2015 PET Recycling Rate Report

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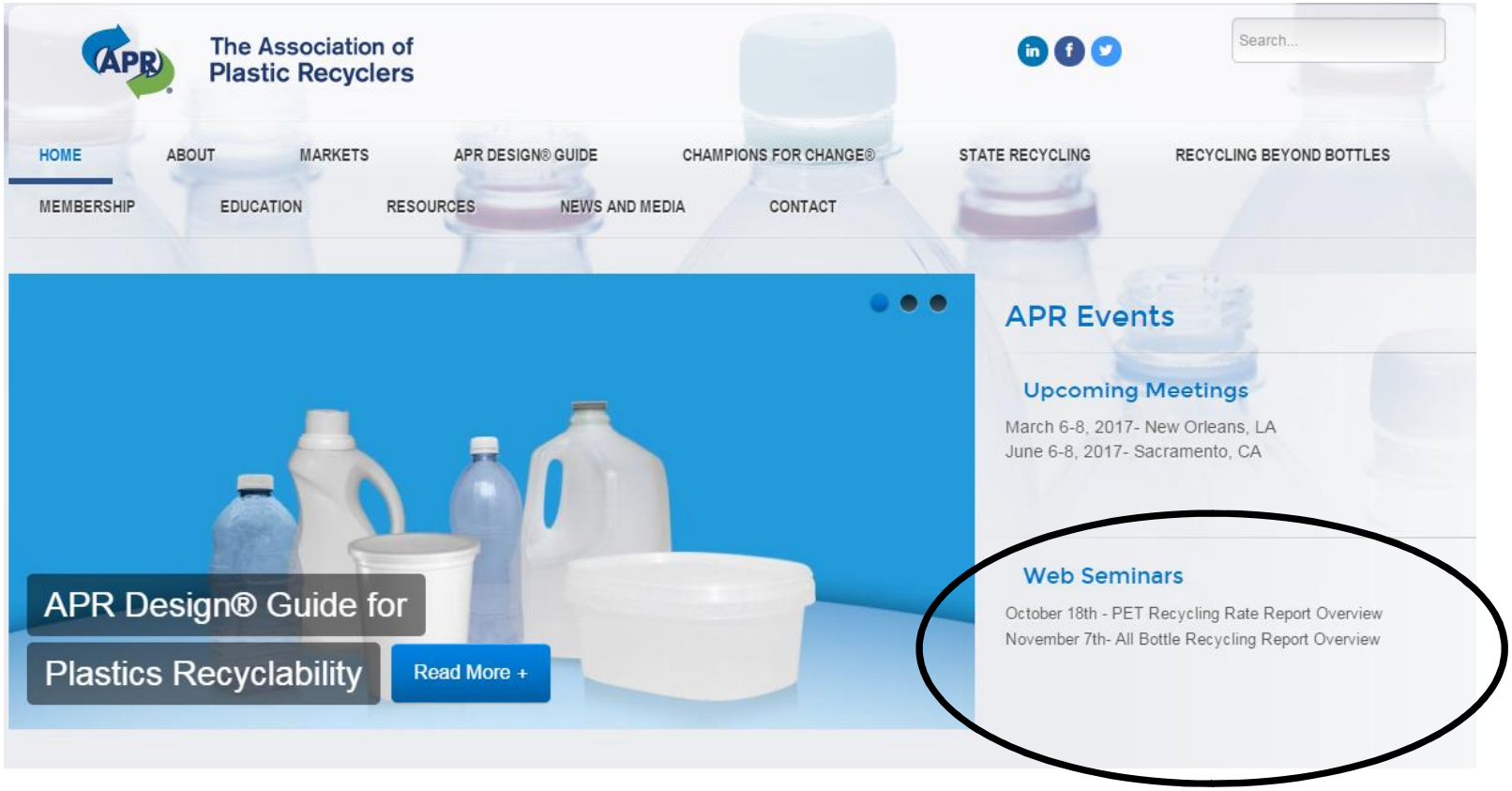

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Today's Presenters

Kate Eagles
NAPCOR Program Director

Kara Pochiro
APR Communications Director

Resa Dimino
NAPCOR Director of Public Policy

Steve Alexander
APR Executive Director

Rick Moore
NAPCOR Executive Director

Agenda & Acknowledgments

- Deep dive into 2015 PET recycling rate and supporting data
- Jointly released by NAPCOR and the APR
- Thanks to the following data providers, funders, and contractors:
  - PET Reclaimers and Converters
  - Providers of additional market data and perspectives
  - Consulting support from Moore Recycling Associates and HDR

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Who is APR?

International trade association

The Voice of Plastics Recycling®

Companies committed to the success of plastics recycling

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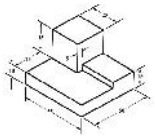
Technical Authority on Plastics Recycling

Technical Programs


APR Design®Guide for Plastics Recyclability

Test Methods/Guidance Protocols

Brand Owner Training

APR Committees

Communication/Education/Advocacy

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APR Primary Goals

Increase Supply

Enhance Quality

Communicate Value

Increase the Value Proposition of Recycled Plastics

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Introduction to NAPCOR

- NAPCOR is the trade association for the PET packaging industry in the United States, Canada and Mexico
- 52 members encompass all facets of the PET value chain

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NAPCOR Membership 2016

PET Industry Suppliers

American Starlinger-Sahm, Inc.
AMUT North America, Inc.
BP
ColorMatrix
Erema North America
Husky Injection Molding Systems
Krones Inc.
Muehlstein
National Recovery Technologies
Nissei ASB Company
Penn Color
Plastic Technologies, Inc.
Polymetrix
REPI
Sidel Inc.
Sorema Plastic Recycling Sys.
Sukano Polymers Corporation
TABB Packaging Solutions, LLC
TOMRA Systems ASA

PET Container Manufacturers

Amcor Rigid Plastics
Plastipak Packaging, Inc.
Yoshino America Corporation

PET Sheet / Thermoformers

Dart Container Corporation
Direct Pack, Inc.
Genpak LLC
Nu-B, Inc.
Octal Extrusion Corporation
Polar-Pak, Ltd.
Peninsula Packaging Company
Plastic Ingenuity, Inc.

