



ASSOCIATION OF PLASTIC  
**RECYCLERS**

# Boosting Demand for Recycled Plastics

Diverse Applications for PCR and the Myth of  
“Downcycling”

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# Today's Team



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# Agenda

- ✓ Who is APR?
- ✓ The Myth of “Downcycling”
- ✓ Supply, Demand, & Robust Markets
- ✓ PCR in Long-Lasting, Useful Applications [How Wide-Spec Plastic Leads to Less Circularity and More Waste](#)
- ✓ Q&A



# Who is APR?



# Who is APR?

APR is a US-based international non-profit and the only North American organization focused exclusively on improving recycling for plastics.





**Reclaimers and Recyclers  
are the CORE of APR**

# APR Member Sampling

## RECLAIMERS/RECYCLERS



## AFFILIATES



[View all APR Members »](#)

Together, APR members span the entire value chain and shape the future of our industry.

- Reclaimers/Recyclers
- Brand Owners
- Retailers
- Converters
- Equipment Manufacturers
- Testing Laboratories
- Certifiers
- Label & Ink Manufacturers
- Resin Manufacturers
- Additives Manufacturers
- Researchers
- Technical Consultants
- And more!



# APR Primary Goals



## Increase Supply

Ensure plastic gets into the recycling system and stays out of landfills and the environment



## Enhance Quality

Guide companies on design and processing to reduce contamination and improve recyclability



## Expand Demand

Identify solutions to expand the use of post-consumer recycled content and reduce extraction of natural resources



## Communicate Value

Ensure policy makers and companies recognize the value of recycled content and the recycling process



# What Do We Do?

Our mission is simple:  
**RECYCLE MORE PLASTICS**  
to reduce waste.



# The Myth of “Downcycling”

# Let's Change the Narrative

- Used plastics provide a valuable feedstock when recycled.
- Recycled plastics should be used for their highest value.
- Sometimes that is back into its original form, such as a bottle becoming another bottle.
- Sometimes it is a bottle into another use.



# Let's Change the Narrative

- Recycled HDPE going into pipe can be more valuable than back into a bottle.
- Recycled PET going into strapping or carpet can be more valuable than back into a bottle.
- Recycling is more economically robust when there are a variety of valuable uses for the reclaimed material.
- Diversity is beneficial to the financial health of recycling.



# The Facts About Recycling



## Myth

It is not beneficial to the environment or recycling if plastics are “downcycled.”



## Fact

“Downcycling” is recycling! Using recycled content in place of new plastic reduces energy consumption and GHG emissions. We need to recycle plastics back into packaging and other long-lasting, useful applications.

<https://plasticsrecycling.org/images/library/2018-APR-LCI-report.pdf>

Now you know.  
#PlasticsRecyclingWorks

# Examples of Long-Lasting, Useful Applications

- In 2021 the largest end use market for Color HDPE Bottles was pipe, followed by bottles.
- Other HDPE applications include construction, lawn/garden, automotive, film/sheet, and lumber/decking.
- Bottles were the largest end market for PET, closely followed by fiber with the remaining going into other non-bottle end uses including sheet & film, strapping and other.



<https://circularityinaction.com/2021PlasticRecyclingData>

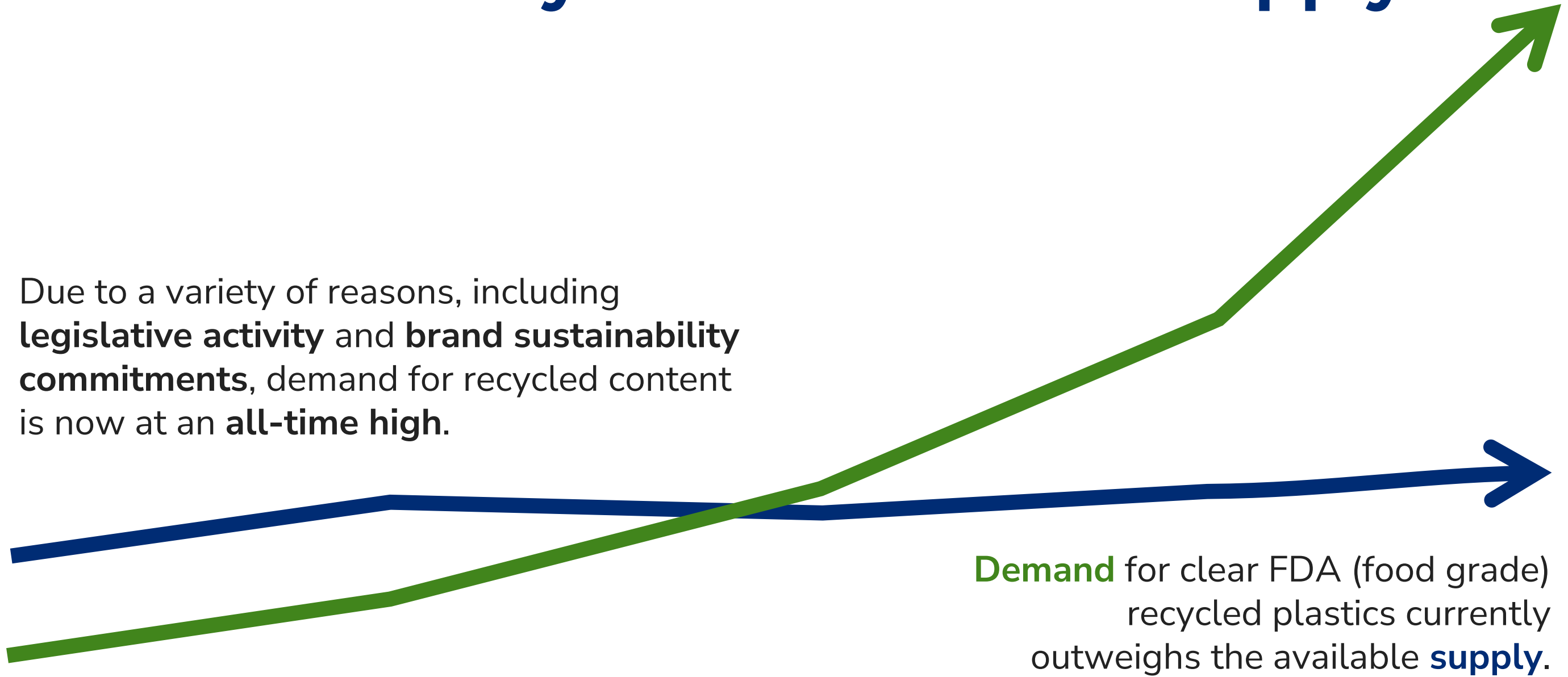
# Diverse Applications are Essential

- While bottle markets are growing, recycled resins vary in their potential applications and market maturity.
- Long-lasting, durable goods end markets remain important for recycled market diversity and resilience.
- They also provide options for mixed color and/or non-food grade materials.



# Plastic Recyclers Need More Supply

Due to a variety of reasons, including **legislative activity** and **brand sustainability commitments**, demand for recycled content is now at an **all-time high**.





