The Impact of Deposit Systems Nationwide

A presentation to the

Metropolitan Washington Council of Governments Recycling Committee

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About CRI

CRI's mission is to make North America a global model for the collection *and* quality recycling of packaging materials. We do this by:

- Creating and maintaining a **database on containers and packaging**
- Comparing container and packaging reuse and recycling **options and legislation**, including deposit systems
- Studying the **environmental and economic** impacts of different systems
- **Providing education** on recycling options for government, elected officials, for citizen groups, the print and broadcast media, publications and industry groups
- Creating national **networks**

Why Beverage Containers?

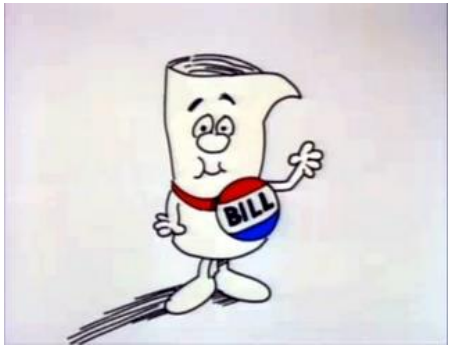
- Purchased and consumed **on the go** -- one third of all drinks sold are consumed away from home
- Comprise significant **volume** in the waste stream
- Consume large amounts of **energy** in manufacturing
- Contribute to **greenhouse gas emissions:** avoided by recycling beverage containers rather than manufacturing new ones from virgin materials
- Litter: An average of 14% of litter is from beverage containers; more when accessories are included

Deposits on beverage containers provide

- an **incentive to recycle**
- a **disincentive to litter**

What is a “Bottle Bill”?

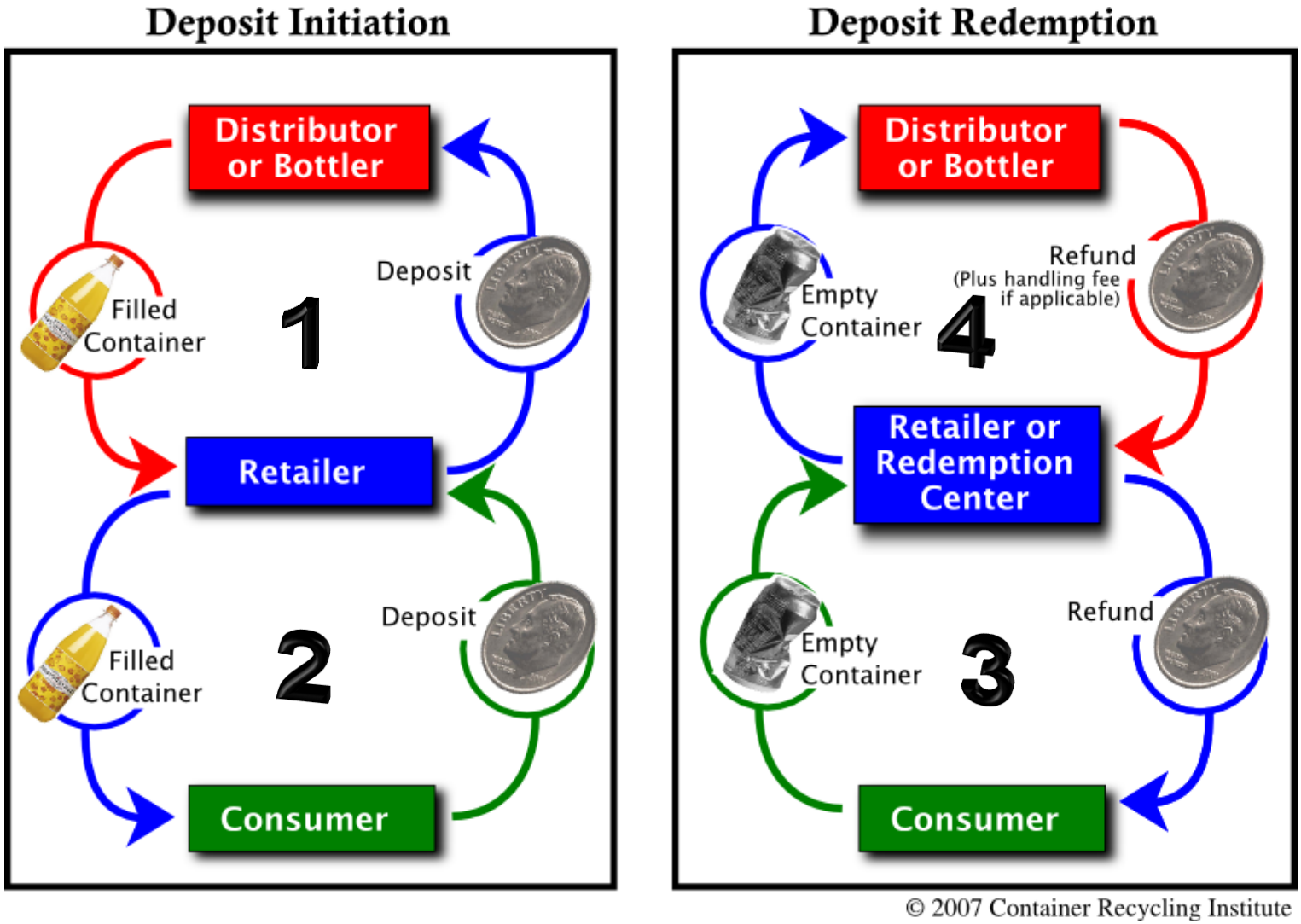
(container deposit-refund,
or container deposit law/CDL)