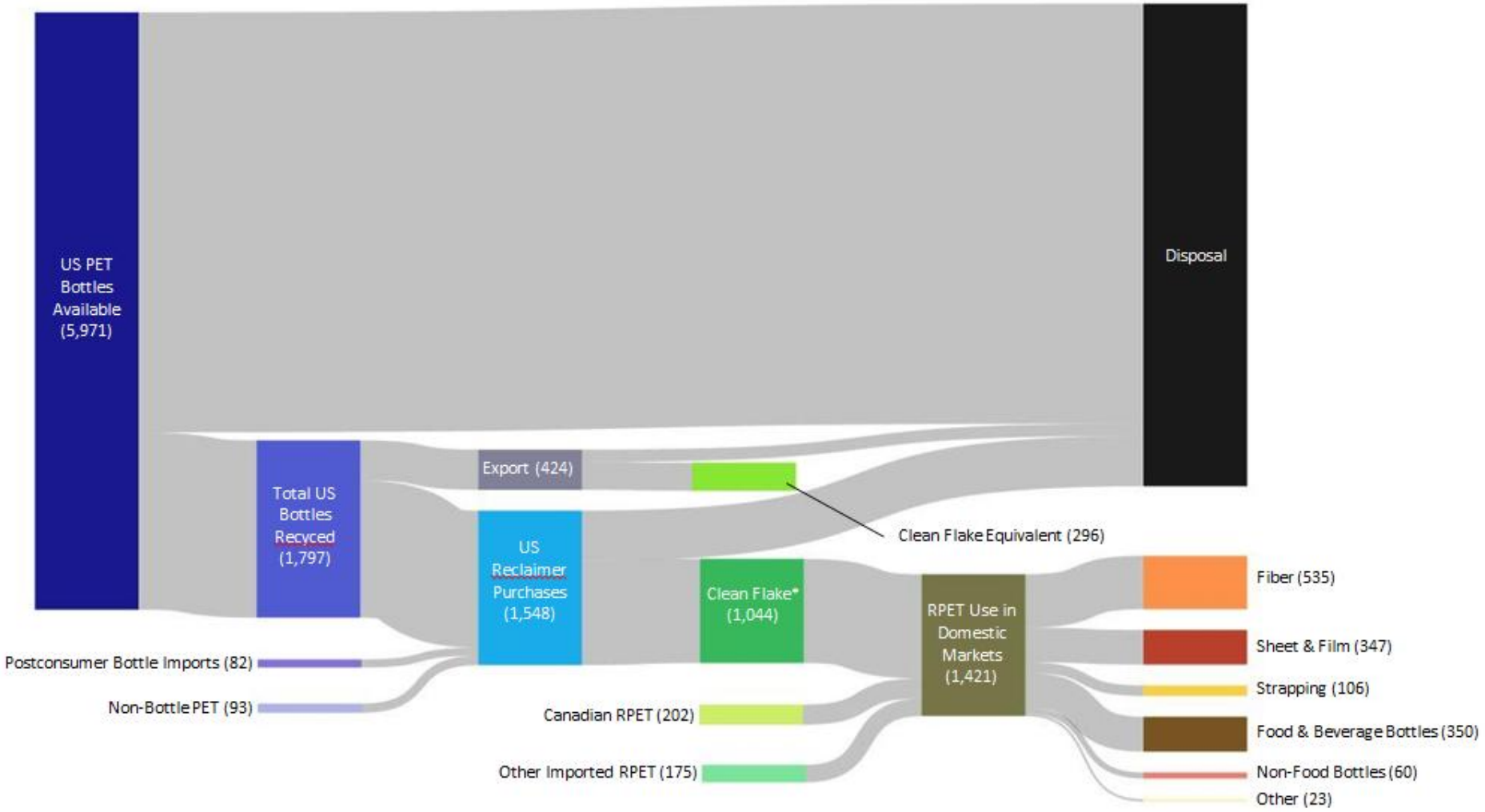
PET Reclaimers

BMP Recycling
CarbonLite Industries, LLC
Clear Path Recycling, LLC
Custom Polymers PET
Evergreen Plastics
Marglen Industries
Mohawk Industries Inc.
Parallel Products
Peninsula Plastics Recycling
Perpetual Recycling Solutions
PetStar
Plastic Reclamation Partners
Plastrec, Inc.
Polyquest, Inc (PQ Recycling)
QRS Recycling
Reterra
Signode
UltrePET LLC
Wellman Plastics Recycling, LLC

PET Resin Manufacturers

DAK Americas LLC
Indorama Ventures USA Inc
Nan Ya Plastics Corporation

PET Materials Flows in the US



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2015 PET Bottle US Recycling Rate

$$\frac{\text{1.797 Blbs Bottles Collected}}{\text{5.971 Blbs Bottles Available}} = 30.10\%$$

2014 rate at 30.98%

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2015 PET Bottle Denominator

Volume of bottles sold into the US marketplace:

- Approximate 2.1% growth over 2014 by weight
- Total bottles available – 5,971 MMlbs (2014 was 5,849)

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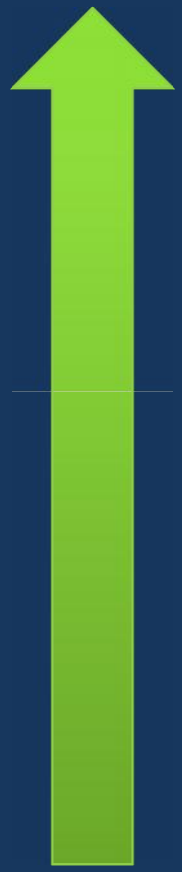
Factors Affecting 2015 Denominator



- Denominator includes domestic virgin and RPET resin sales into bottles, as well as imported resin to bottles
- Volume sales up in water, specialty beverages
- Conversion into PET

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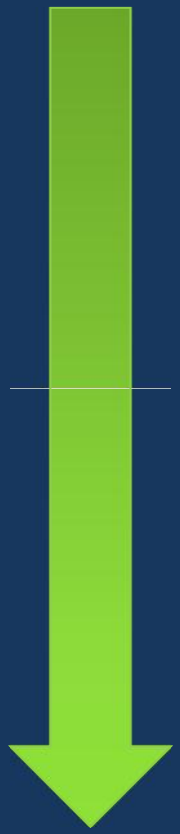
Factors Affecting 2015 Denominator



- CSD sales down; lightweight water bottles don't make up the difference
- Bottle down-sizing ("right" sizing) continues

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Factors Affecting 2015 Numerator

- Increase in CA CRV
- Slight decrease in other deposit
- Small decline in curbside/drop off volumes, possibly due to:
  - Reduction in market-driven commercial collections
  - Misdirection of lightweight PET bottles in MRFs

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2015 Numerator by Purchaser (MMlbs)

	2009	2010	2011	2012	2013	2014	2015
US Reclaimers	642	776	916	1,135	1,329	1,398	1,373
Canadian Reclaimers	54	44	55	54	47	45	75
Other Export	796	737	633	528	422	369	349
Total	**1,492**	**1,557**	**1,604**	**1,718**	**1,798**	**1,812**	**1,797**

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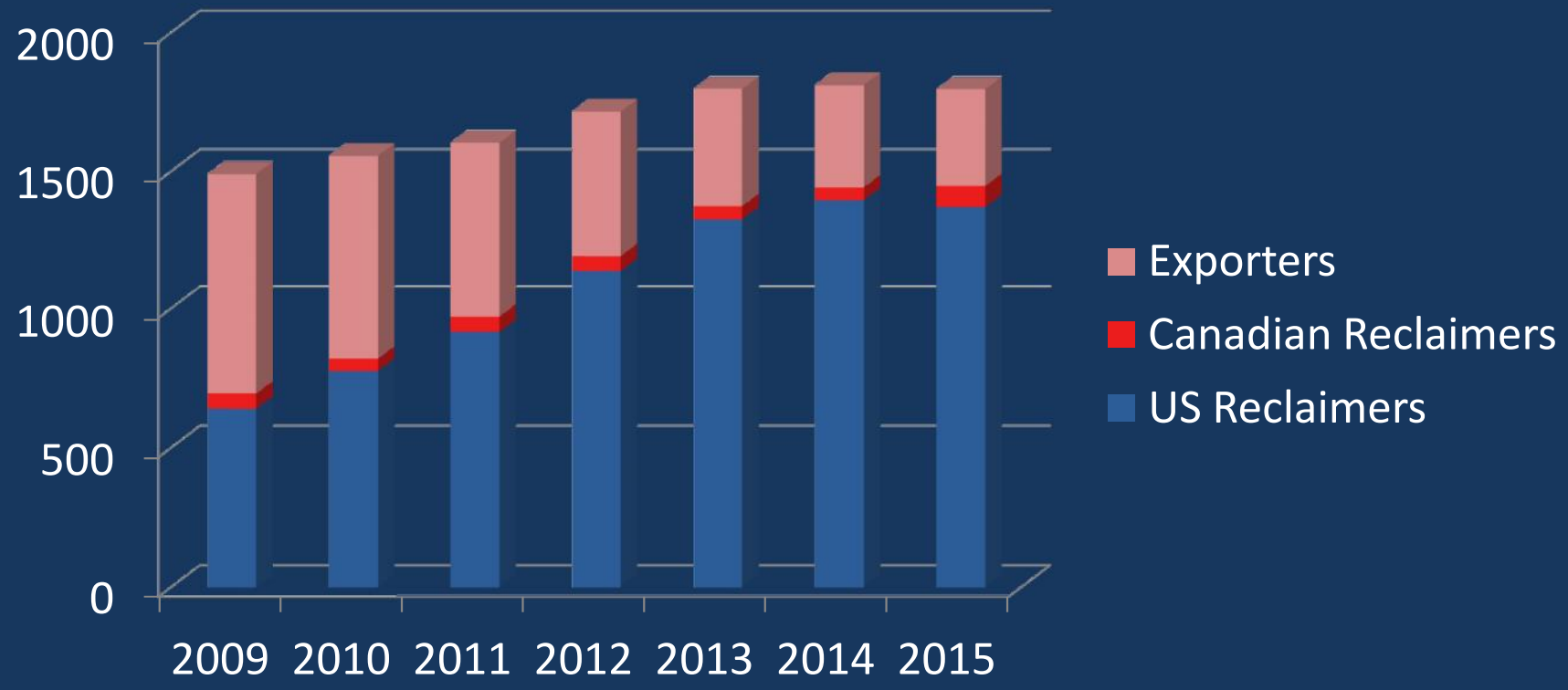
2015 Numerator by Purchaser

- US Bottles Collected for Recycling (*MMlbs*)



