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BOTTLE DEPOSITS

Issue Description

A bottle redemption program often referred to as a “bottle bill” requires an additional fee on beverage containers, such as bottles and cans, at the time of purchase. These fees work like a deposit and usually are totally or partially recovered by individuals who recycle these containers. Increased recycling reduced green house gas emissions, litter, and waste to landfills are often cited as benefits to bottle bill programs.

Ten states currently operate bottle bill programs. These programs differ in significant ways such as the fee associated with each bottle, the types of bottles collected, how bottles are returned, and how unredeemed deposits are dispersed. This project will provide background on the history of bottle bills, how programs operate, and other state alternatives. Finally, it will examine recycling in Florida, identify findings, and discuss what issues the Florida Legislature would need to consider before enacting a bottle bill program.

Background

History/Purpose of Bottle Bills

In the 1950s and 1960s, refillable bottles could be returned to the store for a 5-10 cent refund per bottle. These “deposit” bottles were eventually phased out around the country and replaced by beverage containers without a deposit. However, many states reintroduced this deposit system in the 1970s and 1980s with a slight variation. They no longer used refillable bottles. Instead, the programs focused on re-routing highly valuable aluminum, plastic and glass beverage containers from municipal landfills to recycling centers.

Today’s programs operate by charging a 5-10 cent fee on beverage containers that can be recouped when consumers return the empty bottle. The deposit is charged by the distributor to the retailer and then passed on to the consumer. Once the bottles are returned, consumers may be reimbursed by retailers or redemption centers. Retailers or redemption centers are then reimbursed by distributors. Typically, these programs were implemented with a litter reduction goal in mind. Bottle bill states report an average decrease in beverage container litter of 78 percent, and an average decrease in overall litter of 39 percent when the programs were first implemented.¹

Increased recycling and a reduction in waste are two additional goals associated with the bottle bill program. The U.S. Environmental Protection Agency (EPA) reported that in 2008, Americans generated about 250 million tons of trash and recycled 83 million tons, or 33.2 percent of this material. Total solid waste generation increased from approximately 150 million tons to 250 million tons between 1980 and 2008. However, the amount of waste sent to landfills is still approximately the same due to improved recycling and waste combustion programs. The recycling rate increased from less than 10 percent in 1980 to over 33 percent in 2008. Additionally, waste combustion programs increased from non-existence in 1980 to handling 12.6 percent of waste generated in 2008. This makes a reduction of overall disposal of waste in a landfill from 89 percent of the amount generated in 1980 to 54 percent of municipal solid waste (MSW) in 2008.²

¹ Litter studies in seven Bottle Bill states, Container Recycling Institute, <http://www.bottlebill.org/about/benefits/litter/7bbstates.htm> (last visited Aug. 25, 2011). Container Recycling Institute is a 501(c) (3) nonprofit organization founded in 1991 which provides comprehensive information about beverage deposit laws.

² United States Environmental Protection Agency, Solid Waste and Emergency Response, EPA-530-F-009-021, November

State-by-State Comparison of Bottle Bill Operations

Significant portions of bottle bill programs vary by state. Factors include the amount to be charged per bottle, the types of bottles included in the program and the method of handling bottle returns and fees. Tables 1-4 compare and contrast in detail each of these factors.

Table 1 represents general information about bottle bill programs. Most of the programs were created in the 1970s and 1980s. However, a number of states have updated or expanded their programs to include bottled water, sports drinks and teas, liquor, or some variation thereof. Hawaii is the most recent state to pass a bottle bill in 2002.

Differences in the deposit amount may account somewhat for states with higher beverage container recycling rates. Table 1 displays somewhat higher recycling averages in states with 10 or 15 cent deposits versus states with only 5 cent deposits. Michigan, California and Vermont have recycling averages of about 89 percent on beverage containers. Meanwhile, Hawaii, Iowa, Massachusetts, New York and Oregon average about 77.5 percent. This is a crude estimate because it does not account for some variations among state practices or small sample sizes. Nonetheless, a higher deposit amount may generate higher recycling rates.

Table 1: State By State Comparison: General Information, Fees and Rates³

| <u>State</u> | <u>Enacted</u> | <u>Expanded</u> | <u>Deposit Amount</u> | <u>Recycle Rates</u> |
|---------------|----------------|-----------------|--------------------------------------|----------------------|
| California | 1986 | 2000 | 10¢ for over 24 oz, 5¢ for under | 82% |
| Connecticut | 1978 | 2009 | | 5¢ NA |
| Hawaii | 2002 | 2007 | | 5¢ 79% |
| Iowa | 1978 | No | | 5¢ 86% |
| Massachusetts | 1981 | No | | 5¢ 70.80% |
| Maine | 1976 | 1990 | Wine/Liquor 15¢, All other 5¢ | NA |
| Michigan | 1976 | 1989 | | 10¢ 96.9% |
| New York | 1982 | 2009 | | 5¢ 66.80% |
| Oregon | 1971 | 2008 | Standard refillable 2¢, All other 5¢ | 84% |
| Vermont | 1972 | 1991 | Liquor 15¢, All other 5¢ | 85% |

Another important factor in bottle bill programs is which types of beverage containers are included. Table 2 provides the beverage containers currently covered by each state. Dairy products are typically excluded from consideration. All states include beer, soft drinks, and some other form of alcoholic drinks in their beverage deposit container laws. Most states include some form of bottled water. Although Iowa, Massachusetts and Maine accept only mineral water as opposed to all bottled water. Other beverages such as sports drinks and teas are still unredeemable in many states.

2009, <http://www.epa.gov/wastes/nonhaz/municipal/pubs/msw2008rpt.pdf> (last visited Aug. 26, 2011).

³ Container Recycling Institute, All U.S. States, <http://www.bottlebill.org/legislation/usa/allstatestable.htm> (last visited June 20, 2011).