- Requires distributors and retailers to collect a minimum **refundable deposit**, usually 5-10 cents on certain beverage containers

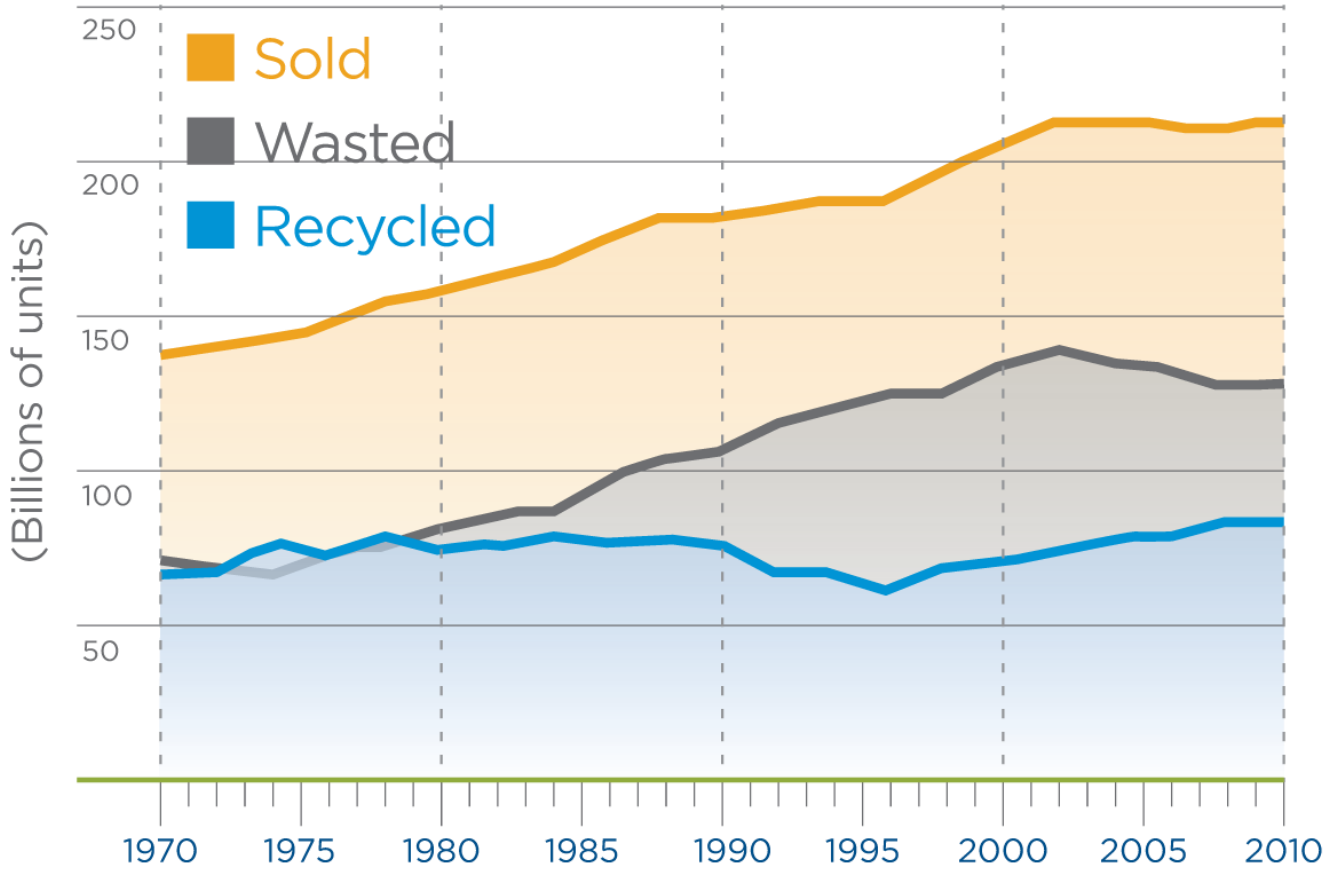
- Creates a **privately-funded** collection infrastructure for beverage containers

- Makes producers and consumers **responsible** for their packaging waste



1. Distributor collects deposit when he/she delivers containers to retailer
2. Retailer collects deposit from consumer at point of purchase
3. Deposit is refunded to consumer when container is returned
4. Deposit refunded to retailer or redemption center when containers are returned to distributor

U.S. Beverage Sales, Recycling & Wasting, 1970-2010



Excludes aseptic boxes, gable-top cartons and foil pouches. Excludes wine coolers, champagne, sparkling wine, frozen fruit concentrates and milk.