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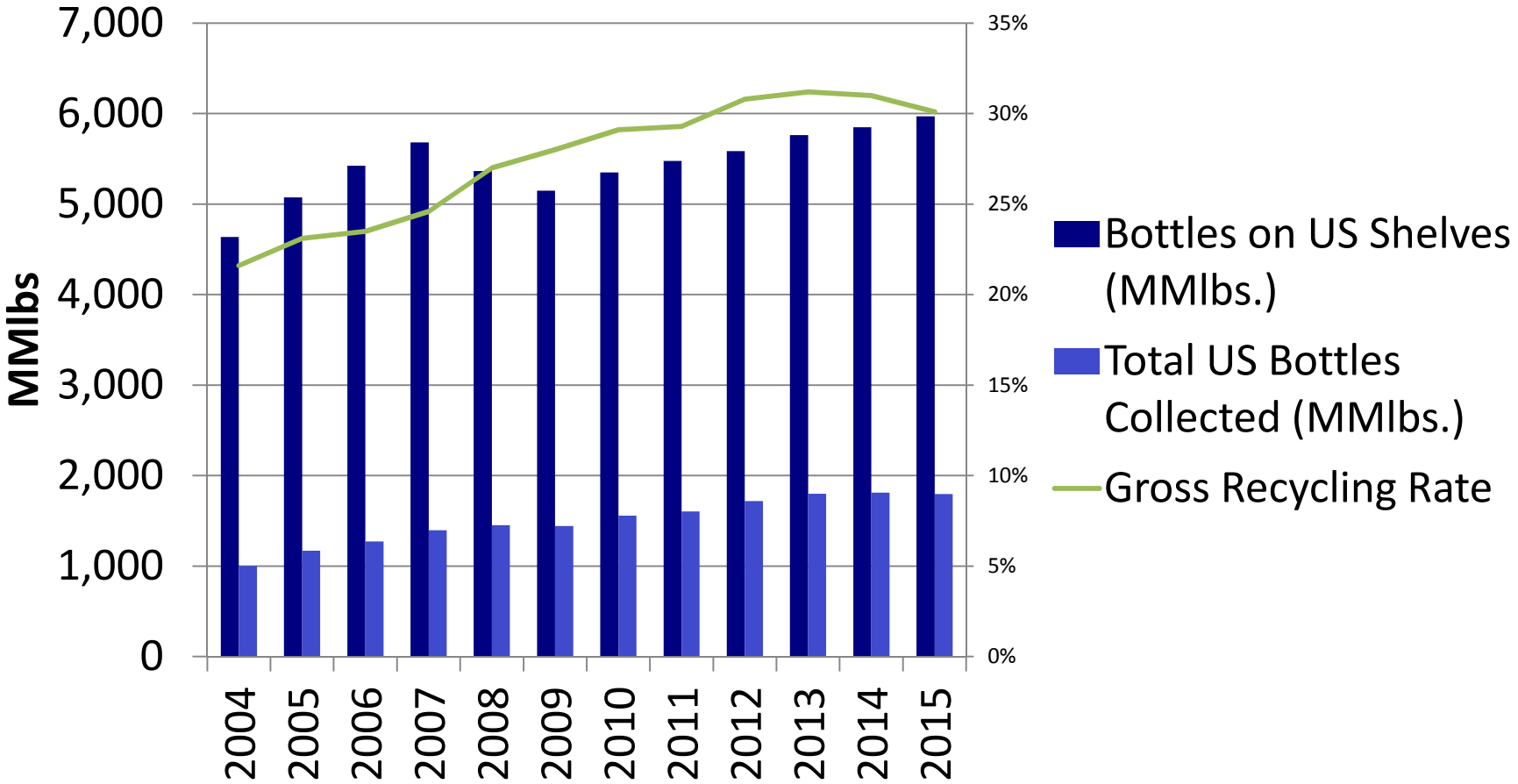
PET Bottle Recycling Rate History

Year	Total US Bottles Collected (MMlbs)	Bottles on US Shelves (MMlbs)	Gross Recycling Rate
2004	1,003	4,637	21.6%
2005	1,170	5,075	23.1%
2006	1,272	5,424	23.5%
2007	1,396	5,683	24.6%
2008	1,451	5,366	27.0%
2009	1,444	5,149	28.0%
2010	1,557	5,350	29.1%
2011	1,604	5,478	29.3%
2012	1,718	5,586	30.8%
2013	1,798	5,764	31.2%
2014	1,812	5,849	31.0%
2015	**1,797**	**5,971**	**30.1%**

PET Bottle Recycling Rate History



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PET Bottle Utilization Rates

- Bottle utilization is USA “bottle only” flake volumes produced as percentage of denominator

Includes clean flake from US sourced bottles, both domestic and export

Year	Clean Flake Equivalent from Bottle Material *(MMlbs)*	Bottles on US Shelves *(MMlbs)*	Utilization Rate
1995	622	1,950	31.9%
1996	572	2,198	26.0%
1997	578	2,551	22.7%
1998	588	3,006	19.6%
1999	611	3,250	18.8%
2000	619	3,445	18.0%
2001	660	3,768	17.5%
2002	613	4,007	15.3%
2003	667	4,292	15.5%
2004	803	4,637	17.3%
2005	959	5,075	18.9%
2006	1,052	5,424	19.4%
2007	1,079	5,683	19.0%
2008	1,124	5,366	20.9%
2009	1,078	5,149	20.9%
2010	1,115	5,350	20.8%
2011	1,052	5,478	19.2%
2012	1,181	5,586	21.1%
2013	1,301	5,764	22.6%
2014	1,262	5,849	21.6%
2015	1,297	5,971	21.7%

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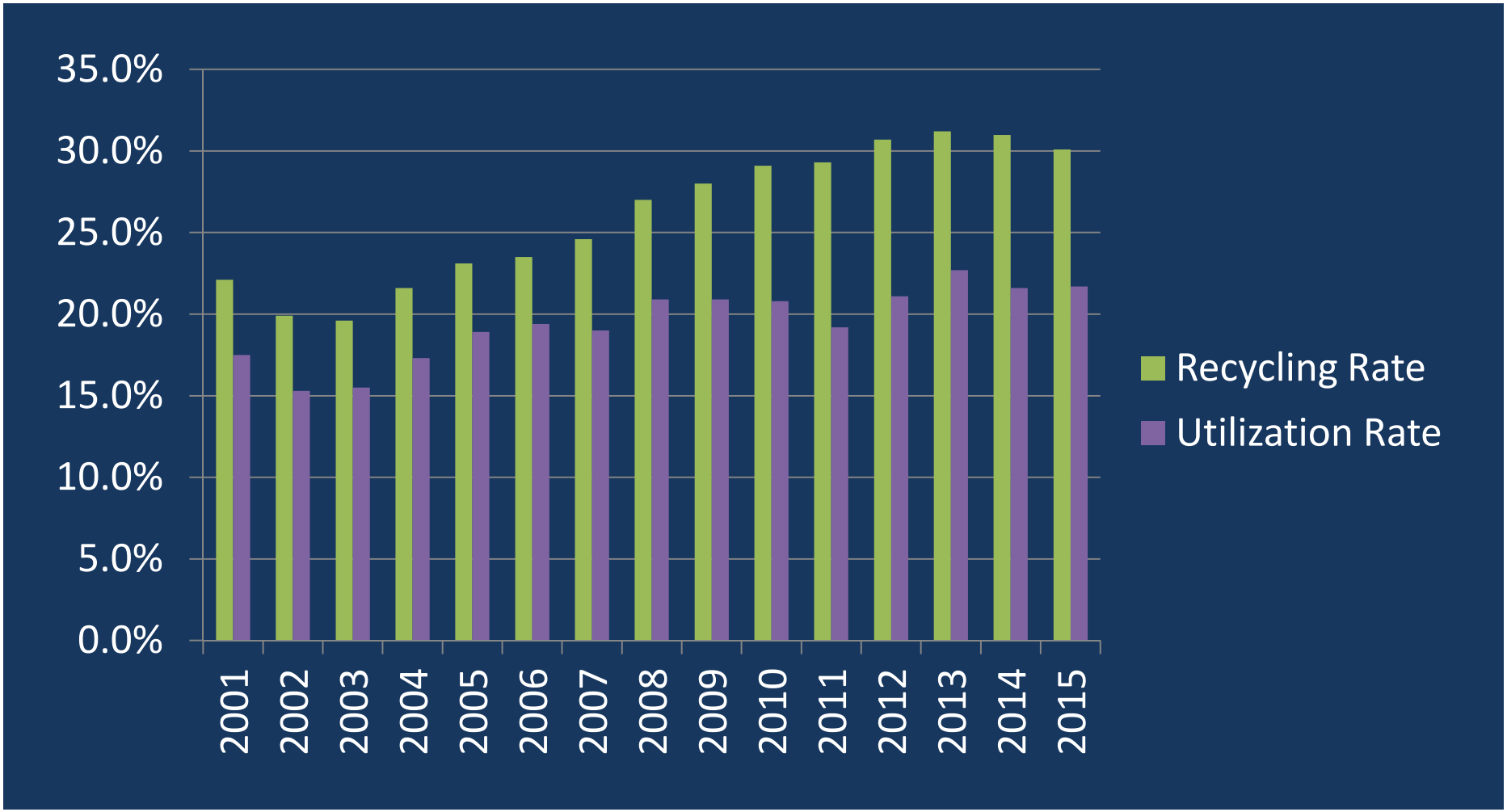
PET Recycling / Utilization Rates



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Clean Flake Production Rates by Collection Source

	2012	2013	2014	2015
Curbside	65%	69%	67%	70%
Deposit	75%	75%	73%	80%
CA CRV	71%	77%	74%	74%

Note: Clean flake production (material utilization) rates are not true measures of yield due to the impact of fluctuations in inventory and in use of dirty flake vs. bottle bale inputs.

