



Environmental and General Services Department

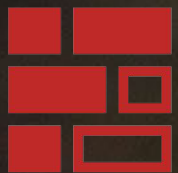
June 11, 2024

Hard to Recycle Plastics Town Hall

Hard to Recycle Plastics

Agenda

1. **Welcome** – Karin Uhlich, City of Tucson Ward 6 Councilperson
2. **Introductions** – Cristina Polsgrove, EGSD Public Information Manager
3. **ByFusion Update** – Heidi Kujawa, CEO ByFusion
4. **Hefty ReNew Overview** – Paul Benvenuti & Catherine Chertudi
5. **Questions & Answers**



BYFUSION

A WASTE TO INFRASTRUCTURE COMPANY



Tucson's Diversion By The Numbers

To date, we've processed **77.4 tons** of material. Of that, **61 tons** of the plastic waste, the equivalent of **9,271,166 single use plastic grocery bags**, was diverted from landfill.



77.4

Tons
Processed*



16.4

Tons of
Contamination



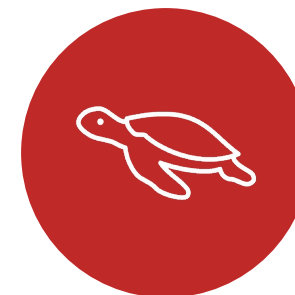
5,200

ByBlocks
Created



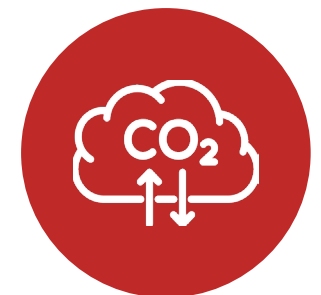
97.2%

Production
Yield



3.0

Tons of Marine
Debris Diverted



27.1

Tons of CO₂
Avoided

The Bike Shed
Platform/Display
&
ByFusion Pilaster
Demo Wall
Los Angeles, CA

Wauconda Recycling
Center Truck Lane
Perimeter Wall &
Mezzanine
Wauconda, IL

Ward 6 Planter & ByPad

El Montevideo Benches

Himmel Park Benches

Mission
Garden Wall

Rio Nuevo/Zeman
Enclosure & Screen

Alvernon
Park
Bench

Reid Park Zoo
Bench

San Gabriel
Park Bench

El Pueblo
Activity Center

Tucson

Repurpose Map

Made with Tucson ByBlocks

Made with non-Tucson ByBlocks
(not included in diversion metrics)

Made with Tucson ByBlocks
(deployed outside of Arizona)

Double Bay Enclosure

286 ByBlock

3.15 Tons of Waste Diverted

3.87 Tons of CO2 Avoided

0.43 Tons of Marine Debris



Production Detail by Load

PROGRESS OVERVIEW										
RM Lot#	Status	No. of Bales	Total Weight (lbs)	Contamination (lbs)	Usable Material (lbs)	Contamination Rate	Material Yield	ByBlock Produced	Finished Goods	Production Yield
TUC-09122022-21	Complete	21	26,400	13,865.30	12,534.70	52.52%	47.48%	1,534	1,487	96.94%
TUC-03313023-18	Complete	18	20,540	3,671.08	16,868.92	17.87%	82.13%	755	721	95.50%
TUC-08182023-20	Complete	20	26,580	5,669.00	20,911	21.33%	78.67%	1,317	1,273	96.66%
TUC-11092023-20	In progress	20	26,215	2,530.90	23,684	9.65%	90.35%	339	332	97.94%
TUC-01102024-20	Complete	20	28,445	6,894.40	21,551	24.24%	75.76%	1,255	1,244	99.12%
TUC-04302024-18	In progress	18	26,703	196	26,507	0.73%	99.27%	0	0	0.00%
TOTAL		117.00	154,883 lbs	32,827 lbs	122,056 lbs	25.12%	74.88%	5,200	5,057	97.23%
		77.4 tons		16.41 tons						

NOTE: *ByFusion integrated marine debris into our process. This resulted in extending Tucson resources to create more ByBlocks and divert more waste from landfill and the Pacific Ocean.

**ByBlock counts and yields with RM Lots in process will vary until complete. In progress RM Lot# values outside of Total Weight handled were not included in the reported totals.

