

MATERIAL RECOVERY FOR THE FUTURE:

Can we Capture more Value from MRF Infeed?

Northeast Recycling Council - November 14, 2018

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We've heard the phrases "back to basics" and "recycle light" floating about the industry, but is it really time to pull back when we have **real opportunity** in the US to **keep moving forward**?



THE OPPORTUNITY

We're partnering with JP Mascaro & Sons to test a **positive sort** for a flexible plastic packaging material mix captured from single stream into a new **rFlex product bale** for end market uses.





ARE YOU READY TO EFFECT CHANGE?

WE ARE.

Resource Recycling Systems is a highly experienced team of strategists, engineers, economists, and communication experts that specialize in waste reduction and sustainable resource recovery

TOTAL RECYCLE — JP MASCARO & SONS

BERKS COUNTY, PA



<http://www.wastetodaymagazine.com/article/jp-mascaro-sons-built-to-last/>

MRF PILOT CANDIDATE: TOTAL RECYCLE



- 18 months old; located in Berks County, PA
- 700 TPD Capacity; in growth mode
- 65,000 tons processed in 2016
- Fully integrated operation; has extensive hauling operation in area covering 9 counties with 90 municipalities under contract.
- A Division of J.P. Mascaro, 4th generation family owned business
- Also owns a landfill and transfer stations in region.

PERFORMANCE GOALS OF THE MRFF MASCARO PILOT

1

Capture at least 90% of FPP in feedstock;

2

Minimize paper in FPP product (less than 15% by weight);

3

Even with increased FPP in feedstock, reduce the amount of FPP going into fiber products;