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2015 Bale Price, East Coast Average *(picked up)*

	East Coast average low	East Coast average high
January	$.13 / pound	0.16 / pound
February	.115	0.150
March	.105	0.135
April	.105	0.135
May	.105	0.135
June	.110	0.140
July	.115	0.145
August	.110	0.135
September	.090	0.120
October	.050	0.090
November	.055	0.090
December	.065	0.090

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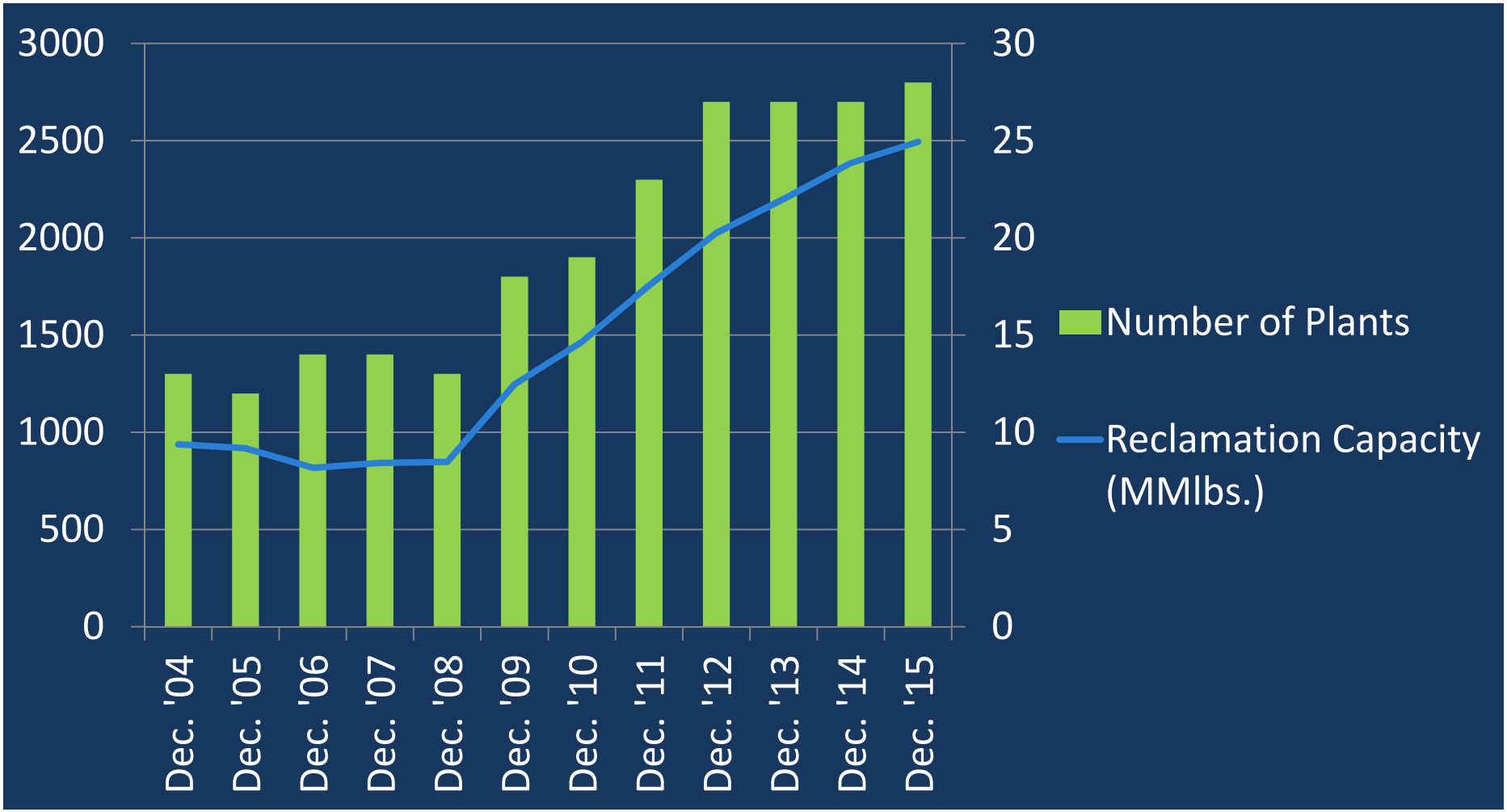
Reclamation Capacity 2015 – Major Assets USA



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PET Reclaimer Plant Utilization Rates

- Plant utilization for 2015 at approximately 62%, for USA based on total PET “pounds in” of 1,548 million pounds and end 2015 capacity of 2,495 million pounds.

Source	Million Pounds
US Bales and DF	1,373
Mexico, Canada, Other Bales and DF	82
Non-Bottle Material, including thermoforms, strapping, pre-consumer, other	93
TOTAL	1,548

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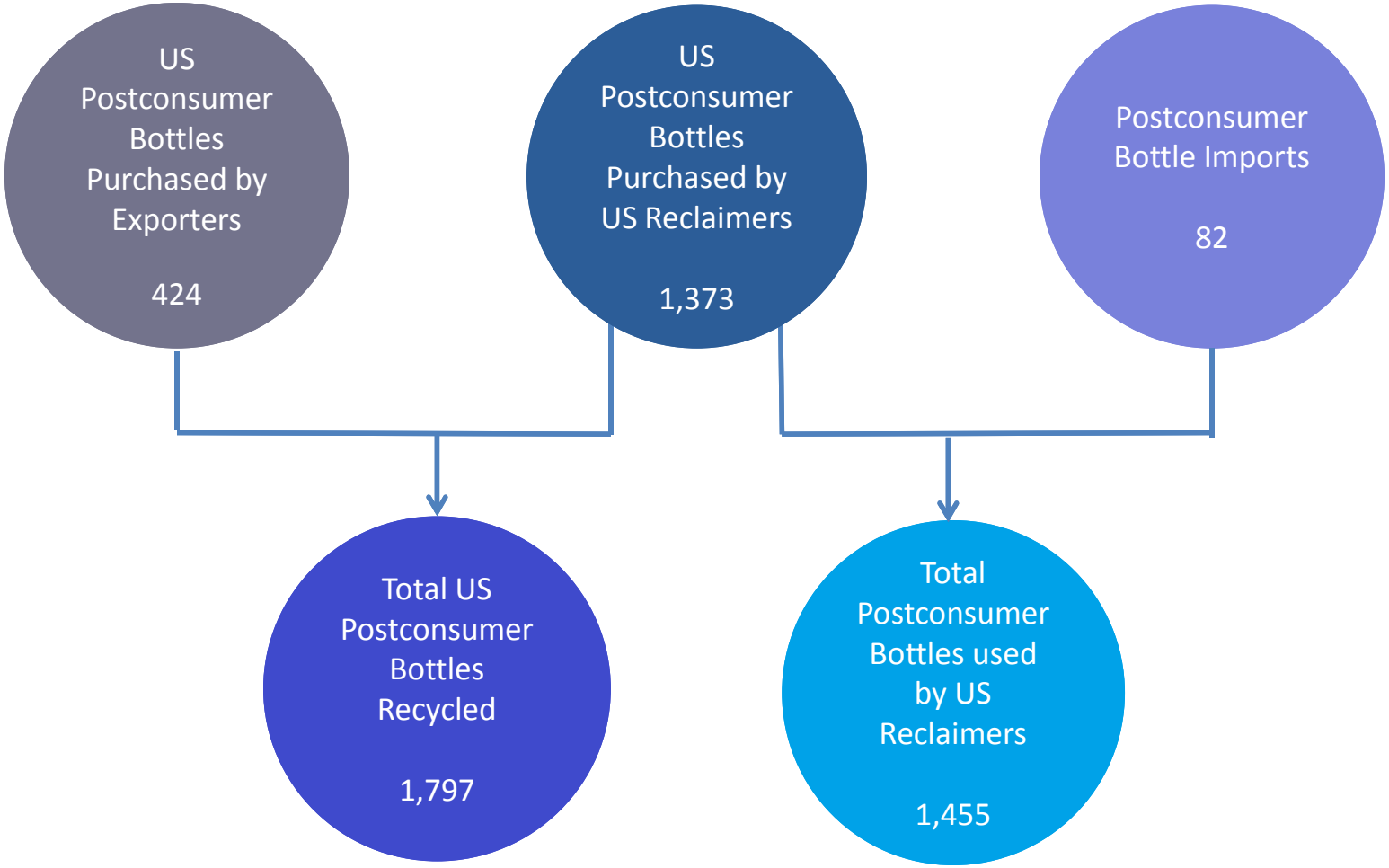
Postconsumer Bottles Recycled / Used by Reclaimers (*MMlbs*)



