Recycling Rigid Plastics Beyond Bottles:

Non- Bottle Containers

The Association of Plastic Recyclers

May 2, 2017

Upcoming Webinars

- Caps On Bottles and Containers
- Residential Bulky Rigid Plastics
- The APR Design® Guide & The How 2 Recycle® Label: A Partnership to Expand and Improve Plastics Recycling
- 2016 National Postconsumer Plastics Bottle Recycling Rate Report Overview

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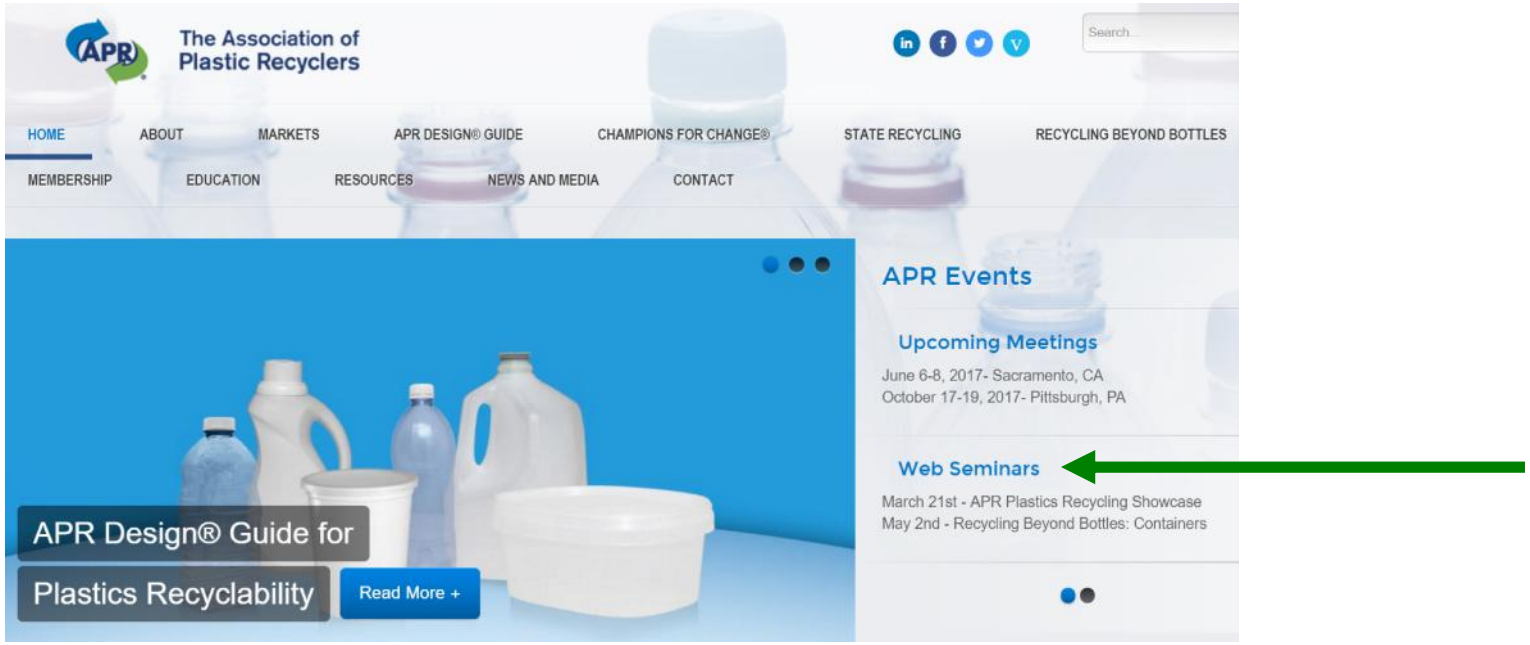
Webinar Information

Presentation slides and session recording will be posted on the APR website by the end of the week.



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Today's Presenters

Lou Perez
Director of MRF Operations, Eco-Cycle

Kara Pochiro
APR Communications Director

Patty Moore
President, Sustainable Materials Management of CA

Liz Bedard
APR Rigid Plastics Recycling Director

Jill Holbert
Associate Director of the Solid Waste Management Department for the City of Albuquerque

Who is APR?

- International trade association
- **The Voice of Plastics Recycling®**
- Companies committed to the success of plastics recycling

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APR Primary Goals

Increase Supply

Enhance Quality

Communicate Value

Increase the Value Proposition of Recycled Plastics

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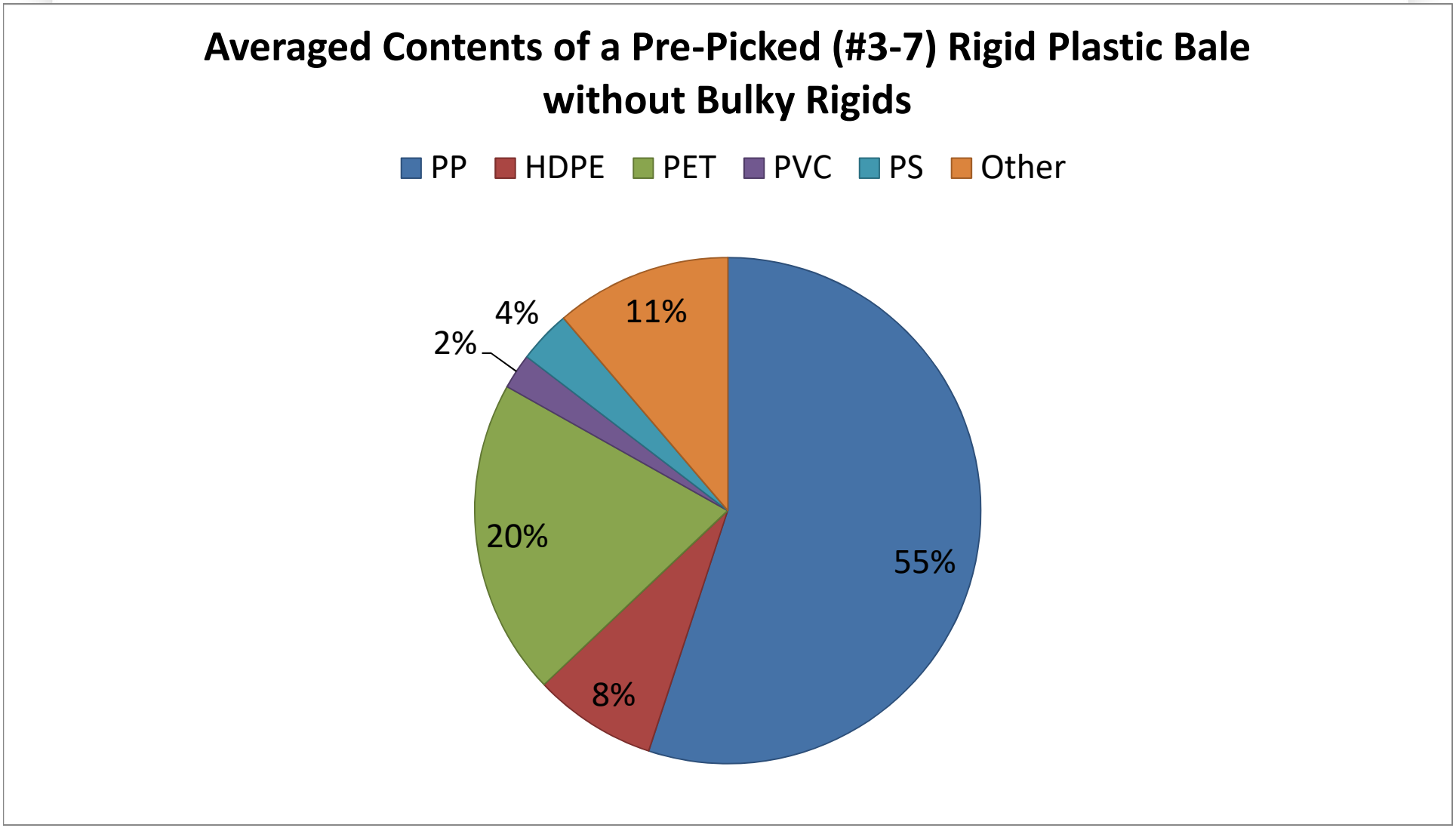
Polypropylene Demand

Polypropylene Supply - Majority of Non-Bottle (#3-7)Container Bales

2015 National Mixed Rigid Plastic Bale Composition Study



Polypropylene Demand – Brand Name Companies want more PP PCR

"P&G has a vision to make all of our products with 100% renewable or recyclable materials. As part of that vision, one of our goals is to double the amount of PCR in our plastic packaging by 2020……."

