



Recycling and Jobs

A new study shows that capturing used beverage containers for recycling via deposit-return systems creates far more jobs than less efficient curbside collection systems



by Clarissa Morawski

"Container deposit return provides 11 to 38 times more direct jobs than curbside recycling systems for beverage containers."

Last month the jobs market suffered its biggest loss in two and a half years, bumping the Canadian unemployment rate up to 7.3 per cent. Overall, 54,000 jobs were lost, mainly from the manufacturing and construction sectors (*Canadian Press, November 2011*). Politicians in Canada and south of the border are heeding the call to boost jobs and to start "making things again."

What better time to introduce policies to promote the idea that businesses should recover and transform their wastes into raw materials, especially since this creates jobs?

The economic benefits of recycling as it relates to job creation are



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well known. This year alone, Pricewaterhouse Coopers (Germany), Eunomia (UK), and most recently, the Tellus Institute and Sound Resource Management, prepared *More Jobs, Less Pollution: Growing the Recycling Economy in the U.S.* which shows how a stronger recycling economy would create 1.5 million new jobs in manufacturing, collection, and other careers in the US.

That waste recovery generates jobs (as compared to disposal) is intuitive. Effectively, the business of resource extraction (mining and oil drilling) and material conversion is transferred “above ground” to where recyclables are collected, transported, processed, and converted (sec-

ondary process). Equipment and energy costs for resource extraction are replaced by labor costs associated with resource recovery.

But identifying specifically where and how jobs are impacted (both gains and losses) from recycling provides excellent insight around setting priorities in our recycling policies.

These are the questions that guided new research just released by the US-based Container Recycling Institute (CRI). *Returning to Work: Understanding the Jobs Impacts From Different Methods of Recycling Beverage Containers* reports the net gains in fulltime-equivalent (FTE) domestic jobs when aluminum cans, PET and glass bottles are recovered through various waste management schemes. Jeffrey Morris, Ph.D. of Sound Resource Management Group created a user-friendly jobs model, with research and analysis from the author. Together the team set out to quantify, in terms of *net impact on domestic jobs*, the number of jobs associated with every 1,000 tons of material recovered and recycled. Three different materials management schemes were analyzed: container deposit-return (CDR), residential curbside recycling, and disposal.

For each of these three options, the research team figuratively “traveled” along the same path that all three materials will travel (collection, processing, and converting) and identified how many jobs are directly associated with the tonnage throughput along the way. The research also attempted to quantify job losses that may occur upstream during virgin material extraction (when recovered material substitutes for virgin). Depending on the collection method (with its known capture rates), it will determine how much is collected, where the material ends-up, and what job gains and losses can be expected.

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The analysis provides a compelling case for increasing recovery rates and maintaining high quality glass, PET and aluminum recovered materials. Maximizing recovery rates ensures that the greatest volume of containers moves through each recovery stage and gains the associated domestic jobs. In addition, maintaining high-quality material results in the least amount of yield loss (contamination) to disposal, where there are fewer jobs ton for ton.

Specific findings

The following provides a summary of findings based on a set of default inputs which are reflective of *status quo* rates in the US today. While the model is designed for a state-by-state analysis, the results below are for the entire country.

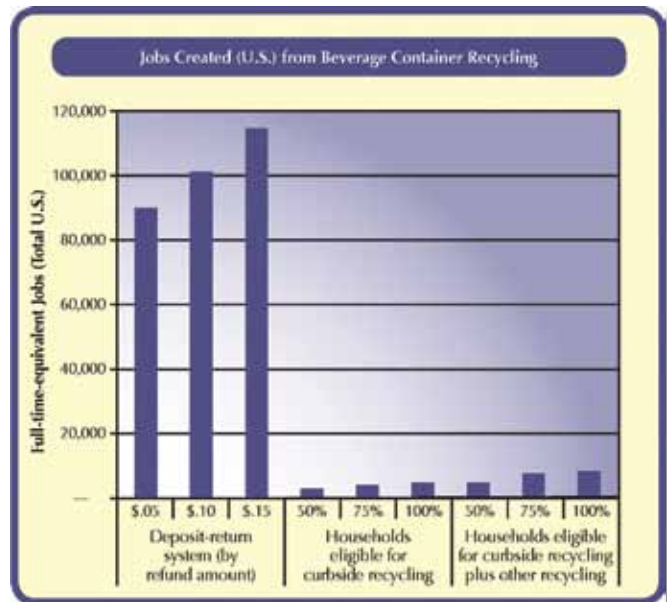
Container Deposit Return (CDR) provides 11 to 38 times more direct jobs than curbside recycling systems for used beverage containers.

Using primary system parameters as the base scenario (5-, 10-, or 15-cent refund value in a CDR system, and 50-, 75- or 100-per cent curbside eligibility for a non-CDR system), deposit-return systems create significantly more jobs. (See figure 1).

Material throughput is the primary driver of recycling jobs.