4

Reduce fiber quality control staff requirement by a minimum of 30%; and,

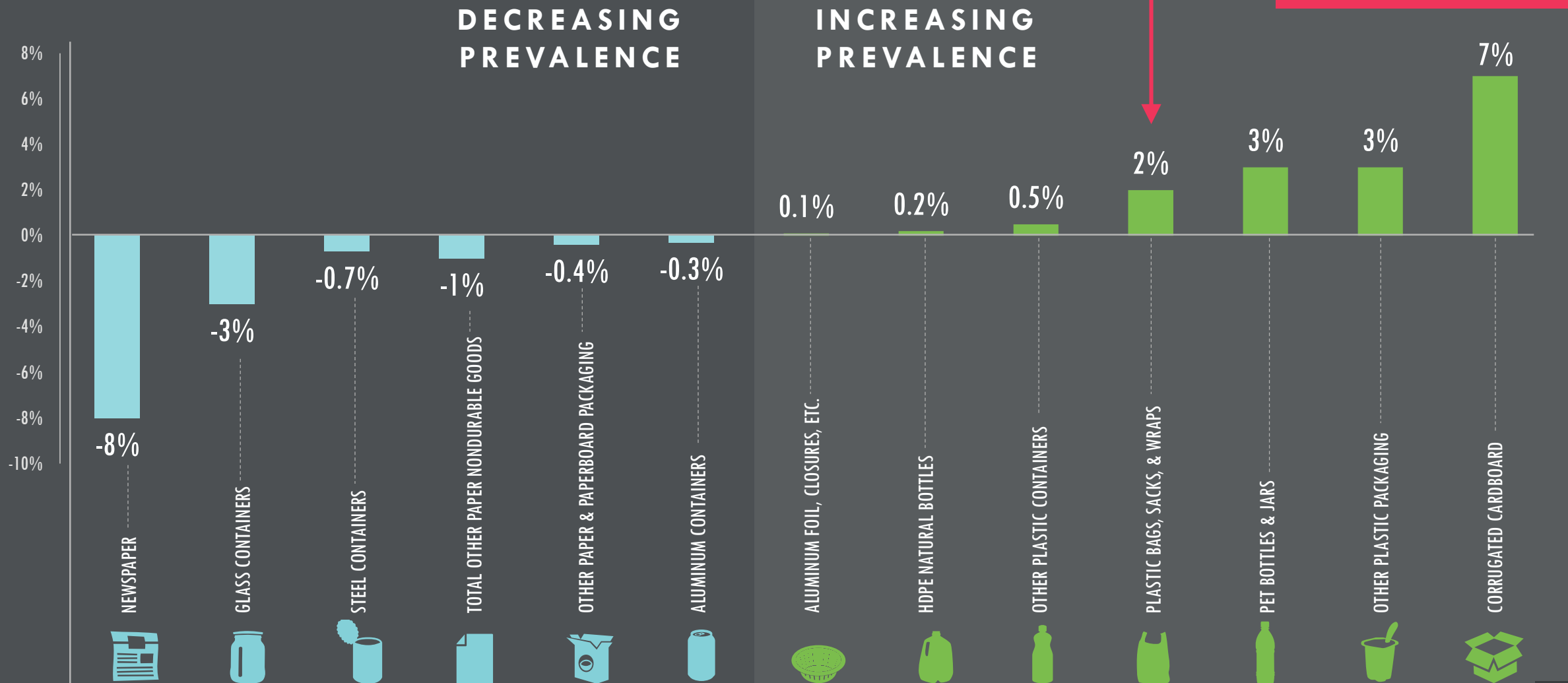
5

Controls integrated with existing MRF control system.

These five performance goals act also as the metrics for the pilot.