Table 2: State by State Comparison: Types of Bottles Included⁴

| | Beer | Soft Drinks | Other Alcoholic Drinks* | Bottled Water** | Tea & Sports Drinks |
|---------------|------|----------------|-------------------------------|--------------------|---------------------------|
| California | X | X | X | X | X |
| Connecticut | X | X | X | X | |
| Hawaii | X | X | X | X | X |
| Iowa | X | X | X | X | |
| Massachusetts | X | X | X | X | |
| Maine | X | X | X | X | X |
| Michigan | X | X | X | X | |
| New York | X | X | X | X | |
| Oregon | X | X | X | X | |
| Vermont | X | X | X | | |

*Other alcoholic drinks vary by state but may include malt liquor, wine coolers and wine.

Table 3 lists a comparison of how bottle returns are handled. One distinction to note is whether bottle collection is handled predominantly by retailers or redemption centers. If retailers must redeem empty beverage containers, they are responsible for sorting and storing them on site, which can be costly. Thus, some states also provide an exemption for retailers located conveniently near redemption centers. These redemption centers, certified by the state, can operate as a substitute for retailers, and handle bottle returns. Certification criteria may include factors such as the type of containers accepted, location near grocery areas or hours of operation. For example, in Iowa, approved redemption center criteria includes opening on Saturdays from 2-6 pm.

Even with an effective redemption process, the bottle bill program is not without cost. There are two primary costs associated with the program: handling fees and processing costs. Handling fees are the amount required for retailers or redemption centers to collect and transport redeemed bottles to recycling centers. Processing fees are the subsequent cost of recycling the materials. A 2002 Business and Environmentalists Allied for Recycling (BEAR) report found that in deposit states, distributors paid an average of 3.3 cents per container to cover handling costs. The combined collection and processing costs for retailers, redemption centers, and recyclers was 4.1 cents.⁵ These costs are in addition to the deposit amount and must be either passed to the consumer or incorporated by manufacturers, retailers or distributors.

California has the lowest handling fee among all the states. They use a system of over 2,000 redemption centers to accomplish this. Any large supermarket with annual sales over \$2 million must ensure there is a recycler within a half-mile. This relieves retailers from collecting containers on site.⁶ Small retail stores of under \$2 million annual sales are exempt from this requirement. A 1991 Ernst and Young report concluded the California system is “significantly more cost-effective than traditional deposit legislation, saving California consumers and businesses between \$245 million and \$390 million annually.”⁷

⁴ *Id.*

⁵ Businesses and Environmentalists Allied for Recycling (BEAR), *Understanding Beverage Container Recovery: A Value Chain Assessment Prepared for the Multi-Stakeholder Recovery Project (MSRP), Stage 1*, Global Green USA, Jan. 16, 2002, available at <http://www.container-recycling.org/publications/reports/bear.htm> (last visited Aug. 25, 2011).

⁶ Cal Recycle Convenience Zone Information for Retailers: Beverage Container Recycling <http://www.calrecycle.ca.gov/BevContainer/Retailers/Zones.htm> (last visited Aug. 25, 2011).

⁷ California Resource Recovery Association, SOME FACTS ABOUT CALIFORNIA’S BOTTLE BILL, <http://www.crra.com/legislation/botbil/BOTBILL.shtml> (last visited Aug. 25, 2011).

Table 3: State by State Comparison: Handling Bottle Returns⁸

| State | Handling Fees | Redemption Centers | Retailers/ Grocers | Retail Exemptions |
|---------------|---|--------------------|-----------------------|---|
| California | 0.89¢ | Yes | No | Retailers with under \$2 million in gross annual sales exempt, “convenience zones” for other retailers |
| Connecticut | 1.5-2¢ | Yes | Yes | None, unless a retailer sells only from manufacturers who produce less than 250,000 of bottled water |
| Hawaii | 2-4¢ | Yes | No | Retailers within 2 miles of redemption center in high density areas or retailers on small islands |
| Iowa | 1¢ | Yes | Yes | Retailers within 1 mile of approved redemption center |
| Massachusetts | 2.25¢ | Yes | Yes | None, but retailers may refuse more than 120 per person per day |
| Maine | 4¢ for brand sorted, 3.5¢ for comingled | Yes | Yes | Retailers under contract with local redemption centers |
| Michigan | N/A | No | Yes | None, but retailers may refuse more than \$25/day |
| New York | 3.5¢ | Yes | Yes | None |
| Oregon | N/A | No | Yes | None, but limits to 50/person per day for retailers under 5,000 sq. ft. and 144 for retailers more than 5,000 sq. ft. |
| Vermont | 4¢ for brand sorted, 3.5¢ for comingled | Yes | Yes | Retailers located conveniently by redemption centers |

Another policy consideration is how to handle unredeemed deposits from the program. States have multiple options when dealing with unredeemed deposits. States may allow distributors and/or retailers to retain unclaimed deposits. This may help offset some of the handling costs of the program. Alternatively, states may use the unredeemed deposits as a stream of additional revenue or make a combination of state/distributor funds such as Michigan. Table 4 contains a description of the monies generated and paid by the program. Additionally, it describes what happens to unclaimed fees when a bottle is not redeemed by the consumer. Not all states are included in this chart because not all unclaimed deposits are reported in cash values.

⁸ Container Recycling Institute, All U.S. States, <http://www.bottlebill.org/legislation/usa/allstatestable.htm> (last visited Aug. 18, 2011). For retailer exemptions, see also: California Department of Resources Recycling and Recovery (Cal Recycle), Staff Report, Publication #DRRR-2011-019, July 2011; Connecticut Department of Energy and Environmental Protection, http://www.ct.gov/dep/cwp/view.asp?a=2714&q=324834&depNav_GID=1645 (last visited Aug. 3, 2011); Hawaii Department of Health, <http://www.hi5deposit.com/dealers.html> (last visited Aug. 3, 2011); Iowa Grocery Industry Association, <http://www.iowagrocers.com/index.cfm?page=69> (last visited Aug. 3, 2011); Michigan Department of Natural Resources, http://www.michigan.gov/documents/deq/dnre-whmd-sw-mibottledepositlawFAQ_318289_7.pdf (last visited Aug. 3, 2011); N.Y. Department of Environmental Preservation, <http://www.dec.ny.gov/chemical/57687.html> (last visited Aug. 3, 2011); Oregon Liquor Control Commission, http://www.oregon.gov/OLCC/bottle_bill.shtml#Retailer_s_Responsibilities_Resources (last visited Aug. 3, 2011).

