

Owens-Illinois and Glass Recycling

May 10, 2016

 : HONEST, PURE, ICONIC GLASS

O-I: World's leading maker of glass packaging

- Fortune 500 company; 2015 sales of \$6.2 billion
- Founded in 1903
- 27,000 employees
- Unique position as leader in glass packaging, combining global footprint with focus on innovation and brand-building capabilities
- Proud to make the most sustainable packaging on earth



Preferred partner for well-known global brands

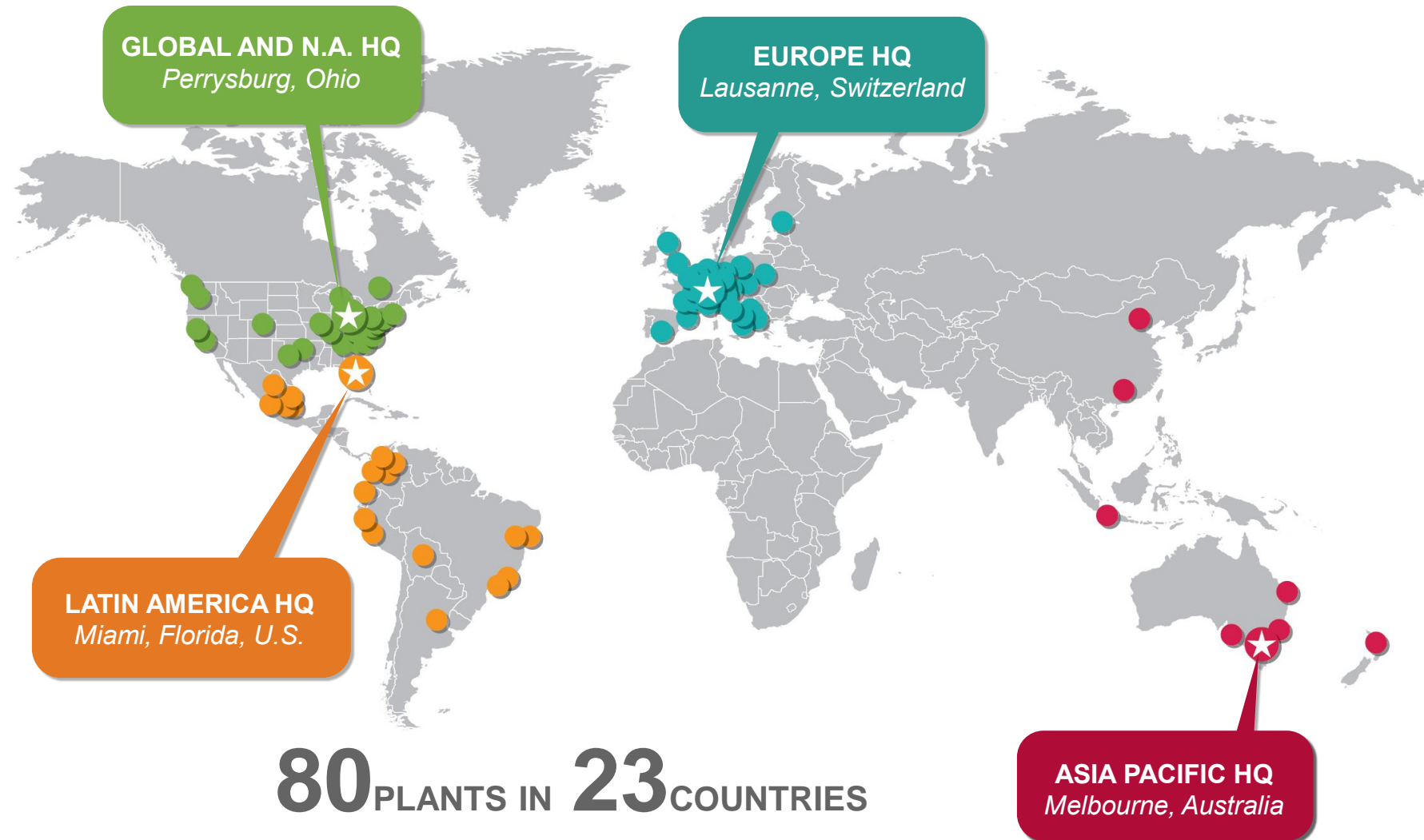


Product portfolio covering a range of categories across the globe



- Glass packaging for beer, wine, spirits, food, specialties, non-alcoholic beverages, and pharmaceuticals
- Tableware, including stemware
- 10,000+ products
- 14 color groups representing 65 unique shades of glass
- 600+ new product solutions introduced each year