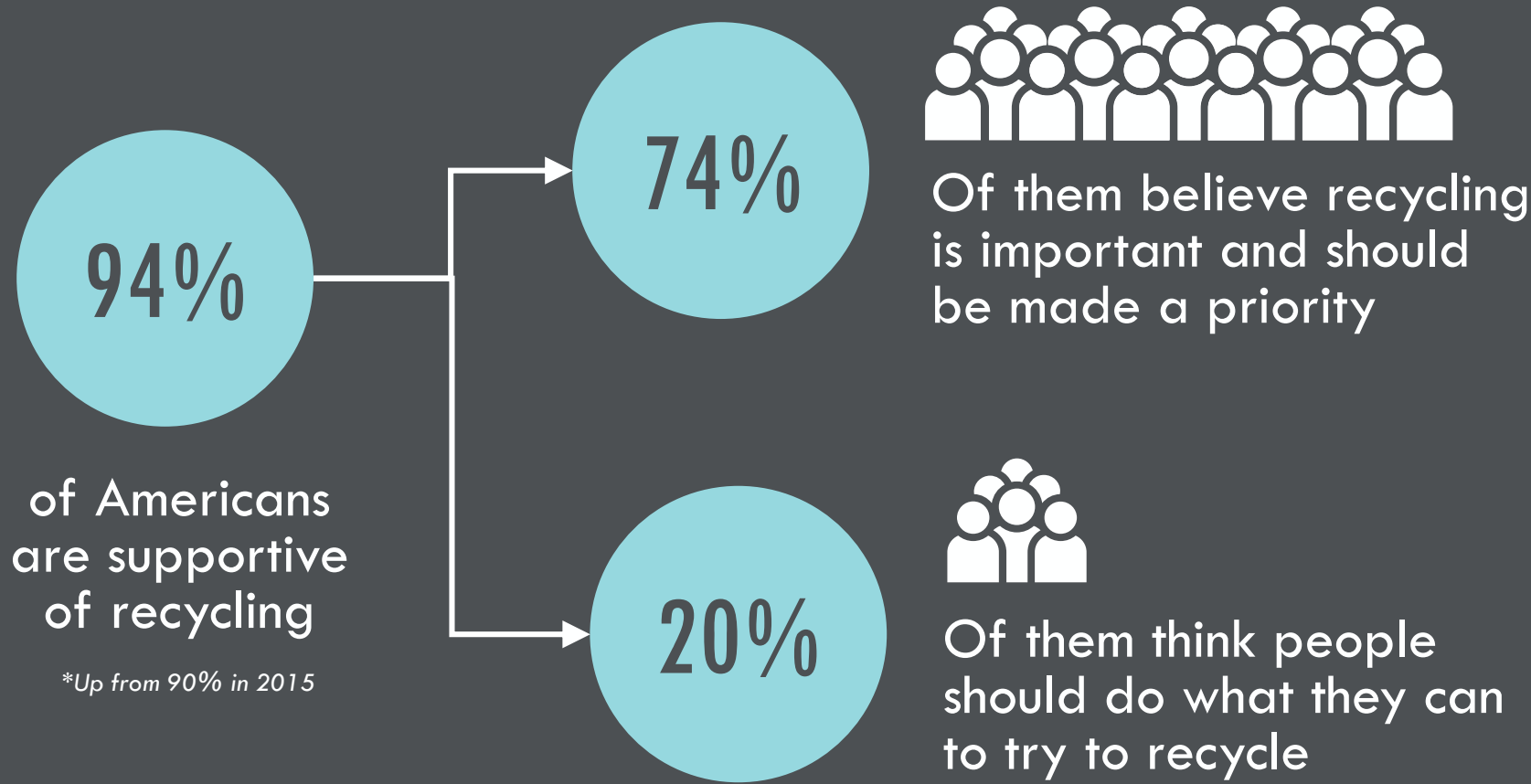
THE PACKAGING STREAM HAS EVOLVED

CHANGE FROM 1990 - 2015



2018 - COMMUNITIES EXPECT RECYCLING SERVICES

SUPPORT FOR RECYCLING AT ALL-TIME HIGH



6%

Think it's hard to
consistently recycle
or that it is not
important



FLEXIBLE PACKAGING VALUE

- Has significant sustainability benefits
 - food waste reduction, consumer savings, light weight, low carbon profile
- 12 billion lbs of post-consumer flexible packaging generated annually... twice the size of PET market
- Potentially valuable, relatively untapped source of post-consumer resin for manufacturing applications



FLEXIBLE PACKAGING CHALLENGES MRFS

WHAT IF AN ECONOMICALLY VIABLE, SCALABLE SOLUTION
COULD BE DEVELOPED TO RECYCLE FLEXIBLE PACKAGING
AND IMPROVE MRF BALE QUALITY?





MATERIALS RECOVERY
FOR THE FUTURE



MRFF Members

Administered by:
Foundation For Chemistry Research & Initiatives



SHARED VISION

“ Flexible packaging is recycled curbside, and the recovery community captures value from it. ”