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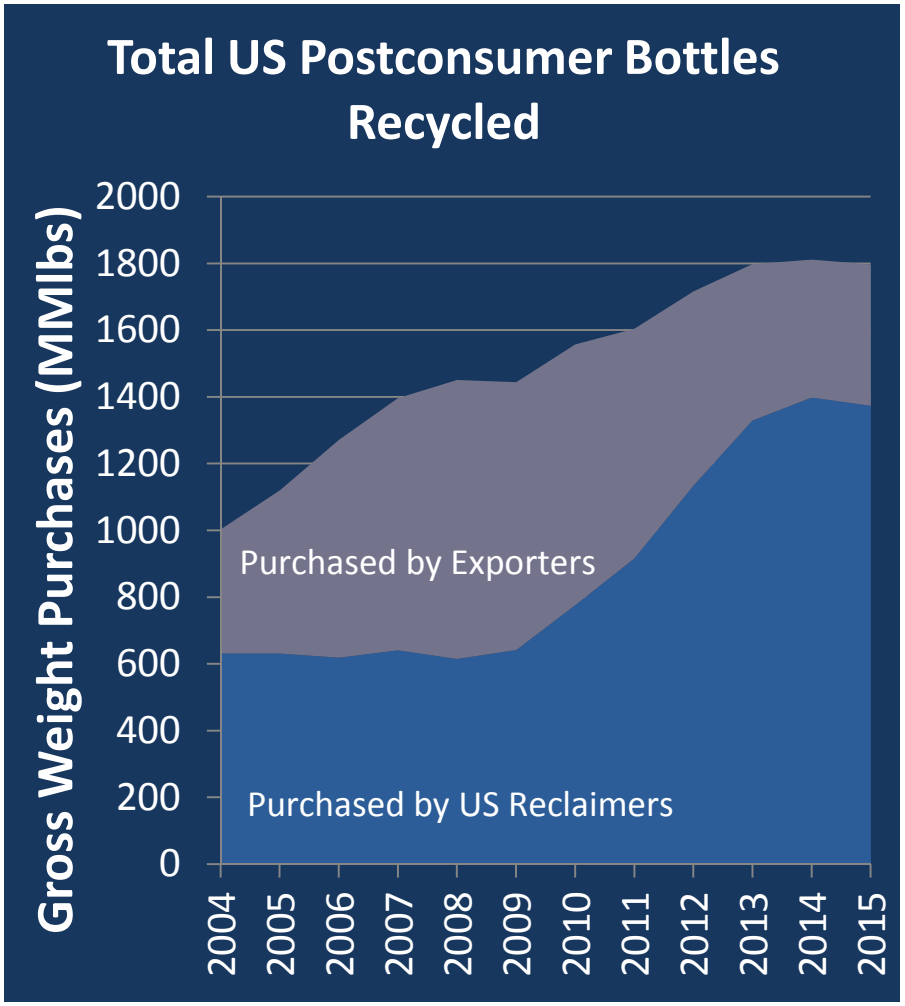
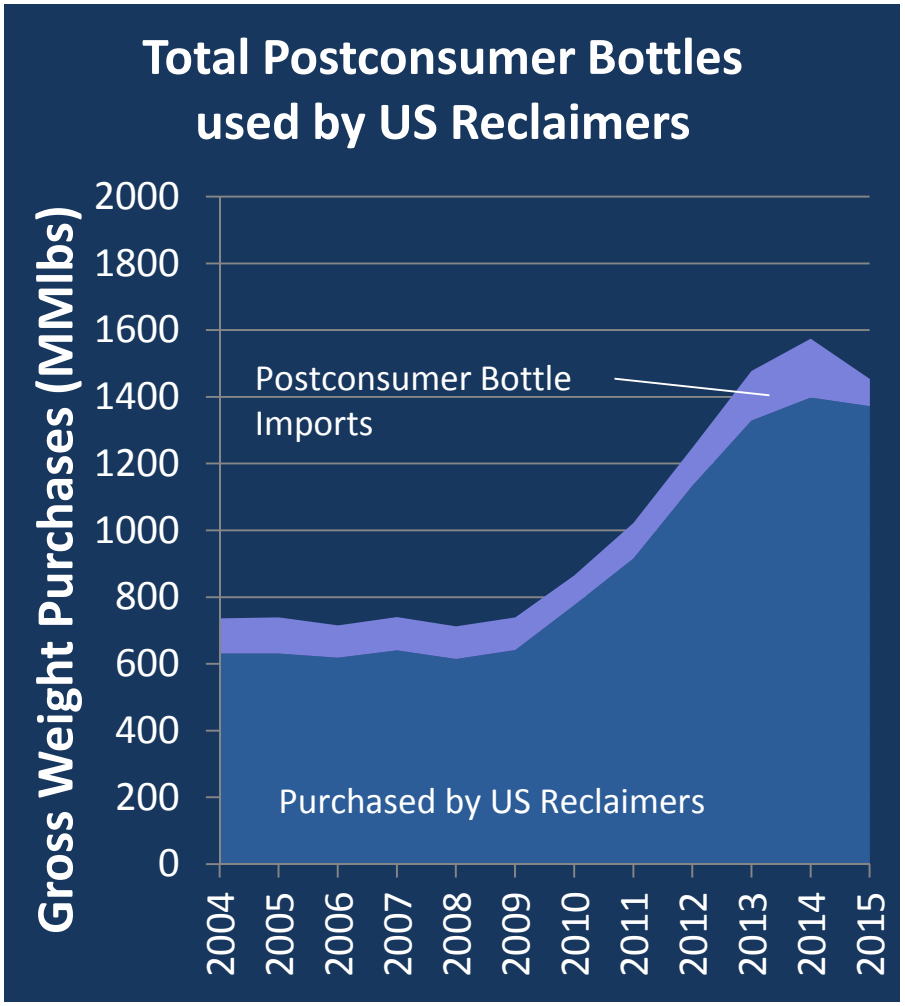
Postconsumer Bottles Recycled / Used by Reclaimers