**Strong, reliable demand  
for colored, non-FDA  
material is essential.**





# Supply and Demand



# dynamics of supply and demand of recycled plastics

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**RESA DIMINO**

Managing Principal, RRS

Managing Partner, Signalfire Group



# who is signalfire group?

## SUPPORTING BUSINESS & GOVERNMENT MOVING TOWARD A CIRCULAR ECONOMY



Assist in Policy Development & Implementation



Assess Markets & Policies to Understand Impact

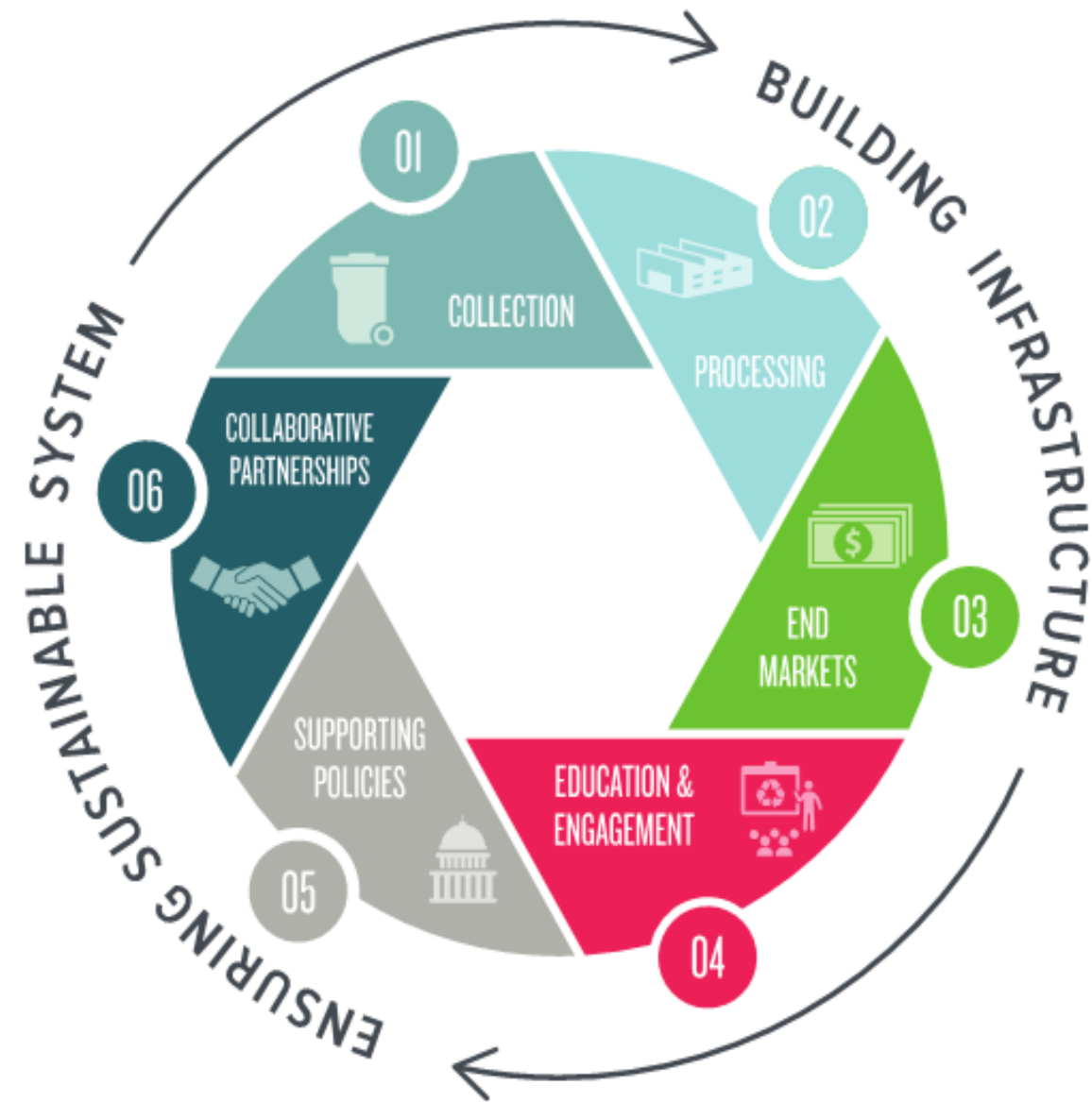


Develop Strategies to Align Goals & Compliance



Design/Assess Programs & Pilot Implementation

# elements of a sustainable recycling system



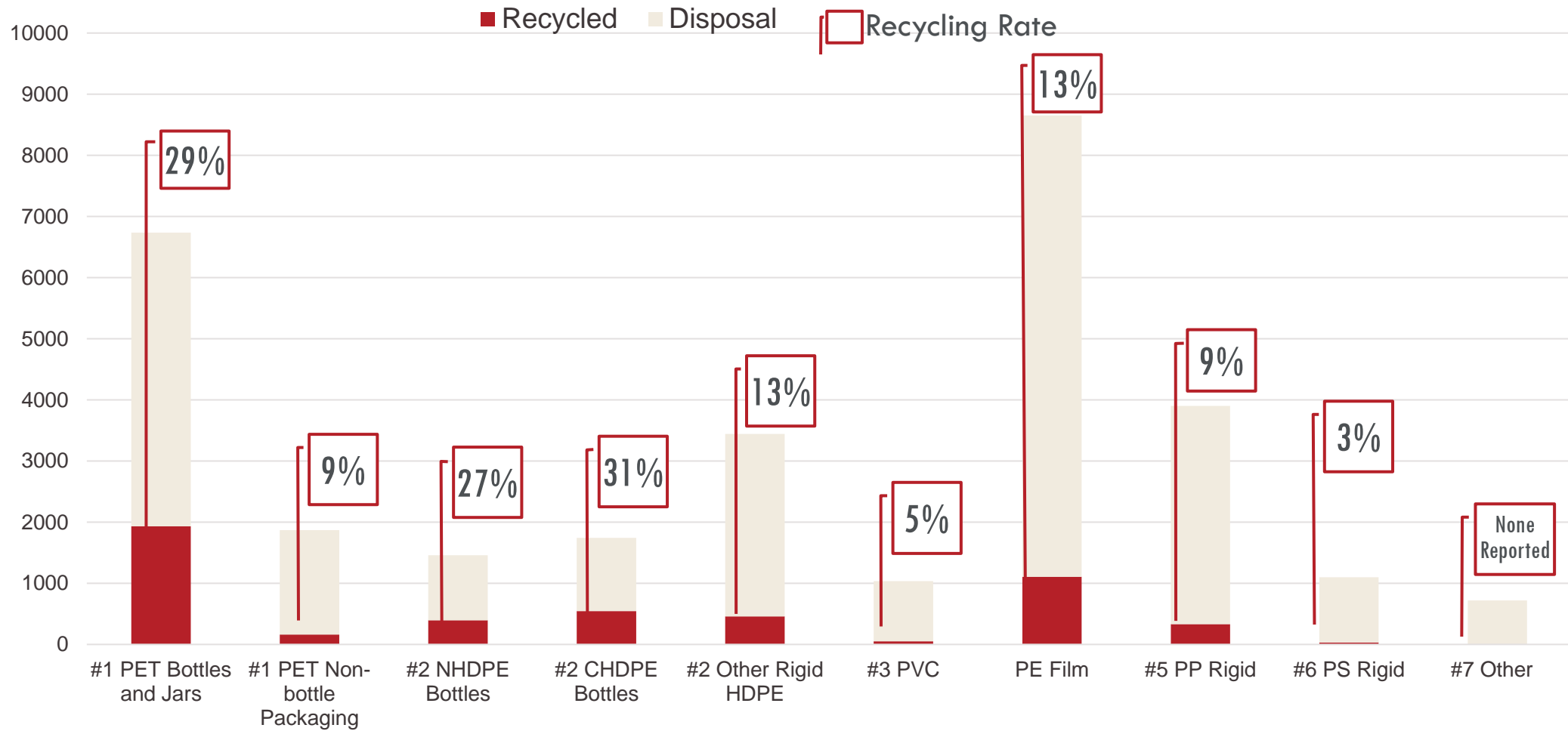
Minimum recycled content requirements and corporate commitments to use PCR improve pricing for recycled commodities and support end markets and processing infrastructure

Additional activities are needed to ensure other elements of a sustainable recycling system are in place