Table 4: State by State Comparisons: Redemption Rate, Redemption \$ Amount, and Unclaimed Deposits⁹

| | <u>Redemption Rate</u> | <u>Unclaimed Redemption Deposits</u> (in millions of dollars) | <u>Where unclaimed deposits go</u> |
|---------------|------------------------|--|---|
| Connecticut | N/A | Less than 24 | Property of the state |
| Massachusetts | 70% | 39.2 | Property of the state |
| Maine | N/A | 1.2 | Property of the state |
| Michigan | 96.6% | 16.3 | 75% to the state for Environmental Programs; 25% to retailers |
| New York | 66.8% | 150 | 80% property of the state; 20% retained by distributors |
| Oregon | 84% | Estimated 30, but reporting not required | Retained by distributors/bottlers |

Other State Alternatives

There are numerous alternatives to bottle bill programs ranging from simply increasing education on the importance of recycling to banning the transfer of highly valuable material to landfills. This section will include a discussion on flat fees, bans and legislation targeting restaurants and bars. These alternatives are used in Delaware, Wisconsin and North Carolina respectively.

Flat Fee in Delaware

Until December 1, 2010, Delaware had a bottle bill program that covered most glass containers of beer and soft drinks under 2 quarts. Aluminum cans were not included. According to Delaware's Division of Air Quality and Waste and Hazardous Substances that monitors recycling, most of the beer bottles were recycled. This data is only gleaned from the information provided by the waste haulers, as there were no reporting requirements in place.¹⁰

Delaware has now transitioned away from a bottle bill to a temporary 4 cent fee that covers the same beverage containers but is non-refundable. The temporary fee will sunset December 1, 2014, or when the Recycling Fund goal of \$22 million is reached.¹¹ In areas where curbside recycling was not included, waste haulers now must also

⁹ Container Recycling Institute, All U.S. States, <http://www.bottlebill.org/legislation/usa/allstates.htm> (last visited Aug. 18, 2011). For unclaimed redemption deposits, see also: Associated Press, *States say more bottle bills make sense*, msnbc.com, Feb. 6, 2009, http://www.msnbc.msn.com/id/29059283/ns/us_news-environment/t/states-say-more-bottle-deposits-make-cents/ (last visited Aug. 26, 2011); Robert J. Smith, *Bill tacks on 8 cents to bottled beverages*, Arkansas Democrat Gazette, Mar. 10, 2003, available at <http://www.bottlebill.org/assets/pdfs/news/2003/AR-3-10-BillTacksOn.pdf> (last visited Aug. 26, 2011); Mal Leary, *State gets surprise bottle deposit check*, Bangor Daily News Story, Mar. 12, 2009, available at http://www.nrcm.org/news_detail.asp?news=2892 (last visited Aug. 26, 2011); Chrissy Hadleck, *New York collects \$120M in unclaimed bottle deposits*, Waste & Recycling News, <http://www.wasterecyclingnews.com/email.html?id=1288709876> (last visited Aug. 26, 2011); Chris Lehman, *Lawmakers eye unredeemed bottle deposits*, May 11, 2009, <http://news.opb.org/article/lawmakers-eye-unredeemed-bottle-deposits/> (last visited Aug. 26, 2011).

¹⁰ Conversation with Delaware Department of Natural Resources and Environmental Control representative (July 21, 2011).

¹¹ *Id.*

pick up recycling materials. The temporary 4 cent fee is to fund grants and loan programs to improve recycling programs in the state. There are also 175 recycling centers in Delaware for residents to drop off their recyclable materials.¹²

Ban in Wisconsin

Wisconsin has attempted to improve recycling by explicitly banning aluminum, steel, plastic, and glass containers from landfills. Some plastics are exempt from the ban due to a lack of recycling facilities that accept these items. Despite the ban, Wisconsin recycles less than 55 percent of aluminum, steel and plastic containers and less than 75 percent of glass containers through curbside and drop-off collections.¹³ Most of the bottle bill states have banned beverage items from landfills but few states enforce these bans with fines or penalties.

Targeting Industries in North Carolina

As of January 1, 2008, North Carolina requires holders of specified Alcoholic Beverage Control (ABC) permits, mainly bars and restaurants, to separate, store, and recycle containers for alcoholic beverages consumed on the premises. Applicants must submit a plan for the collection and recycling of their alcoholic beverage containers. Bars and restaurants can face administrative fines for noncompliance with the ABC Recycling law. Although the plan is required, ABC permits do not enforce compliance and have not issued any fines for failing to comply.¹⁴

The state of North Carolina has established glass manufacturers who can readily utilize this product. After the law went into effect, Owens-Illinois, a large glass manufacturer, in their Spring 2008 issue of Owens-Illinois's LookingGlass publication, stated, "Each plant is expected to benefit from a minimum of 10,000 tons of available recycled glass and increase current cullet rates by at least 10 percent."¹⁵ "Cullet" is defined as scraps of broken or waste glass gathered for remelting.¹⁶ Scott Mouw, Environmental Supervisor/Section Chief for the North Carolina Department of Environmental and Natural Resources (DENR), Division of Pollution Prevention and Environmental Assistance (DPPEA), says nearly 10 local businesses were started to provide collection services to the bars and restaurants affected by the program. According to a study released by the North Carolina Recycling Business Assistance Center, North Carolina supports 14,490 private-sector recycling-related jobs, an increase of 13.4 percent since 2003. It is estimated that bars and restaurants are spending on average \$100 a month to comply with the recycling law.¹⁷

Florida

In 2008, Florida set a 75 percent recycling rate goal, by the year 2020, outlined in s. 403.7032, F.S. This more than doubled the previous 30 percent goal initiated in the 1980s. According to the Department of Environmental Protection (DEP) 2009 Municipal Solid Waste Report, the current recycling rate is approximately 29 percent.¹⁸ To measure our recycling rate, s. 403.7032(3), F.S., directs all public entities to report what they recycled to their counties. Private businesses are also encouraged to report what they recycled. The DEP will establish by rule what

¹² Delaware Divisions of Air Quality & Waste & Hazardous Substances: Recycling, Delaware Recycling FAQs, http://www.dnrec.delaware.gov/whs/awm/Recycling/Pages/Recycling_FAQs.aspx (last visited July 21, 2011).