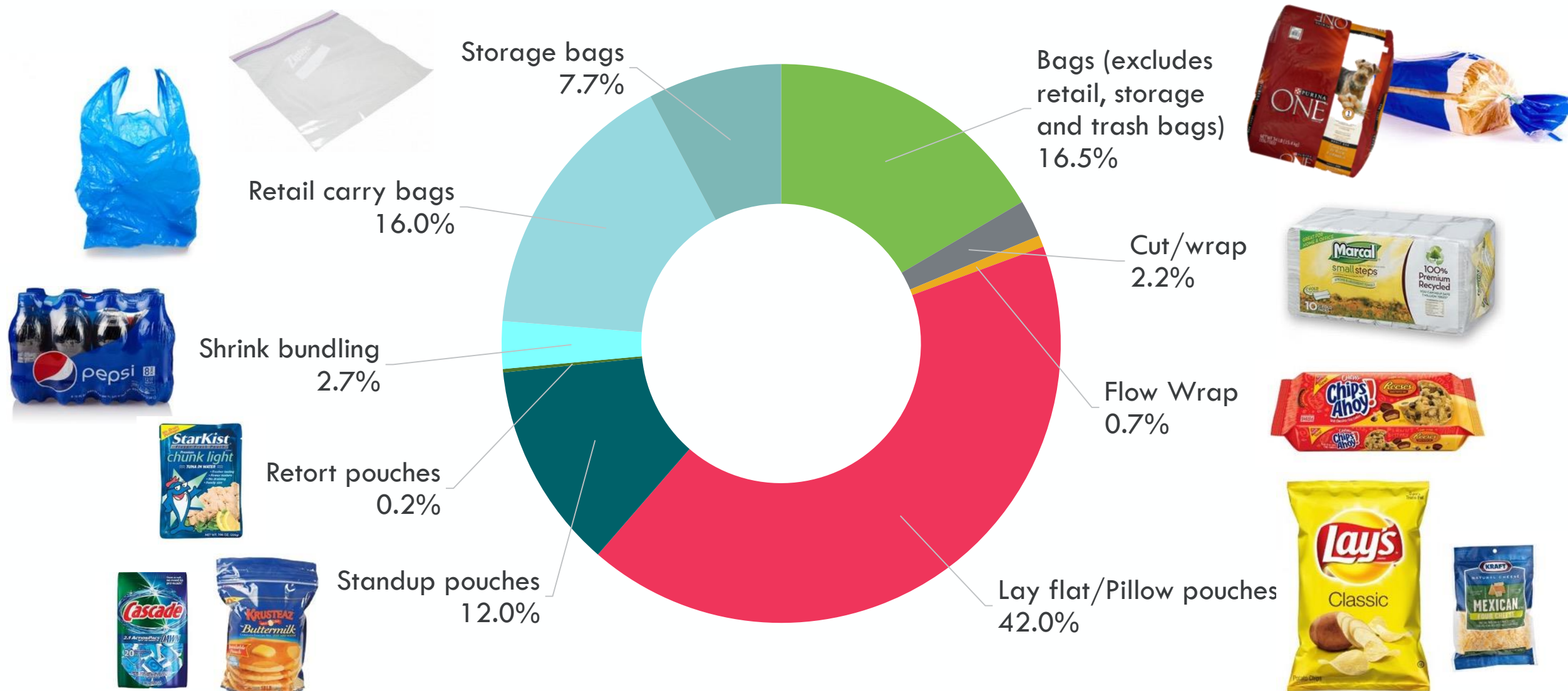


VOICE OF THE RECYCLING INDUSTRY — LARGE MRFS

- We can process this material IF there are markets
- Technology isn't the issue — FP can be processed with optical sorters, disc screen & other upgrades installed in modern MRFs
- Strong partnerships and co-investments from key members of the value chain are needed to fill processing gaps and close the loop
- Pilot program must be robust and prove that technology and recycling markets are there to justify net system cost of upgrade
- Brand and retail demand pull necessary for end market success

Source: RRS 2017 Recycling Industry Management Interviews, Top 50 Large U.S. MRFs

WHAT IS INCLUDED IN FLEXIBLE PACKAGING?





MRFF RESEARCH DRIVE

- Improve separation of flexible packaging in single stream recycling using current technologies
- Shape new technologies to ensure future recovery of materials that have markets

MRF TEST RESEARCH RESULTS

testing conducted at IMS San Diego, Emterra British Columbia & Saskatchewan MRFs

88%

of FP flowed with
fiber.

89%

of FP captured by 3
passes of optical
sorting.



Sizable quantity
of paper with
ejected FP.