Contamination





BYFUSION

For more information,
please contact:

Heidi Kujawa

heidi@byfusion.com

www.byfusion.com





Tucson Town Hall

June 11, 2024

Introductions



CARLEE BILELLO | Sr Marketing Director, Hefty ReNew Program

PAUL BENVENUTI | Sales Director, Hefty ReNew Program

CATHERINE CHERTUDI | Municipal Consultant, Hefty ReNew Program

SAMANTHA LICHTMAN | Sr Marketing Manager, Hefty ReNew Program

JEN LINEEN | Sr Marketing Manager, Hefty ReNew Program

What is the Hefty ReNew™ Program?



Here's how the program works:



1 FILL UP WITH HARD-TO-RECYCLE PLASTICS

Fill the Hefty® orange bag with acceptable hard-to-recycle plastics.



2 DROP IN WITH REGULAR RECYCLING

Tie up the full orange bag and place it in your curbside recycling cart or at an approved drop-off location, along with normal recyclables.

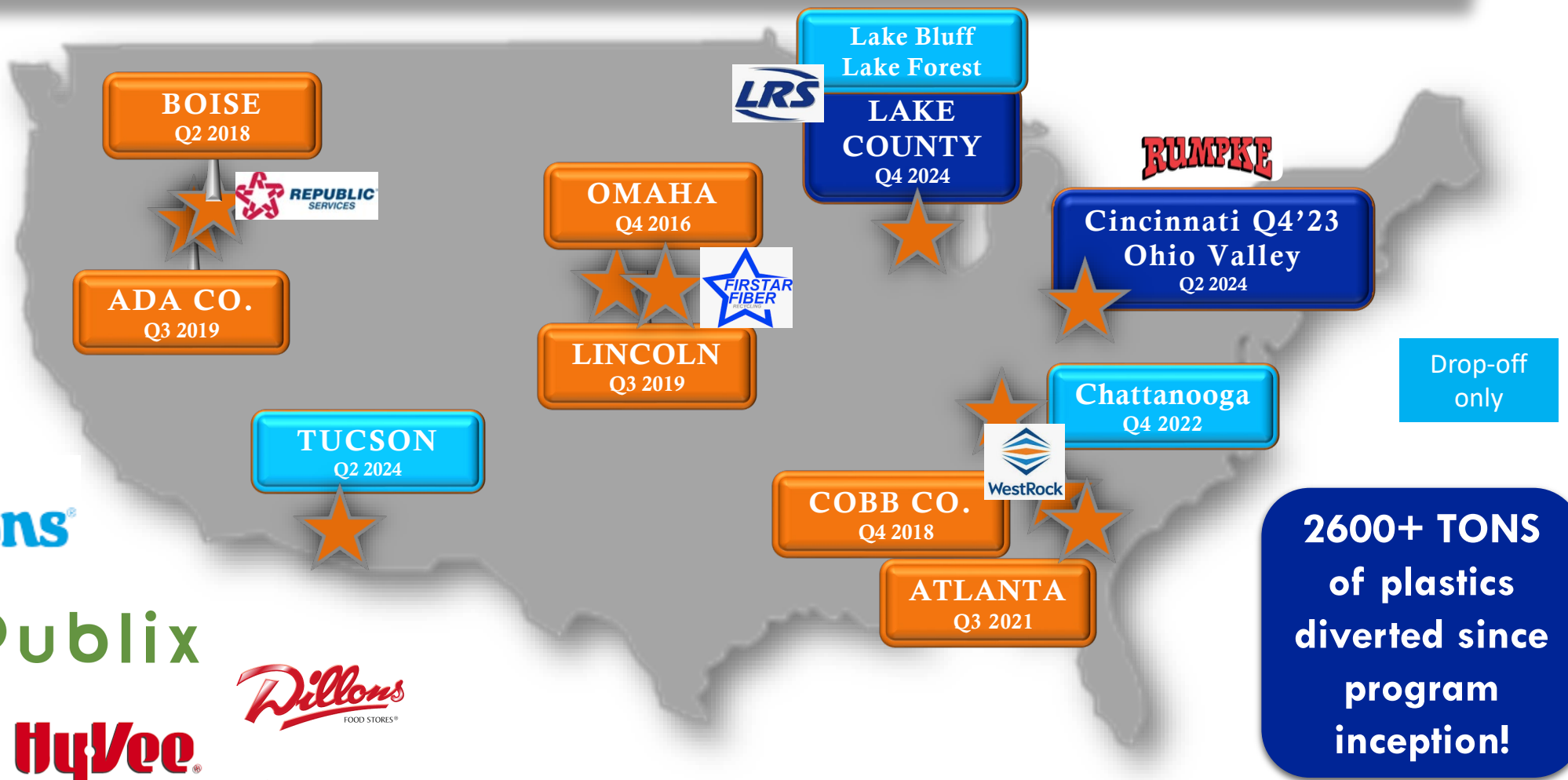


3 RENEW INTO RESOURCES LIKE PARK BENCHES

The orange bags are sorted at your local recycling center and acceptable contents are sent to a facility to be converted into resources like park benches, lumber, and drainage materials.*

*Particular resources may vary by geography.

Hefty Renew Program – Current Markets



2600+ TONS
of plastics
diverted since
program
inception!



Items collected in the Hefty ReNew™ Program

List of accepted items can be found:

- On HeftyReNew.com
- Printed on each orange bag
- Printed on cartons, with corresponding QR code



