

**NEWMOA**  
**Unlocking the Value:**  
**Transforming the**  
**Connecticut Materials**  
**Economy**

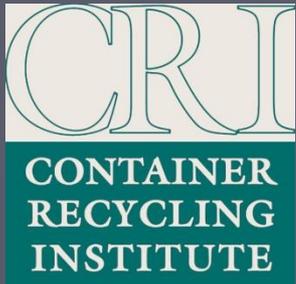
***CRI's Jobs Study:***  
***Returning to Work***

**Susan V. Collins**  
**Container Recycling**  
**Institute**

***March 22, 2012***

*Container  
Recycling  
Institute:*

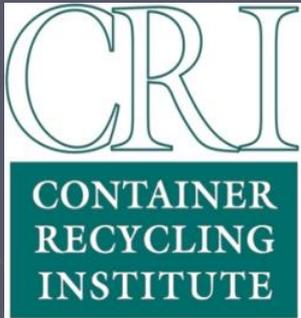
*Striving to  
make North  
America a  
global model for  
the collection  
and quality  
recycling of  
packaging  
materials.*



# Mission Statement

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

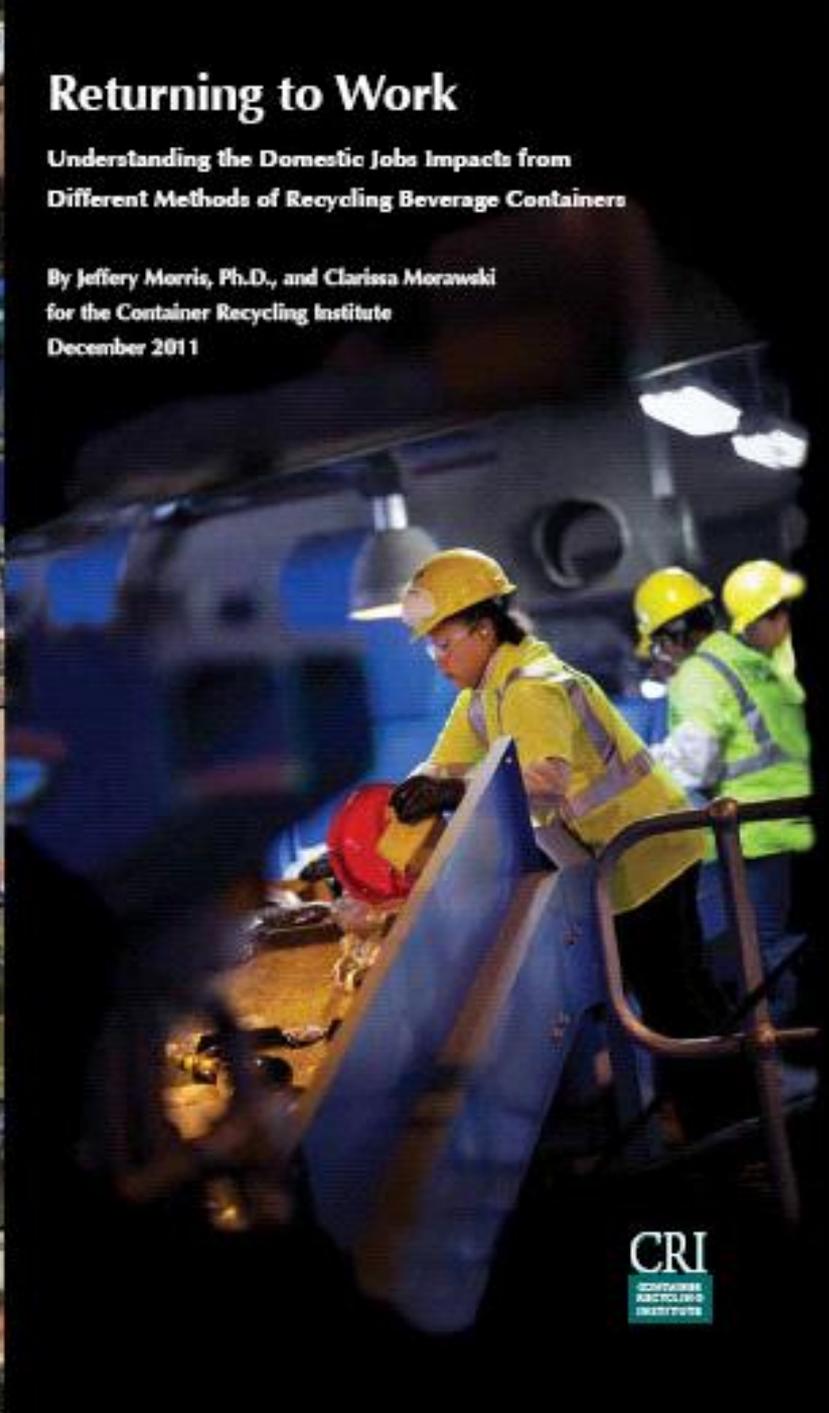
- ▶ Creating and maintaining a database on containers and packaging
- ▶ Studying container and packaging reuse and recycling options and legislation, including deposit systems, and their environmental and economic impacts
- ▶ Educating on recycling options for government, elected officials, for citizen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



# Returning to Work

Understanding the Domestic Jobs Impacts from  
Different Methods of Recycling Beverage Containers

By Jeffery Morris, Ph.D., and Clarissa Morawski  
for the Container Recycling Institute  
December 2011



Prepared by:



Sound Resource  
Management

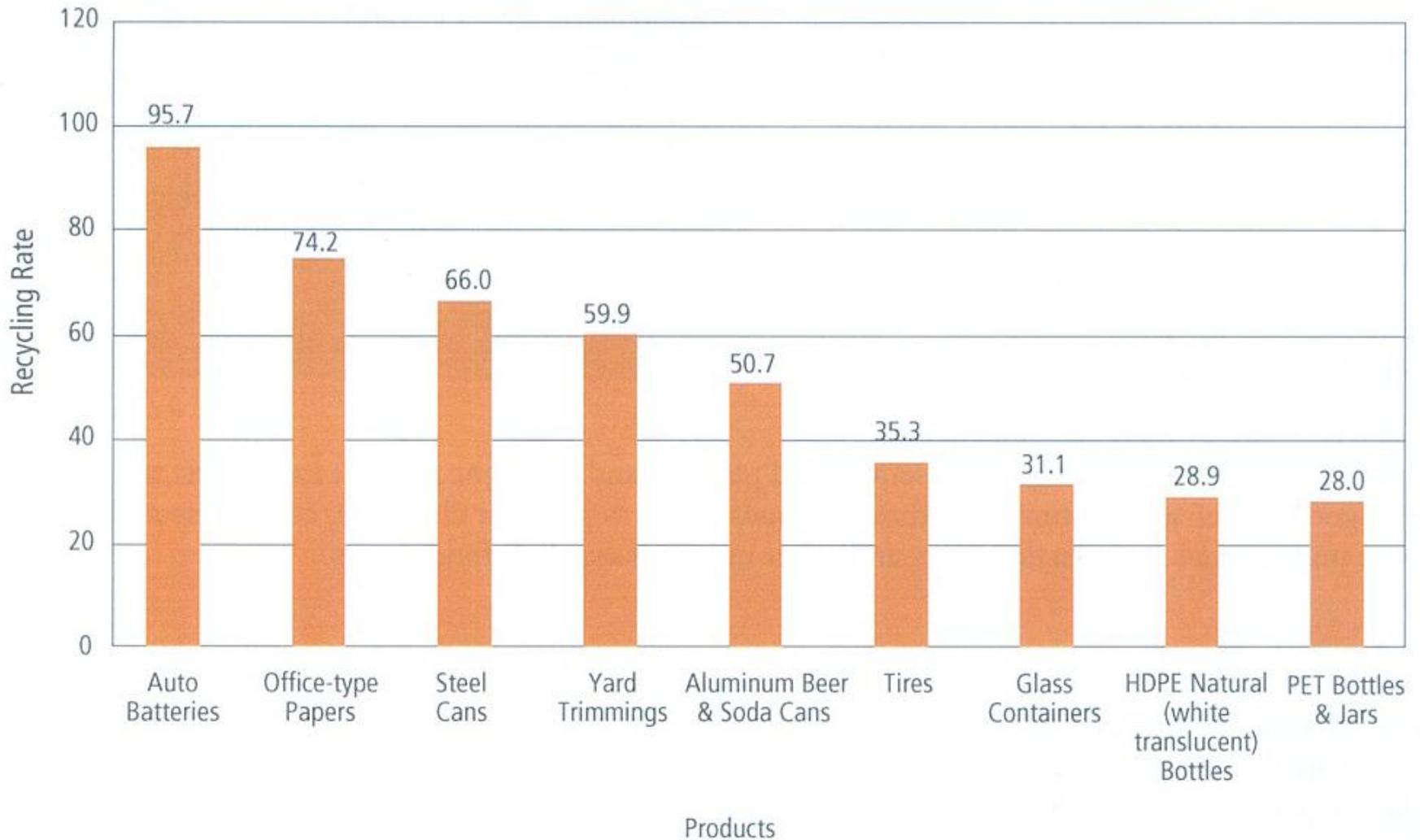


CM Consulting

# Persistent Question

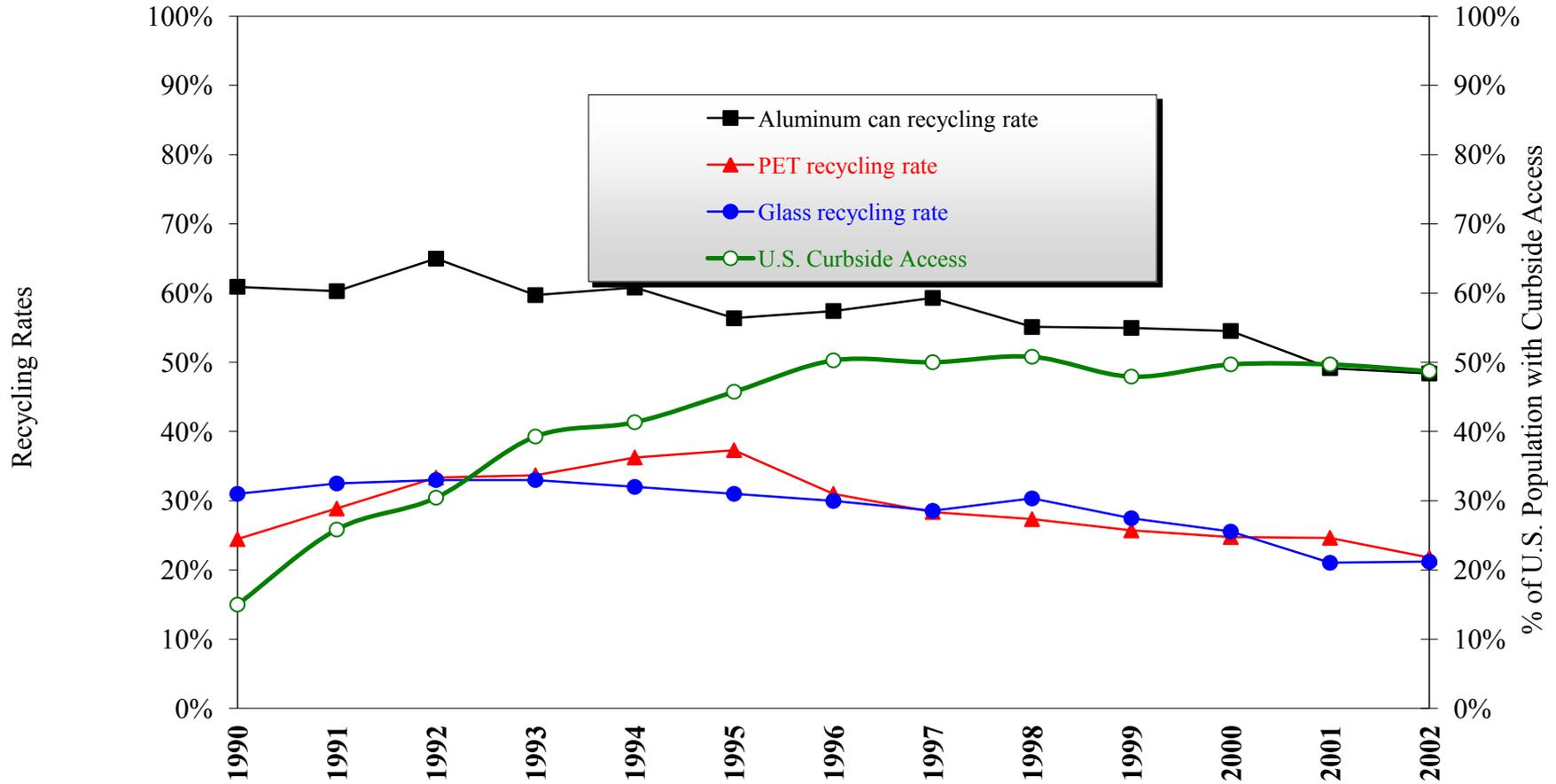
- ▶ How many jobs would be created if we enacted a container deposit law in our state?
- ▶ We had some data, but did not have an authoritative, comprehensive answer.