Steve Sikra, Section Head-Global R&D, Materials Science & Technology

"As part of the Unilever Sustainable Living Plan, we are committed to increasing recycling rates and improving the availability of postconsumer materials, such as polypropylene. Recycled polypropylene is an important material with massive opportunity in a circular economy."

Julie Zaniewski, Packaging Sustainability Manager

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Polypropylene Demand – "Fit for Use" PCR Demand Surveys

Purpose

- Assess brand owners' and manufacturers need for polypropylene PCR
- Quantify volume and qualify physical characteristics
  - Melt flow, Odor Tolerance, Color, etc.

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Polypropylene Demand – "Fit for Use" PCR Demand Surveys

2011/12 Survey

- Food and Non-Food Contact PCR
- 22 Respondents
- Over 1 billion pound of demand identified
  - Food Contact = +820
  - Non-Food Contact = +230 million pounds

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Polypropylene Demand – "Fit for Use" PCR Demand Surveys

2015/16 Survey

- Only for Non-Food Contact PCR
- 21 Respondents
- Over 280 million pounds of demand identified
- +20% increase of non-food contact demand from 2011/12 Survey

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Recycling Rigid Plastics Beyond Bottles: CONTAINERS

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Marketable Material, Growing Demand

Containers Case Study—Albuquerque, NM

Albuquerque At-a-Glance

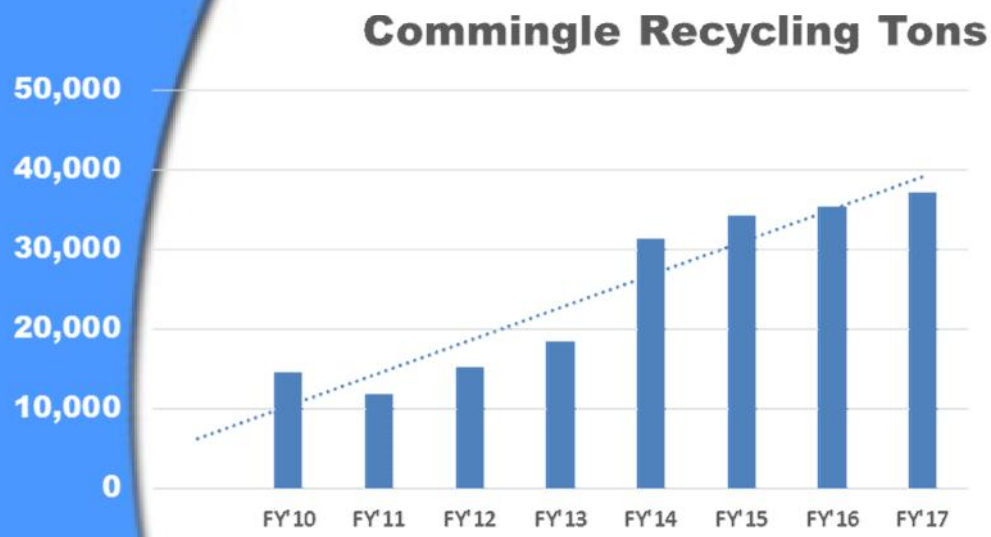
- **557,169**– Population
- **174,864**– Single-family households
- **$47,096**– Median household income
- **30%**-- Speak a language other than English at home

SINGLE STREAM

FRIEDMAN
RECYCLING COMPANIES

SOLID WASTE MANAGEMENT
CODE ENFORCEMENT

Albuquerque Recycling **FY10 – 17**



Single Stream Recycling

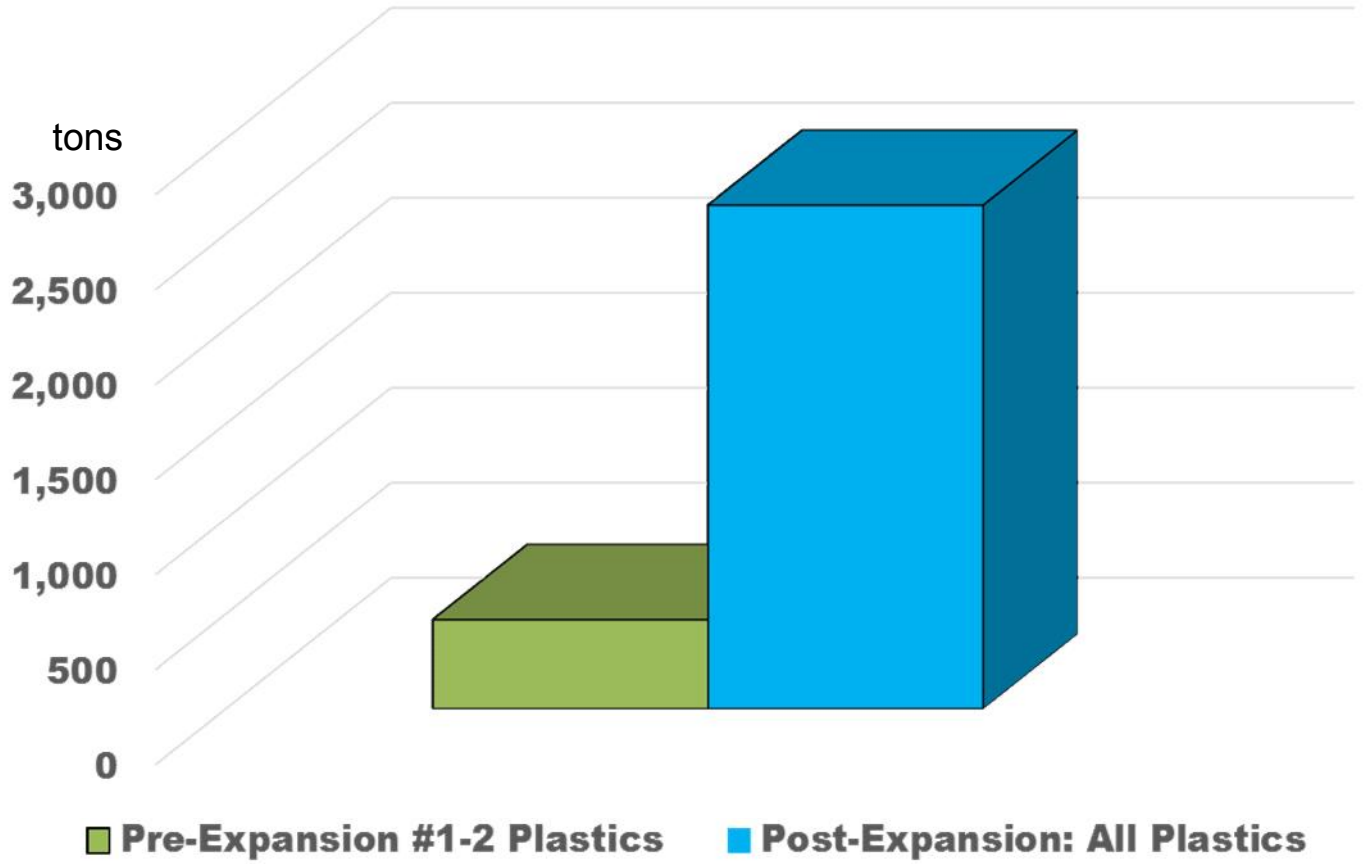
- Acceptable Material
  - Paper *(newspapers, magazines, junk mail)*
  - Cardboard *(corrugated, cereal / cracker boxes)*
  - Phone Books
  - Books *(hard cover / soft cover)*
  - Brown Paper Bags
  - Milk Cartons / Juice Boxes
  - #1-7 Plastic Bottles / Tubs
  - Rigid Plastic Toys / Hampers
  - Small Electronics
  - Tin / Aluminum Cans
  - Pots & Pans
  - Foil & Pie Pans
  - Small Metal Appliances
  - Paper Egg Cartons