PROGRAM FOR
HARD-TO-RECYCLE
PLASTICS

ReThink ReCycling with ReNew™

**ACCEPTABLE
Hard-to-Recycle
Plastic Items**

**KITCHEN
PANTRY**

- Chip bags*
- Dry mix liners (cakes, powder, cereal & cookies)
- Candy wrappers & granola wrappers*
- Foam egg cartons
- Salad & cheese bags
- Fresh/frozen veggie/fruit bags

*No foil lining

**STORAGE &
CLEANING**

- Food storage bags
- Plastic wraps on paper towels and toilet paper
- Dry/wet disposable cleaning cloths (i.e. Swiffer®)
- Plastic grocery bags

**OFFICE &
SHIPPING**

- Bubble wrap & pillow packs
- Foam peanuts
- Foam block packaging
- Clear plastic overwrap

DINING & EATING

- Foam to-go boxes, cups, plates & bowls
- Plastic straws & stirrers
- Plastic utensils
- Plastic plates & bowls

The following items **ARE NOT** accepted in the orange bags

- NO** batteries or electronics
- NO** food, liquid or coffee grounds
- NO** cans, glass or PVC
- NO** plastic bottles, tubs or PET #1 containers
- NO** paper, cartons or boxes
- NO** medical products or hazardous waste
- NO** hoses, tubes or rope
- NO** foil, foil lining or aluminum

[ABOUT](#)
[PRODUCTS](#)
[SUSTAINABILITY](#)
[WHAT'S NEW](#)

**HEFTY RENEW™
PROGRAM**

[WHERE TO BUY →](#)

[PLAY VIDEO](#)

FIND LOCAL PROGRAMS

[HOW TO PARTICIPATE →](#)

HOW IT WORKS

[SEE PROGRAM DETAILS →](#)

WHAT WE COLLECT

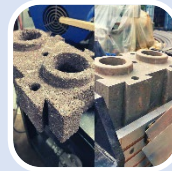
[SEE ACCEPTED ITEMS →](#)