¹³ *Improving Recovery of Recyclable and Reusable Materials in Wisconsin: The Feasibility of a Bottle bill and other Policy Options*, Prepared for the Wisconsin Department of Natural Resources, Bureau of Waste and Materials Management, by the Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison, May 2008, <http://www.lafollette.wisc.edu/publications/workshops/2008/recycle.pdf> (last visited Aug. 26, 2011). The recycling rate data was provided by the Governor's Task Force on Waste Materials Recovery and Disposal, Madison, WI: Wisconsin Office of the Governor (2006).

¹⁴ Conversation with North Carolina Department of Environmental and Natural Resources representative (Aug. 17, 2011).

¹⁵ Recycling Today, On the Bar's Tab, http://www.recyclingtoday.com/Article.aspx?article_id=21536 (last visited Aug. 26, 2011).

¹⁶ Definition for cullet, <http://www.thefreedictionary.com/cullet> (last visited July 29, 2011).

¹⁷ Recycling Today, On the Bar's Tab, http://www.recyclingtoday.com/Article.aspx?article_id=21536 (last visited Aug. 26, 2011).

¹⁸ DEP's recycling update, www.dep.state.fl.us/waste/categories/solid_waste/pages/rulemaking_62-716.htm, (last visited July 21, 2011).

items count towards the recycling goal and develop a web-based mechanism for the counties to report their recycling rates.¹⁹ It remains to be seen what additional measures might be taken to achieve this recycling goal.

To analyze whether a bottle bill program might be an effective means of working toward our recycling goals in Florida, this section will include information on the prior Advance Disposal Fee program, current recycling trends, recycling education, litter and a bottle bill program study in Florida. It will also present a Wisconsin waste study.

The Advance Disposal Fee

Similar to the Delaware program of a flat fee, Florida has experimented with an Advance Disposal Fee (ADF) program. The ADF originally passed in 1988, was implemented October 1, 1992, and restructured in 1993 to use competition to improve recycling markets. ADF imposed a penny fee per container on certain cans, bottle, jars, and beverage containers with recycling rates of less than 50 percent. It then allowed exemption from the fee for companies that met recycling or recycled content goals. The idea was to improve recycling rates and create competition between companies to meet the recycling goals. The Legislature allowed ADF to sunset October 1, 1995, after three years of implementation.

Current Recycling Trends

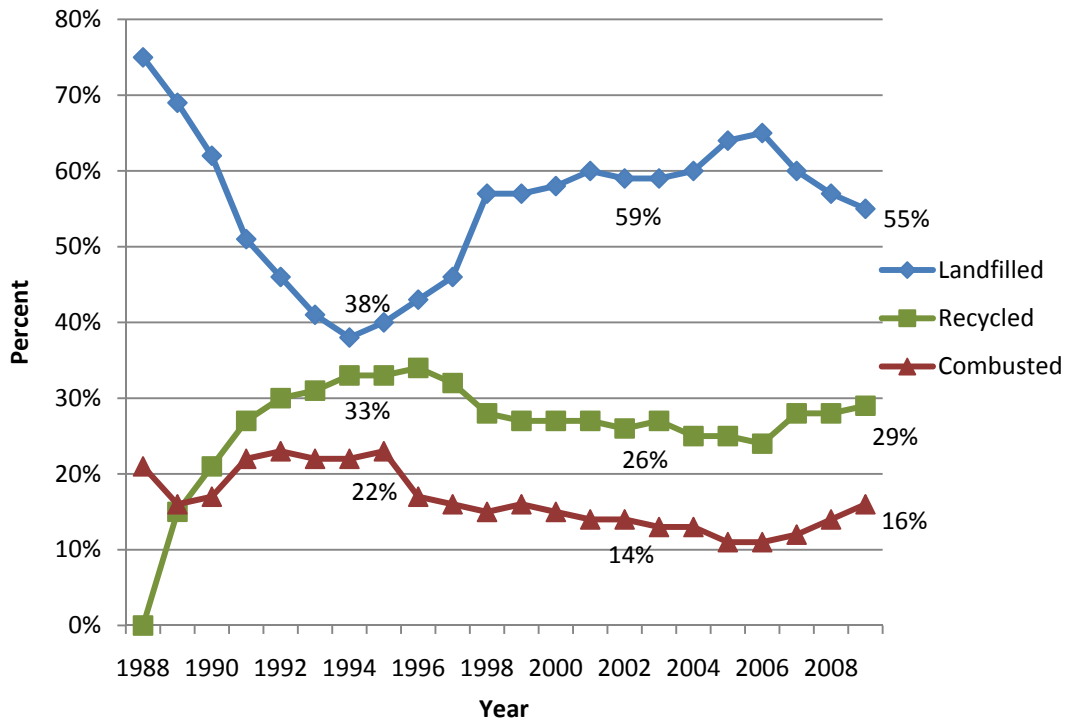
In 2009, the DEP Municipal Solid Waste (MSW) Report estimated that Florida generated a total of 28.7 million tons of waste. Of this amount, 15 million tons were put in a landfill, 4.4 million tons were combusted, and 8.4 million tons were recycled.²⁰ Table 5 outlines how Florida has landfilled, recycled, or combusted its municipal solid waste since 1988. There was a decline in the recycle rate from 1997 to 1998. DEP attributes the decline to a change in the methodology used to calculate the MSW recycling rate.