# TOTAL PLASTIC CONTAINERS & PACKAGING RECYCLING RATE 2021\*: 16%

recycling rates for most types of plastic packaging are low and stagnant

TOTAL U.S. POSTCONSUMER PLASTIC CONTAINERS & PACKAGING RECYCLING RATE: 16%

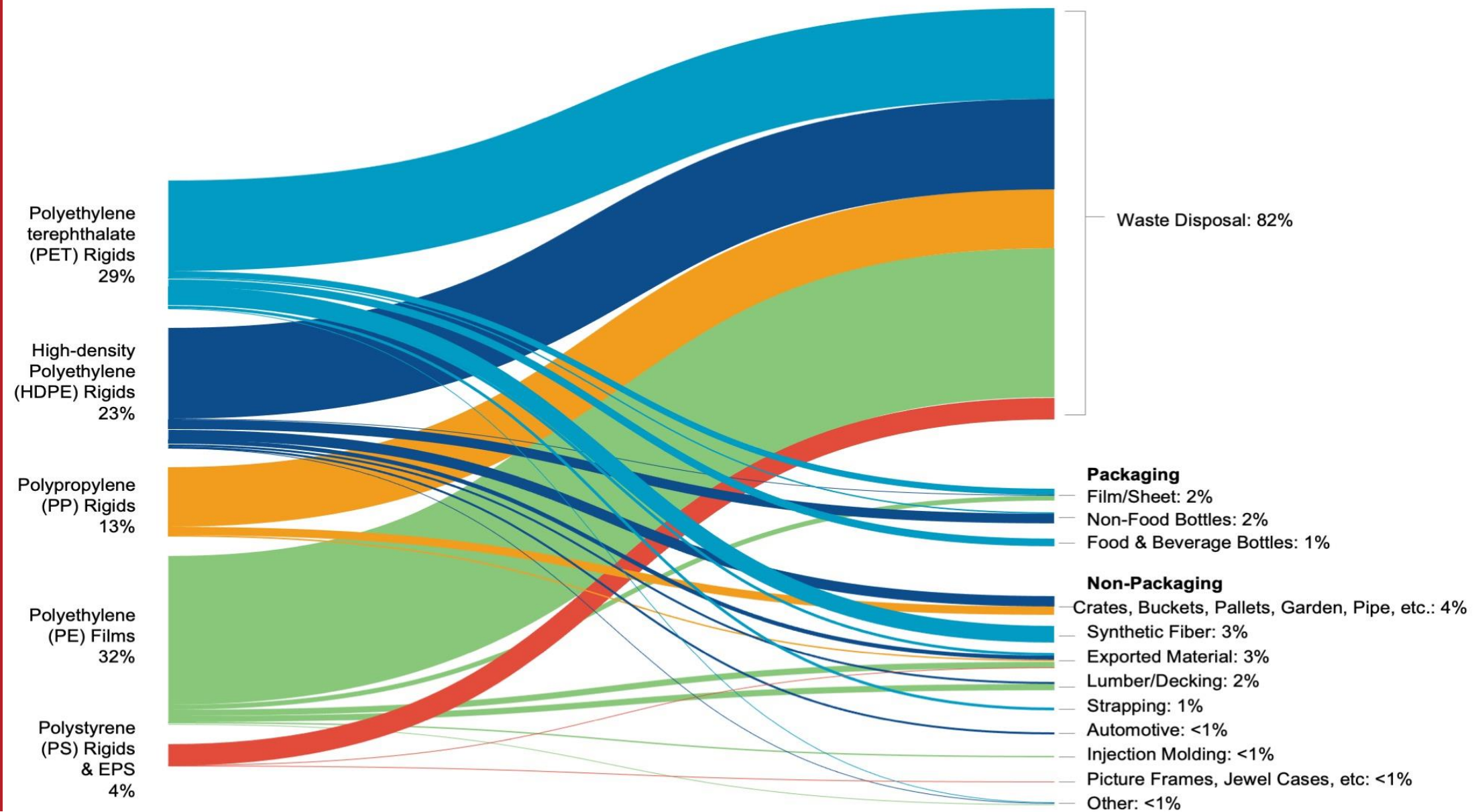


\*PE film includes packaging, retail bags, agriculture and construction

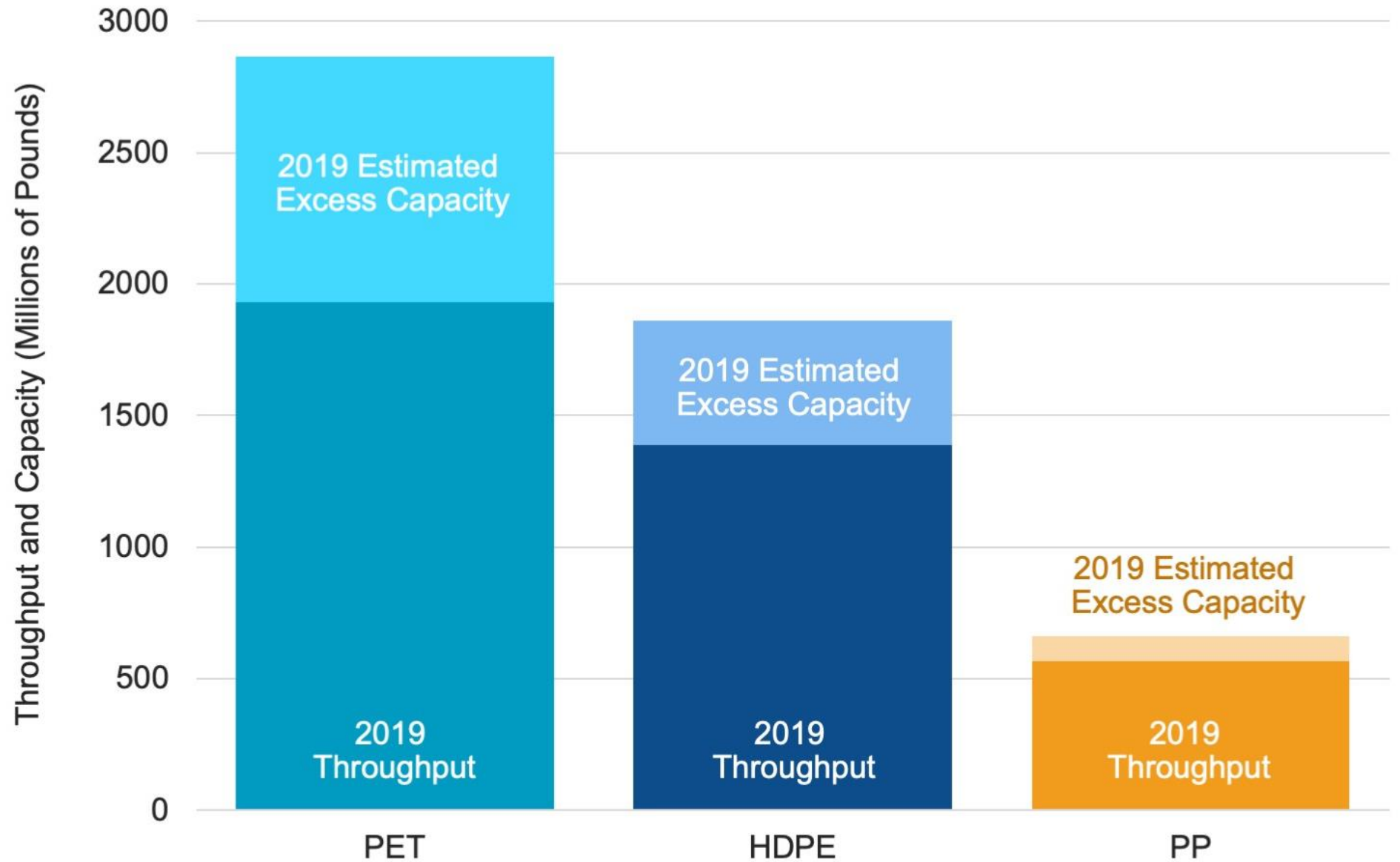
Sources: STINA, APR, ACC, EPA, NAPCOR, RRS



# plastic packaging flows in the US



recycling  
capacity  
exceeds  
available  
supply of  
plastic





# US plastics pact commitments

## CURRENT ACTIVATORS

## 2025 OBJECTIVES

Define a list of packaging that is problematic or unnecessary by 2021 and take measures to eliminate them by 2025.