End Market Hierarchy

Most
Preferred

Mechanical Recycling

*Plastic building materials,
drainage materials,
composite wood products*



Advanced Recycling

Plastic to Plastic

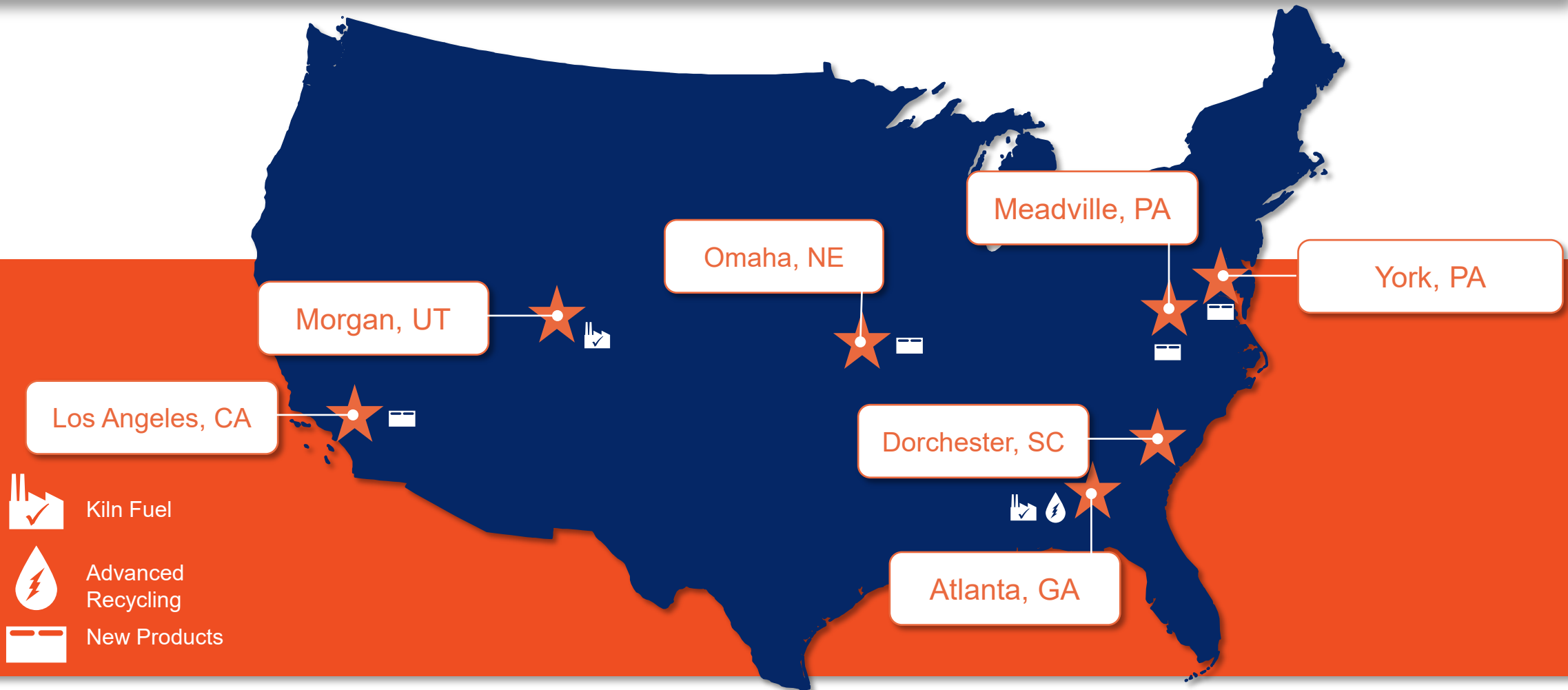


Alternative Fuel

*Kiln feed for
cement production,
combustible solid
fuels, co-
generation*



Geographic Reach: Current End Markets



Note: Hefty retains ownership of materials from time of collection until they reach the qualified end market

Key Pillars of the Hefty ReNew Program

Responsibility & Transparency



Chain of Custody

LCA

End Market Transparency

Data & Measurement



Participant Research

MRF collection tracking

*Material Collection
Assessment*

Education Imperative



Key to Success: Education!

Community Outreach

Training materials

Marketing Excellence



*Experience with consumers,
retailers, public relations to
drive program*

*Drive participation and
education initiatives*

New Market Support & Education



FREE STARTER KITS

- *How it works
- *What goes in the bag
- *Where to buy
- *Where to learn more



ONLINE CONTENT

- *Educational videos
- * LCA
- * FAQs
- *Complete list of accepted items
- *Customer Service for questions



PUBLIC RELATIONS

- *Research Driven Insights
- *On demand digital hub (assets + FAQs)
- *Brand Reputation Management



COMMUNITY MANAGEMENT

- *Proactive conversation analysis
- *Monitor inquiries (Consumer + Press)