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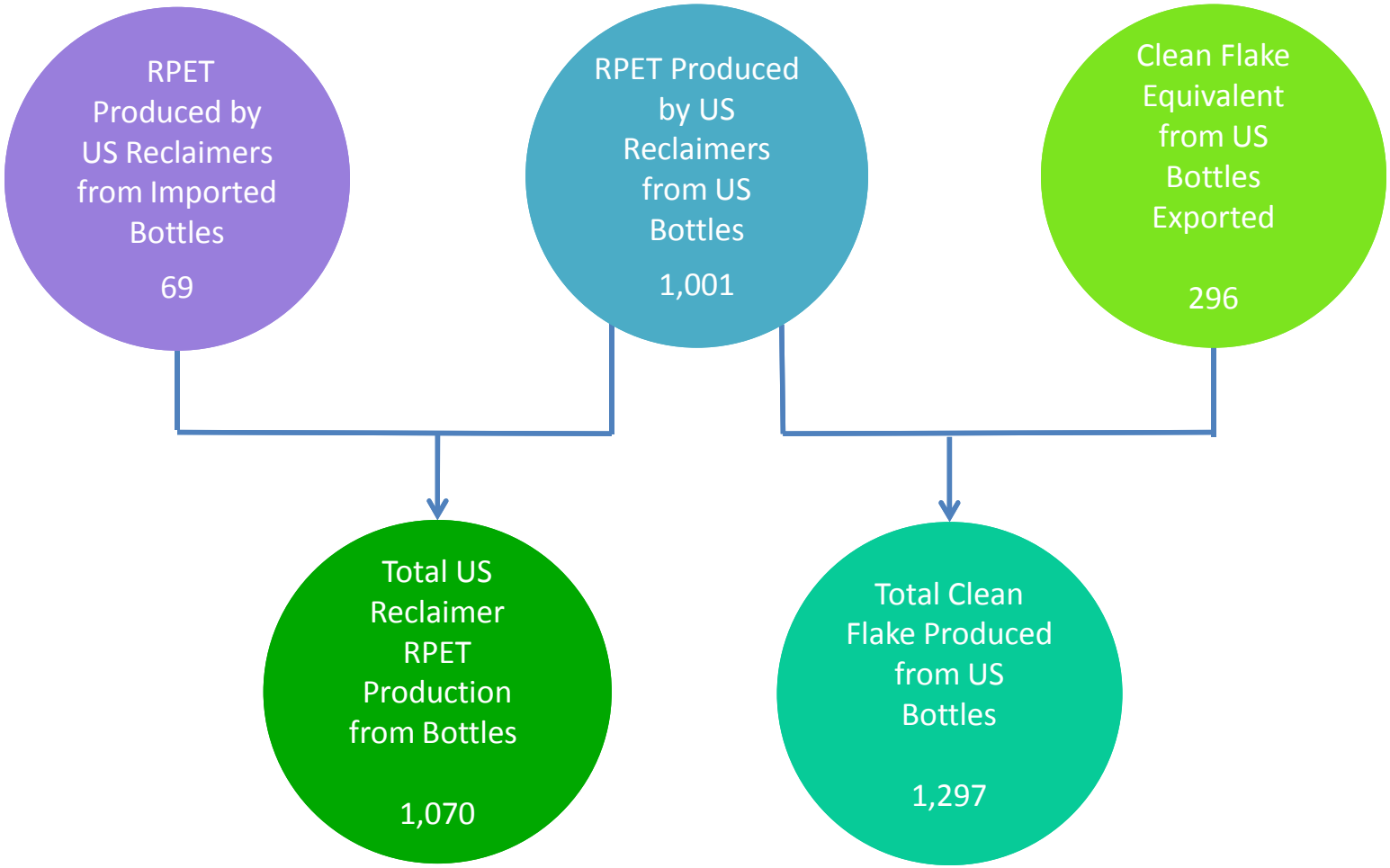
Production of PET Flake from Bottles in 2015 (*MMlbs*)



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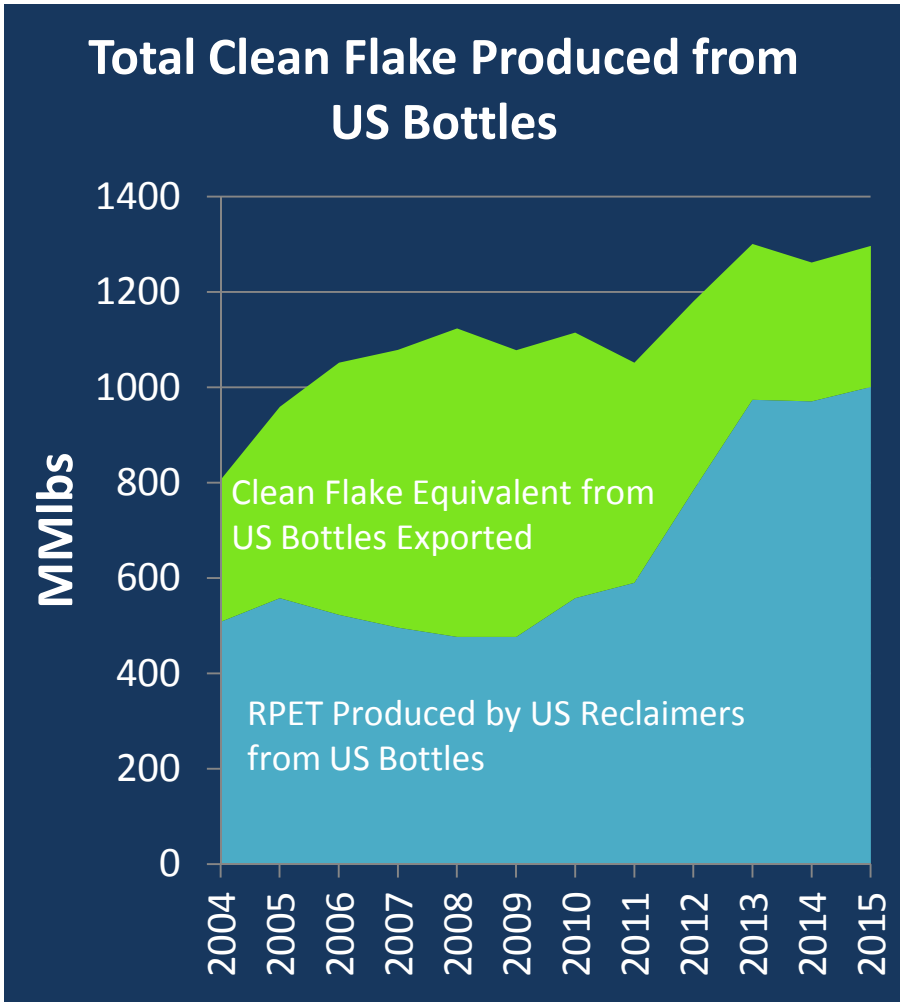

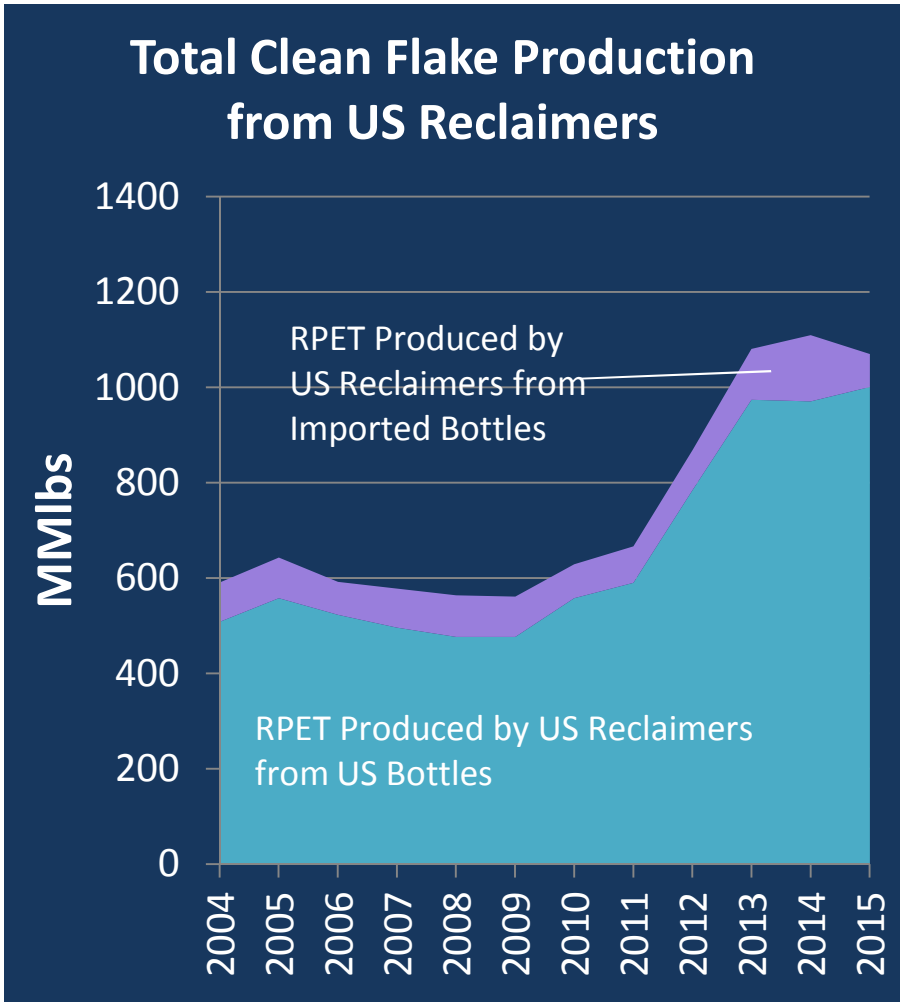

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Clean Flake Production 2015 (All feedstock MMlbs)

Produced by	2009	2010	2011	2012	2013	2014	2015
US Reclaimers	583.8	666.5	685.9	930.3	1,243.4	1,237.7	1,044.1
Canadian Reclaimers	136.5	124.8	134.6	153.1	173.3	191.1	202.4
Total	**720.3**	**791.3**	**820.5**	**1,083.4**	**1,416.7**	**1,428.8**	**1,246.5**