Figure 3. Recycling Rates of Selected Products, 2009\*



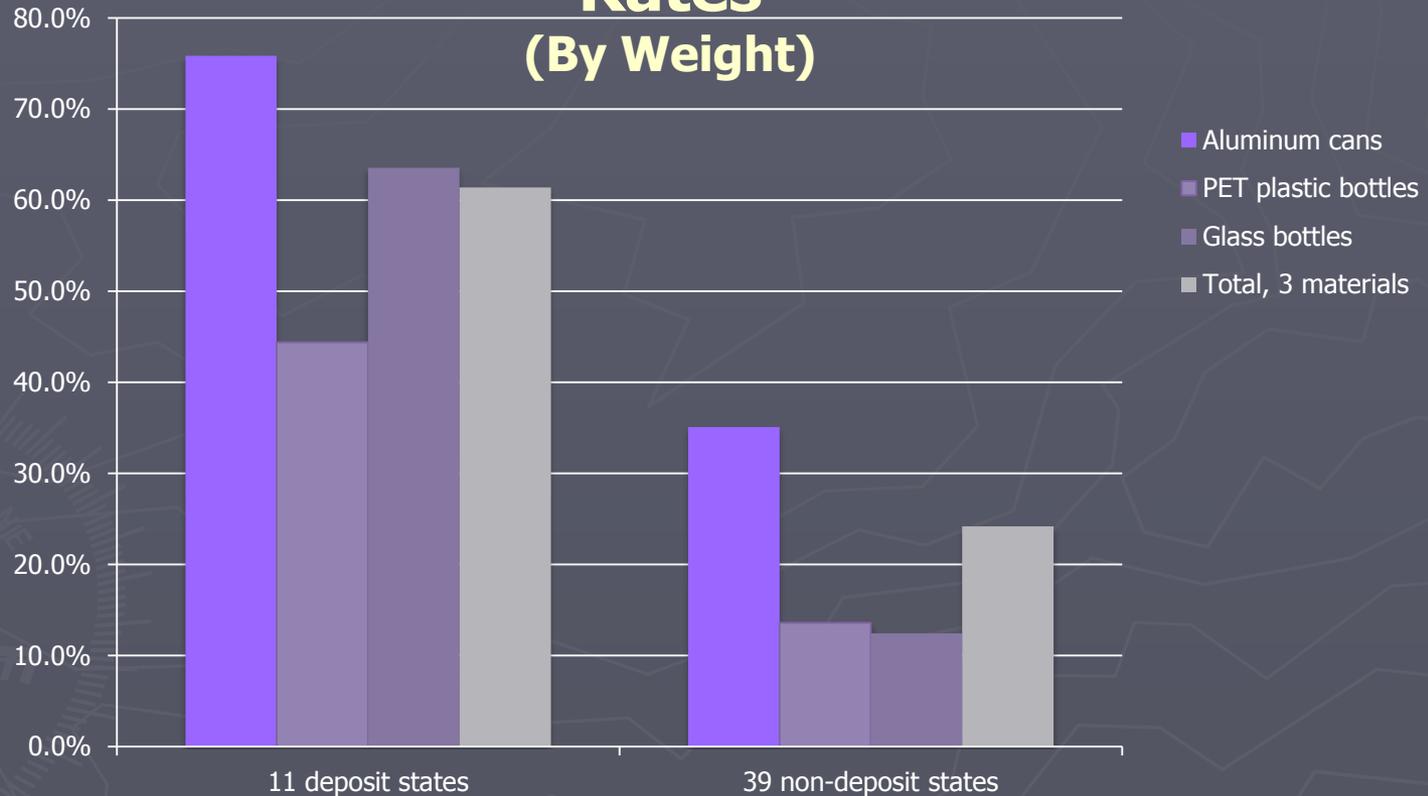
\*Does not include combustion (with energy recovery).