Table 5 – Florida Municipal Solid Waste Management 1988 - 2009²¹

¹⁹ *Id.*

²⁰ DEP's 2009 Solid Waste Annual Report data, http://www.dep.state.fl.us/waste/categories/recycling/SWreportdata/09_data.htm (last visited Aug. 25, 2011).

²¹ Email from Shannan Reynolds, DEP, Bureau of Solid and Hazardous Waste (Aug. 17, 2011) (on file with the Senate Committee on Environmental Preservation).



The DEP estimates of the 24.3 million tons of waste in the waste stream (the amount put in a landfill or recycled), only approximately 3 percent of items are glass, 1.4 percent plastic bottles, and 1 percent aluminum cans.²² Thus, the Florida waste stream contains 5.4 percent of materials that could be captured by bottle bill programs.

A study conducted by the University of Florida, Bureau of Economic and Business Research, found Floridians consume some 36 million sodas and other container beverages on an average day. Though 6 million of the containers are recycled, approximately 30 million containers become landfill or, in some cases, litter.²³ This equates to a recycling rate of approximately 17 percent of beverage container material. Table 6 shows the percentage of certain materials recycled in Florida in 2009.

Table 6: Florida’s Recycling Breakdown in 2009²⁴

| Material | Year | Tons Collected | Tons Recycled | Percent Recycled | Tons Disposed | Percent Disposed ¹ |
|-----------------|------|----------------|---------------|------------------|---------------|-------------------------------|
| Paper | 2009 | 7,002,215 | 2,144,732 | 31% | 4,857,483 | 69% |
| Plastic Bottles | 2009 | 397,388 | 66,383 | 17% | 331,005 | 83% |
| Glass | 2009 | 737,931 | 128,370 | 17% | 609,561 | 83% |
| | 2009 | 6,691,890 | 1,977,608 | 30% | | |

²² DEP’s 2009 Solid Waste Annual Report data, http://www.dep.state.fl.us/waste/categories/recycling/SWreportdata/09_data.htm (last visited Aug. 25, 2011).

²³ Bureau of Economic and Business Research, Analysis of a Florida Beverage Container Deposit Refund System, University of Florida, Mar. 15, 2011, <http://www.bebr.ufl.edu/content/bottle-bill-report> (last visited Aug. 26, 2011). Owens-Illinois, Inc. funded the study.

²⁴ Email from Shannan Reynolds, DEP, Bureau of Solid and Hazardous Waste (Aug. 22, 2011) (on file with the Senate Committee on Environmental Preservation).

| | | | | | | |
|------------------|------|---------|--------|-----|-----------|-----|
| C&D | | | | | 4,714,282 | 70% |
| Aluminum Cans | 2009 | 187,811 | 37,299 | 20% | 150,512 | 80% |

¹Disposed- Landfilled and combusted

In 2009, 17 percent of glass, 20 percent of aluminum cans and 17 percent of plastic bottles were recycled in Florida.²⁵ National recycling averages for these materials are about 31 percent, 51 percent and 28 percent for glass, aluminum cans and plastic bottles respectively.²⁶ A similar recycling percentage, broken down by states with bottle bill programs for glass, aluminum cans and plastic bottles, was not available. The recycling average for beverage container material in states that have bottle bill programs is approximately 80 percent.²⁷ Overall, Florida is behind both the national state average and states with bottle bill programs in recycling beverage container material.

Recycling Education

According to DEP, curbside recycling is available to 80 percent of Florida's single-family residences, as reported by the counties to the state. This represents approximately 4.6 million single-family homes. Of the residences that have the service only 64 percent or 2.9 million participate in curbside recycling.²⁸

One way to increase participation in these already established recycling programs is through public education. According to DEP, "public education has been tailored to the local recycling programs by the local recycling programs." Recycling programs differ at the local level according to the type of service available, collection, and type of materials accepted. Thus, recycling education has primarily been implemented at the local level.²⁹

From 1988 through 2003, DEP distributed approximately \$247 million in Recycling and Education Grants to Florida counties. Some of that funding helped market local recycling programs to residents through public education efforts. However, public education budgets were cut back when the grants ended. In the 75% Recycling Goal Report submitted to the Legislature in January 2010, DEP recommended that statewide recycling grants be distributed to local governments to assist in reaching the 75 percent goal. It also specified that a certain minimum percentage be used for public education and training.³⁰ To date, however, there are no known programs designed to target public education on the importance of beverage container materials in recycling.³¹

Litter

A Florida Roadside Litter study was conducted in May of 2002 by the Florida Center for Solid and Hazardous Waste Management (the Center).³² The survey analyzed 10 roadside sites in each of Florida's 67 counties, for a total of 670 sites. It covered more than 25 miles of roadway. Beverage containers were placed in one category including aluminum cans, glass and plastic bottles, and other items described as drink boxes. The study concluded that beverage containers accounted for 13.94 percent of large litter items in 2002.

²⁵ *Id.*

²⁶ United States Environmental Protection Agency, Solid Waste and Emergency Response, EPA-530-F-010-012, Dec. 2010, <http://www.epa.gov/wastes/nonhaz/municipal/pubs/msw2009-fs.pdf> (last visited Aug. 26, 2011).

²⁷ Container Recycling Institute, All U.S. States, <http://www.bottlebill.org/legislation/usa/allstatestable.htm> (last visited Aug. 18, 2011).

²⁸ The Department of Environmental Protection data, Single-Family Participation in Recycling by Descending Population, County Year 2009, http://appprod.dep.state.fl.us/www_rcra/reports/WR/Recycling/2009AnnualReport/AppendixB/11B.pdf. (last visited Aug. 26, 2011).

²⁹ Conversation with the Florida Department of Environmental Protection, Bureau of Solid and Hazardous Waste representative, Aug. 18, 2011.

³⁰ DEP's 75% Recycling Report to the Legislature, January 2010, <http://www.dep.state.fl.us/waste/recyclinggoal75/pages/report.htm> (last visited Aug. 26, 2011).

³¹ Conversation with the Florida Department of Environmental Protection, Bureau of Solid and Hazardous Waste representative, Aug. 18, 2011.