ADVERTISING

- *Zip code targeted
- *Focus on program impact



EDUCATION TOOLKIT

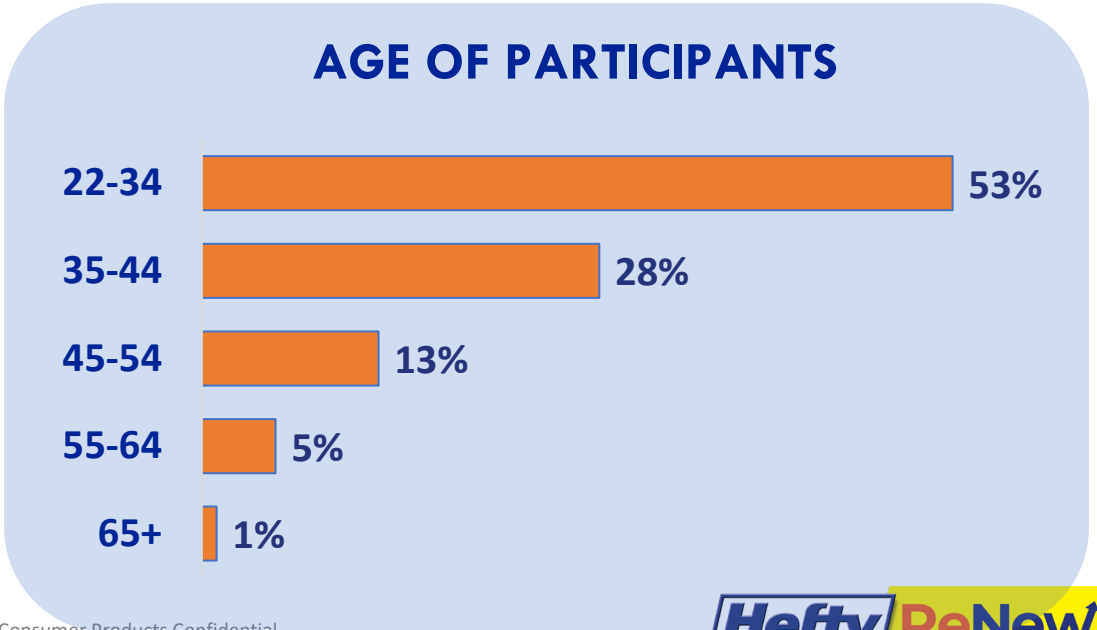
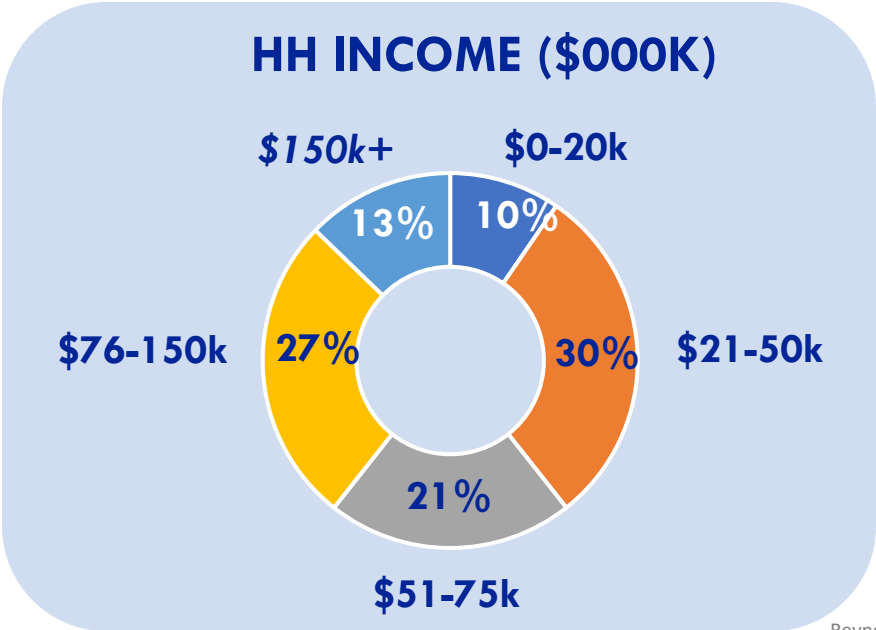
- *Recycling tips
- *Activities (adult/kids)
- *Program information
- *Take home reminders

Hefty ReNew for All!

We maximize our collective success when everyone participates!