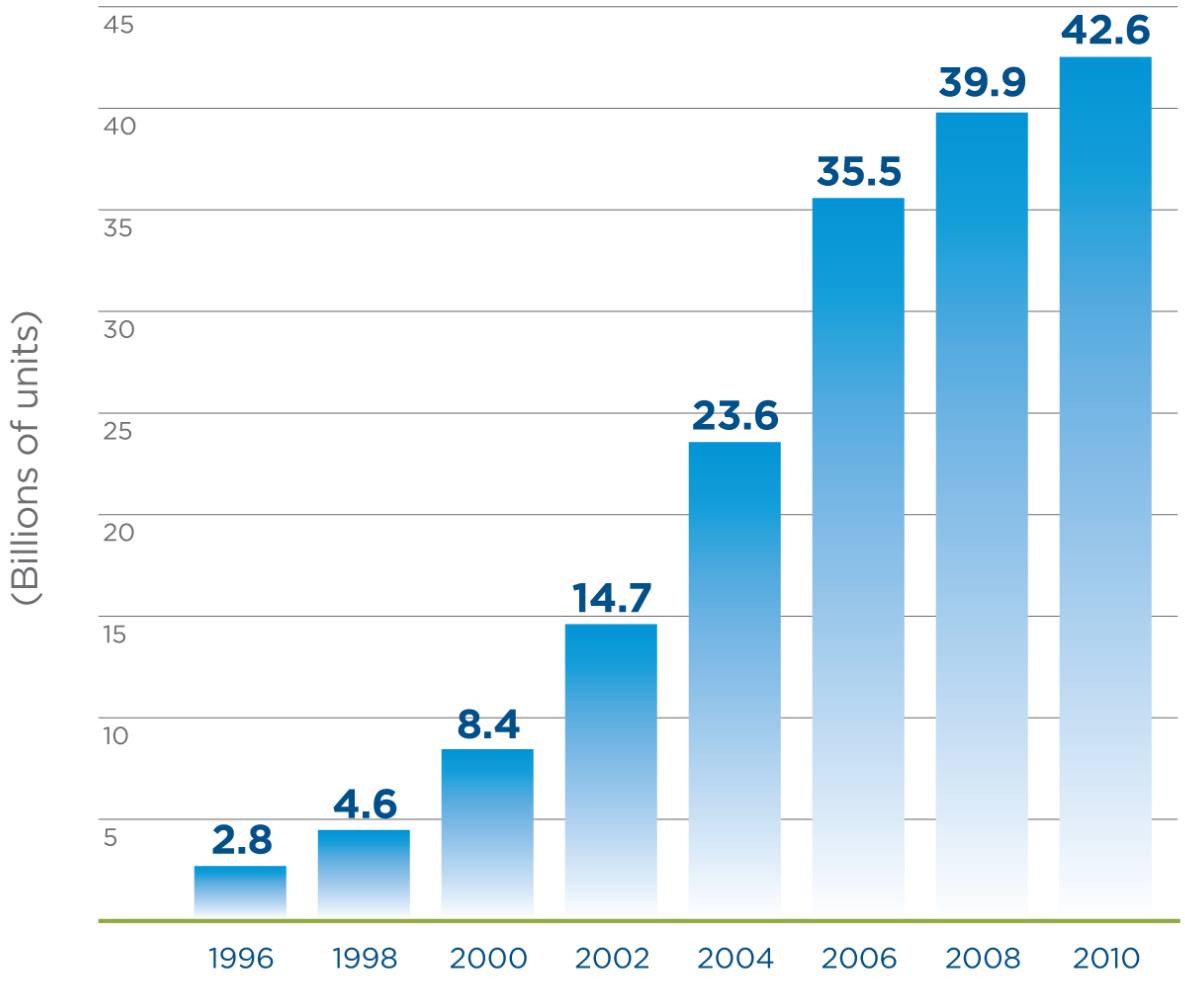
2010:

Sold:
222.5 billion

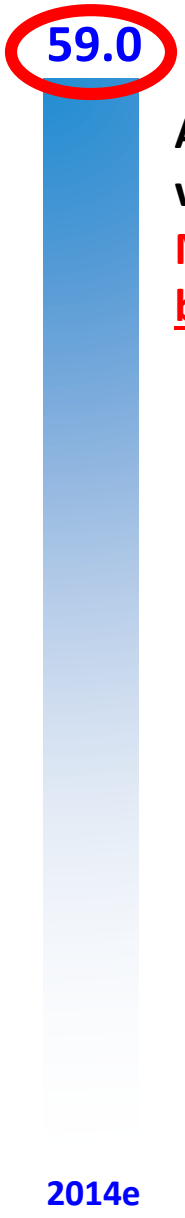
Wasted:
134.3 billion

Recycled:
88.2 billion

U.S. Plastic Bottled Water Sales, 1996–2010

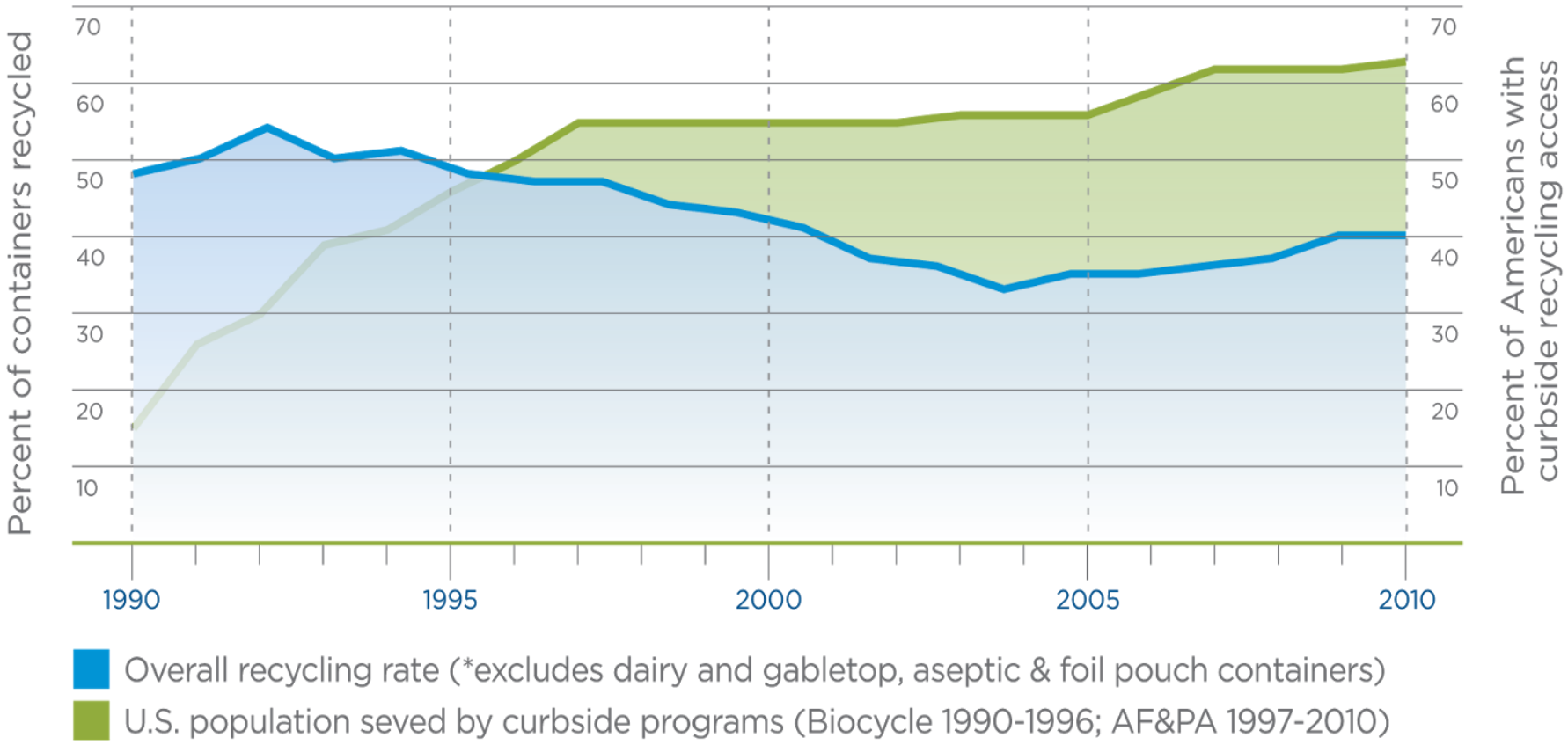


Defined as domestic, bottled water packaged in plastic, ≤ 1 gallon.
Derived from Beverage Marketing Corporation data, 1996–2010.



Approx. 28% were recycled;
More than 42 billion wasted.

Comparing Curbside Recycling Access and Beverage Container Recycling Rates*, 1990–2010



Why curbside & dropoff are not substitutes for deposits:

- **Curbside can't recycle what it doesn't target.** Away-from-home beverage consumption is about 1/3 of the total (in MD, that's about 1.4 billion bottles & cans).
- **Not everyone has access to curbside**: multi-family homes and rural areas are frequently left out of curbside routing. (60% in MI, 64% in MA)—parallel to US level
- **Not everyone participates**. For example, estimated participation in MI is 37%
- **Losses from collection, sorting, and processing** can be as high 50%
- **Lower quality material generated vs. deposit material** which is clean and separated
- **Public space recycling is very expensive and has low capture rates**

Collection is not the same as recycling

In a recent study*, MRF output was found to have high levels of contamination and incorrect sorting:

- **PET bottles under 1 liter** (regular weight): **13%** were lost to incorrect sorting: 3% ended up in residue; 10% ended up in the wrong bale (mixed paper, other plastic etc.)

- **Small PET containers**: **47%** of small PET containers, such as clamshell take-out boxes, were lost to incorrect sorting, including 8% as residue and 34% ending up in a mixed paper bale.

- **Colored HDPE: 21%** were lost to incorrect sorting: 5% ended up in residue; 16% ended up in the wrong bale (mixed plastic, mixed paper, nHDPE, etc.)

**Source: Derric Brown, Evergreen Packaging & Carton Council, "Tackling Contamination" presentation, 9/30/15, reporting on the MRF Material Flow Study (July 2015), commissioned by the Carton Council, NAPCOR, the American Chemistry Council, the Association for Postconsumer Plastic Recyclers (APR), and the Food Service Packaging Institute.*

Deposit scrap is more valuable:

Single-stream curbside material: contaminated, low quality vs. clean, separated deposit material:

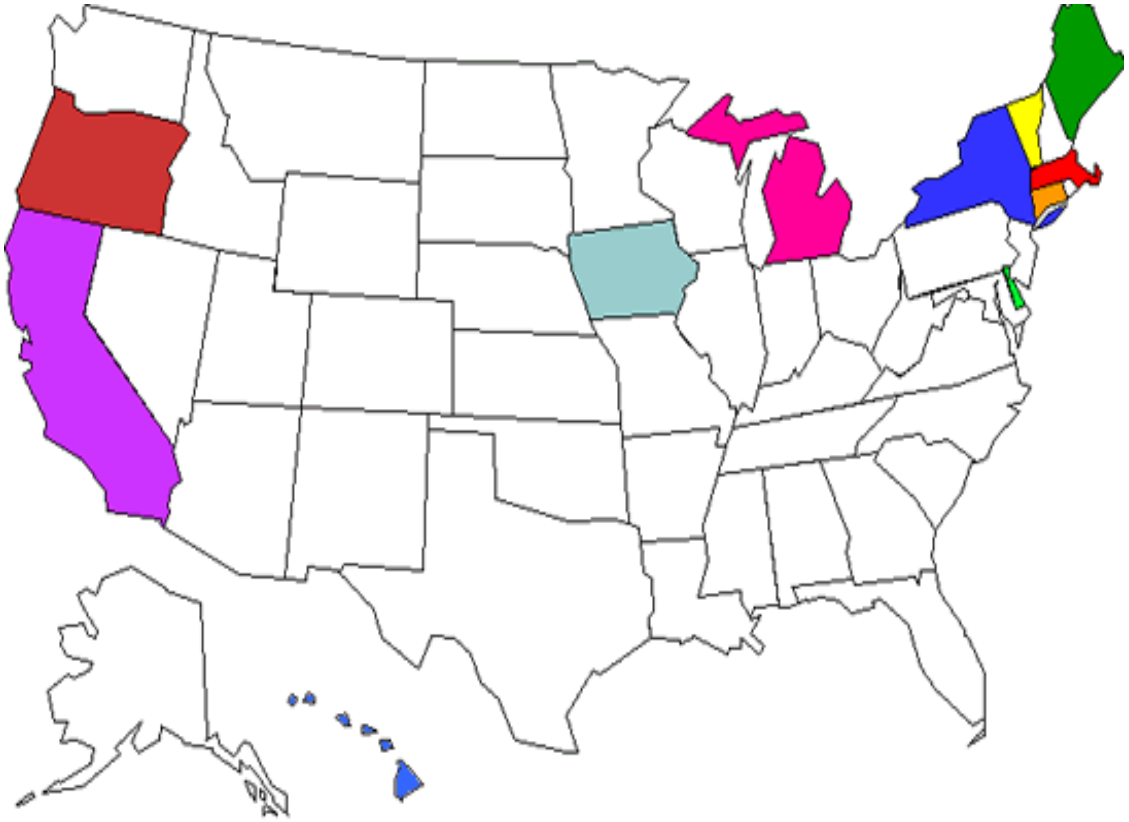
- **Curbside PET plastic** recently sold for for $0.09/lb, compared to deposit PET at $0.15/lb.

- **Curbside glass** *costs* $20/ton to recycle—when markets can be found for it at all—versus deposit glass that has a $20/ton scrap value.