³² Florida Center for Solid and Hazardous Waste Management (the Center), Roadside Litter in Florida 2002, May 2002, report #S02-02, <http://www.floridacenter.org/publications/Litter2002.pdf> (last visited Aug. 25, 2011).

The Florida Bottle Bill Study

The Bureau of Economic and Business Research conducted an analysis of a Florida Beverage Container Deposit Refund System (BCDRS) funded by Owen-Illinois, Inc. The report was released February 21, 2011. It offered the scenario of a well implemented and efficiently run BCDRS with a deposit of 2.5 cents or 3 cents per container and handling and processing costs close to those of California (about 1.5 cents per container). This system could generate a net gain for Florida over the next 20 years based on current costs of around \$70-\$120 per Floridian. The study also inferred that unredeemed deposit revenue could be used for job creation.³³ The creation of jobs related to the recycling programs would depend on available recycling markets and infrastructure. Once an item was identified as a priority to recycle, markets and businesses would form to sell that item for scrap or to make a new product.

The Wisconsin Bottle Bill Study

In the last few years, states have become more sophisticated in their approach to implementing a bottle bill program. For example, the state of Wisconsin conducted an academic review of a bottle bill program but included the agency that would be charged with implementing the policy. Wisconsin's Department of Natural Resources, Bureau of Waste and Materials Management, teamed up with the graduate students at the University of Wisconsin School Of Public Affairs and prepared a study on the feasibility of a bottle bill and other policy options in May of 2008.³⁴

The study suggests that mandates in a Wisconsin bottle bill should complement existing recycling centers rather than create a competition for them. It further suggests that a politically sound bottle bill offsets the costs imposed on retailers and the beverage industry. The study reiterates that any bottle bill program that does not include beverage industry buy-in will most likely be defeated. The study references Hawaii's bottle bill deposit law that placed the redemption responsibilities on recycling centers rather than retailers and by managing deposits and disbursements from a centralized state fund. Finally, the study suggests that if a bottle bill program was pursued, it should be at least a 10 cent deposit and be comprehensive enough that it reflects the majority of the beverages consumed by residents.³⁵

Findings and/or Conclusion

Increased Recycling

The first benefit to the bottle bill program is increased recycling which results in less waste to landfills and increased energy savings. The U.S. recycling average for beverage container materials is about 31 percent for glass, 51 percent for aluminum cans and 28 percent for plastic bottles.³⁶ According to the Container Recycling Institute (CRI), states with container deposit laws have about an 80 percent average beverage container recycling rate. Meanwhile, Florida is below both the national and the bottle bill state averages. Florida's recycling rate is about 17 percent for glass, 20 percent for aluminum cans and 17 percent for plastic bottles.³⁷

³³ Bureau of Economic and Business Research, Analysis of a Florida Beverage Container Deposit Refund System, University of Florida, Mar. 15, 2011, <http://www.bebr.ufl.edu/content/bottle-bill-report> (last visited Aug. 26, 2011).

³⁴ *Improving Recovery of Recyclable and Reusable Materials in Wisconsin: The Feasibility of a Bottle bill and other Policy Options*, Prepared for the Wisconsin Department of Natural Resources, Bureau of Waste and Materials Management, by the Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison, May 2008 <http://www.lafollette.wisc.edu/publications/workshops/2008/recycle.pdf> (last visited Aug. 26, 2011). The recycling rate data was provided by the Governor's Task Force on Waste Materials Recovery and Disposal, Madison, WI: Wisconsin Office of the Governor (2006).

³⁵ *Id.*

³⁶ United States Environmental Protection Agency, Solid Waste and Emergency Response, EPA-530-F-010-012, Dec. 2010, <http://www.epa.gov/wastes/nonhaz/municipal/pubs/msw2009-fs.pdf> (last visited Aug. 26, 2011).

³⁷ Email from Shannan Reynolds, DEP, Bureau of Solid and Hazardous Waste (Aug. 22, 2011) (on file with the Senate Committee on Environmental Preservation).

One reason for increased national recycling rates may be the improvement in curbside recycling programs. According to a 2002 BEAR report, curbside recycling is available to 51 percent of U.S. residents.³⁸ In addition to bottle bill programs, measures such as recycling banks, pay as you throw programs, and reverse vending machines can also contribute to increased recycling. A recycle bank serves to incentivize consumers, similar to the bottle bill, by offering points for materials recycled that can be redeemed by savings on purchases at certain retailers. Pay as you throw systems allow responsibility for waste to be placed on consumers by making residents pay for the amount of trash they generate, but simultaneously provide free or discounted recycling. These systems serve to incentivize consumers. Meanwhile, reverse vending machines make recycling more convenient for consumers by providing access outside of grocery stores or multi-unit dwellings. These programs are corollaries to the bottle bill program and provide examples of creative measures that are being used to promote recycling.

Reduce Green House Gas (GHG)

Green house gas emissions can be reduced by recycling containers/bottles rather than manufacturing new ones especially for aluminum and glass. Beverage containers represent 5.4 percent of the waste stream. Efficiently producing higher-value materials, such as aluminum and glass, can reduce greenhouse gas emissions.³⁹ As the Iowa Department of Natural Resources puts it, “it takes more energy to make a bottle from virgin materials than to make a bottle from recycled materials.” Iowa residents save enough oil from recycled beverage containers to heat about 42,845 households.⁴⁰ The California Department of Resources Recycling and Recovery (CAL Recycle) includes the impact of recycling in their annual staff report. The annual impact of recycling 16.5 billion beverage containers saved the equivalent of 7.3 million barrels of oil and reduced the equivalent of 676,000 metric tons of carbon in greenhouse gas emissions, which equates to eliminating the energy consumption of more than 396,000 households for one year.⁴¹

Litter

Today, estimates on roadside beverage container litter from the Keep America Beautiful Campaign (KAB) indicate that beverage litter may account for 3 percent of all roadside litter.⁴² KAB is a non-profit organization dedicated to community involvement through litter prevention, waste reduction/recycling, and beautification. In an effort to update and advance the research that had been conducted in the 1960s and 1970s, KAB funded a series of studies in 2008 and 2009 with financial support from Phillip Morris USA, an Altria Company.⁴³

The most frequently counted littered items were tobacco products (38 percent), which were predominantly cigarette butts. Paper (22 percent) and plastic (19 percent) made up the next largest types of materials. The current estimates project 1.3 billion beverage containers on our nation’s roadways or 3 percent of all litter. While the majority of the beverage containers are beer (30 percent) and soft drinks (25 percent), there has been a growth in the number of water (6 percent) and sports drinks containers (3 percent).⁴⁴

The methodology used in the 2009 study allowed for comparisons to a 1969 national litter study that was also funded by KAB. The study showed:

- The actual count of overall litter is down by 61 percent since 1969.