Single Stream Recycling

Not Accepted

- Glass
- Garbage
- Food
- Light Bulbs
- Wood & Yard Waste
- Hazardous Waste
- Sharp Metal
- Batteries
- Motor Oil Bottles
- Medical Waste/ Needles
- Styrofoam
- TVs
- Computer Monitors
- Pizza Boxes
- Plastic Grocery Bags

Plastic Collected Before & After



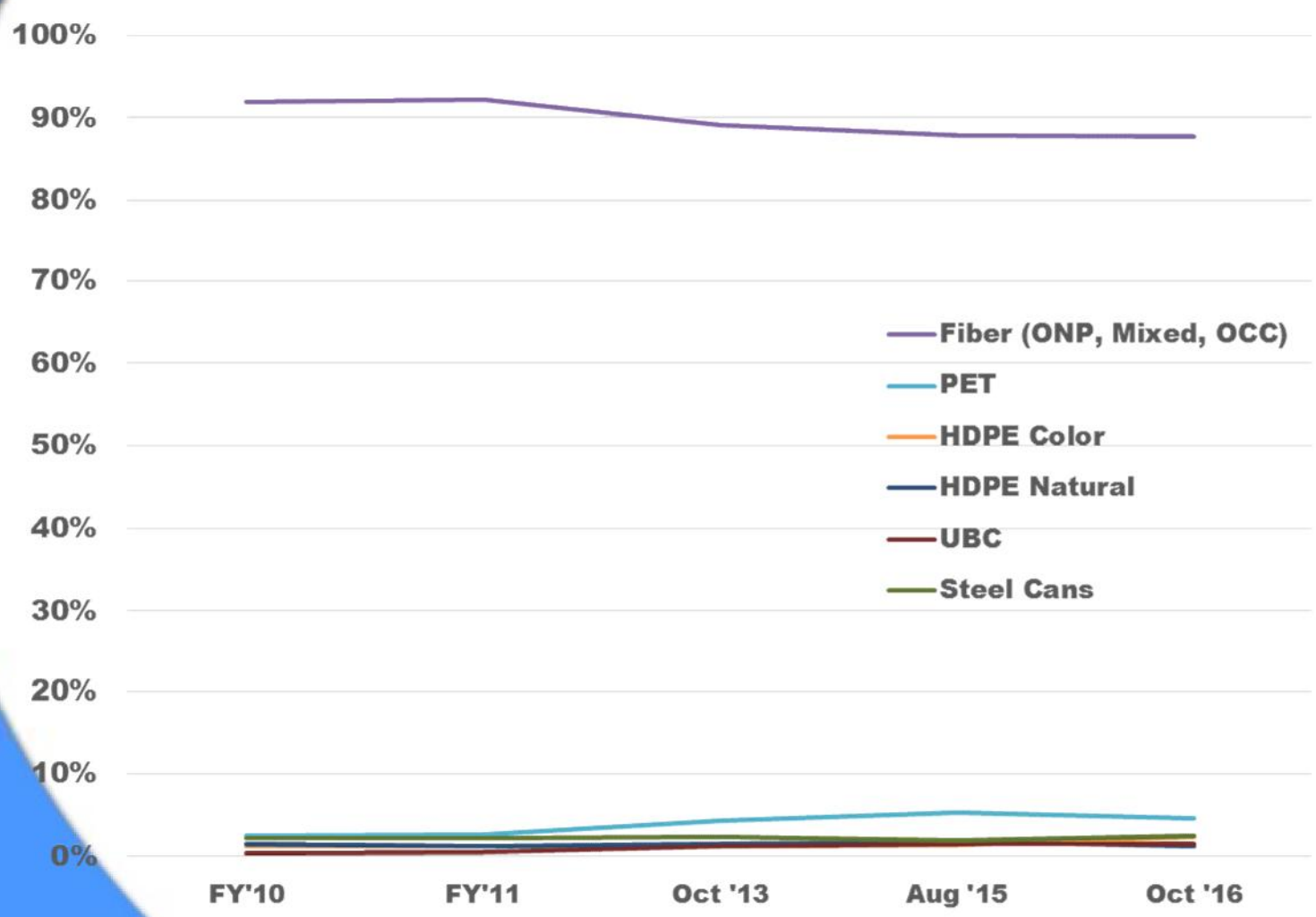
Common Plastics #3-7

- Lids
- Cosmetics packaging
- Yogurt tubs
- Plant pots/containers
- Reusable water bottles
- Various reusable food storage containers
- Lots of smaller Rubbermaid containers