Our global presence



Presence in the Commonwealth

Toano – 1980

Customers: MillerCoors, AB InBev, Yuengling, Dogfish Head Brewery. Virginia Craft Brewers.

Cullet Use: 59,731 tons of recycled glass in 2015 or 163 tons a day.

Amber glass (brown color).

Cullet sources: North Carolina, New Jersey, Massachusetts, New York and Connecticut

Danville – 1978

Customers: MillerCoors

Cullet Use: 44,914 tons of recycled glass in 2015 or 123 tons a day.

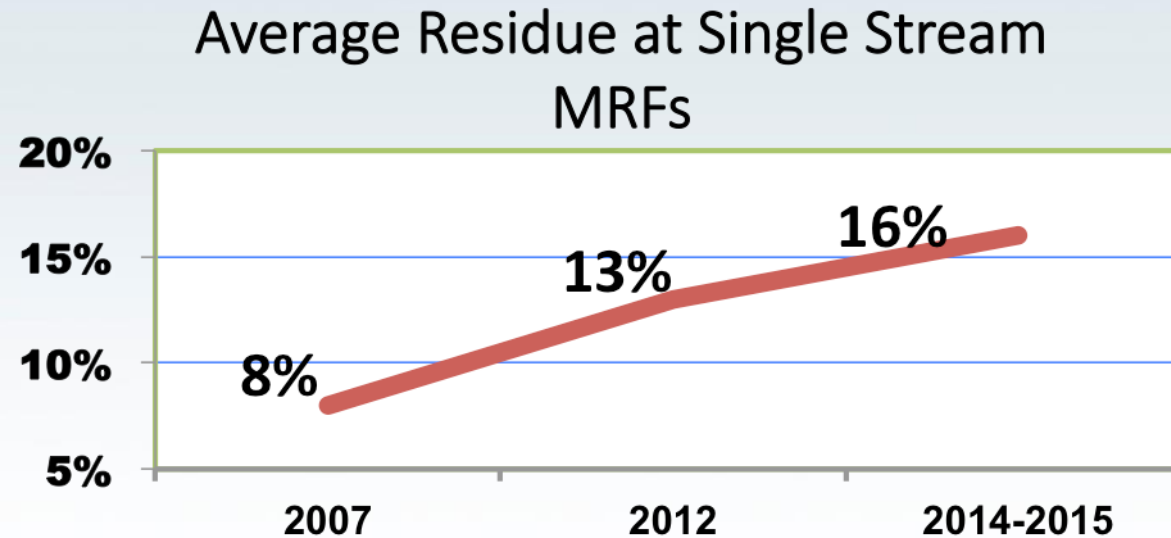
Amber glass (brown color).

Cullet sources: North Carolina, Michigan, New Jersey, New York, Connecticut and Pennsylvania