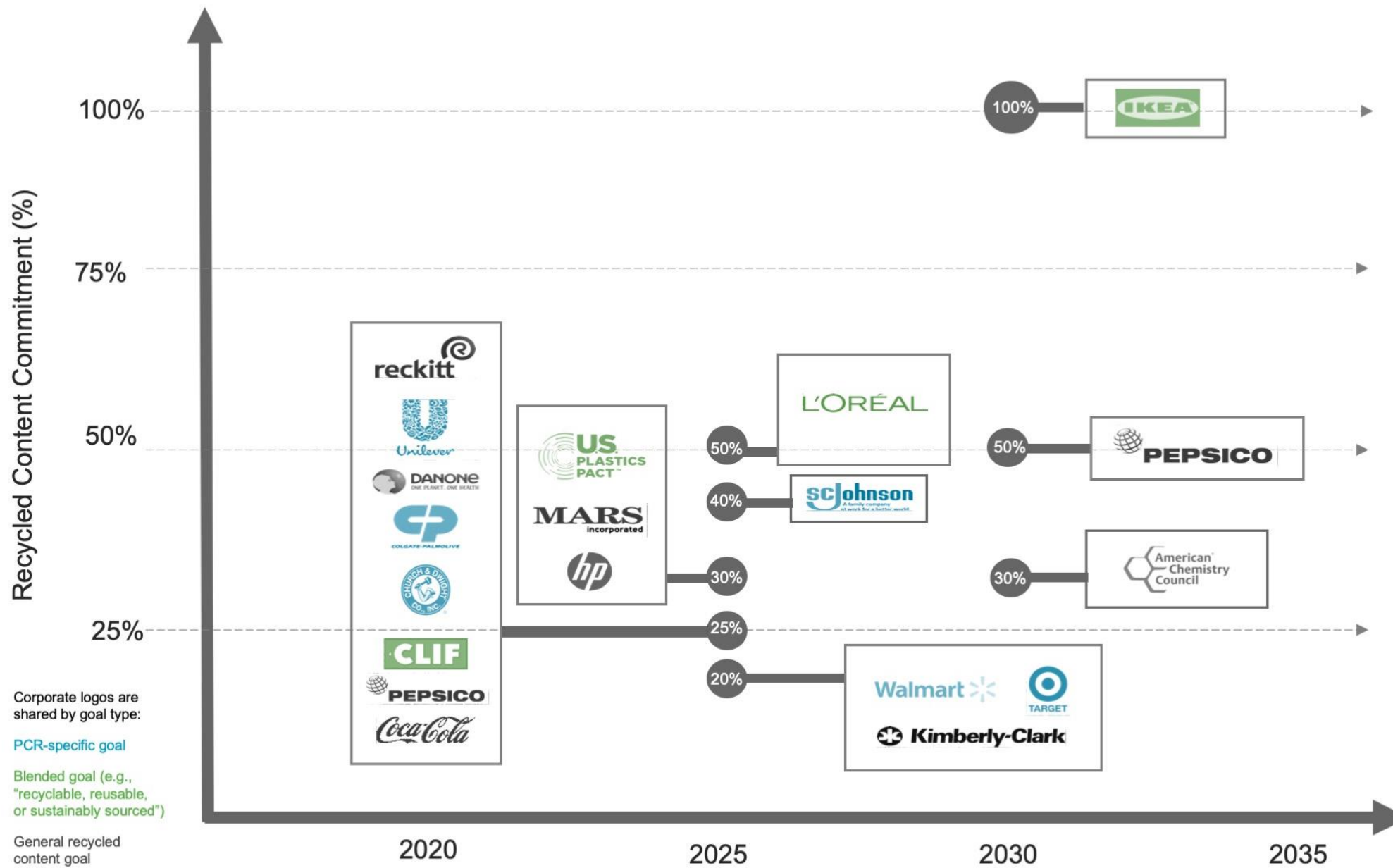
100% of plastic packaging will be reusable, recyclable, or compostable.

Recycle or compost 50% of plastic packaging.

Average of 30% recycled content or responsibly-sourced, biobased content.



# corporate commitments for use of recycled plastic

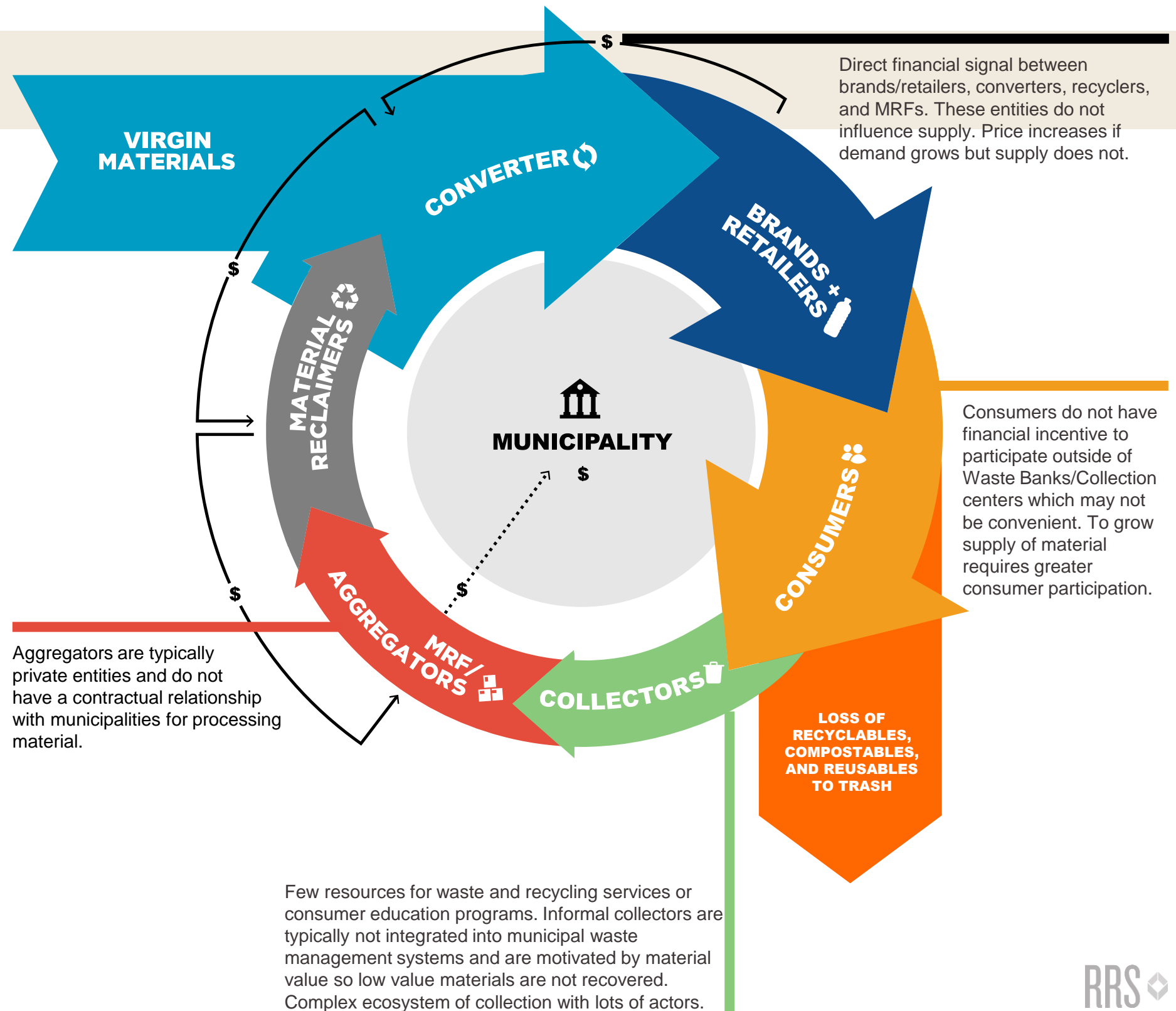


# market demand does not increase recycling collection

Market signals do not reach the consumer/municipality

Demand is financially delinked from supply of recovered materials

End market availability and value does not automatically result in additional collection