³⁸ Container Recycling Institute, <http://www.bottlebill.org/assets/pdfs/campaigns/newyork/2006-Rebuttals.pdf> (last visited Aug. 18, 2011).

³⁹ *Id.*

⁴⁰ Iowa Department of Natural Resources, Bottle Bill facts, <http://www.iowadnr.gov/Environment/LandStewardship/WasteManagement/Residential/BottleDepositLaw.aspx> (last visited Aug. 18, 2011).

⁴¹ California Department of Resources Recycling and Recovery, Calendar Year 2010 Report of Beverage Container Sales, Returns, Redemption, and Recycling Rates, <http://www.calrecycle.ca.gov/Publications/Recycling/2011019.pdf> (last visited Aug. 26, 2011).

⁴² 2009 National Litter Research Findings and Recommendations, Executive Summary: Litter in America, Keep America Beautiful, Inc. (on file with Senate Committee on Environmental Preservation).

⁴³ *Id.*

⁴⁴ *Id.*

- This decrease is a result of successful education, ongoing cleanup efforts, and changes in packaging, reflected in the dramatic reduction of paper, metal and glass litter since 1969.
- Plastic litter has increased by 165 percent since 1969.
- Metal litter is down 88 percent.
- Glass litter is down 86 percent.
- Paper litter is down 79 percent.
- The cost of litter is approximately \$11.5 billion on abatement and cleanup activities, which is mainly absorbed by the private sector.

It is challenging to determine definitively if a bottle bill program really reduces beverage container litter. Studies utilize different methods when examining trash on the roadways and external factors such as previous cleanups and road construction are not always included in the studies. Therefore, two studies cannot be compared based on their reported statistics alone. For example, a recent Hawaii study shows after a bottle bill program was implemented there was a substantial reduction in beverage debris found during cleanups.⁴⁵ The two studies previously referenced conducted by the national organization KAB and the state agency, Florida Center for Solid and Hazardous Waste Management (the Center) revealed that beverage containers were not a significant portion of the litter found (KAB 3 percent and the Center 14 percent).⁴⁶ Hawaii was included in this review as their economic dependence on tourism and a clean environment are similar to the needs of Florida's economy. This study occurs annually and the Ocean Conservancy's International Coastal Cleanup is used as an indicator of the benefits of the Deposit Beverage Container Law. Hawaii's bottle deposit law was enacted in 2002 and implemented in 2005. The following table shows a reduction of the litter between 2004 and 2005 when the program went into effect in Hawaii.⁴⁷

Table 5 State of Hawaii Number of Debris Found During Cleanup⁴⁸

| Beverage | 2003 | 2004 | 2005 | 2006 | 2007 |
|-----------------|--------|--------|--------|--------|--------|
| Glass Bottles | 7,687 | 11,362 | 7,194 | 5,759 | 5,008 |
| Plastic Bottles | 5,246 | 5,215 | 3,824 | 4,799 | 2,965 |
| Metal Cans | 4,946 | 6,894 | 3,518 | 3,959 | 2,932 |
| Total | 17,879 | 23,471 | 14,430 | 14,517 | 10,905 |

Businesses and Recycling

Businesses have utilized innovative business packaging to improve their recycling rates and reduce the need to acquire new materials that cost more money to produce. Beverage companies are working towards zero waste in the form of Plant Bottle packaging. Coca-Cola uses redesigned polyethylene terephthalate plastic (PET)⁴⁹ composed of up to 30 percent plant-based material and is 100 percent recyclable for their conventional plastic bottle. Plant Bottle packaging helps to reduce our dependence on non-renewable petroleum resources and in turn, will help to reduce our impact on the planet.⁵⁰ Publix Corporation has a companywide recycling rate of 46 percent. In 2010, Publix recycled 218,400 tons of cardboard and wax cardboard, 2,790 tons of mixed paper and 8,500 tons of low-density polyethylene and mixed plastic.⁵¹

⁴⁵ State of Hawaii, Department of Health, Report to the Twenty-Fifth Legislature, on the activities of the deposit beverage container program, November 2008 (on file with Senate Committee on Environmental Preservation).

⁴⁶ Florida Center for Solid and Hazardous Waste Management (the Center), Roadside Litter in Florida 2002, May 2002, report #S02-02, <http://www.floridacenter.org/publications/Litter2002.pdf> (last visited Aug. 25, 2011).

⁴⁷ State of Hawaii, Department of Health, Report to the Twenty-Fifth Legislature, on the activities of the deposit beverage container program, November 2008 (on file with Senate Committee on Environmental Preservation).

⁴⁸ State of Hawaii, Department of Health, Report to the Twenty-Fifth Legislature, on the activities of the deposit beverage container program, November 2008, Number of Debris Found During Cleanup (on file with Senate Committee on Environmental Preservation).

⁴⁹ Polyethylene terephthalate (PET), a plastic resin and a form of polyester, as defined by the National Association for PET Container Resources, <http://www.napcor.com/PET/whatispet.html> (last visited Aug. 23, 2011).

⁵⁰ Coca-Cola Recycling, Injecting New Life Into Recycling, <http://www.dasani.com/#/plantbottle> (last visited Aug. 26, 2011).