## U.S. Access to Curbside Recycling vs. Recycling Rates for 3 Container Types, 1990-2002



# Container Deposit Return Programs Result in Higher Beverage Container Recycling Rates

## Average Beverage Container Recycling Rates (By Weight)

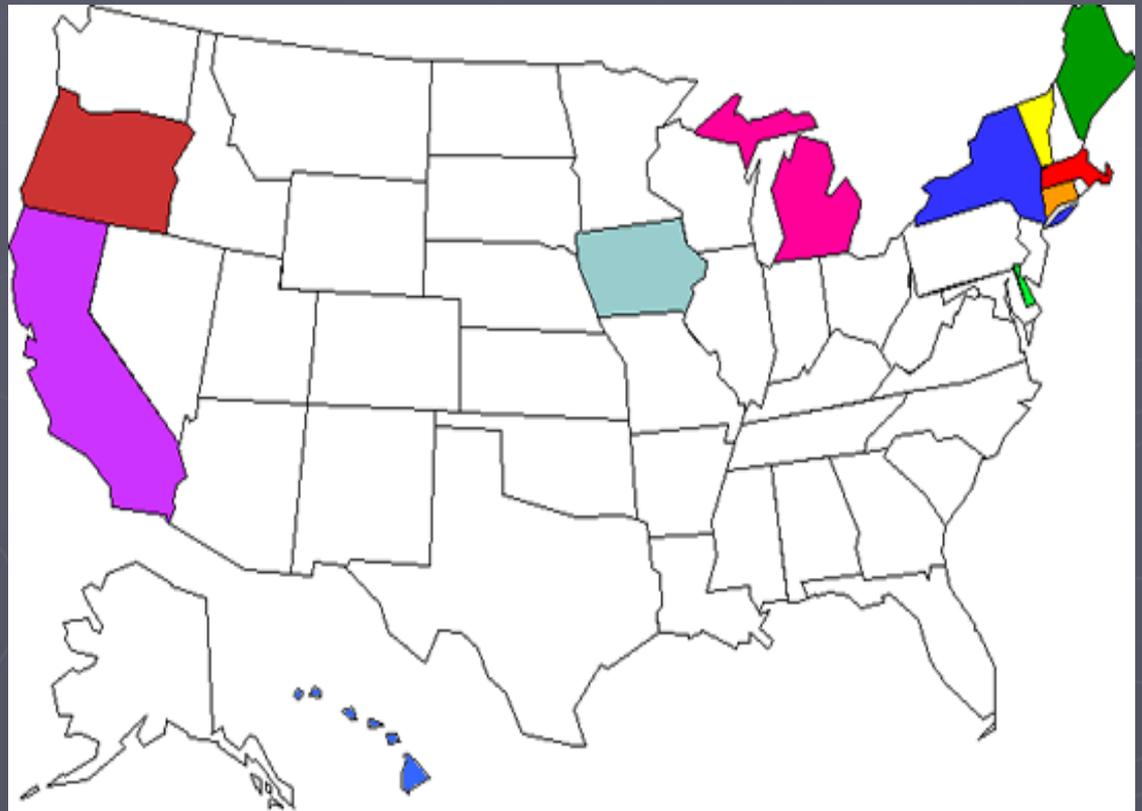


Source: CRI's 2008 Beverage Market Data Analysis (using 2006 data)

Container Recycling Institute © 2009

# U.S. States with Container Deposit Laws

Oregon  
Vermont  
Michigan  
Maine  
Iowa  
Connecticut  
Massachusetts  
New York  
California  
Hawaii  
Guam (new)



# Project Background

- ▶ Conducted literature review
  - ▶ No similar studies
- ▶ Development of performance indicators:
  - weight; volume; energy savings; pollution prevention; cost; and impact on domestic jobs
- ▶ Primary research needed
  - ▶ To understand how & why these jobs are created
  - ▶ To provide a jobs estimate.

# Project Goals

- ▶ Measure direct impacts on domestic jobs
- ▶ From increased recycling of beverage containers
  - Glass, aluminum & PET
- ▶ Compare/quantify container deposit return (CDR) programs, curbside recycling and landfill
- ▶ Create a calculator: “Measuring the Impact from Recycling on Jobs” calculator (MIRJcalc) (user inputs available)

# Study Methodology

► Primary data collection – data points each for “stage”:

- 1. Collection (includes transport to MRF or transfer station)*
- 2. Operations at MRF, transfer station or landfill*
- 3. Transport to landfill*
- 4. Secondary processing*
- 5. End-use manufacturing (virgin or recycled content)*
- 6. Raw materials extraction and refining*
- 7. Administration/supervision/auxiliary positions*

**FLOW CHART: DOMESTIC LABOR (USA) DIRECTLY RELATED TO COLLECTION OF BEVERAGE CONTAINERS FOR RECYCLING AND DISPOSAL**

CONSUMPTION:  
AL; PET; GLASS  
SOLD/GENERATED  
(in tons)

CONTAINER REDEMPTION:  
DEPOT  
RVM  
RETAIL

WASTE/GARBAGE COLLECTION

CURBSIDE COLLECTION:  
MANUAL  
AUTOMATED

Primary Processing /  
Material Recovery  
Facility (MRF)

Landfill

Primary Processing /  
Material Recovery  
Facility (MRF)