# municipal programs typically do not respond to price signals

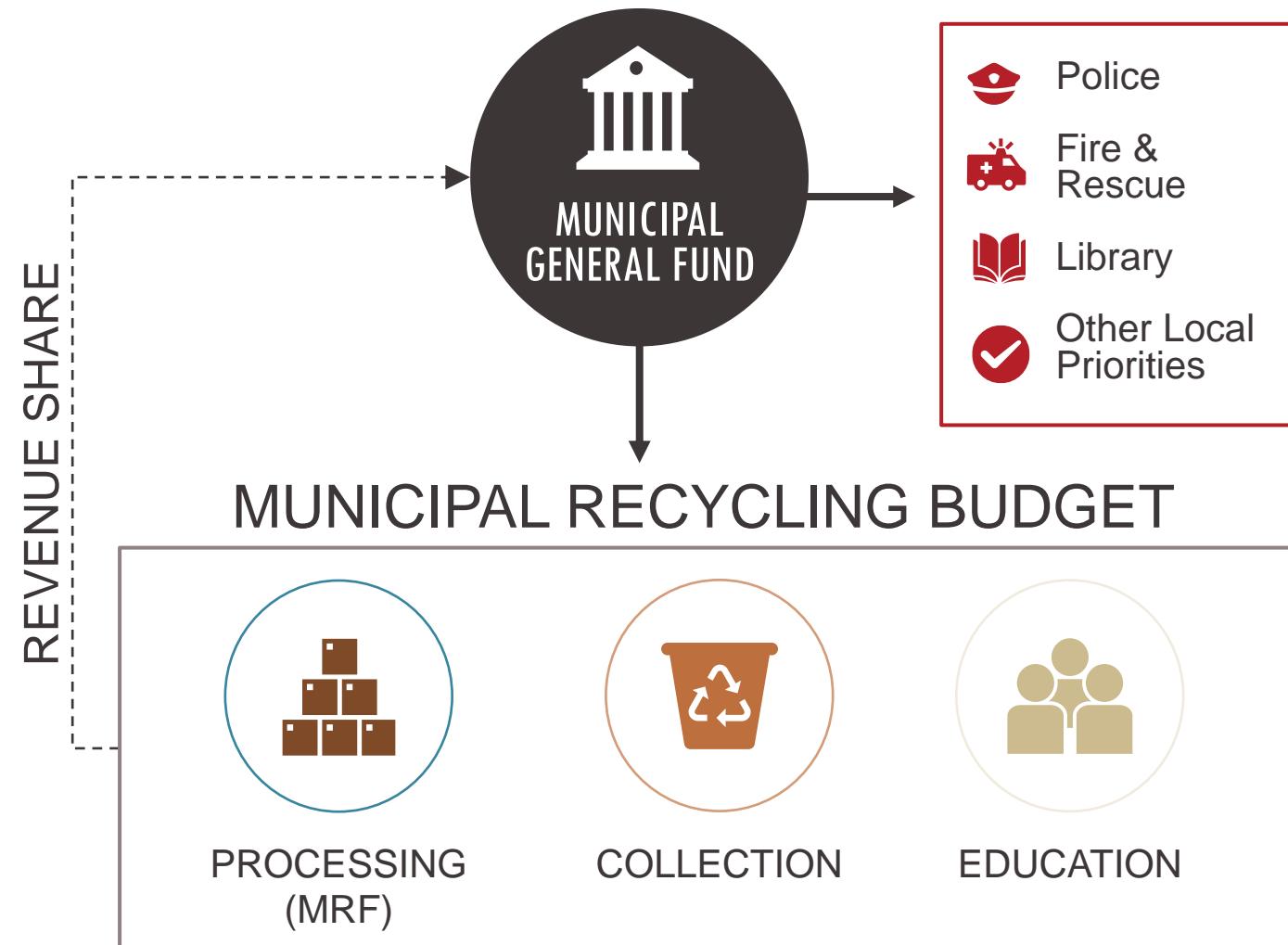
Inconsistency on the economic feedback loop to governments results in an inelastic supply of recyclables.

Recycling revenue to municipalities is inconsistent across jurisdictions and may or may not exist depending on contracting.

If revenue is received, it may or may not be used to support recycling.

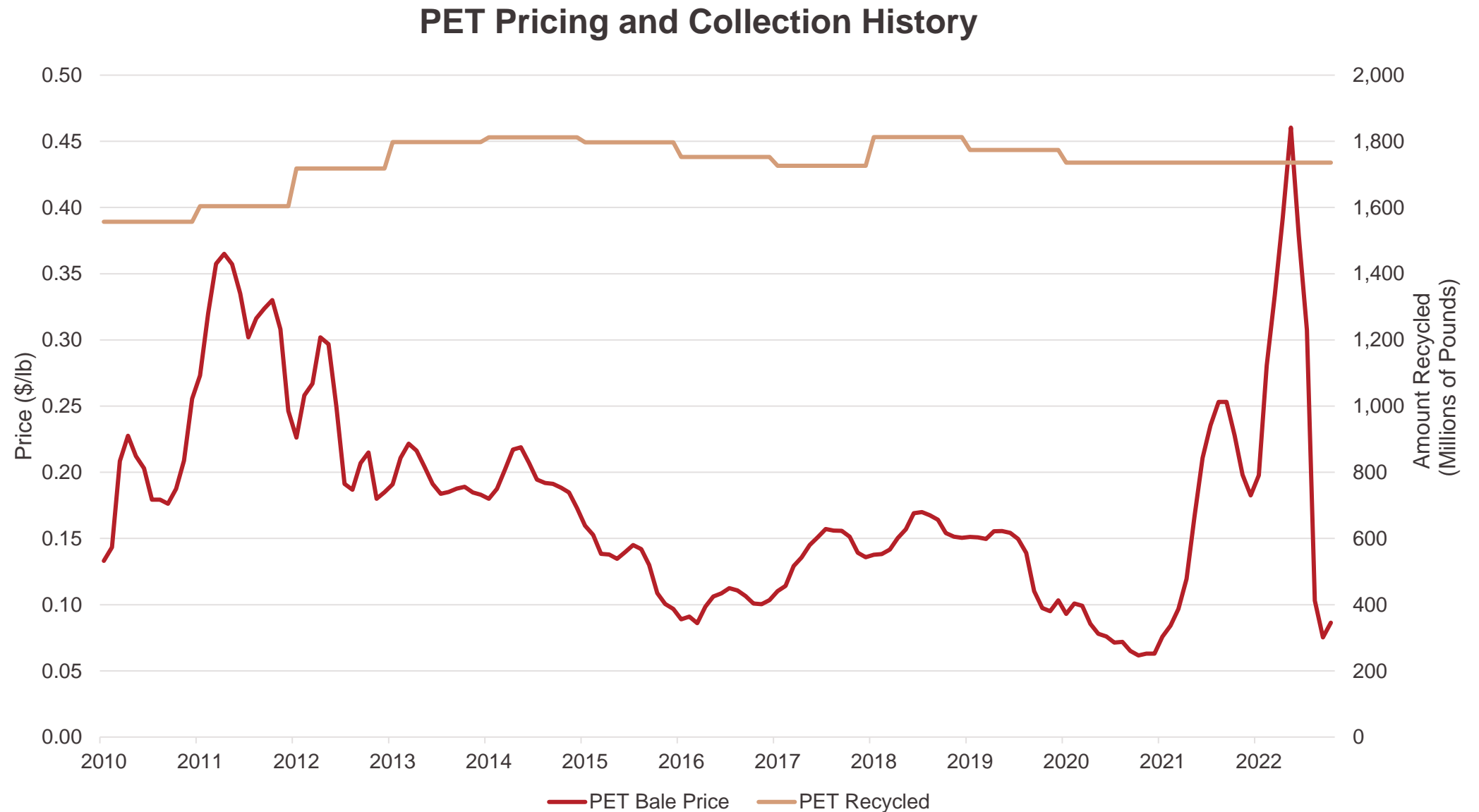
As a consequence, higher demand does not yield greater supply.