PROGRAM PARTICIPANT DEMOGRAPHICS



Reynolds Consumer Products Confidential



Program Costs

The bag cost covers some of:



Program Participation Cost

\$8 per carton

Participants use about 1 carton/year



20 bags per carton

Average cost is around 35-40¢

THANK YOU!



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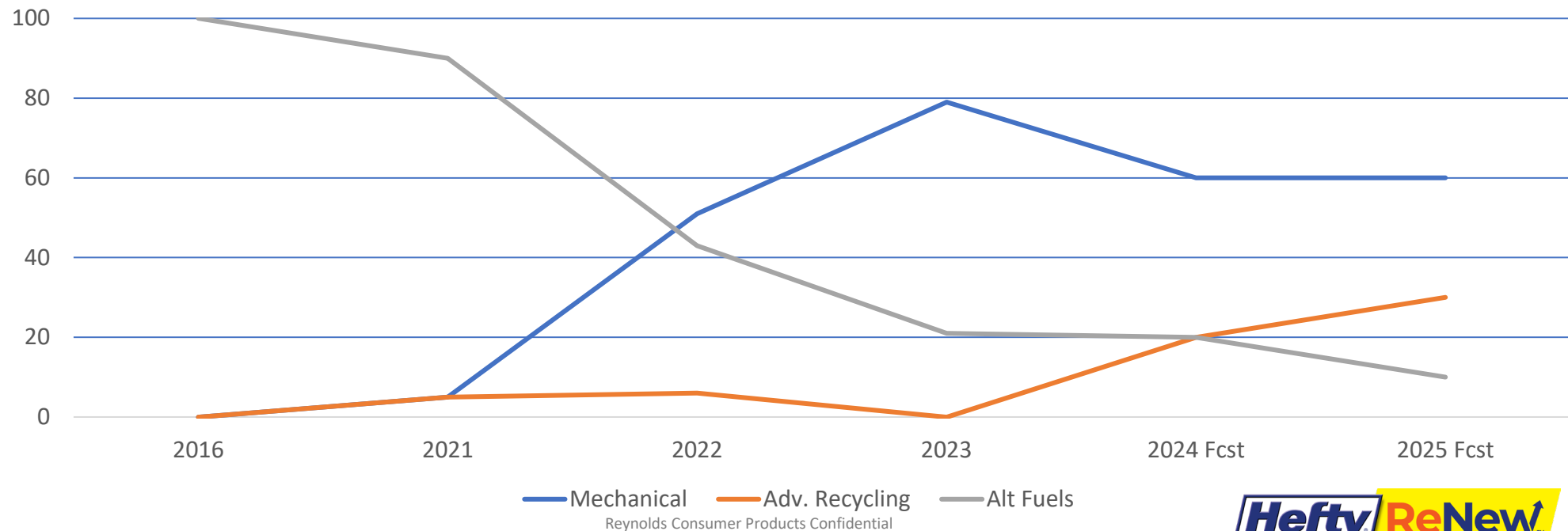
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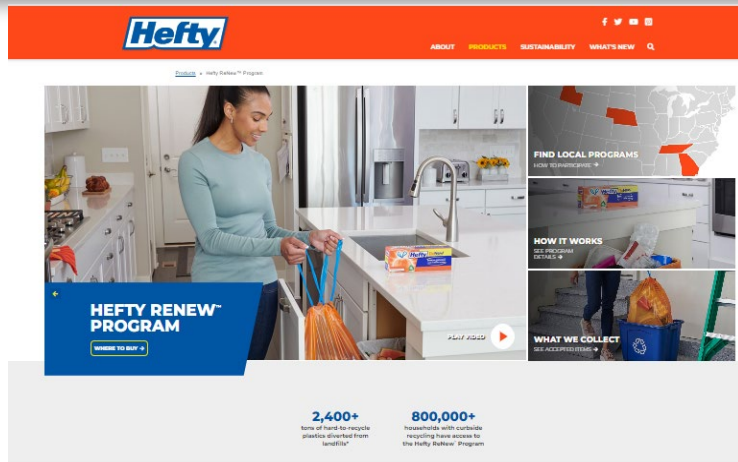
- APPENDIX

End Market Forecast

	2016 Act	2021 Act	2022 Act	2023 Act	2024 Fcst	2025 Fcst
Mechanical	0%	5%	51%	79%	60%	60%
Adv. Recycling	0%	5%	6%	0%	20%	30%
Alternative Fuels	100%	90%	43%	21%	20%	10%



Life Cycle Assessments Drive Program Decisions



HEFTY RENEW PROGRAM

Designed to complement current recycling efforts, the Hefty ReNew program, formerly the Hefty Recycling Program, establishes a way to collect otherwise hard-to-recycle plastic at curbside and take them to select recycling facilities. These hard-to-recycle plastics include common items like carry-out containers and lawn mower fuel tanks.