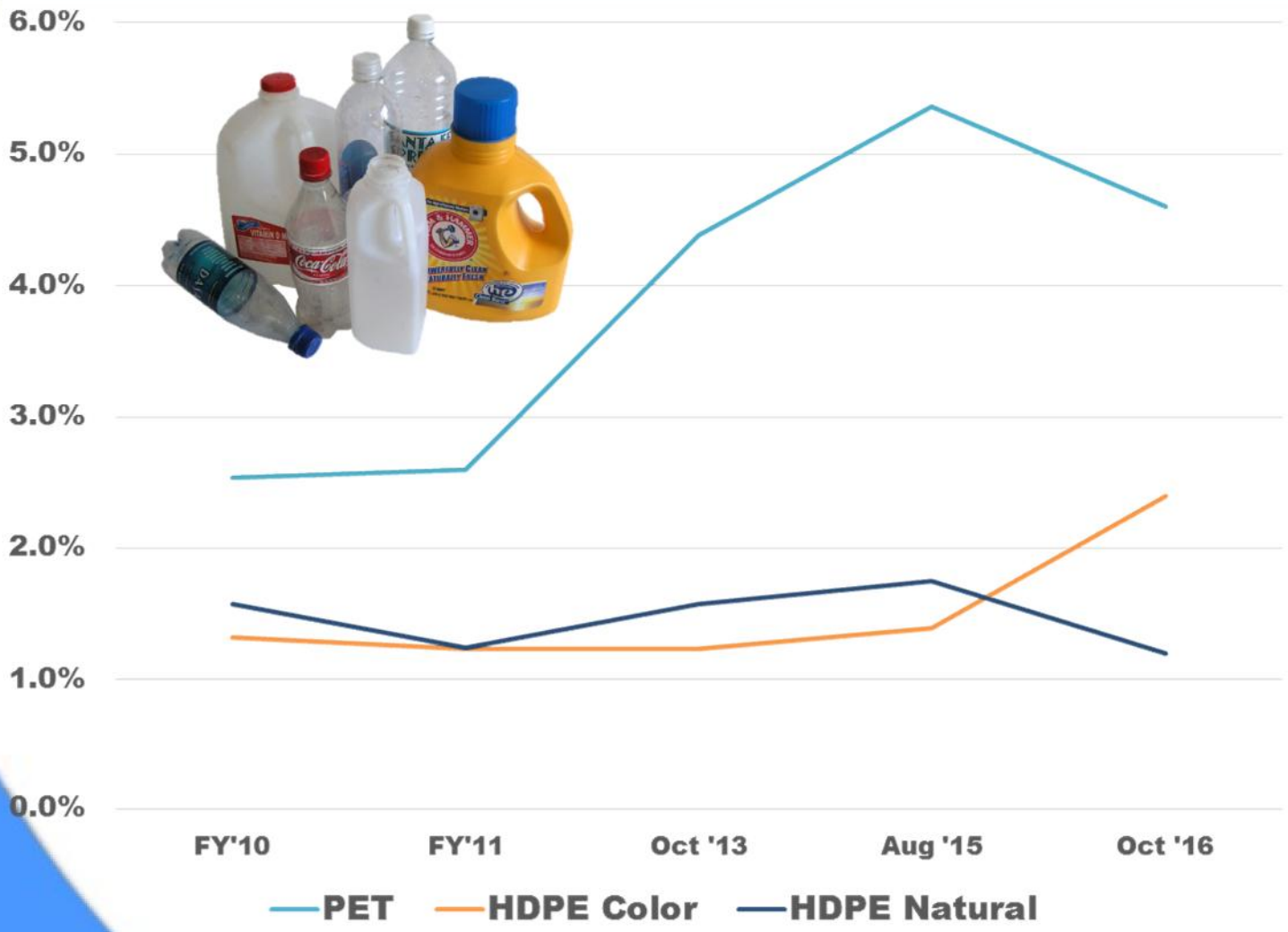
Common Rigid Plastics

- Toys
- Laundry baskets
- Storage totes
- Cutting boards
- Lawn chairs
- Various storage containers
- 5 gal buckets
- Power tool cases
- Old 18 gal recycling totes

All Recycling Collected



Plastics #1 & 2 Collected



Education & Outreach

DO RECYCLE:
RECICLE:

PAPER

Newspapers/Magazines	*Periódicos y Revistas*
Junk Mail	*Basura del Correo*
Office Paper	*Papel de Oficina*
Corrugated Cardboard	*Cartón Prensado*
Cereal / Cracker Boxes	*Cartón del Cereal*
Milk and Juice Boxes	*Cartones de Leche o Jugo*
Phone Books	*Directorios Telefónicos*
Books	*Libros*
Brown Paper Bags	*Bolsas de Papel de Color Marrón*
Paper Egg Cartons	*Empaques de Cartón de Huevos*

PLASTIC

#1 - 7 Plastics Bottle/Tubs	*Botellas de Plástico #1 - 7*
Rigid Plastic Toys/Hampers	*Juguetes/Canastas de Plástico Duro*

METAL

Aluminum Cans	*Latas de Aluminio*
Tin Cans	*Latas de Enlatados*
Foil & Pie Pans	*Papel de Aluminio/Moldes de Pastel*
Small Electronics	*Electrónicos Pequeños*
Pots & Pans	*Ollas y Sartenes*
Small Appliances	*Electrodomésticos Pequeños*

DO NOT PLACE IN CART:
NO PONGA EN SU CARRETA:

Pizza Boxes	*Cajas de Pizza*
Glass	*Vidrio*
Garbage	*Basura*
Food	*Comida*
Light Bulbs	*Bombillos*
Hazardous Waste	*Desechos Peligrosos*
Sharp Metal	*Metales Afilados*
Wood & Yard Waste	*Madera y Desechos del Jardín*
Batteries	*Baterías*
Motor Oil Bottles	*Aceite de Motor en Botellas*
Medical Waste/Needles	*Desechos Médicos/Agujas*
Styrofoam	*Espuma de Poliestireno*
TVs	*Televisores*
Computer Monitors	*Monitores de Computadoras*
Plastic Grocery Bags	*Bolsas de Plástico del Mercado*

Cart must be at least five feet away from trash cart and other objects.
Do not put recycling in clear plastic bags.

Haga el favor de separar la carreta a cinco piés de la carreta de basura o de otros objetos. No aceptaremos reciclaje en bolsas de plástico transparente.

ABQ RECYCLES
go blue

For more information, visit **ABQRECYCLES.COM**

How To Recycle Plastic
CC
YouTube

ABQ RECYCLES
RECYCLING 1 ALUMINUM CAN
cola
3 HOURS OF ENERGY TO POWER A TV
Visit ABQRECYCLES.COM for a list of what you can RECYCLE.

2
more
pounds
.com

Recycling and trash information
at your fingertips!
You get:
A 'What Goes Where?' search tool
Collection reminders, including for holiday changes
A personalized collection schedule
And more!
Download the FREE Recycle Coach app
Recycle Coach
Friday, Mar. 31

Lessons Learned

- Educate residents early
- Research best terms for materials to avoid confusion
- Use examples, not just “plastics”
- Be creative & clear on what is & what is not accepted

Contact Information:

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Associate Director
Solid Waste Management Department
City of Albuquerque

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cabq.gov/solidwaste/recycling

Viable Options with the Marketing of Mixed Plastics #3 - #7

Lou Perez

Eco-Cycle

Boulder, Colorado

Changing Times for Mixed Plastics #3 - #7

- The implementation of the Green Fence set a new standard for the marketing of fiber and plastic recycling.
- Eco-Cycle's response to this new market shift was to produce as little mixed plastic category #3 - #7 as possible.
- We set new sorting goals and marketing incentives to attain the following:
  - Separation of Polypropylene (PP) #5 plastics and marketing them as a single grade;
  - Separation of bulky rigid plastics or Mixed Rigid Plastics (MRP) and marketing them as a single grade; and
  - Separating and blending PET #1 thermoform plastic containers with PET whole bottles.

Polypropylene (PP) #5 Plastics Bale

Mixed Rigid Plastics (MRP) Bale

PET #1 Thermoform Plastic Containers with PET Whole Bottles Bales

Was This a Game Changer?

- The new marketing strategy changed our production of #3 - #7 Plastics from 5 bales per day to ½ bale per day.
- The new plastic marketing program increase the aggregate value of the 3-7 plastics from $35/ton to $233/ton.
- Increasing the recovery value of these material by $33,000 per year.

Plastics Market Update

Presented by: Patty Moore
Date May 2, 2017

MORE™ RECYCLING

MOORE RECYCLING ASSOCIATES INC.

MORE™ RECYCLING

The Next Generation of Moore Recycling Associates Inc.

More Recycling is the Next Generation of Moore Recycling Associates

- Have nearly 20 years of research and consulting experience in the recycling of postconsumer materials, specifically plastics.
- Offer a deep understanding of the complex and ever-changing lifecycle of plastic packaging
- Serve as a liaison between industry, public agencies, and NGOs and prioritize accurate information and neutrality in the marketplace.

Sustainable Materials Management

"Zero waste (to landfill)"

"Cradle-to-cradle"

"Circular Economy"

SMM is about Impacts vs Attributes

Plastics Market Drivers

- General economic conditions
- Price of natural gas, petroleum & derivatives
- Virgin resin production capacity relative to demand
- Industrial scrap & off-spec supplies
- Supply and demand of recycled feedstock
  - Goals for recycled content

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Current Economic Conditions

Strong Dollar
\+ Excess Production of Crude & Other Commodities
\+ Changes in China/Asia
\+ Increased Processing Costs