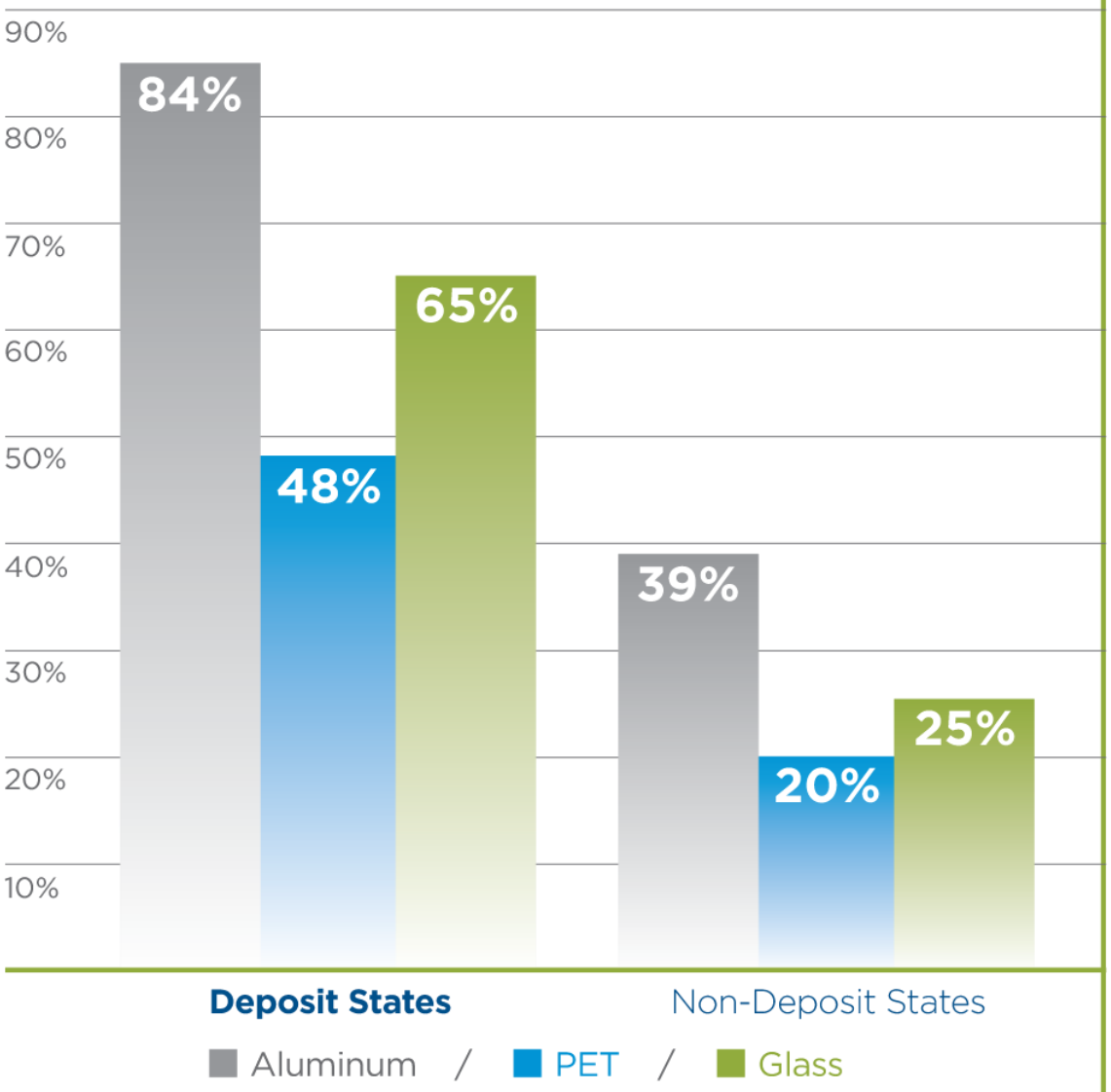
Glass: Deposit vs. Single Stream

Deposits drive up the overall U.S. beverage container recycling rate

46% of all beverage containers recycled in the U.S. in 2010 came from the 11 bottle bill states—although they have only **28**% of the US population.



Deposit States Have Higher Beverage Container Recycling Rates



Bottle Bills are More Relevant Than Ever: New & Updated Deposit Laws Since 2000

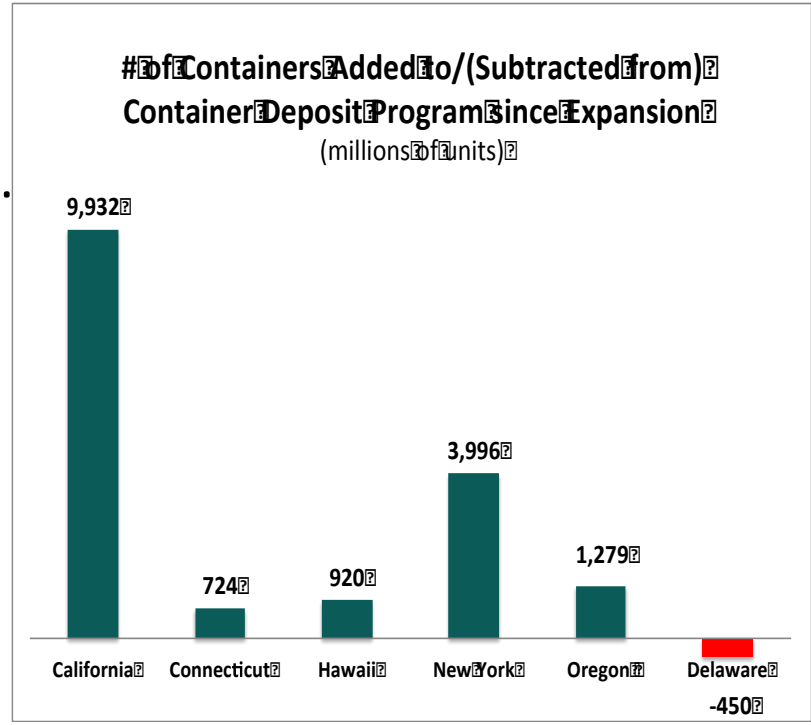
Region	Type	Year
California	Update	2000
Croatia	New	2005
Estonia	New	2005
Germany	New	2005
Hawaii	New	2005
Ontario	Update	2007
South Australia	Update	2008
Alberta	Update	2009
Connecticut	Update	2009
New York	Update	2009
Oregon	Update I & II	2009/11
Fiji	New	2011
Guam	New	2011
Northern Territory of Australia	New	2011
Turks and Caicos	New	2011
Lithuania	New	2015

What did the Delaware repeal accomplish?

- 2010 repeal of DE BB; replaced w/"Universal Recycling Law" mandating single stream collection to all.
- ***Overall diversion rate*** rose from 33.7% in 2010 to 41.9% in 2013

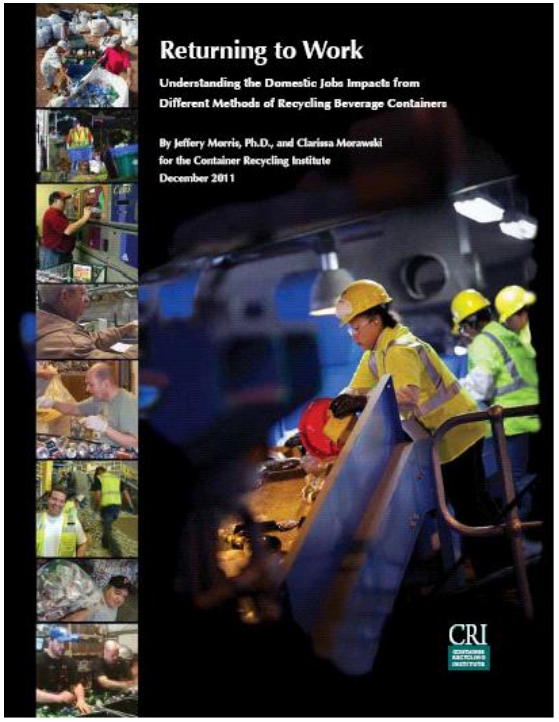
However:

- DE law **weakest** of 11 BBs: exempted cans, poor collection enforcement
- General recycling was **low**: 17% had access to curbside—56% lower than US average.
- New "diversion" includes paper, HHW, commercial waste, appliances, vehicles & **organics** from a yard waste/leaf ban: ½ from residential sector, **½ from commercial sector**.
- Diversion rate includes **residuals**: landfilled contaminants, and roadbed aggregate: not true recycling.
- CRI estimates a bev. container RR of **30-40%**
- Amount of containers affected, relative to new ones added elsewhere, is minimal.