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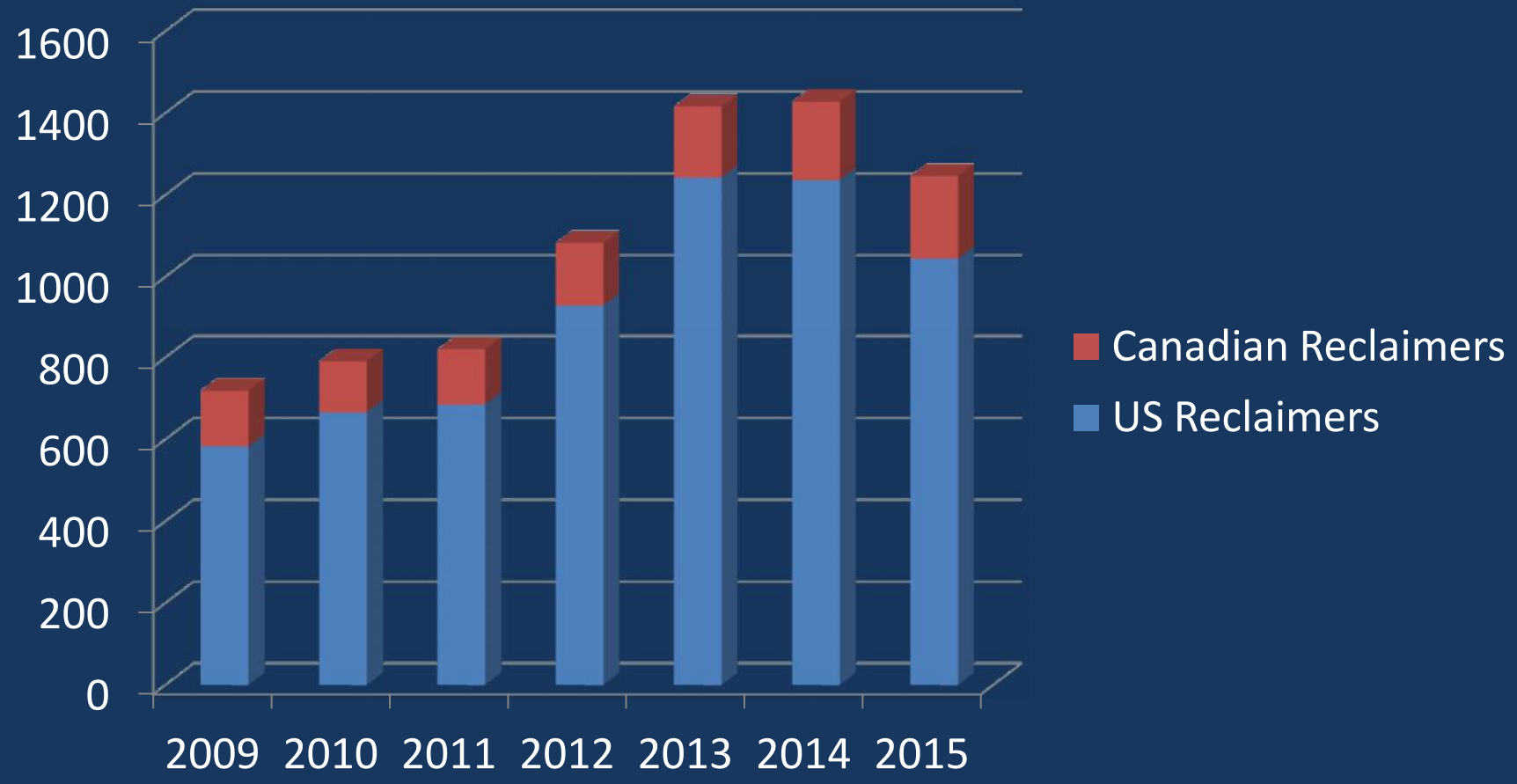
Clean Flake Production 2015
(All feedstock MMlbs)



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End Markets

- RPET demand down about 9 percent in total
- Fiber uses dropped most significantly (102mm lbs/16%) possibly due to low virgin prices driving price-sensitive customers from RPET
- Food & Bev bottle markets steady; Non-Food up more than 5%
- Sheet/Film down 5%, Strapping down 16%

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End Markets

- Total package application use slightly down from 2014 at 758 million pounds (vs. 773 million)
- Imported rPET material up over 2014, to approximately 174 million pounds

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RPET Product Categories (MMlbs)

Product Category	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fiber	463	422	383	391	344	381	398	512	558	638	535
Sheet & Film	71	74	128	153	159	195	202	307	315	365	347
Strapping	131	132	144	137	114	127	120	136	140	126	106
Engineered Resin	8	9	11	7	10	9	See Other	See Other	See Other	See Other	See Other
Food & Beverage Bottles	115	139	136	141	203	216	242	276	425	351	350
Non-Food Bottles	63	49	60	55	65	58	57	50	50	57	60
Other	13	30	38	31	42	16	21	31	25	27	23
TOTAL CONVERTER CONSUMPTION*	**864**	**855**	**900**	**915**	**937**	**1,002**	**1,040**	**1,312**	**1,513**	**1,564**	**1,421**

* Includes US & Canadian clean flake production, as well as clean flake imports

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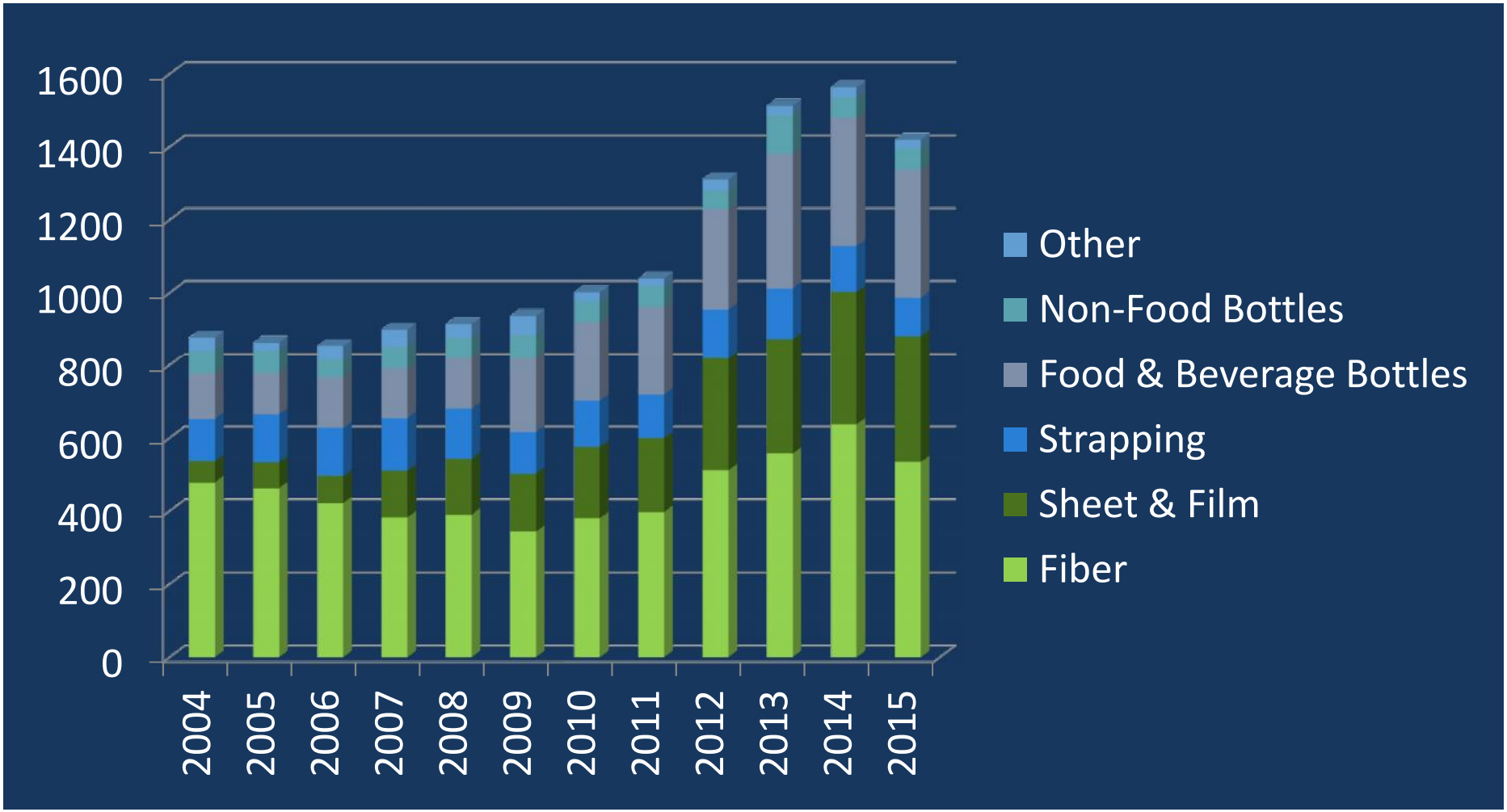
RPET Product Categories