EXPORT

PET  
RECYCLING /  
RECLAIMERS

GLASS  
BENEFICIATION

ALUMINUM  
CLEANING

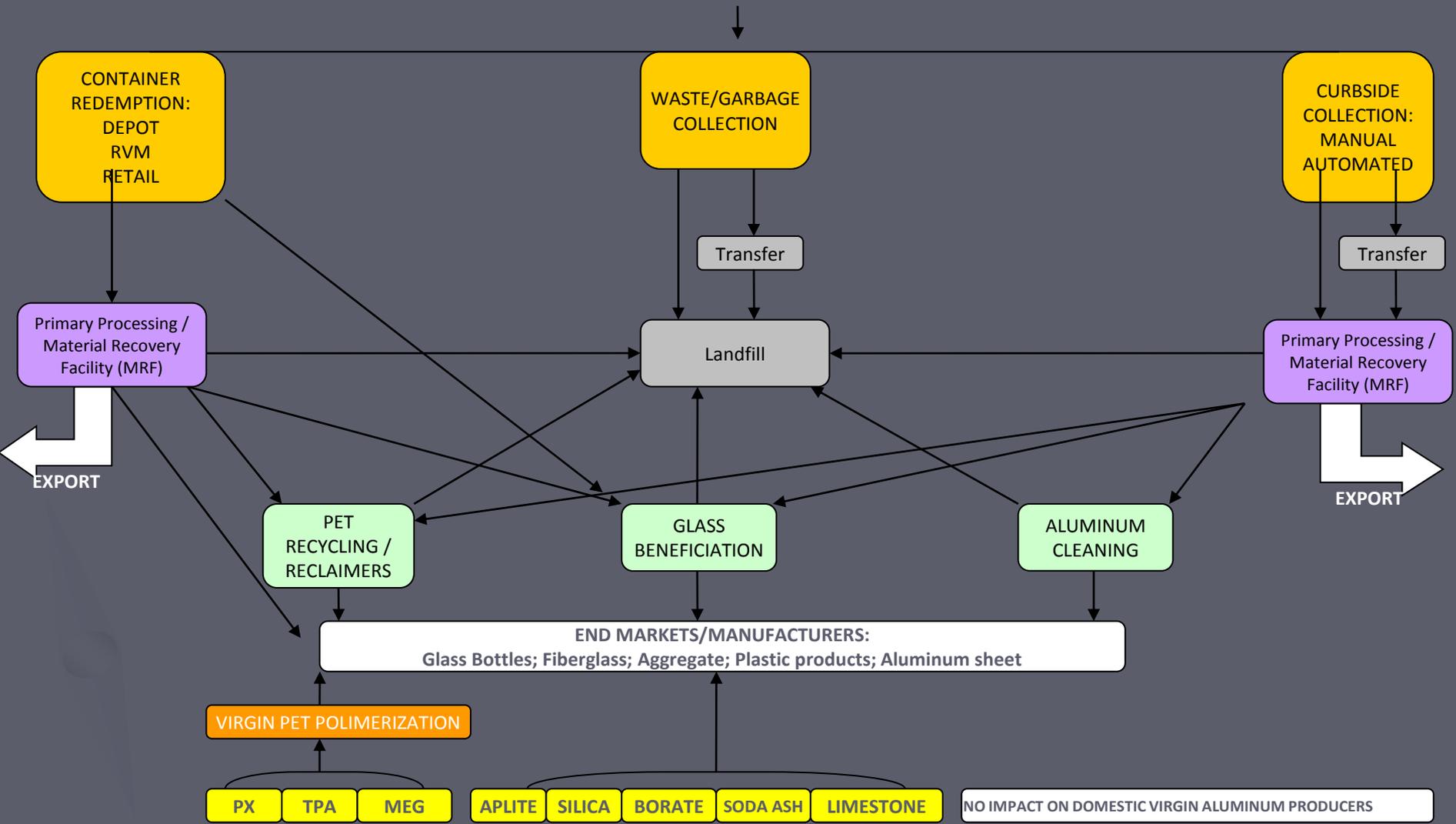
EXPORT

END MARKETS/MANUFACTURERS:  
Glass Bottles; Fiberglass; Aggregate; Plastic products; Aluminum sheet

VIRGIN PET POLIMERIZATION

PX TPA MEG APLITE SILICA BORATE SODA ASH LIMESTONE

NO IMPACT ON DOMESTIC VIRGIN ALUMINUM PRODUCERS



# Model Exclusions

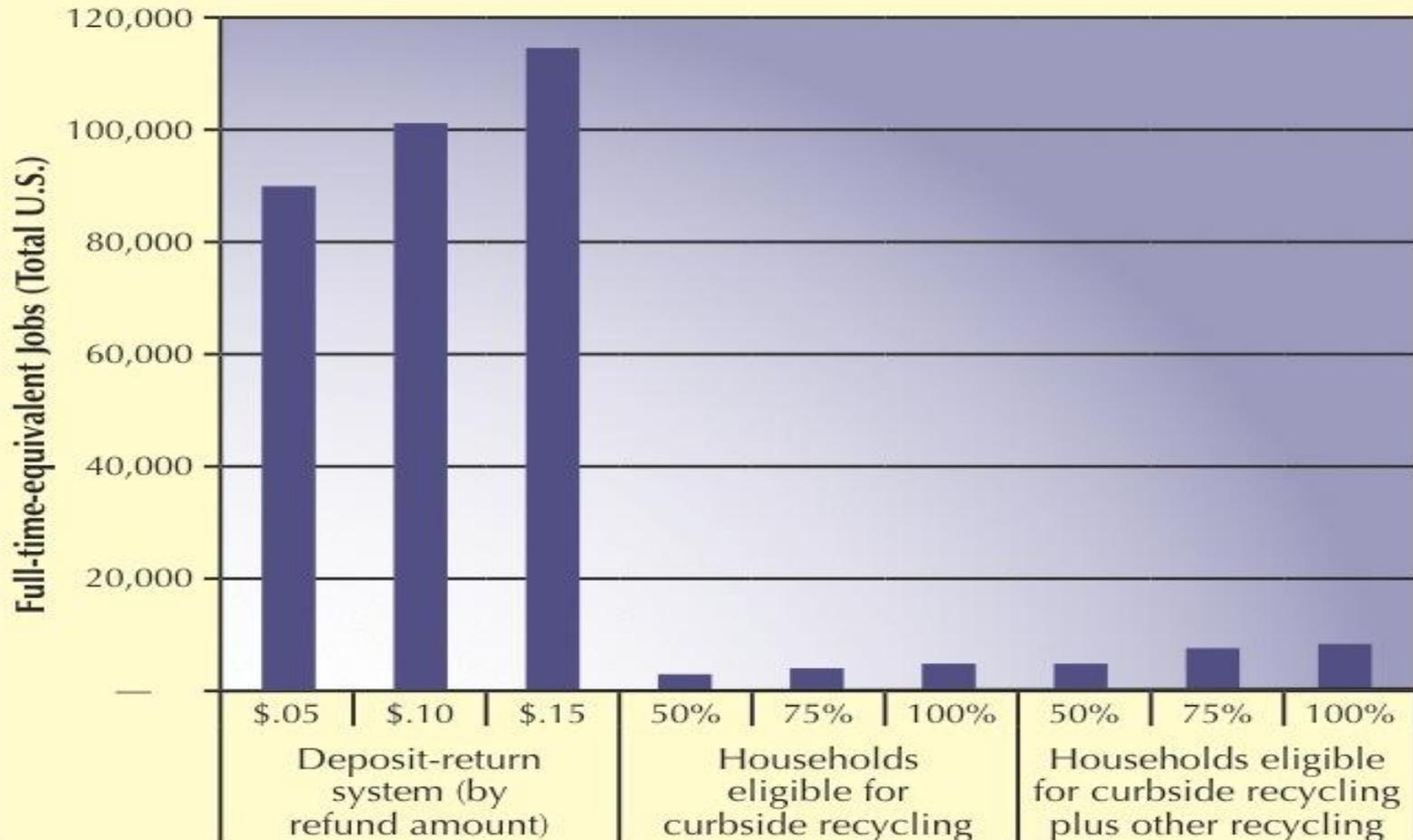
- Recycling-reliant employment
- Transport post MRF
- Indirect effect
- Induced effect
- Out-of-country

# Quantifying Jobs Impact Data

- ▶ Estimate number of employees (FTEs) per 1000 ton throughput
  - ▶ PET
  - ▶ Aluminum
  - ▶ Glass
  - ▶ Each stage (collection, processing and secondary processing)
- ▶ Estimate FTEs for extraction and preparation of virgin material