Down Market
Tight Margins
Industry Pains/Constraints
Quality sells

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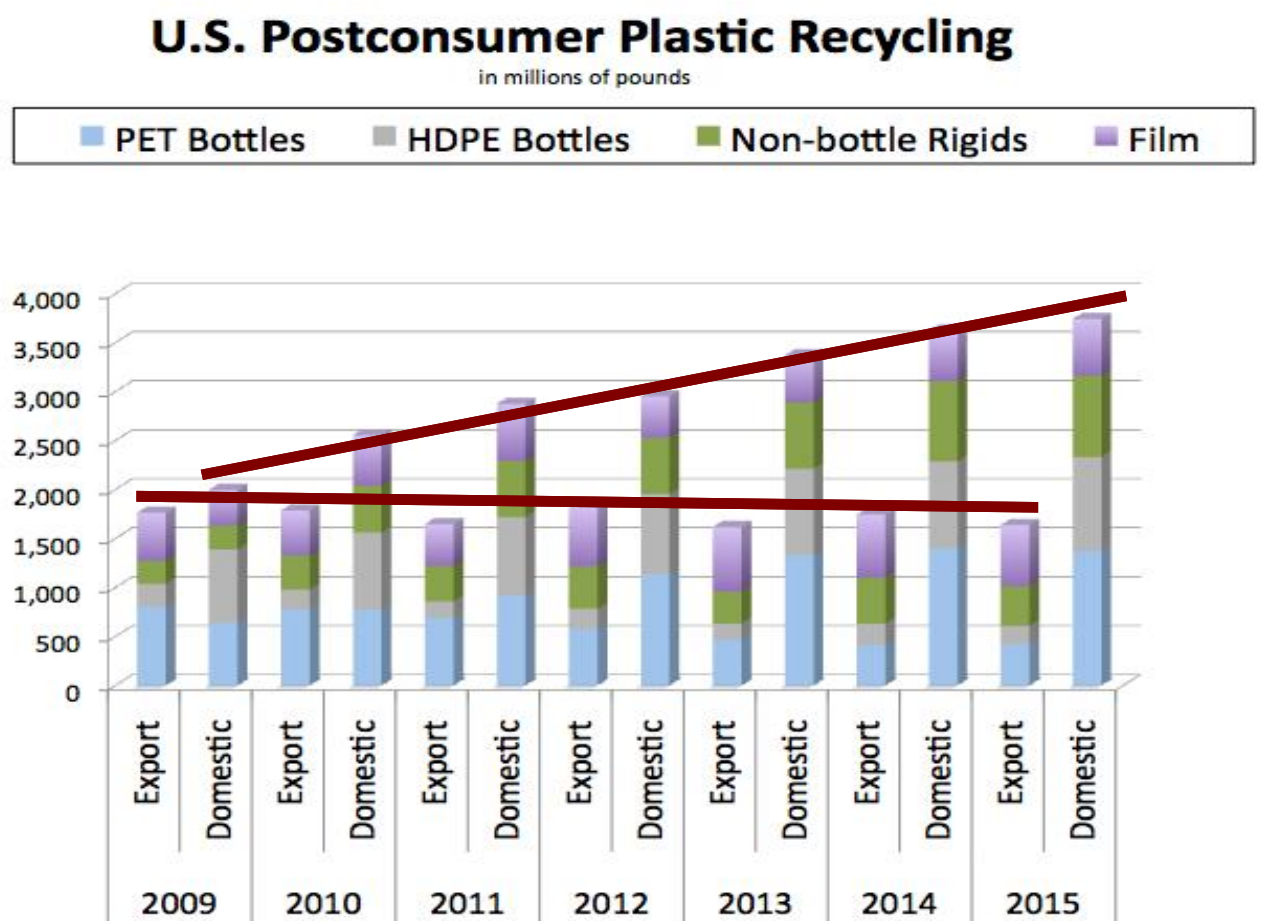
Domestic vs Export



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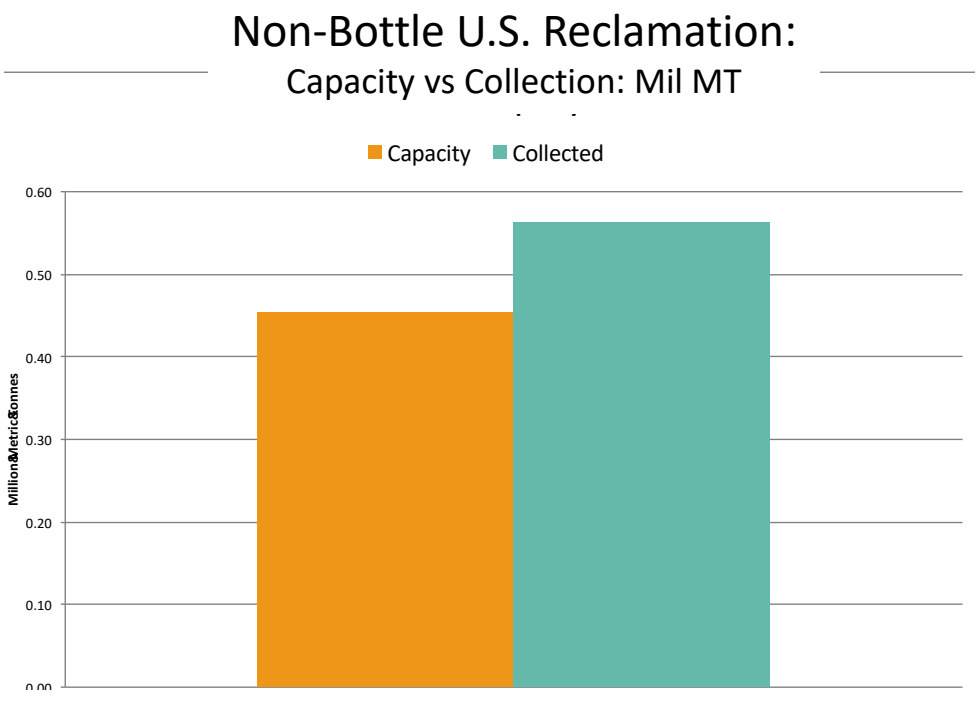
Non-Bottle

- Collection growth is dropping
- Most capacity is for segregated
- Lack of separation capacity resulting in lack of reclamation



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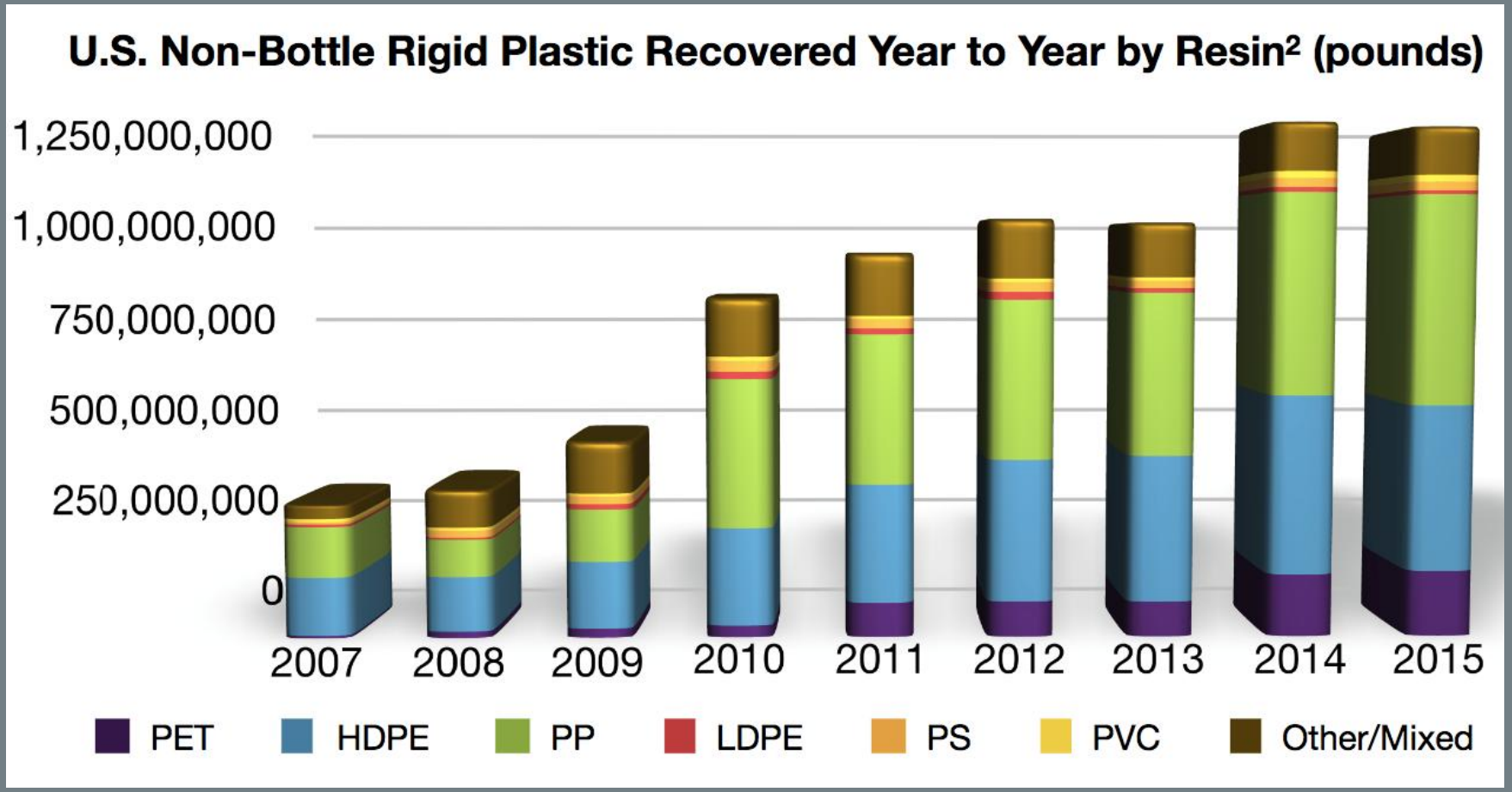
Non-Bottle Rigid Plastic