The primary driver of direct jobs from recovery operations is the amount of material (“throughput”) entering and leaving the system. Deposit-return systems recover approximately three times more beverage container material than the closest competitor, curbside recycling in the US, and about twice as much in Canada.

In addition to poorer collection rates, the US EPA just released



its *Facts and Figures 2010*, which shows a re-adjustment in the recycling rate for PET bottles to 21 percent down from 28 percent in 2009. This figure now accounts for yield losses from contamination in PET bales.

The secondary driver of container-recycling jobs is the number of workers required to collect, sort and transport the recovered containers.

The secondary driver of direct jobs in container-recycling systems

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“Deposit-return systems require one-and-one-half to four times as many employees for collection tasks alone as do curbside systems.”

are the number of workers needed to collect and sort the containers and transport them to the materials recovery facility (MRF) or secondary processor. Deposit-return systems require one-and-one-half to four times as many employees for collection tasks alone as do curbside systems. Specifically, approximately 7.34 FTEs are required per 1,000 tons of material collected in a deposit-return system, compared to 4.46 FTEs in a manual curbside system and 1.66 FTEs in an automated curbside system.

Jobs gained in recycling far outweigh any jobs lost in the extraction of virgin materials.

Replacing virgin material with secondary materials in manufacturing recycled-content products may displace some domestic jobs in mining, oil extraction, polymerization and other virgin material extraction industries. However, extraction industries tend to be more machine intensive than labor intensive. As such, the net employment impact favors jobs in recovery industries. (See figure 2)

The research also recognizes that many consumer-products manufacturers who use recycled container material (in everything from bottles and fleece and fiberglass), do so to reduce energy use, emissions and other pollution, reduce production costs and meet internal or industry sustainability goals.

Increasing the quantity and quality of recovered glass containers available for beneficiation, for example, can increase the amount of high-value, furnace-ready cullet for bottle manufacturing and decrease the amount sent to landfill as residual.

Superior performance rates for recovered quantities and improved quality of material is consistently higher in CDR versus curbside collection systems. In fact, glass manufacturers report a strong correlation between their use of recycled content and the availability of cullet from US States with CDR programs. Specifically, a large bottle glass manufacturer with facilities throughout the US reports average recycled-content rates of 72 per cent in CDR states, 24 per cent in states that border CDR states, and only 12 per cent in non-CDR states.

Similarly, increasing the recovery of high quality PET bottles is para-

mount to the domestic reclamation industry. Currently about 41 percent of US PET processing capacity sits idle;

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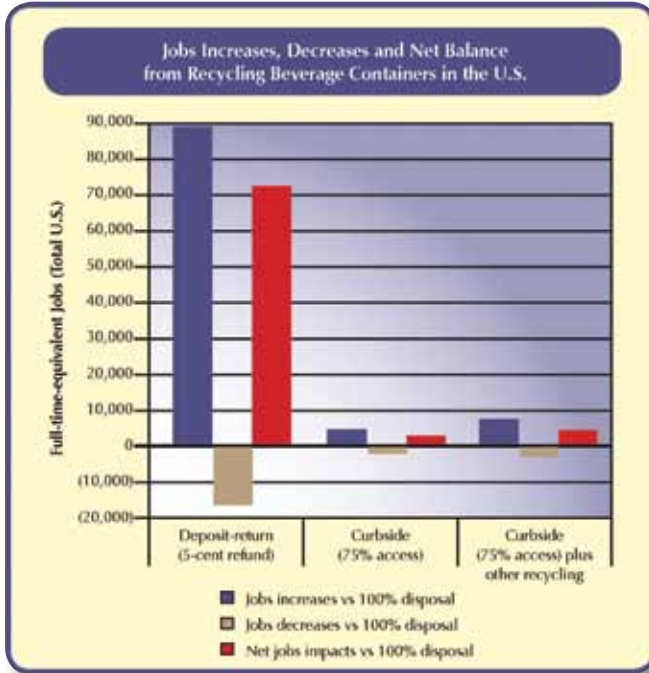
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56 percent of all bottles recovered annually (primarily those from curbside programs) are shipped overseas. This represents another 400,000 tons of material that could potentially generate 800 new direct jobs in PET reclamation alone, and many more indirect and induced jobs.

These market dynamics illustrate the economic opportunity and increased domestic jobs available when greater quantities of high-quality material are recovered. Cheap labor in China and India (the primary foreign markets for Canadian recyclables) make it difficult to sort materials economically when collection results in mixed, dirty material. The benefits of upfront source separation mean that the material is more likely re-processed (converted) and used as raw material by manufacturers here in Canada.

The findings suggest that recycling policies that target very high collection rates, material-by-material, and ensure recyclables can be economically converted domestically, will not only increase jobs involved in collection, transport and processing, but support Canadian manufacturers as well. ♻️

Clarissa Morawski is principal of CM Consulting in Peterborough, Ontario. Contact Clarissa at clarissa@cmconsultinginc.com

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