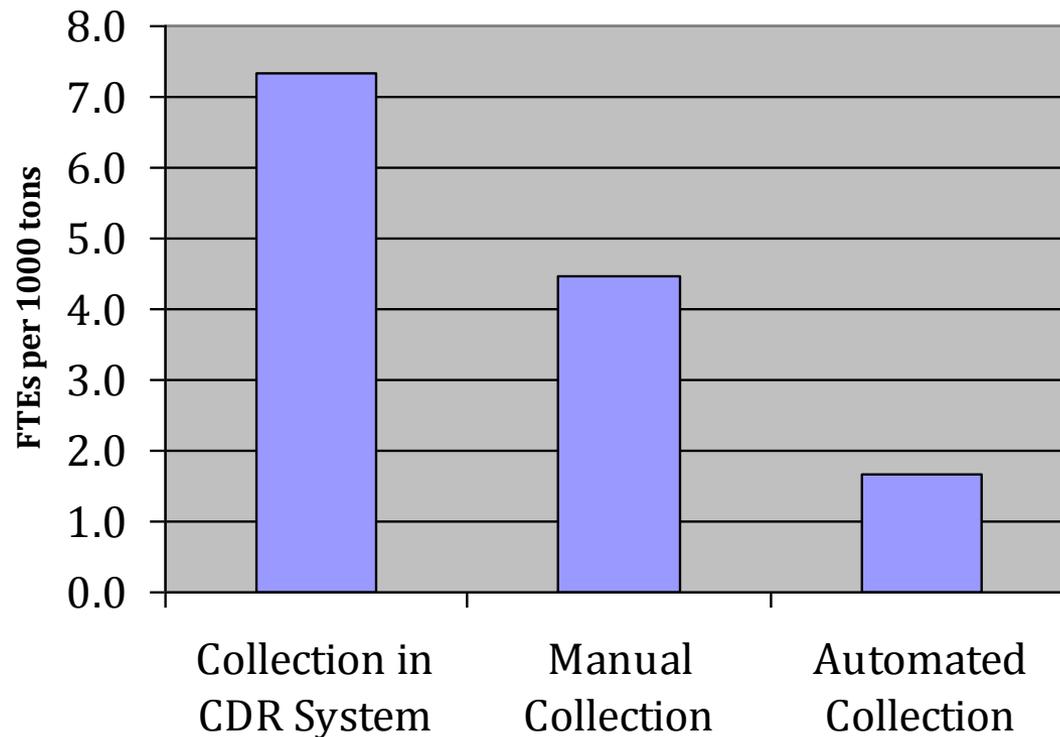
# Overview of Findings

Jobs Created (U.S.) from Beverage Container Recycling

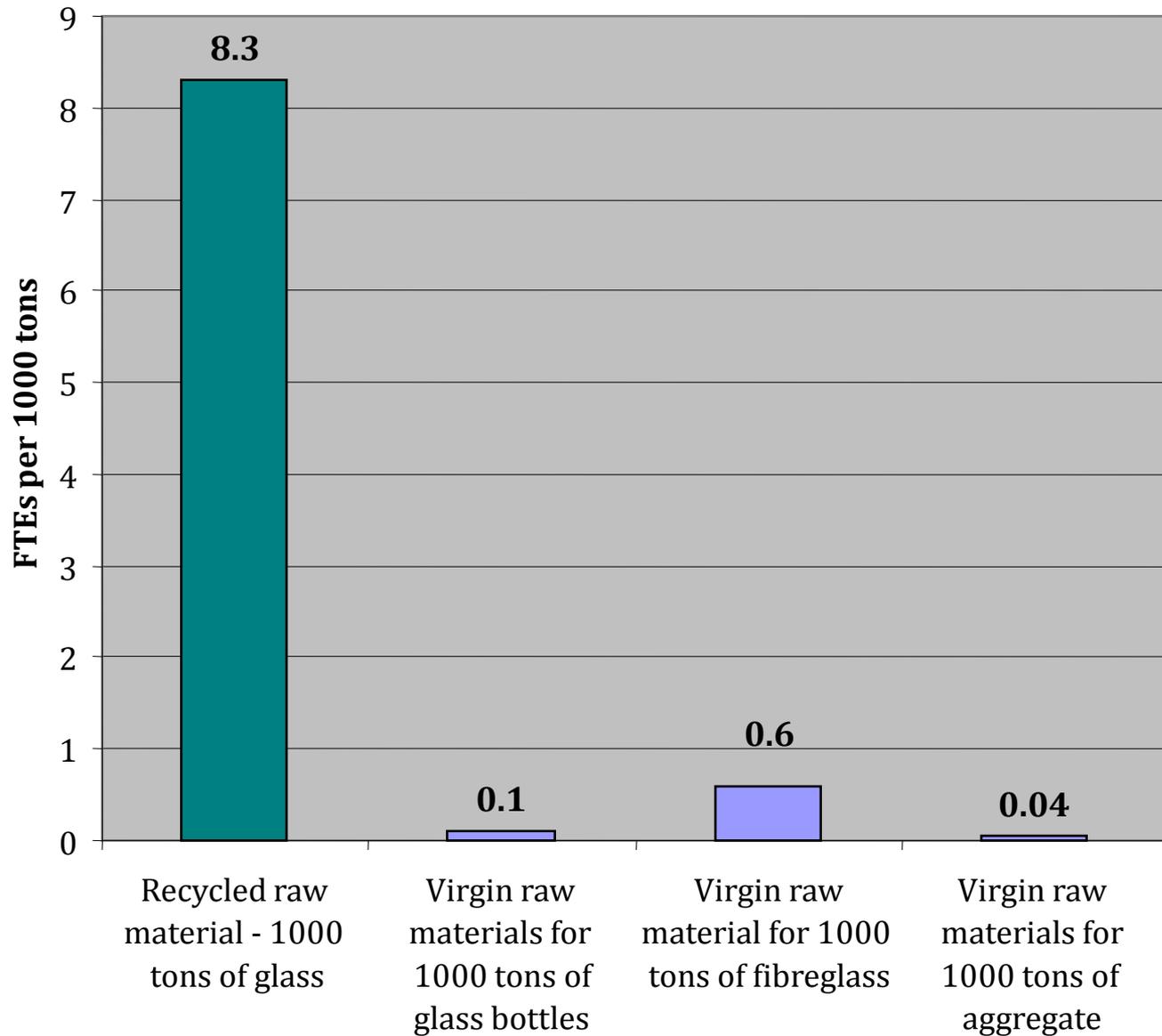


Ton for ton, deposit-refund materials require one and a half to four times more employees for collection and transport to the MRF than curbside systems.