PET Thermoform Challenges

- Intrinsic property differences
- Aggressive labels, inks, glues
- Sorting difficulties
- Black plastic
- Not all haulers / MRFs / reclaimers want them

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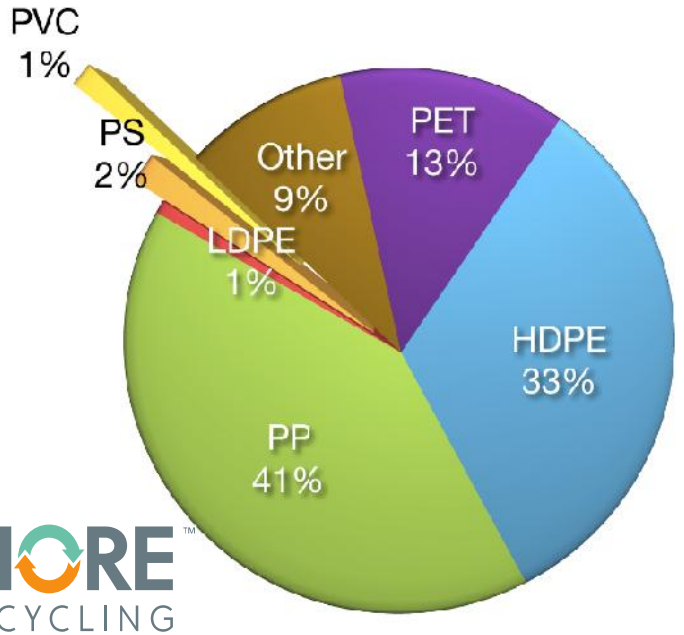
Polypropylene

- Recycling rate is growing for both bottles and containers/caps
- Opportunity to expand collection?
- Demand for material continues to grow
- PRFs / Secondary MRFs support growth of processing

U.S. Post-Consumer Non-Bottle Rigid Plastic Recovered in 2015 by Resin

RESIN	POUNDS
PET	159,730,000
HDPE	405,258,000
PP	511,054,000
LDPE	9,109,000
PS	20,987,000
PVC	16,666,000
Other Mixed/ Unknown	116,581,786



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Polypropylene Map

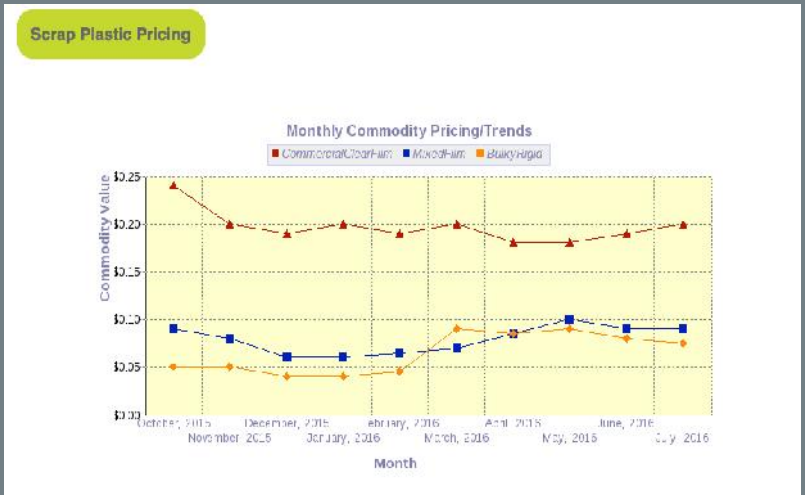
www.RecycleMorePlastic.org/plastics/map.html

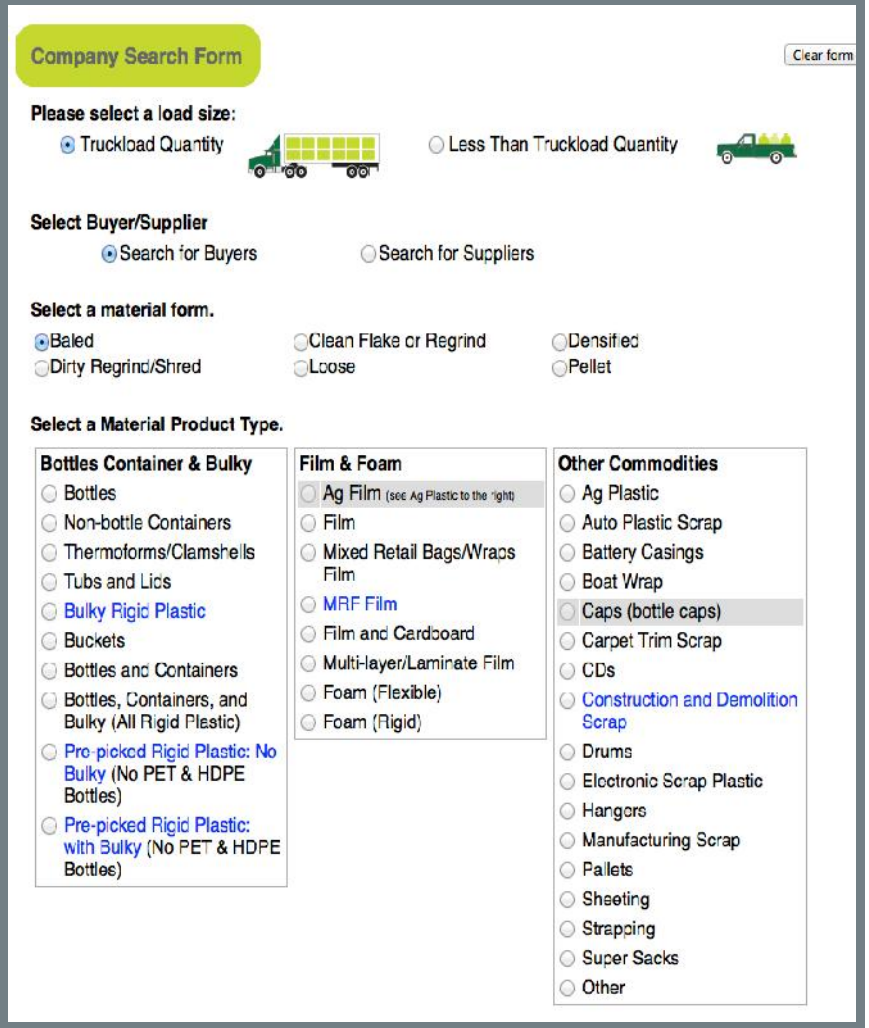
Polystyrene

- Domestic Markets exist
- Growing potential for mixed rigid/foam
- Rigid mixed with ”3-7” bales
  - Need secondary MRF / PRF infrastructure to spur reclamation capacity
- Separated Foam PS
  - Densification is essential for
  - Easily identifiable
  - Grants available from Foodservice Packaging Institute