The program clearly demonstrates its ability to help divert these resources away from landfills, reduce dependence on fossil fuels, increase efficiency at recycling facilities, and improve the quality of other recycled materials. In doing so, the Hefty ReNew program takes an important step toward a more circular plastic economy and a more sustainable future.

[LEARN HOW IT WORKS](#)

Hefty ReNew Program Checklist

This handy printable checklist helps you decide what can and can't go into the Hefty ReNew program.

[DOWNLOAD THE CHECKLIST](#)



Environmental Impact Reports

HEFTY RENEW PROGRAM ENVIRONMENTAL IMPACT

An independent life cycle assessment (LCA) was conducted in 2020 and 2022 to help understand the environmental impacts of the Hefty ReNew program.

[DOWNLOAD 2022 FACT SHEET](#)

[DOWNLOAD 2022 FULL REPORT](#)

[DOWNLOAD PYROLYSIS AND CIRCULARITY WHITE PAPER](#)

[DOWNLOAD 2020 FACT SHEET](#)

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Hefty Audits Conducted June 2023 - Summary

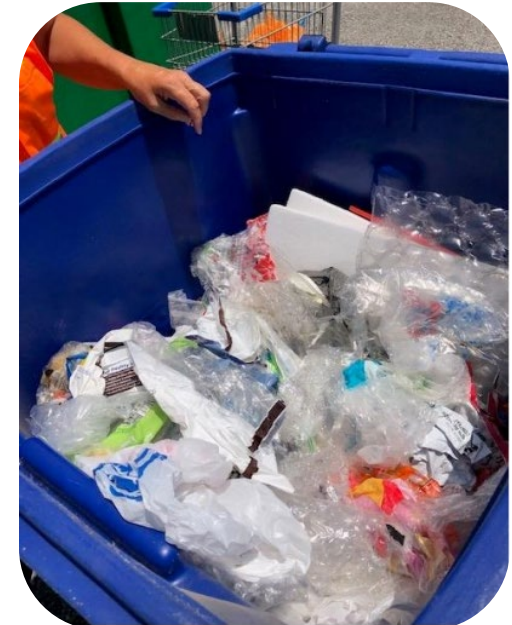


- An audit of 150 Hefty ReNew orange bags was conducted by MSW Consultants in June 2023 in each of the participating markets: Boise, ID; Chattanooga, TN; Omaha, NE; Cobb County, GA.
- The average weight of the bags audited from all program locations was 1.9 pounds.
- The overall contamination rate for non-targeted materials was 11.3%.
- The materials of concern were #1 Thermoform PET, PET and Paper.
- Citizens in participating communities understand the program requirements and embrace the opportunity to divert the targeted materials.
- Contamination rates have declined since program launch in 2016.
- The average weights of materials in the bags has increased since program launch.

Material Categories and Definition



Material Category	Targeted
Orange Bags	Targeted
Bags/Wraps (PE)	Targeted
Other Flexibles (Multi-Material Laminates)	Targeted
#1 PET – Thermoforms	Non-Targeted
#1 PET – Bottles/Jars	Non-Targeted
#2 HDPE	Non-Targeted
#3 PVC	Non-Targeted
#4 LDPE	Targeted
#5 PP	Targeted
#6 PS Foam Polystyrene	Targeted
#6 PS Non-Foam Polystyrene	Targeted
#7 PLA and other	Targeted
Paper	Non-Targeted
Other Wastes	Non-Targeted