FLEXIBLE PACKAGING SORTATION AT MATERIALS RECOVERY FACILITIES

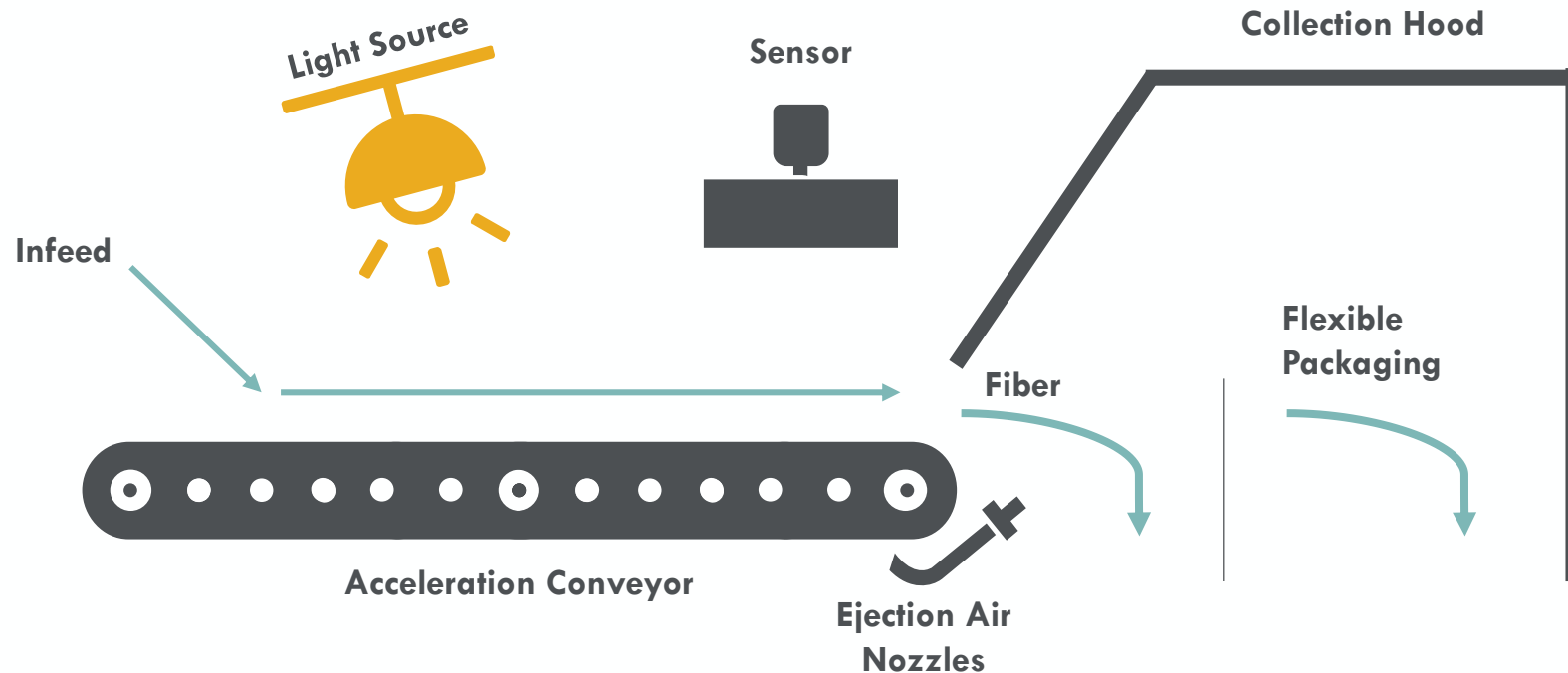
RESEARCH REPORT

MATERIALSRECOVERYFORTHEFUTURE.COM



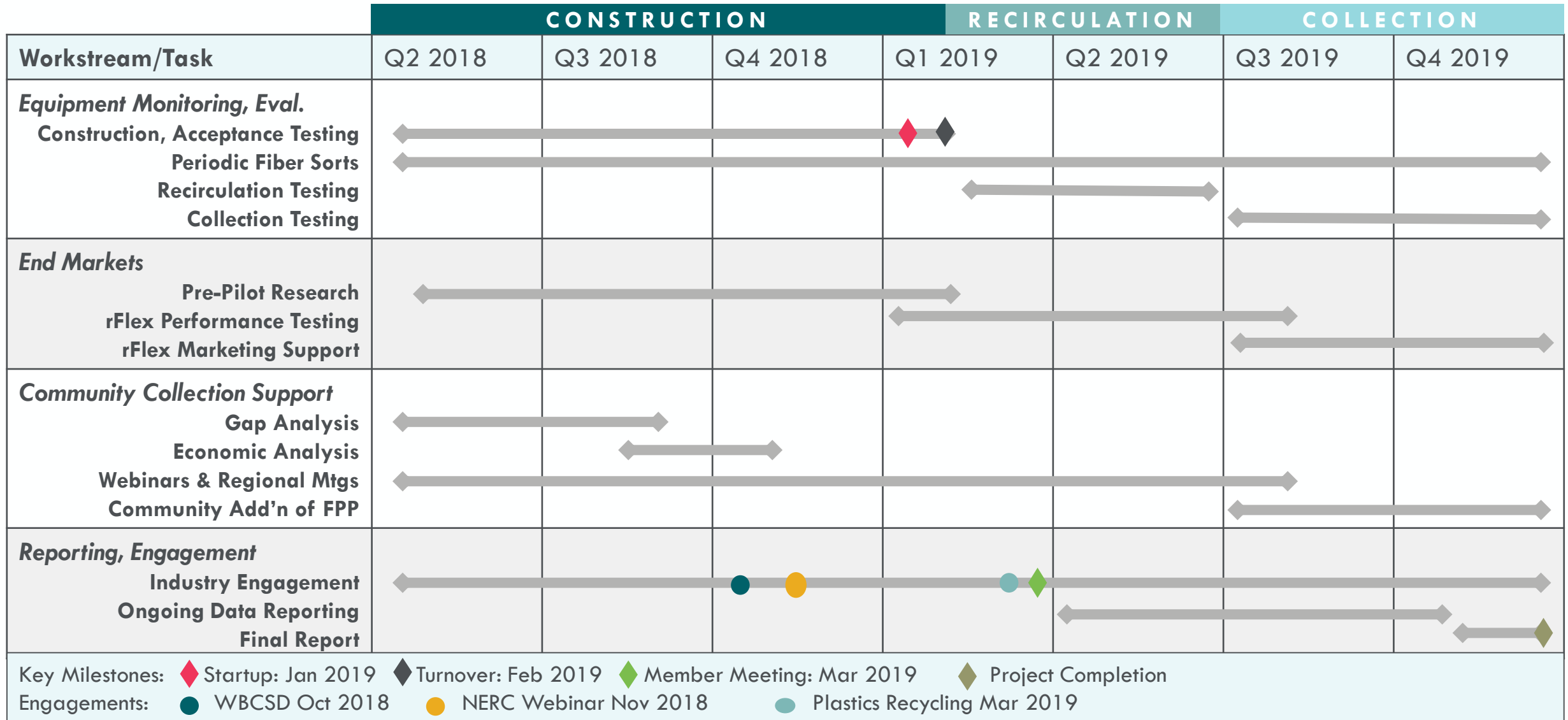
MRF 2018 PILOT — TECHNICAL OBJECTIVE