⁵¹ Publix Recycling, http://sustainability.publix.com/what_we_are_doing/recycling.recycling_efforts.php, (last visited July

Fraud

Most of the states in the Northeast and California have to deal with consumers purchasing their product in a non-deposit state and redeeming it in a deposit state. California utilizes inspectors to combat fraud but that requires additional government expenses for enforcement. Despite the cost, California is committed to the bottle bill program and combating fraud. Michigan recognizes that fraud is a problem but focuses on redeeming as much product as possible. Michigan recently expanded the labeling requirements of redemption-eligible beverage containers to cut down on fraud in the state. Even when fraud is included in their calculations, Michigan maintains a high redemption rate of 97 percent.⁵²

Impairment of Contract

Many Florida cities and counties have negotiated contracts with their respective waste haulers requiring recycling pickup in addition to waste pickup. Bottle bill programs reduce the flow of these containers into the curbside program. If beverage container materials were no longer being placed in curbside recycling bins but rather taken to a redemption center to be redeemed, it might affect the ability of local waste haulers to maintain recycling services. Some waste haulers have adjusted their rates to include curbside recycling and some waste haulers may rely on the additional money that recycling items brings and could have to adjust what services they can provide.

The United States Constitution and the Florida Constitution prohibit the state from passing any law impairing the obligation of contracts.⁵³ “A law that is deemed to be an impairment of contract will be deemed to be invalid as it applies to any contracts entered into prior to the effective date of the act. [T]he first inquiry must be whether the state law has, in fact, operated as a substantial impairment of a contractual relationship. The severity of the impairment measures the height of the hurdle the state legislation must clear.”⁵⁴ If a law does impair contracts, the courts will assess whether the law is deemed reasonable and necessary to serve an important public purpose.⁵⁵

Collection Options

When it comes to collection strategies local governments need to decide what will work best in their respective markets. In order to collect certain types of products, adjustments may need to be made to the local collection system. For example, glass is the material most affected by the amount of breakage in certain collection systems. In single-stream programs, it is virtually impossible to prevent glass from breaking as it goes to the curb, is dumped in the truck, gets compacted, and is then taken to a Materials Recovery Facility, or to a landfill. Research for the 2009 report on single stream recycling showed that only 40 percent of glass from single-stream collection is recycled into containers and fiberglass. Forty percent of glass winds up in landfills, while 20 percent is small broken glass also known as glass fines that can be used for low-end applications.⁵⁶ Glass fines are the small particles of glass that are too small to be sorted, even by processing equipment.⁵⁷ Other uses for glass not recycled

28, 2010).

⁵² Container Recycling Institute, All U.S. States, <http://www.bottlebill.org/legislation/usa/allstatestable.htm> (last visited June 20, 2011).

⁵³ U.S. Const. Art. I 10; Art I, s. 10, Fla. Const.

⁵⁴ *Pomponio v. Claridge of Pompano Condominium, Inc.*, 378 So. 2d 774 (Fla. 1979). See also *general Motors Corp. v. Romein*, 503 U.S. 181 (1992).

⁵⁵ *Park Benziger & Co. V. Southern Wine & Spirits, Inc.*, 391 So. 2d 681 (Fla. 1980); *Yellow Cab C. v. Dade County*, 412 So. 2d 395 (Fla. 3rd DCA 1982). See also *Exxon corp. v. Eagerton*, 462 U.S. 176 (1983) (construing the federal constitutional provision). An important public purpose would be a purpose protecting the public’s health, safety, or welfare. See *Khoury v. Carvel Homes South, Inc.*, 403 So. 2d 1043 (Fla. 1st DCA 1981).

⁵⁶ Container Recycling Institute, Understanding economic and environmental impacts of single-stream collection systems, <http://www.container-recycling.org/assets/pdfs/reports/2009-SingleStream.pdf> (last visited Aug. 26, 2011). About one-third of non-recyclable glass is broken glass, too small to separate for recycling, some of which can be used for sandblasting base, aggregate material, or Alternative Daily Cover (ADC) in landfills.

⁵⁷ Email from glass industry representative (Aug. 23, 2011) (on file with the Senate Committee on Environmental Preservation and Conservation).

into new containers are as a substitute for materials employed in a broad range of industries, including fiberglass manufacturing, reflective paints, and as a replacement for aggregates used for various construction purposes.⁵⁸

In contrast to single stream recycling, mixed glass from dual-stream systems yields an average of 90 percent being recycled into containers and fiberglass, with 10 percent glass fines used for low-end applications, and nearly nothing sent to the landfill. It is important to note that only glass sorted by color can be used to make glass containers. The glass industry's need for high quality non-contaminated glass generally eliminates the use of single stream recycling in markets that are looking to recycle glass. However, color-sorted material results in 98 percent being recycled and only 2 percent marketed as glass fines.⁵⁹ Therefore, in order to market certain recyclable materials cost effectively, local governments may need to change collection strategies.

Options and/or Recommendations

The Florida Legislature will need to determine how to prioritize recycling efforts and which approach is most applicable in our present economic and political climate. In considering if a bottle bill program is the right choice for Florida, the Legislature would have to consider carefully the amount of the deposit to charge, which types of beverage containers to include, how to handle collections, and where to allocate unredeemed deposits. Florida may choose to increase recycling education programs since DEP reported that curbside recycling is available to 80 percent of single-family residences. Educational programs could focus on changing residents' recycling habits and focus on higher-value beverage containers, such as aluminum or glass. Due to the economic downturn, now more than ever, bottle bill programs need to balance the needs of businesses within what the communities' budgets can accommodate. Improving recycling rates involves many variables, and oftentimes, one size does not fit all.

⁵⁸ Glassworks, How Glass is Recycled, http://www.glassworks.org/product_stewardship/how.html (last visited Aug. 26, 2011).

⁵⁹ Container Recycling Institute, Understanding economic and environmental impacts of single-stream collection systems, <http://www.container-recycling.org/assets/pdfs/reports/2009-SingleStream.pdf> (last visited Aug. 26, 2011).