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2015 Recycling Report Summary

- Recycling rate reflects slight decline in curbside volumes; small decrease in deposit program volumes offset by increase in CA CRV
- Challenging market conditions led to soft RPET demand and tight margins
- Reduction of reclaimer throughput led to decreases in postconsumer bottle imports; use of domestic bottles fairly steady
- Supply quality / quantity still of concern

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Thermoforms

- Bale comp study: Average 6.4% in curbside, high of 10.5% and low of 4.1%
- US & Canadian reclaimers report buying / processing 66.8 MMlbs (up from 63.9)
- Export down to 21.7 MMlbs
- Total recycled: 88.5 MMlbs (down from 107.8)
- Still a market in transition; overall volumes down, but domestic utilization up

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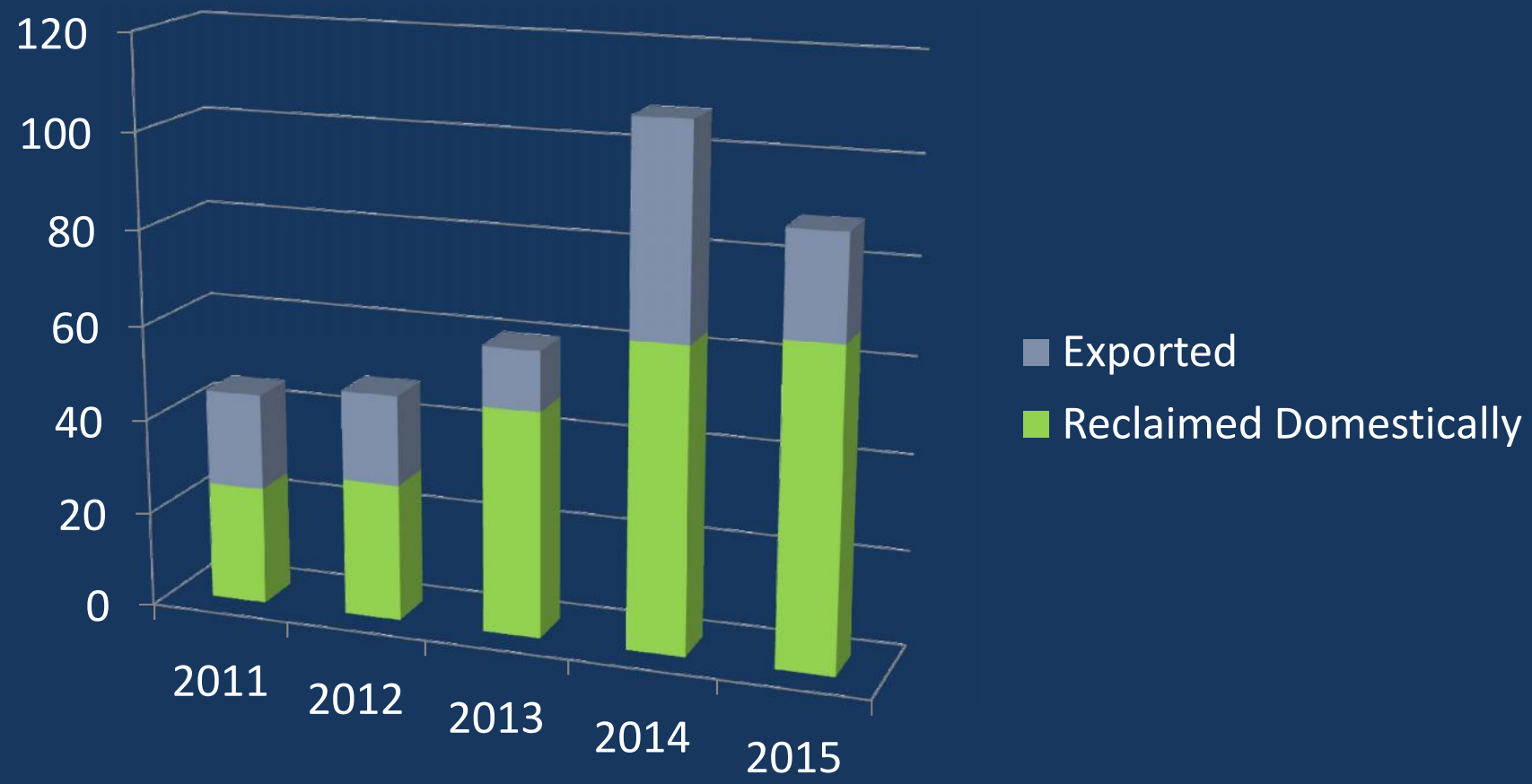
Thermoform Recovery in US & Canada (*MMlbs*)



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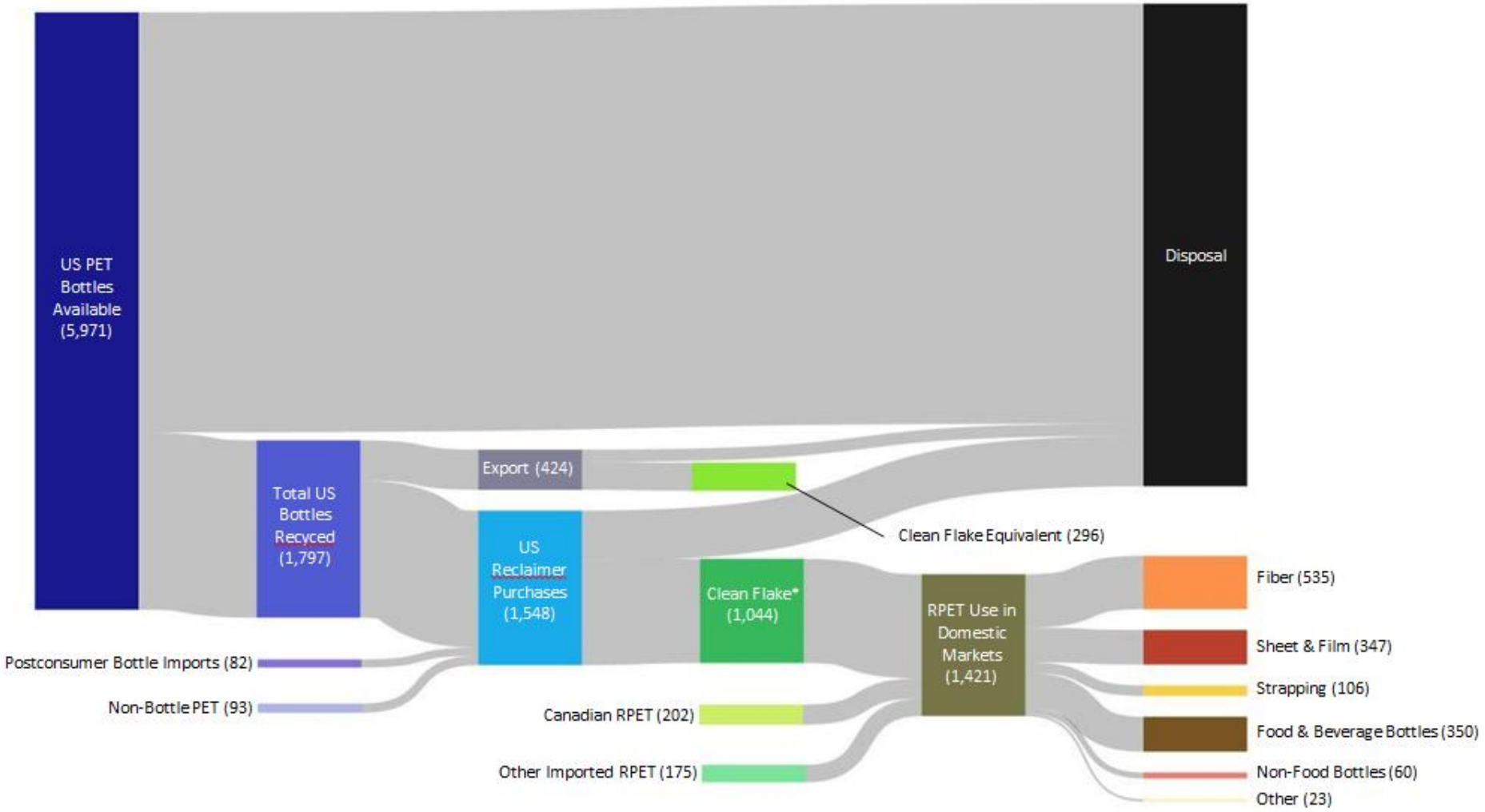
PET Materials Flows in the US



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Questions?

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