OPTICAL SORTER SCHEMATIC



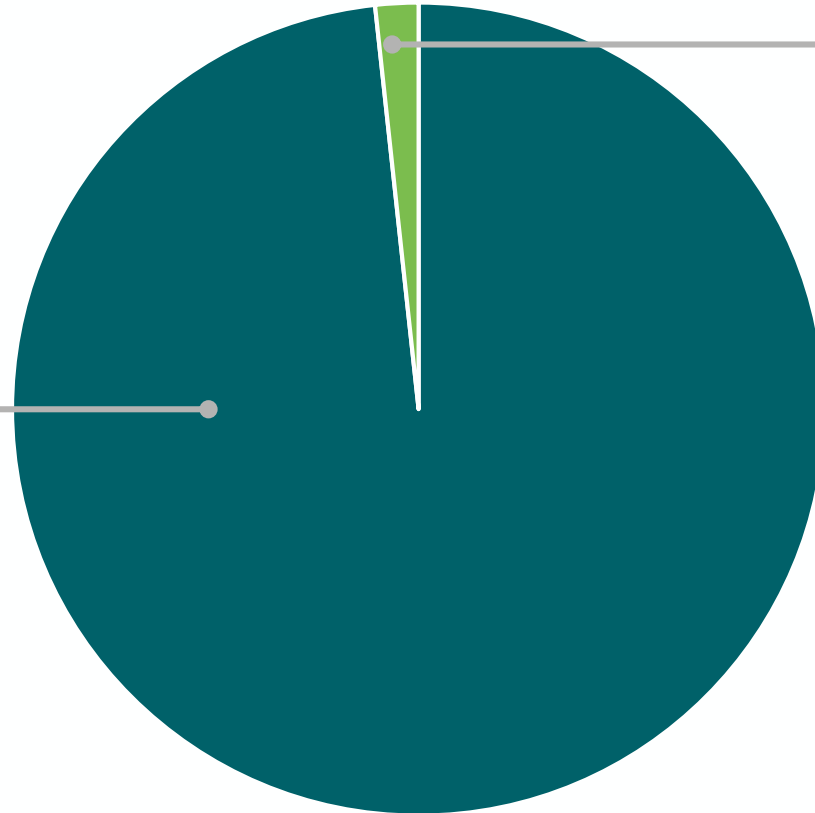
Successfully sort flexible packaging from paper through addition of optical sorters on fiber lines, airflow controls, collection hoods and other system adjustments.