New Jobs From A Deposit Law

- CRI's Jobs report* found that "As recovery tonnage increases, employment related to collection, processing and secondary processing also increases (excepting exports)."
- A Maryland BB would result in increased tonnages of:
  - Almost 9 thousand tons of aluminum
  - Almost 3 thousand tons of plastic (PET + HDPE)
  - 90,000 tons of glass
- This is over and above what is already being collected at curbside, therefore a **new driver** of recycling-related jobs in collection, processing, and re-manufacturing industries.
- Massachusetts has the same population as Maryland, and there we estimated that there are 600 jobs in redemption centers alone, and hundreds more in processsing and secondary manufacturing.



**Returning to Work: Understanding the Domestic Jobs Impacts from Different Methods of Recycling Beverage Containers, Container Recycling Institute, 2011.*

Benefits of deposit systems:

- Produce **high recycling rates**: 58 - 95% for beverage containers
- Reduce **litter** in urban, rural, and marine areas; parks
- Conserve **energy and natural** resources
- **Reduce greenhouse gas** emissions
- **Prevent pollution from manufacturing** of new containers from virgin materials
- Create **jobs** and new businesses that can't be outsourced overseas
- Shift end of life costs for used beverage containers to **producers responsible** for the waste

Some common arguments against deposits:

- Only address a fraction of the wastestream

  *By weight, they're about 5% of MSW. But they **contribute disproportionately** to the total recycled in a given state, due to high recycling rates (16% of total recycling in MI)*

- Increase costs to distributors and retailers

  *Since 1972, distributors and retailers have incorporated deposit recycling into their **cost of doing business**, and U.S. beverage **sales have skyrocketed: quadrupling** in 40 years: from about 200 units per capita per year in the early 1970s, to almost 800 today.*

- Increase prices and lower beverage sales

  *Cost increases can be recouped in **minimal price increases** that consumers barely notice. Indeed. there is already **large variability** in prices from one size to another and from one location to another.*

- Are not compatible with curbside recycling
  - *Curbside can't recycle what it doesn't target: **away-from-home consumption**: about 1/3 of all sales.*
  - *Bulky, heavy, and low-value material is removed from expensive curbside routes.*

- Are inconvenient for consumers

  *Consumers quickly become **accustomed** to returning their empties, and enjoy getting refunds.*

Biggest issue is: who pays?

- Curbside, dropoff, and public space recycling are **taxpayer-funded.** Counties and municipalities are strapped financially. Deposit systems relieve them of a burden.

- Deposits are funded by the **producers and distributors** of the one-way beverages. They are the earliest form of **producer responsibility.**

To Get More Information

CONTAINER RECYCLING INSTITUTE

Main website:
www.container-recycling.org
Sign up for our free weekly newsletter

Advocacy website:
www.bottlebill.org

JOIN US ON facebook

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Overall Beverage Container Recycling Rates in Deposit States