Perspectives on glass recycling

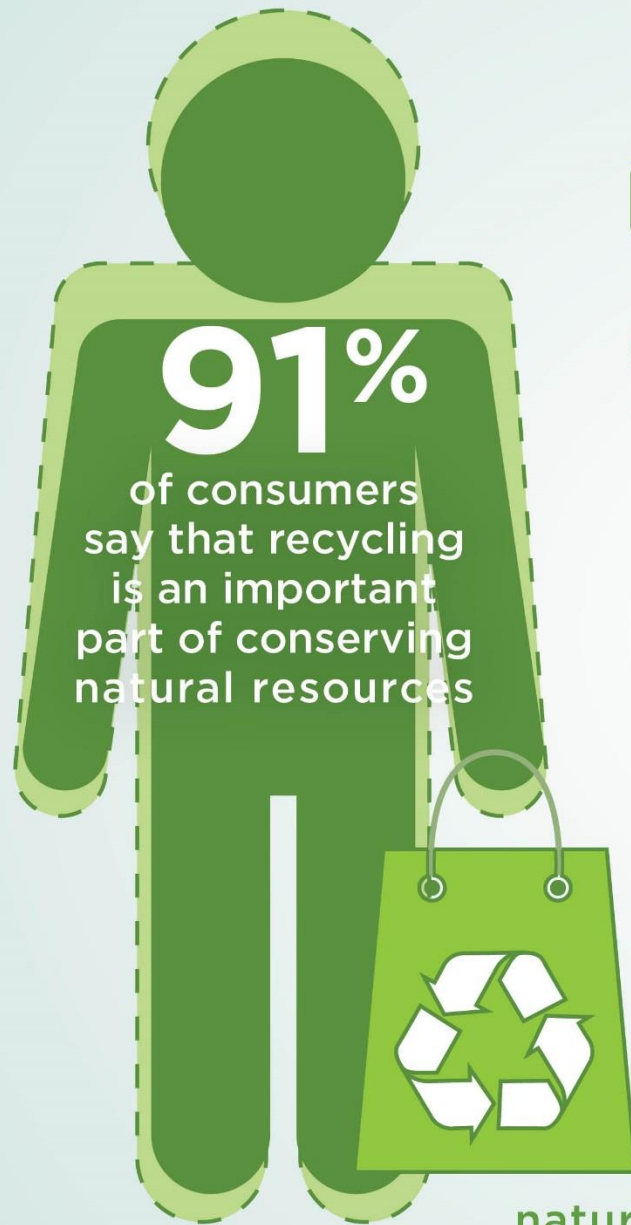
Single Stream Recycling: MRF Processing Challenges



- Increased contamination of inbound supply
- As fiber decreases, glass is growing percent of recycling stream
- SS MRFs initially designed to “remove” glass, not sort it
- Glass clean up systems are expensive to maintain

Sources: 2007 Comparative Study on Public vs. Private MRFs, 2012 GAA study on Wisconsin-Area MRFs, ISRI Moore Presentation April 2015





Americans want to recycle glass

90%

say that it is important to recycle materials rather than sending them to the landfill.

95%

of those who live in a community which recycles glass say glass should continue to be collected by recyclers.

91%

say finding ways to avoid wasting our natural resources is important.

Glass is made from natural resources



Economic value of glass recycling



$$= \text{Person icon} \times 18,000 \text{ JOBS}$$

The glass industry is national with 46 glass plants and 59 recycled glass processors in 29 states

A graphic showing a large pile of white glass bottles, with the text "1 TON RECYCLED" in green and blue. The number "1" is large and centered above the text.
$$= 8 \text{ JOBS}$$

Glass is endlessly recyclable



Glass helps communities meet their recycling goals



Glass bottles and jars represent up to **25%** of the total weight of the recycling stream



It costs only less than .15¢ per person per pick up to recycle glass at the curb



ZERO
Waste recycling goals cannot be achieved without glass

Improve Supply Chain Value & Accessibility

Location Type

- GPI Member Manufacturing Plant
- Recycled Glass Processing Facilities
- Fiberglass Manufacturing Facilities