## TYPICAL FINANCIAL RELATIONSHIP OF MUNICIPALITIES TO RECYCLING SERVICES



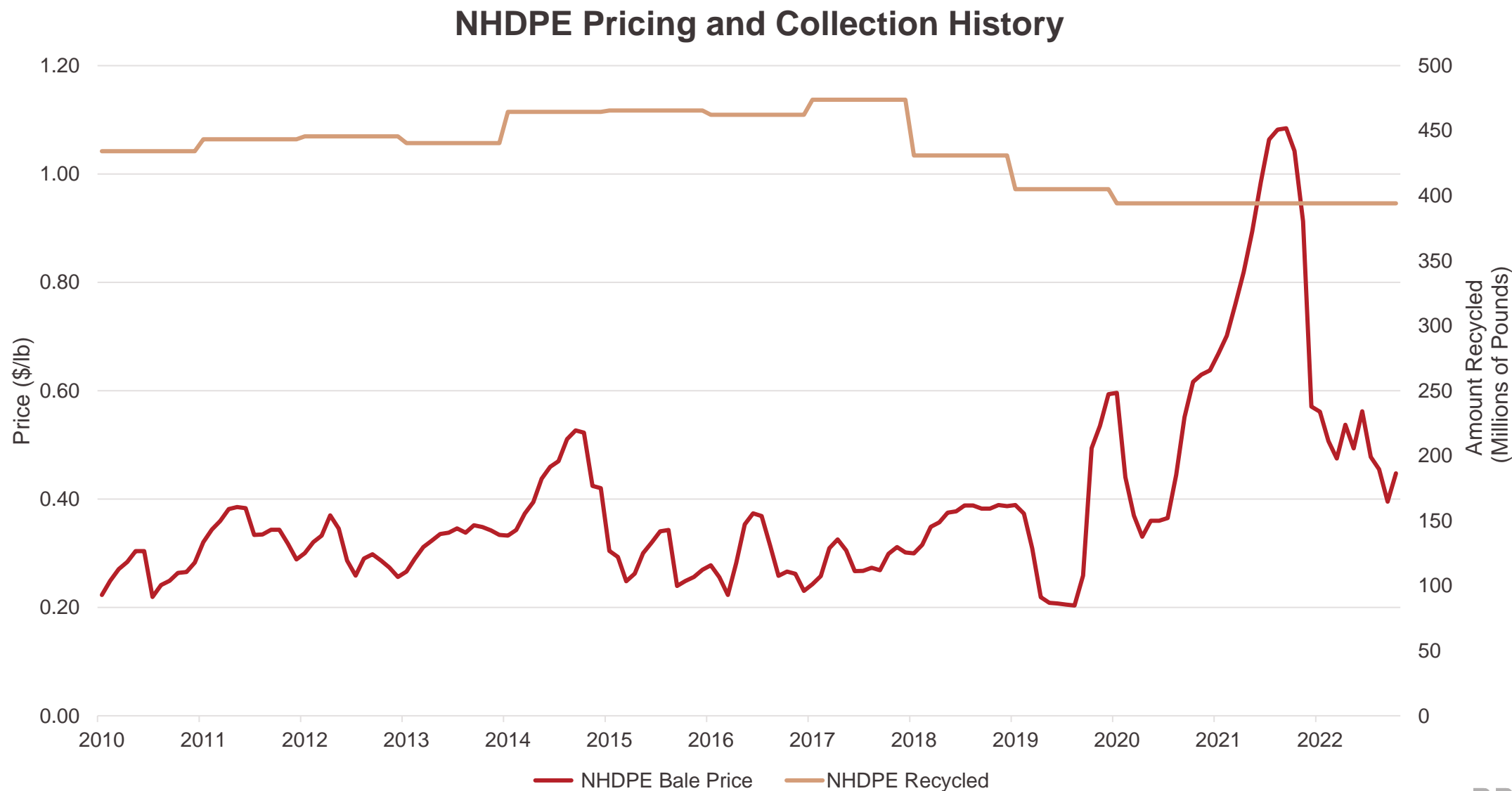
# bale price does not drive collection

**HIGHER BALE PRICES DO NOT YIELD GREATER MATERIAL RECOVERY**



# bale price does not drive collection

**HIGHER BALE PRICES DO NOT YIELD GREATER MATERIAL RECOVERY**

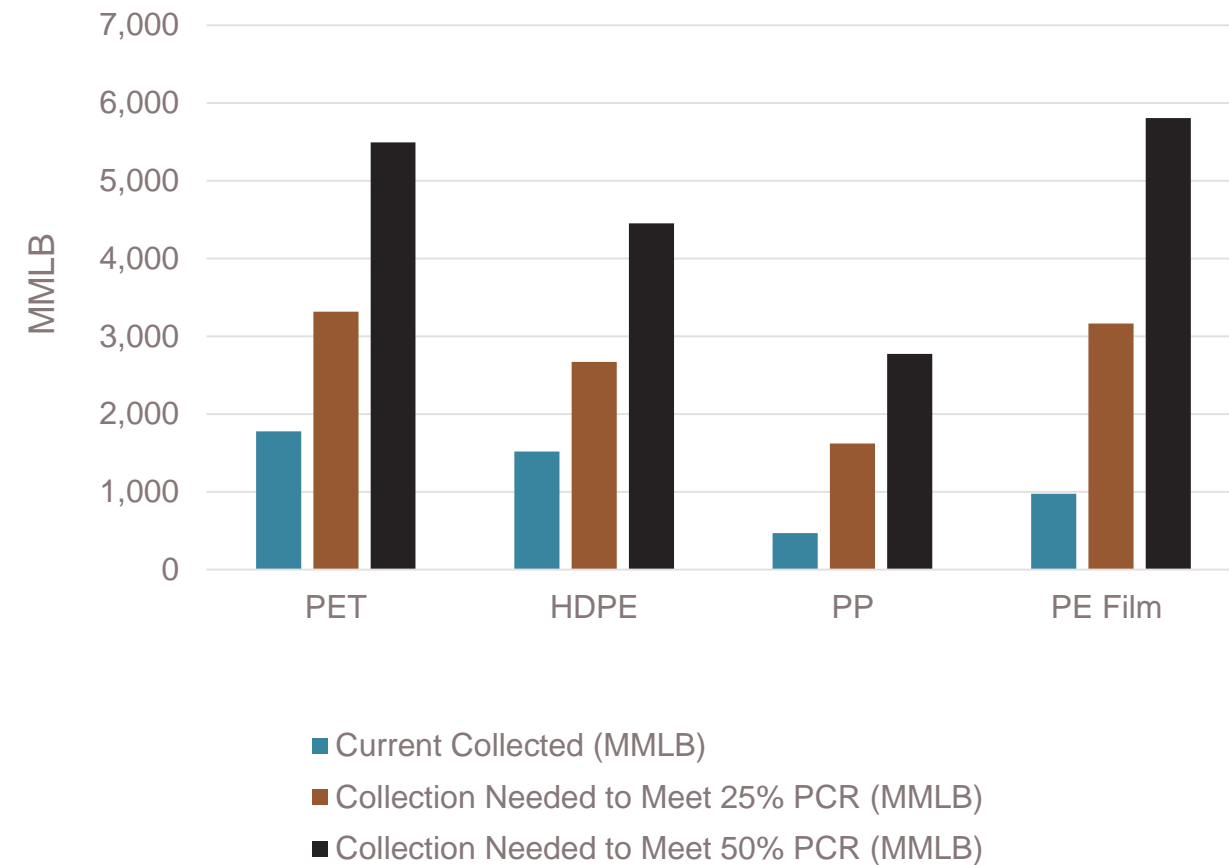


# growing supply to meet packaging PCR mandates & commitments

There is currently not enough PCR plastic produced at the quality required to meet industry demand.