Oregon : 71%

Vermont : 85%

Michigan: 95%

Maine (est.): 90%

Iowa: 86%

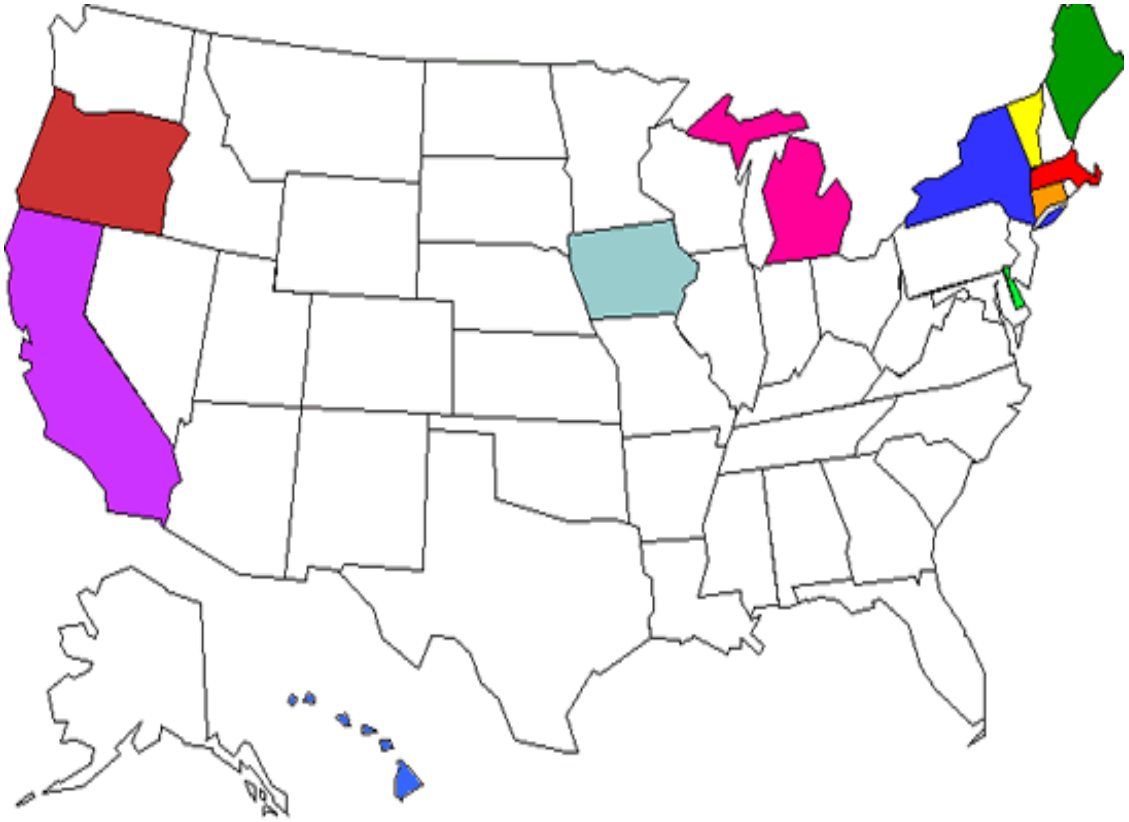
Connecticut: 58%

Massachusetts: 65%

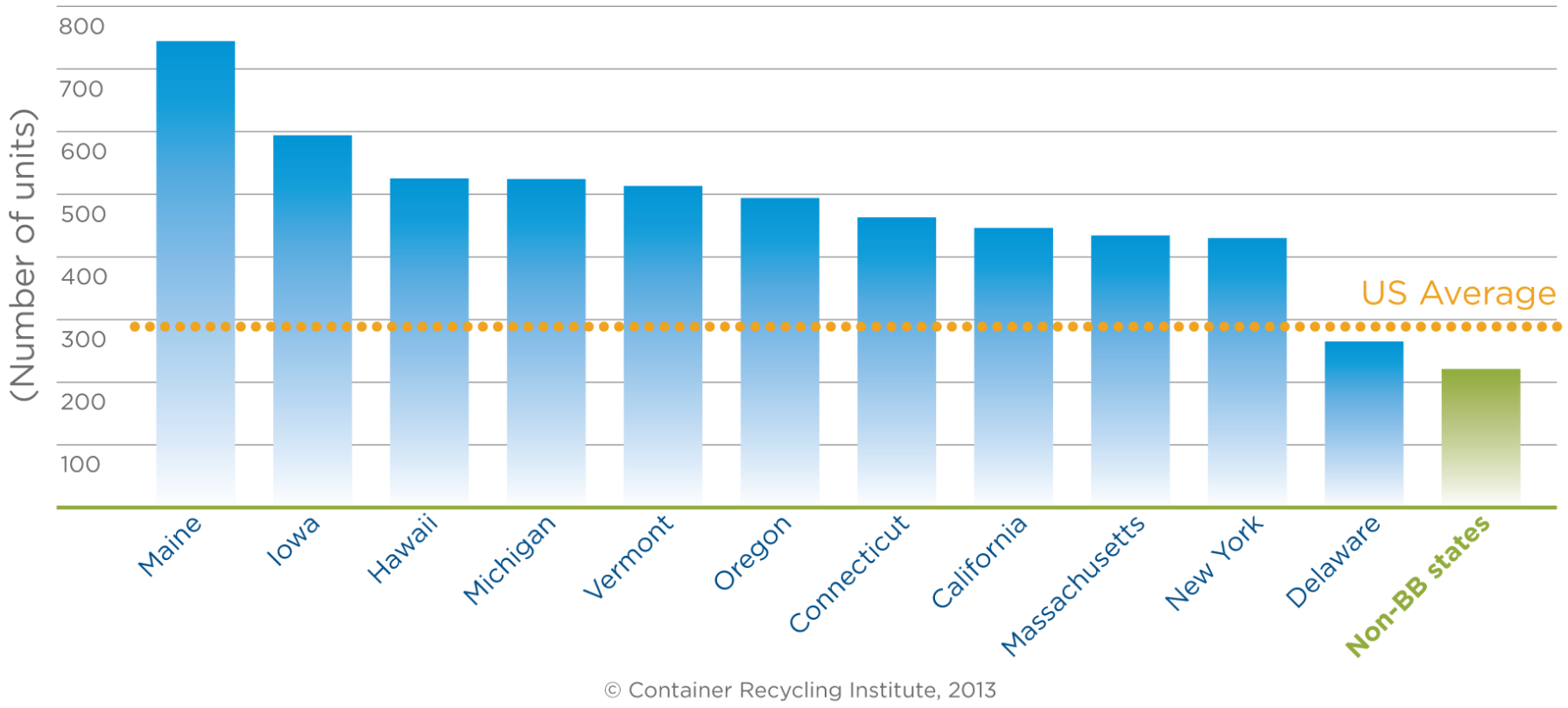
New York: 64%

California: 80%

Hawaii: 73%



Per Capita Containers Recycled in Deposit and Non-Deposit States – All Container Types, 2010



Curbside Theoretical Maximum

- CRI estimates that the theoretical maximum (best case scenario beverage container recycling rate achievable by curbside recycling alone is **38%**.
- Best case scenario: 100% of residents have curbside access; 100% participate in the program faithfully (no skipping).

Total beverage container waste generated	x	Proportion of tons consumed in residential sector	x	Retention after material losses: Sorting		Processing	=	**Total Recycling**
100%	x	63%	x	86%	x	71%	=	**38%**
		37% Away-from-home consumption		*14% loss*		*29% loss*		

Source: CRI memo "Theoretical maximum recycling rate in Michigan from curbside recycling programs only," January 2015.