Zipcode / Proximity

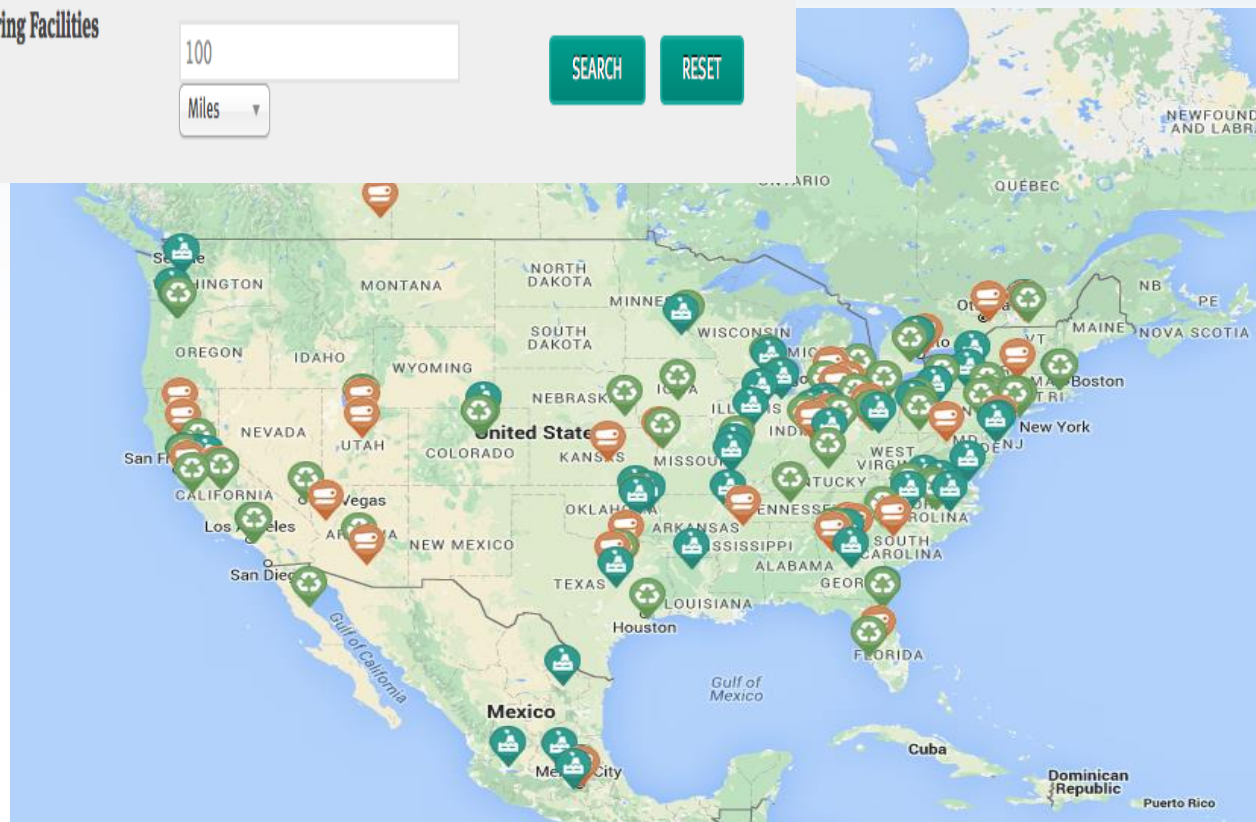
Postal code

Distance

State

Show All

www.GPI.org:
Connecting the dots to the
glass recycling chain



Partnership With Fiberglass Industry

- Operates 36 plants in North America
- Recycled glass is a critical manufacturing input
- Similar to the glass container industry, requires properly sorted glass that meets industry specifications
- Purchased roughly 750,000 tons of recycled glass in 2015



MRF Initiatives in North Carolina

- GPI grants to two MRFs for improving glass processing and handling (Asheville and Raleigh)
- MRFs to report on changes in glass recovery efforts in one year
- 3 glass container plants in-state



Targeted Outreach & Glass MRF Spec

- Outreach to state and local recycling officials & organizations
- Establishing a “Glass MRF Spec” under consideration with ISRI (Institute of Scrap Recycling Industries)



Glass Recycling Coalition

- Glass Industry Value Chain:

- Diageo
- New Belgium Brewing
- Glass Packaging Institute
- Heineken
- Strategic Materials, Inc.
- Sierra Nevada
- Ripple Glass
- Owens Corning Fiberglass
- Ardagh
- O-I
- NAIMA (Insulation Manufacturers Association)
- Gallo
- Goose Island
- Rocky Mountain Bottle Co.



DIAGEO



GALLO GLASS
COMPANY

HEINEKEN



ArdaghGlass



- Recycling Industry:

- The Recycling Partnership
- Waste Management
- Republic
- NW&RA



Glass Recycling - Key Takeaways

- Recycled glass provides significant energy, environmental, and GHG benefits
- Consumers want to recycle glass – not see it landfilled
- Glass in the curbside bin assists municipalities and states achieve recycling and recovery goals
- GPI is working with a variety of packaging stakeholders to improve and strengthen the glass supply chain and recovery efforts