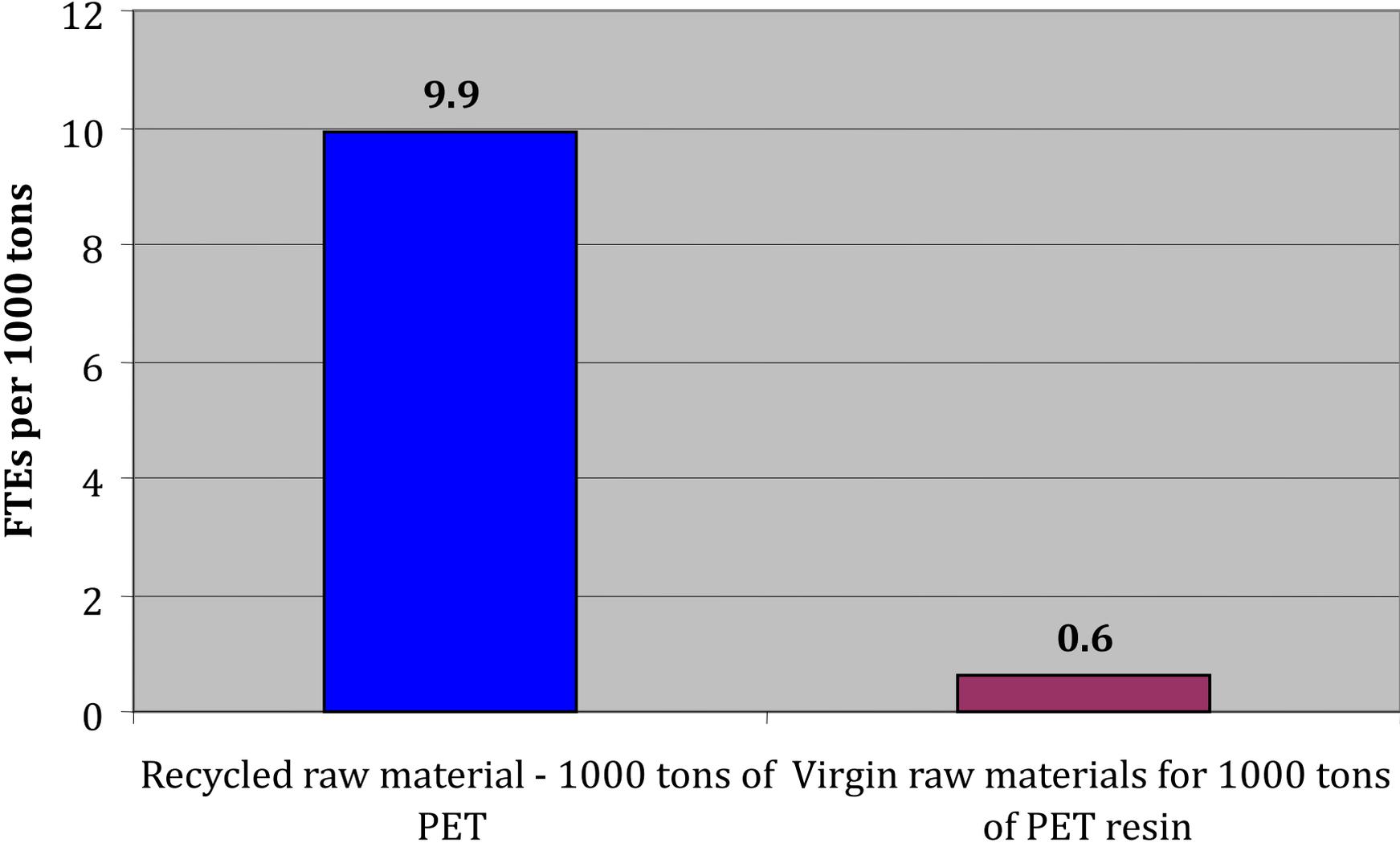
### Collection Jobs per 1000 tons of Beverage Containers CDR and Curbside Systems (Automated and Manual)



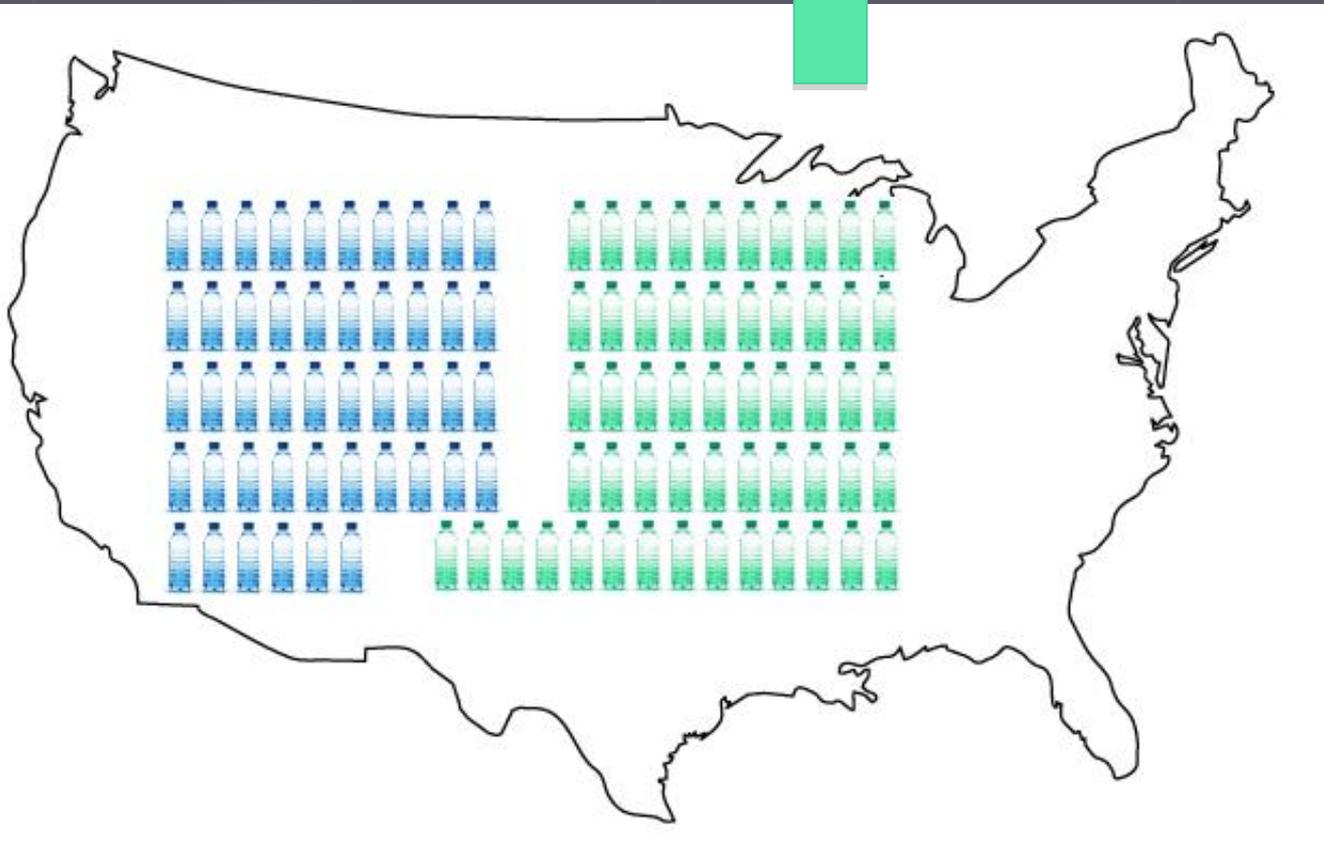
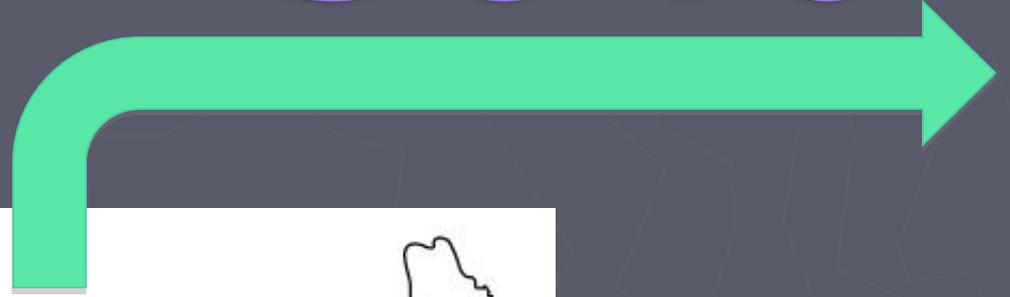
## Comparing the Jobs from Recovering Glass vs. Virgin Raw Material Extraction