MRFF MASCARO PILOT TIMELINE



WE CAN DO BETTER WORKING TOGETHER

12 BILLION LBS.
(6 million tons)
Post-consumer flexible
packaging market size¹

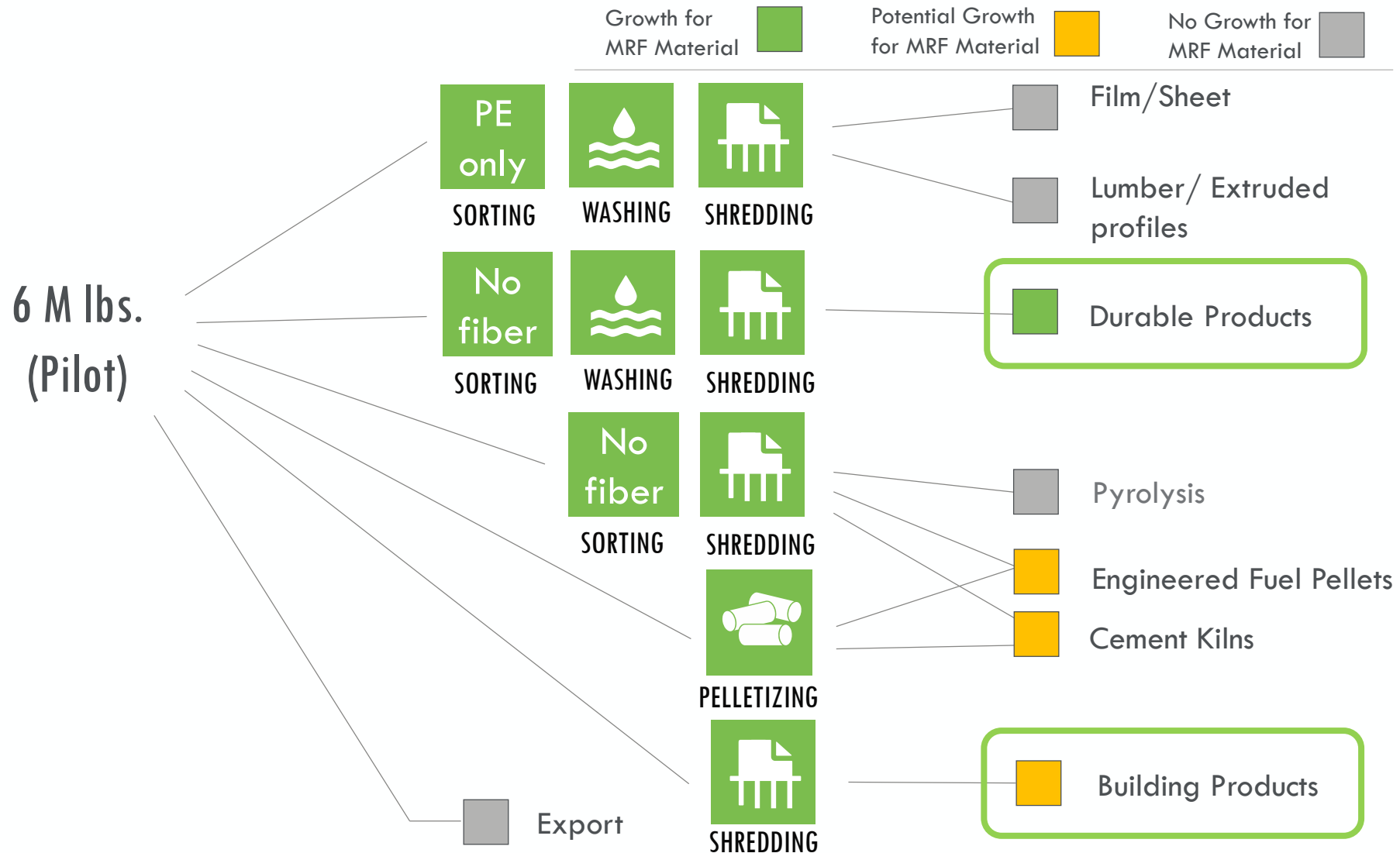


209 MILLION LBS.
(104,500 tons) (1.7%)
Post-consumer film recycling,
includes both retail drop-off
and MRF curbside²

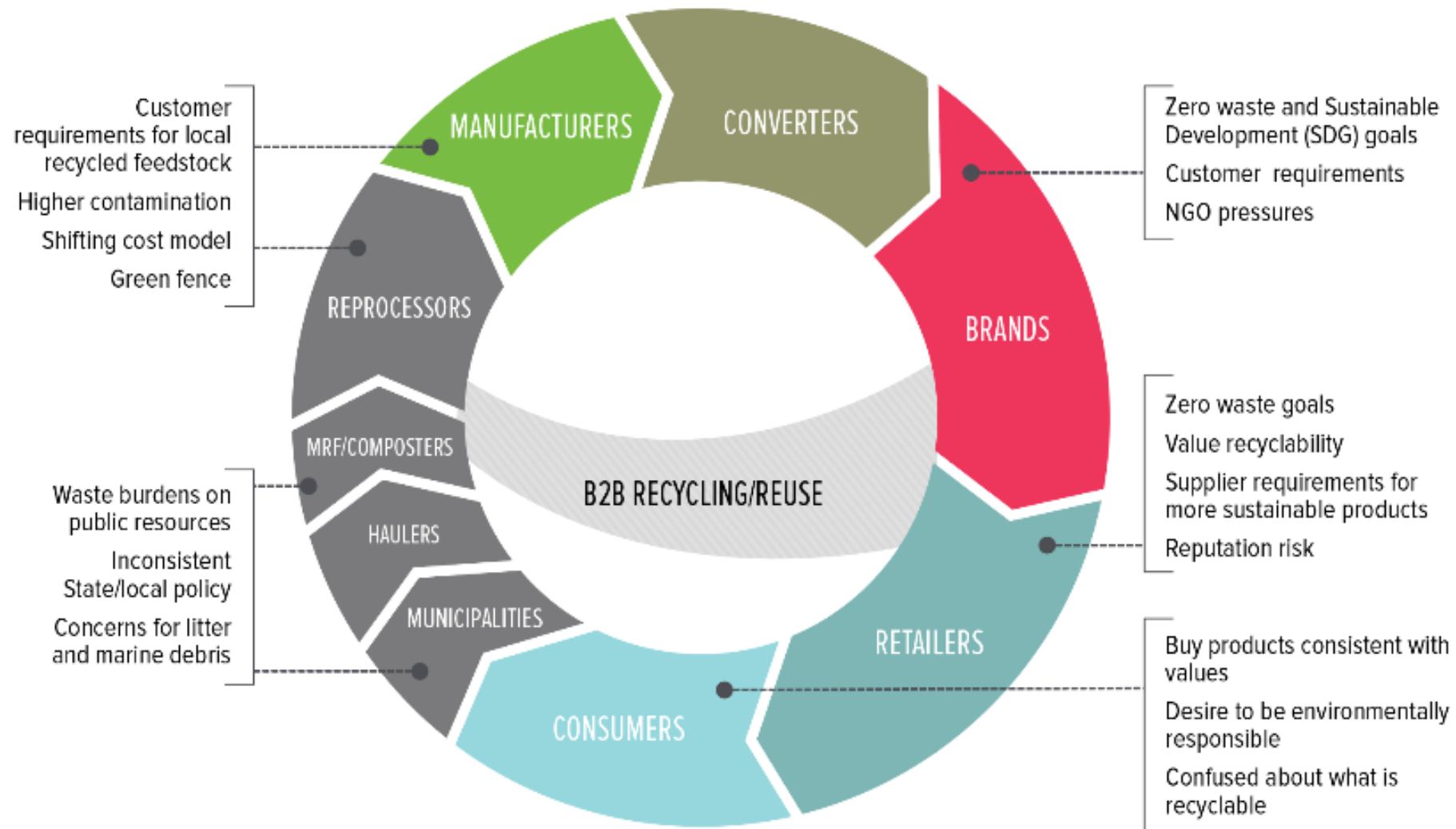
1. Flexible Packaging Association .(2013). Flexible Packaging Industry Segment Profile Analysis (Commercial material removed and projected to 2015)

2. American Chemistry Council .(2017). 2015 National Post-consumer Plastic Bag & Film Recycling Report. In . (Ed.). N.p.: Moore Recycling. Retrieved from <https://plastics.americanchemistry.com/2015-National-Post-Consumer-Plastic-Bag-and-Film-Recycling-Report.pdf>

WORKING END MARKETS IN PARALLEL WITH PROCESSING UPGRADE



KEY PLAYERS IN THE PACKAGING RECOVERY VALUE CHAIN WILL CLOSE THE LOOP



CREATING DEMAND PULL — TARGET STORES



GOALS

TARGET'S SUSTAINABLE PACKAGING GOALS:

- Source all owned brand paper-based packaging from sustainably managed forests by 2022
- Work to eliminate expanded polystyrene from our owned brand packaging by 2022
- Add the How2Recycle label to all owned brand packaging by 2020 (where space allows)
- Support The Recycling Partnership's mission to improve how more than 25% of the U.S. population recycles by 2020
- Create more demand for recycled packaging by creating three new end markets for recycled materials by 2020



PUBLIC/PRIVATE PARTNERSHIPS

Keys to Success in U.S. Market:

- Consumer Convenience
- Higher Quality Recycling: cleaner paper, new rFlex bale
- Equitable Allocation of Costs

The background of the entire slide is a photograph of several hands of different skin tones holding a large, white, three-dimensional recycling symbol (a Mobius loop). The image is overlaid with a semi-transparent purple filter. The word "renew" is centered in the middle of the slide in a white, lowercase, sans-serif font.

renew

featuring industry collaborations to revitalize recycling

Featured Participants include Carton Council and Foodservice Packaging Institute



MATERIALS RECOVERY
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THANK YOU

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