PlasticsMarkets.org

- Recycler Database:
  - **List in Directory**
  - **Search for buyers**
- Scrap Pricing
- Export Procedures
- National Recycling Reports





plasticsmarkets.org

Recycling Rigid Plastics Beyond Bottles: CONTAINERS

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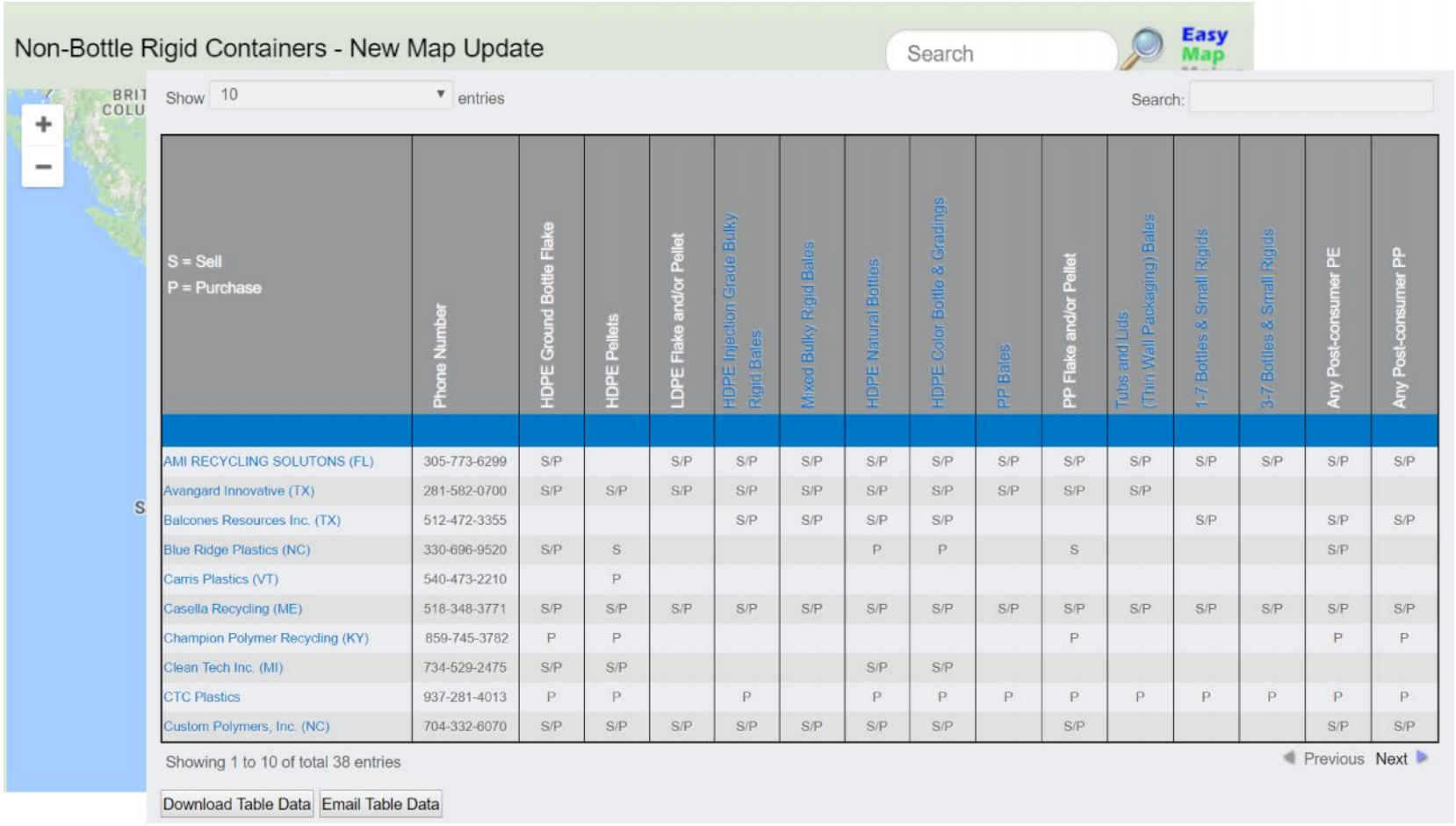
Marketable Material, Growing Demand

Available Markets



S = Sell P = Purchase	Phone Number	HDPE Ground Bottle Flake	HDPE Pellets	LDPE Flake and/or Pellet	HDPE Injection Grade Bulky Rigid Bales	Mixed Bulky Rigid Bales	HDPE Natural Bottles	HDPE Color Bottle & Gradings	PP Bales	PP Flake and/or Pellet	Tubs and Lids (Thin Wall Packaging) Bales	1-7 Bottles & Small Rigids	3-7 Bottles & Small Rigids	Any Post-consumer PE	Any Post-consumer PP
AMI RECYCLING SOLUTONS (FL)	305-773-6299	S/P		S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P
Avangard Innovative (TX)	281-582-0700	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P				
Balcones Resources Inc. (TX)	512-472-3355				S/P	S/P	S/P	S/P				S/P		S/P	S/P
Blue Ridge Plastics (NC)	330-696-9520	S/P	S				P	P		S				S/P	
Carris Plastics (VT)	540-473-2210		P												
Casella Recycling (ME)	518-348-3771	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P	S/P
Champion Polymer Recycling (KY)	859-745-3782	P	P							P				P	P
Clean Tech Inc. (MI)	734-529-2475	S/P	S/P				S/P	S/P							
CTC Plastics	937-281-4013	P	P		P		P	P	P	P	P	P	P	P	P
Custom Polymers, Inc. (NC)	704-332-6070	S/P	S/P	S/P	S/P	S/P	S/P	S/P		S/P				S/P	S/P

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Model Bale Specifications

Polypropylene Small Rigid Plastics

Tubs and Lids (Thin Wall Packaging)

#1-7 All Rigid Plastics

#3-7 Bottles and All Other Rigid Plastics

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Sorting for Value

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Education

FPI
FOODSERVICE PACKAGING INSTITUTE

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Applications

Plastic Resin Identification Codes

1 PETE	2 HDPE	3 PVC	4 LDPE	5 PP	6 PS	7 OTHER
Polyethylene Terephthalate	**High-Density Polyethylene**	**Polyvinyl Chloride**	**Low-Density Polyethylene**	**Polypropylene**	**Polystyrene**	**Other**
Common products: to-go containers, cups, jars, trays, soda & water bottles	**Common products:** grocery bags, milk jugs, flower pots, detergent & shampoo bottles	**Common products:** pipe, pool liners, siding, automotive product bottles, sheeting	**Common products:** bread bags, paper towel overwrap, squeeze bottles, trash bags	**Common products:** yogurt tubs, cups, twine, straws, hangers, shipping bags, non-woven bags	**Common products:** to-go containers, razor handles, flatware, CD cases, hot & cold cups, foam packing, trays, egg cartons	**Common types & products:** polycarbonate, nylon, ABS, acrylic, PLA; multi-layer packaging, bottles, safety glasses, CDs, lenses, pouches
Recycled products: clothing, carpet, clamshells, soda & water bottles	**Recycled products:** detergent bottles, flower pots, crates, pipe, decking	**Recycled products:** pipe, siding, binders, carpet backing, flooring	**Recycled products:** trash bags, decking, furniture, shipping envelopes, compost bins	**Recycled products:** paint cans, speed bumps, auto parts, hangers, plant pots, toothbrush handles	**Recycled products:** picture frames, crown molding, rulers, flower pots, hangers, toys, tape dispensers	**Recycled products:** electronic housings, auto parts

