are underestimated. A recent study by Keep America Beautiful^{xix} estimates that over \$10 billion is spent collectively by State governments; cities; counties; educational institutes and private businesses to clean up land-based litter each year. These costs amount to a whopping \$2,300 on average per ton for litter clean-up. To help put this into perspective, if the container deposit law was repealed and if 1% of all non-recycled beverage containers are littered, this will incur a new cost to business and government (taxpayers) of approximately half a million dollars in Vermont^{xx}.



Costs associated with the impact of beverage container litter on tourism, farm livestock, farm equipment, marine life and aquatic systems cannot be estimated financially, but they should be considered as additional problems associated with beverage container litter.

4) A repeal of the deposit-return program would result in disposal or littering of many containers, and would introduce many more beverage containers to the curbside program. This will negatively impact material quality for other materials in the curbside program, which decreases monetary value, marketability, and recycling rates for those recyclables.

Flattened plastic bottles and cans, and broken glass especially, significantly reduce the quality of the materials collected, thus increasing the costs of processing and end-use, and lowering its value. Research by the Container Recycling Institute shows that after processing curbside collected recycling once, anywhere from 5-20%^{xxi} is pulled out and sent to disposal because it is not recyclable. Resource Recycling magazine reports the residue rates at Material Recovery Facilities (MRFs) nationwide as ranging from three to thirty percent.^{xxii} The recyclables that are sent on for further processing^{xxiii} experience more losses. Specifically, yield loss for newsprint is estimated by paper mills at 15%; glass industry 20%-60%; and plastic recyclers 25% on average^{xxiv}. Most collection programs in the United States are shifting towards single stream collection which involves mixing all recyclables like bottles, paper and cans and compacting

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them in a collection truck. There are a number of efficiencies gained by transporting more waste over fewer miles, but with the presence of beverage containers, the load quality suffers.

When beverage containers are collected in a separate system, curbside programs can collect more paper, cardboard, and rigid plastic packaging which can be sorted easily. The impact is an increase in total tons collected from both systems, while improving the cost efficiencies of the curbside program by lowering processing costs, equipment breakdowns, and disposal costs for primary and secondary processors. MRFs can also obtain higher revenues by selling cleaner recyclables.

Poor material quality has also impacted the US recycling market. While paper mills and plastic reclaimers have the capacity to recycle collected materials, the poor quality leads large amounts of export. Over 41% of all paper collected, and 56% of plastic bottles collected are exported to off-shore markets^{xxv}. Ensuring the quality of the material is vital to ensuring sustainable recycling in America.

ⁱ Away-from-home consumption of beverage containers is estimated to be between 30%-63% for plastic bottles; 13%-75% for aluminum cans; and 25%-55% for glass bottles. See all studies and methodologies that reference away-from-home ratios at: www.cmconsultinginc.com, *Who Pays What, 2010*, page 17, Away-from-home market shares. The American Beverage Association (ABA) suggests an away-from-home consumption rate of 30%, but does not specify by container or beverage type.

ⁱⁱ *Bottle Bills and Curbside Recycling: Are They Compatible?* James E. McCarthy, Specialist, Environment and Natural Resources Policy Division. January 27, 1993.

ⁱⁱⁱ www.cpre.org.uk

^{iv} *Have we got the bottle? Implementing a deposit refund scheme in the UK*, Eunomia Research and Consulting Ltd., September 2010.

^v <http://www.bottlebill.org/about/benefits/curbside.htm>

^{vi} Source: <http://www.calrecycle.ca.gov/bevcontainer/Rates/BiannualRpt/12MonPeriod.htm>

^{vii} Source: CalRecycle, 2009, Larry Stevens

^{viii} Deutsche Pfandsystem GmbH (DPG)

^{ix} While it is not reasonable to assume that fee decreases were entirely attributable to the withdrawal of beverage containers from the curbside program, given that the fees did decline, it is reasonable to assume that withdrawal of the beverage containers did not increase the net costs of the program.

^x Based on *Table 1: Quantities of packaging waste generated in the Member State and recovered or incinerated at waste incineration plants with energy recovery within or outside the Member State for the year 2006*, European Commission report on Member States.

^{xi} Ontario's deposit return program collected 493,000 tonnes of beverage alcohol containers, including refillable bottles, in 2009-2010. The Ontario residential curbside program collected 431,000 tonnes of household packaging.

<http://www.thebeerstore.ca/tbs-environmental-report.html>, and see "Fee Calculation Tables" on Stewardship Ontario's web site: <http://www.stewardshipontario.ca/stewards/library/Fee-Rate-Archive#Fee%20Calculation%20Tables>

^{xii} The estimate is based on data from Stewardship Ontario 2009. Some glass tonnage (~30,000 tonnes) attributed to alcohol glass has been deducted from the reported figure as it is not reflected in the generation value and therefore should not be counted. Yield losses from contamination have not been deducted. This would further reduce the actual recycling rate.

^{xiii} See fees on glass containers at stewardshipontario.ca. The industry fees have fluctuated slightly since 2003. Today the fees on glass are the same as they were in 2004. Most other materials fees have experienced increases over the last seven years.

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^{xiv} City of Toronto reported that the cost impact of the new deposit return on wine and spirit containers program on their existing curbside program was a net savings of \$448,000 in 2007; and \$381,000 in 2008 due to a reduction in processing and disposal costs. Source: Amendments to Processing Fees Due to LCBO Deposit Return Program, report to Public Works and Infrastructure Committee from General Manager, Solid Waste Management Services: October 29, 2008.

^{xv} *Improving the Efficiency of the Blue Box Program, An AMO-AMRC Position Paper*, June 2006. (AMO is the Association of Municipalities of Ontario). Also note, the majority of costs in any garbage or recycling program are for collection services. These cost savings were not included in this staff report, and would be in addition to what was reported by city staff.

^{xvi} Source: www.cmconsulting.com, *Who Pays What 2010*, Section 1.3, Collection Rates, page 23.

^{xvii} Source1: Container Recycling Institute (CRI); Source2: Perchards (2005) *Deposit Return Systems for Packaging Applying International Experience to the UK*, Peer Review, Report to Defra, March, 2005: states that deposit return systems seem to achieve a reduction of the order of 33%-38% in total litter.

^{xviii} State of Hawaii Department of Health (2008), *The Activities of the deposit Beverage Container Program, Report to the Twenty-Fifth Legislature State of Hawaii 2009*, November 2008.

^{xix} *2009 Visible Litter Survey and Litter Cost Study. Final Report*, September 18, 2009. Prepared by MSW Consultants for Keep America Beautiful, Inc. Stamford, CT.

^{xx} Based on a non-deposit system recovery rate of 24% (average in the US) Source: CRI, <http://www.container-recycling.org/facts/all/data/recrates-depnon-3mats.htm>

1% of disposed containers is about 221 tons of land-based litter. Sales in tons data source: BMDA 2006.

^{xxi} Single Stream collection programs which include beverage containers generally have higher levels of yield loss than programs that collect mostly paper and paper-based packaging.

^{xxii} "State of the MRF," by editorial staff, *Resource Recycling*, January 2011.

^{xxiii} "Secondary processing" defined as plastics reclaimers, glass beneficiators, paper mills, and aluminum secondary cleaning facilities.

^{xxiv} *Understanding Economic and Environmental Impacts of Single-Stream Collection Systems*, Container Recycling Institute, 2009.

^{xxv} Source AFPA, 2009; and NAPCOR, *2009 Report on Post Consumer PET Container Recycling Activity*, which can be found on the web at: http://www.napcor.com/pdf/2009_Report.pdf