2023 Hefty ReNew Audit

Composition by Material Type

Material Type	Material Category	Aggregate Pounds	Percent
Targeted	Orange Bag	38.23	3.31
Targeted	Bags/Wraps (PE)	443.93	38.49
Targeted	Other Flexibles (Multi-material Laminates)	203.82	17.67
Non-Targeted	#1 PET - Thermoforms	48.54	4.21
Non-Targeted	#1 PET - Bottles/Jars	15.98	1.39
Non-Targeted	#2 HDPE	16.98	1.47
Non-Targeted	#3 PVC	2.6	0.23
Targeted	#4 LDPE	4.12	0.36
Targeted	#5 PP	195.43	16.95
Targeted	#6 PS Foamed Polystyrene	85.24	7.39
Targeted	#6 PS Non-Foamed Polystyrene	40.4	3.50
Targeted	#7 PLA and Other	11.89	1.03
Non-Targeted	Paper	28.4	2.46
Non-Targeted	Other Wastes	17.74	1.54
TOTALS		1153.3	100.00
Material Type		Pounds	Percent
Targeted		1023.05	88.71
Non-Targeted		130.22	11.29
TOTALS		1153.27	100.00
Average Weight of Bags		1.9	

Program Perceptions

CURRENT MARKETS*

90% *who start the program plan to continue*

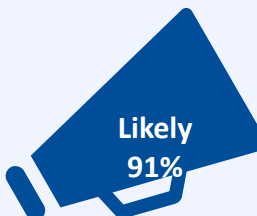
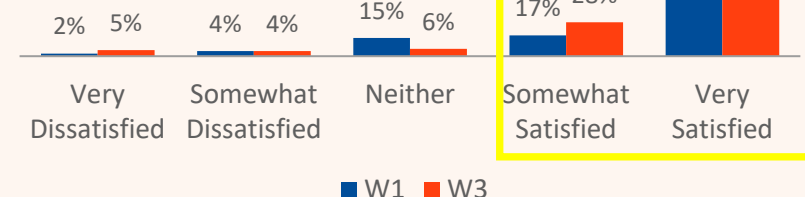
2/5 *are using less plastic since starting the program*

Top Motivators to Participate

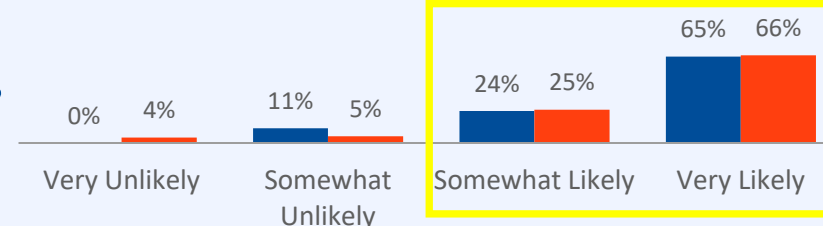
- Positive environmental impact (27%)
- Convenience (24%)
- Price (22%)



Program Satisfaction



Likelihood to Recommend



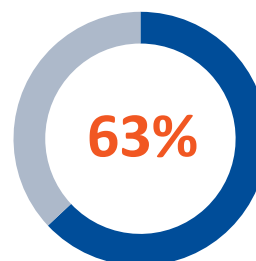
PRE-LAUNCH MARKETS**

2/3 *find the program appealing*

1/2 *of NON-recyclers find the program appealing and would be willing to try it!*

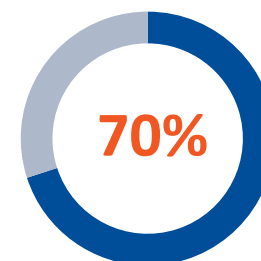
Impression

% Like a Lot/Somewhat



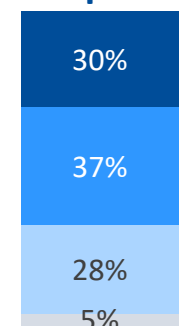
Likelihood to Participate

% Very/Somewhat Likely



Gen X (79%) ↑
vs. Boomers (60%)

Perceived Program Impact



■ Strong
■ Moderate
■ Slight
■ None

**STRONG/MODERATE
MILLENNIALS
(72%) ↑
VS. BOOMERS (53%)**

Reynolds Consumer Products Confidential

Source: *Harris Poll, January 2023, n=602, **Harris Pre-Launch Survey (Chattanooga & Dayton) November 2022, n=360