Achieving corporate and government targets for PCR will require increased supply of PET, HDPE, and PP as well as growth in food grade reclamation capacity.

PCR PACKAGING SUPPLY DEMAND GAP



Sources: 2019 Supply data – ACC, NAPCOR, APR and RRS; Demand - Calculated

# align demand with quality and quantity of available supply

Healthy and robust markets for recycled plastics require a variety of end uses

Using PCR in durable products and other end markets that can accommodate lower quality feedstocks is key to supporting current infrastructure

Maintaining a focus on bottle-to-bottle applications is important for the long-term improvements in circularity

Source: [https://oceanconservancy.org/wp-content/uploads/2022/02/RRS\\_OceanConReport\\_Feb2022\\_Final.pdf](https://oceanconservancy.org/wp-content/uploads/2022/02/RRS_OceanConReport_Feb2022_Final.pdf)

**Table 1: Plastic Film and Durable Products**

EXAMPLE PRODUCTS	RESIN	2019/2020 EST. % PCR (US & CANADA)*	2025 % PCR	2030 % PCR	2035 % PCR	2040 - 2050 % PCR
<b>Carryout Bags and Polybags</b>	PE Film	unavailable	10%	20%	30%	35 - 40%
<b>Trash Bags</b>	PE Film	unavailable	10%	15%	20%	20%
<b>Garden Pots</b>	PP, HDPE	<10%	20%	30%	30%	30%
<b>Storage Bins</b>	PP, HDPE	unavailable	20%	30%	30%	30%
<b>Garbage &amp; Recycling Carts</b>	PP, HDPE	<3%	5%	15%	15%	15%
<b>Pipe</b>	HDPE	unavailable	20%	30%	30%	30%

\* Estimates for 2019/2020 % PCR for film and durable products are limited due to lack of data availability and reporting. PCR use is reported for both the US and Canada because the two countries operate effectively as one marketplace.

**Table 2: Packaging Applications Scenario 1 – Assumes Significant Growth in Recycling Collection and Modest Technological Innovation**

EXAMPLE PRODUCTS	2019/2020 EST. % PCR (US & CANADA)	2025 % PCR	2030 % PCR	2035 % PCR	2040 - 2050 % PCR
<b>PET Bottles</b>	11%	15%	20%	25%	30 - 40%
<b>PET Thermoforms</b>	16%	16%	20%	25%	30 - 35%
<b>HDPE Bottles</b>	17%	17%	20%	25%	30 - 40%
<b>PP Packaging</b>	0%	5%	10%	15%	25 - 30%

**Table 3: Packaging Applications Scenario 2 – Assumes National Supply-Side Policy (EPR and Bottle Bill), Technical Innovation, and Design for Recycling Improvements**

EXAMPLE PRODUCTS	2019/2020 EST. % PCR (US & CANADA)	2025 % PCR	2030 % PCR	2035 % PCR	2040 - 2050 % PCR
<b>PET Bottles</b>	11%	15%	30%	45%	55 - 60%
<b>PET Thermoforms</b>	16%	16%	22%	30%	35 - 45%
<b>HDPE Bottles</b>	17%	17%	25%	25%	40 - 50%
<b>PP Packaging</b>	0%	5%	15%	25%	30 - 35%



# closing thoughts

- Mandatory minimum content policies and PCR commitments are effective at driving demand and stabilizing commodity pricing
- If minimum content standards and commitments are not balanced with the quantity and quality of available supply, they can distort the market for no real recycling system gains
- Pursuing supply side policies (EPR for packaging and printed paper, beverage container deposits, etc.) in tandem with minimum content policies will support a robust and stable municipal recycling system



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# PCR in Shipping & Transportation, Issues with Wide-Spec Plastic

# COMPOSITE RAIL TIES

- \* Ubiquitous
- \* Realistic spec
- \* Immediate path to circularity

# PLASTIC PALLETS



GRANITE PEAK  
PLASTICS



TRITON  
TIES 

**THE  
GRANITE  
PEAK  
GROUP**



**GRANITE  
PEAK  
PLASTICS**

**BLUE  
OCEAN  
COMPOSITES**



**DBA  
TRITON TIES**

COMPOSITE  
RAIL TIES

WOOD  
SOLUTION

Cut down hardwood trees

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Soak them in hazardous chemicals

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Replace 20M ties per year throughout North America

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10 to 15 - year life

Positive properties of recycled plastic replacing an inferior material - wood

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50 plus year life

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COMPOSITE  
TIE  
SOLUTION

Home for 3.6 billion pounds of recycled plastic / year

# COMPOSITE TIE ADVANTAGES

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## BENEFITS

Equal to new wood tie strength

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50+ year lifespan

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Impervious to rot, moisture, insects

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Can be recycled at the end of use

# PLASTIC PALLETS

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PLASTIC  
PALLET

WOOD  
SOLUTION

Cut down trees

---

Nails, splinters, infestation

---

500M pallets annually in North America

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\$15 Billion annual replacement cost

PLASTIC  
PALLET  
SOLUTION

Positive properties of recycled plastic replace inferior material - wood

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Strong, Clean, Hygienic, Circular

---

Home for 7.5 billion pounds of recycled plastic / year



# PLASTIC PALLET ADVANTAGES

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## BENEFITS

Durable and long-lasting

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Safe – do not splinter or harbor insects

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Can be recycled at end of life

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Nestable – Reduces GHG and freight costs

Envision 'a world that ships on recycled plastic'

COMPOSITE

RAIL TIES

PLASTIC

PALLETS

Etc.

Solutions rooted in economic self-interest

When economic self-interests are aligned with public policy and social consciousness – the world changes

Realistic specs – why not PCR?

Path to circularity – now

Combined home for 11 billion pounds of plastic

# Wide-Spec Virgin Resin

- \*The Issue**
- \*The Effects**
- \*A Solution**



# Wide-Spec Virgin Resin: The Issue

- 6% - 10% of all virgin capacity is wide-spec
- Dumped on the market at cost
- Molders switch from recycled resin to wide-spec based on price



# Wide-Spec Virgin Resin: The Effects

- Orders for recycled resin dry up
- Liquidity is sucked out of the market
- Recycling fails to scale, recyclers close, recovery stagnates



# Wide-Spec Virgin Resin: A Solution

- Commit to circularity
- Brands mandate PCR content from vendors and suppliers
- Long-term contracts for PCR