# Comparing the Jobs from Recovering PET vs. Virgin Raw Material Production



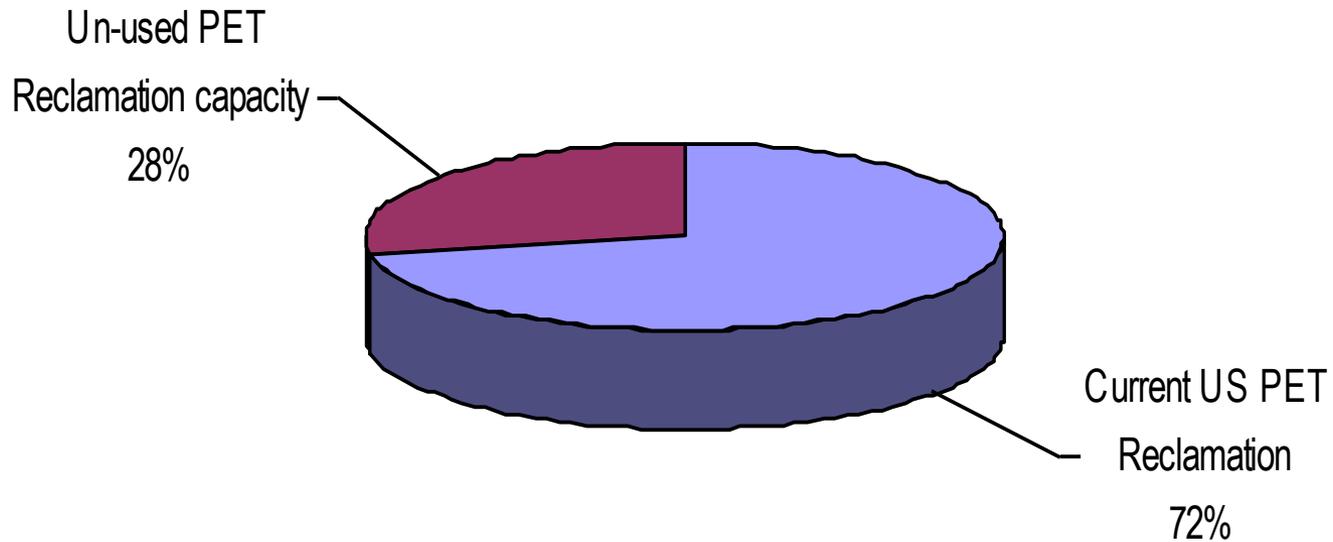
# 50%



of PET bales  
collected in  
the U.S. are  
exported

# Current US PET Reclamation

(Based on 1.2Billion Lbs/yr)



# Conclusions

- ▶ As recovery tonnage increases, employment increases
  - ▶ related to collection, processing and secondary processing
  - ▶ excepting exports
- ▶ Losses that occur in primary resource-extraction activities are greatly outnumbered by the jobs created in material-recovery activities

# Conclusions (cont.)

- ▶ A deposit refund collection system for beverage containers creates many more domestic jobs than curbside collection
  - ▶ And these are LOCAL jobs
- ▶ Improved material quality directly impacts U.S. jobs; clean/separated recyclables more likely to stay in the U.S. for use by domestic manufacturers rather than be exported to foreign markets

# Glass: Deposit vs. Single Stream



# How can this research help me?

- ▶ Support waste recovery systems that ensure high rates of capture and keep material clean/separated. Ton for ton, this material will create more local and domestic jobs than would a dirtier mix of recyclables.
- ▶ <http://www.container-recycling.org/>
- ▶ <http://www.container-recycling.org/issues/jobs.htm>

# Jobs Calculator

- ▶ Input two-letter code for State to automatically calculate the number of jobs that will be created
- ▶ User can customize and change certain inputs
- ▶ <http://www.container-recycling.org/>
- ▶ <http://www.container-recycling.org/issues/jobs.htm>
- ▶ Jobs page has CRI Study, "Returning to Work," the jobs calculator, and links to several other studies on recycling jobs

# To Get More Information



Just type in:  
Container Recycling  
Institute!



Visit us at...

[www.container-recycling.org](http://www.container-recycling.org)

[www.bottlebill.org](http://www.bottlebill.org)

(310) 559-7451



► Igloos for collection of color-sorted glass

# European Glass Collection Methods

- ▶ Refillables
- ▶ Deposits on one-way containers
- ▶ Door-to-door (curbside)
- ▶ Bottle banks
- ▶ Civic Amenity Centers