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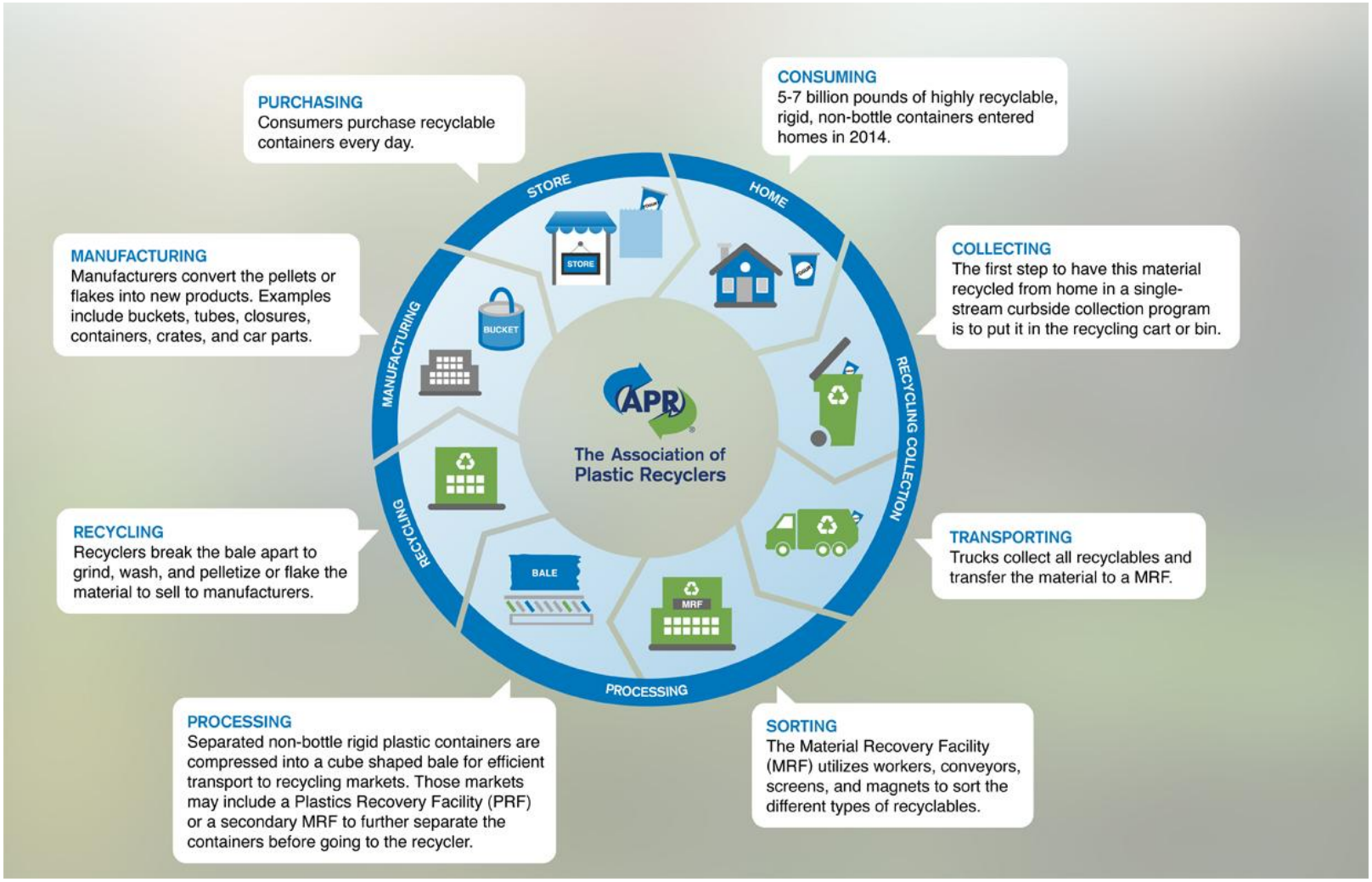

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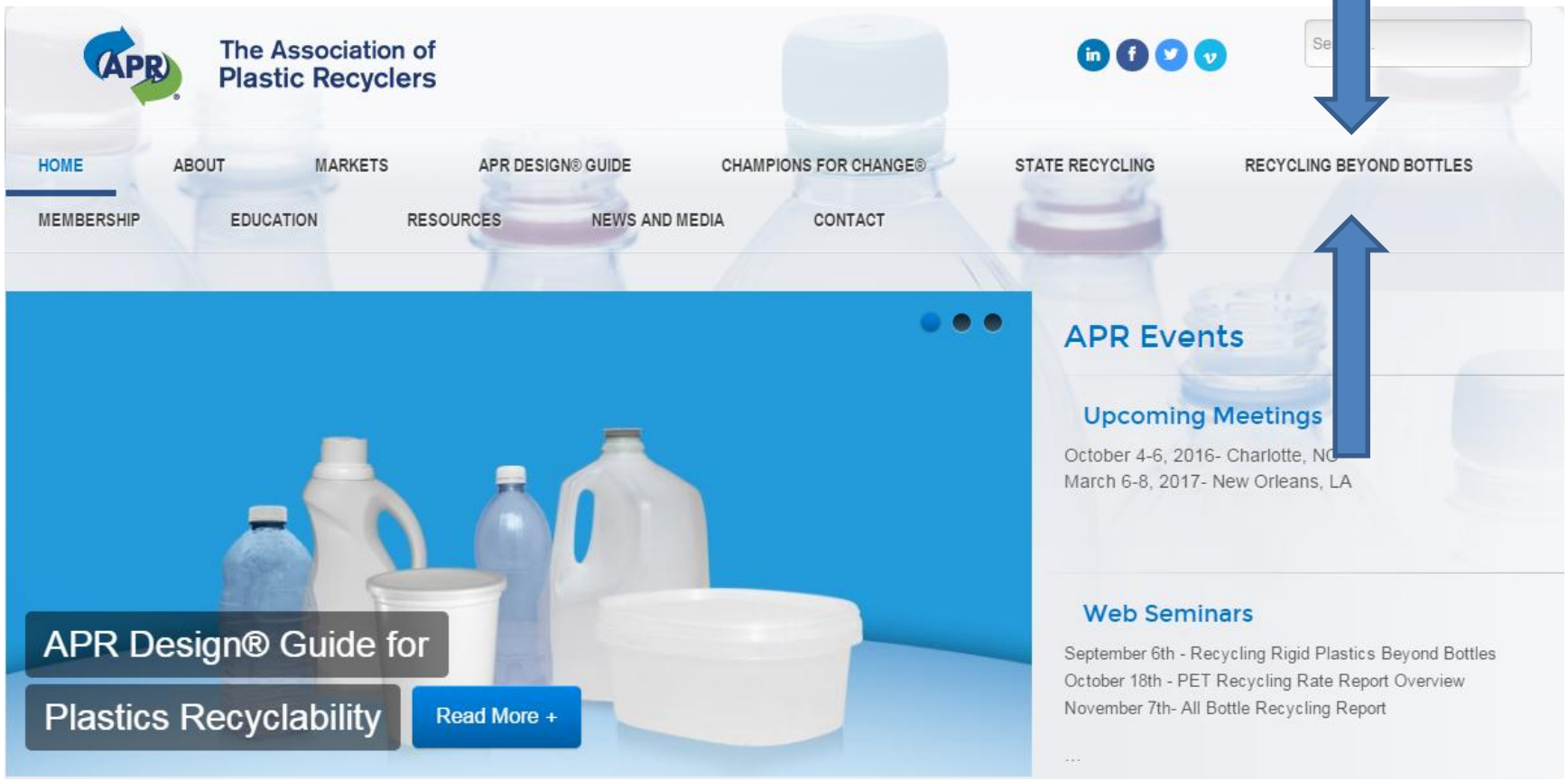
APR's Website



www.PlasticsRecycling.org

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