# PCR in Water Systems

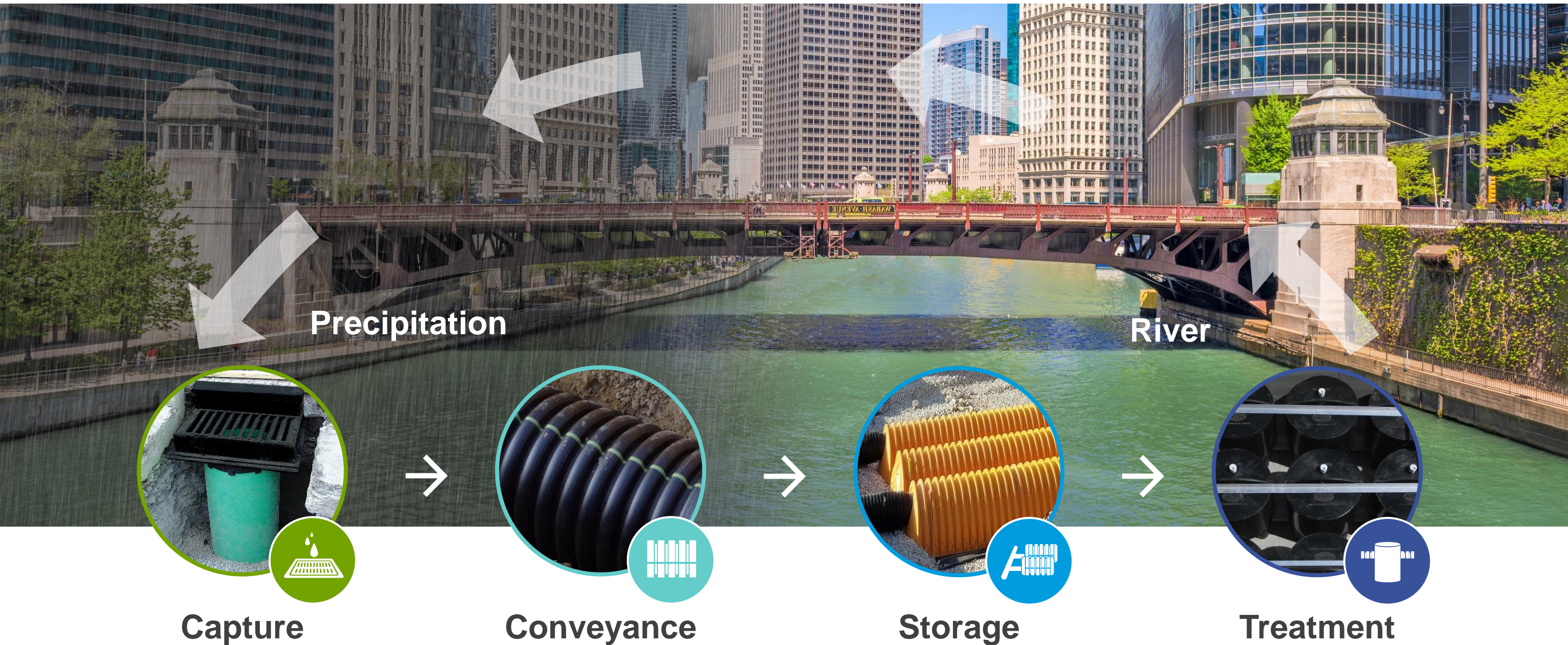


PUT SIMPLY /// OUR PROMISE

To protect and manage water,  
the world's most precious  
resource, **safeguarding**  
**our environment**  
**and communities.**

# Innovative Water Management Solutions

Advancing quality of life through sustainable solutions to water management challenges.



# Industry Leading **Recycling Solutions**

ADS is one of the largest plastic recycling companies in North America, purchasing over 540 million pounds of recycled plastic annually



In fiscal 2022, we recycled 25% of the recycled pigmented bottles in the United States.



These bottles and other recycled plastics are picked up through curbside recycling and taken to recycling centers.



Recycling centers sort and pack materials into bales, which are taken to our recycling facilities.



We sort, shred and wash the material, turning it into clean plastic flakes. All materials are tested for quality assurance.



Flake may be further pelletized and is then used in the manufacturing process.



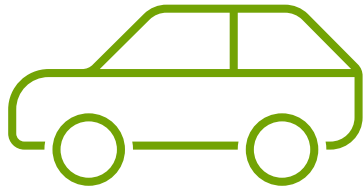
ADS pipe products are installed in storm water systems that are designed to last over 100 years.

**<1-year  
LIFE SPAN**

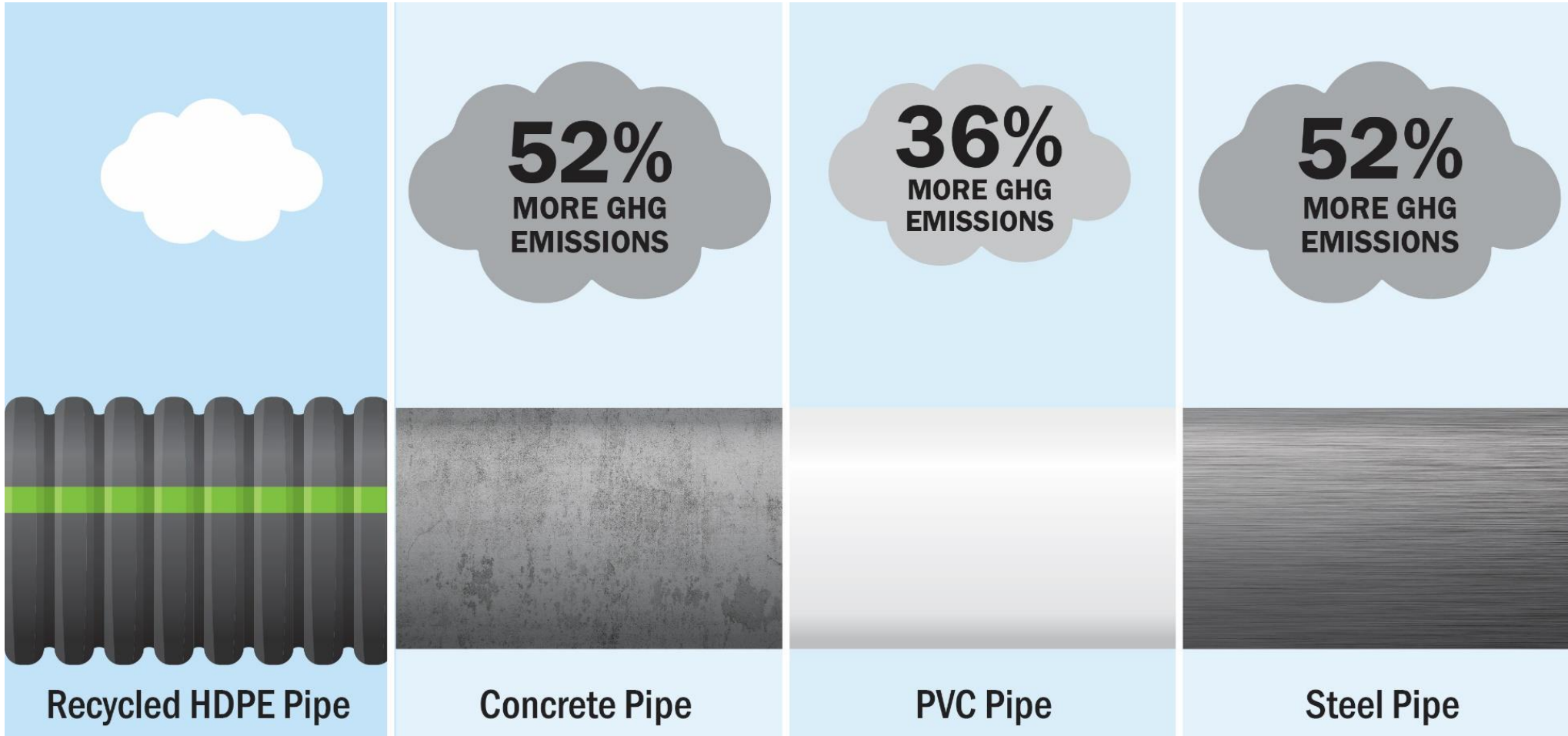
**100+ years  
LIFE SPAN**

# Helping Communities Lower their Carbon Footprint

The amount of recycled plastic we consumed in fiscal 2022 reduced our Greenhouse Gas emissions by over 650 million pounds, which amounts to taking **63,000** cars off the road



## ADS Products Help Communities Reduce their Environmental Impact



Source: As reported in "LIFE CYCLE ASSESSMENT OF NORTH AMERICA MUNICIPAL STORMWATER PIPE SYSTEMS" prepared for The Plastics Pipe Institute by Franklin Associates, A Division of ERG, October 2019, using the recycled at end-of-life evaluation with cutoff method.

**Our reason  
is water.™**



# Let's Change the Narrative on "Downcycling"

# RECYCLING WORKS



when we all work together





ASSOCIATION OF PLASTIC  
**RECYCLERS**

LISTEN



# Thank you!



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