The Value of Plastics

Dylan de Thomas, The Recycling Partnership
NERC Fall Meeting
Oct 30, 2019
TOGETHER
Transforming Recycling For Good

THE RECYCLING PARTNERSHIP™
We’re all in this bin together
Only half of Americans can recycle at home as easily as they can throw something away.*

Those that can recycle easily are only recycling half of what they could.**

** 2016 State of Curbside Report
Our Working Model

**Infrastructure**
Cart grants deliver year over year results and measurable incremental tonnage.

**Expert Assistance**
Aligning operations and education helps cities deliver better recycling.

**Tools and Data**
More than 20K local programs lack resources but determine success.

**System Solutions**
The system is loosely connected but highly dependent.
Economic Impacts

$72M
Total Value

$43M in new infrastructure with city matching

$8M in technical assistance to cities

$6M in statewide investment catalyzed

$8M in carbon savings

$7M in new recyclables collected
Community Impacts

- **1075** communities impacted
- **170K** metric tons of GHG avoided
- **160M lbs** recyclables kept out of landfill
- **51%** recycling boost with infrastructure projects
- **445K** new recycling carts placed
- **50M** households impacted
State and local government program engagement
What Are Recyclables Anyway?
RAW MATERIALS
THE BRIDGE TO CIRCULARITY

Putting the New Plastics Economy into practice in the U.S.

+ GOALS
“The Bridge to Circularity”

Inspired and endorsed by the Ellen MacArthur Foundation (EMF) New Plastics Economy Global Commitment.
The “Bridge” to Circularity

Improvements to the current system will create partial and necessary short-term foundations to begin addressing urgent challenges highlighted by the Global Commitment.

However, the current waste system is simply not sufficient to enable a transition to circularity in the U.S.

A bridge allows us to transition between “current” and “future” systems.
FINDING 1

THE SPEED OF PACKAGING INNOVATION HAS OUTPACED THE CAPABILITIES OF RECYCLING INFRASTRUCTURE

Initiative 1: “Pathway to Recyclability”

The Pathway to Recyclability will be built on the learnings from ASTRX and in collaboration with The Sustainable Packaging Coalition, Association of Plastic Recyclers & others.
FINDING 2

IN ITS CURRENT FORM, THE U.S. RECYCLING SYSTEM CANNOT DELIVER THE SUPPLY OF RECYCLED MATERIALS DEMANDED BY THE NEW PLASTICS ECONOMY GLOBAL COMMITMENT
The Global Commitment has spurred massive demand for post-consumer recycled content, particularly certain resins: polyethylene terephthalate (PET) is a good example.

There is a gap of 1 billion+ pounds between projected demand and available supply of PET.

We also need to consider the competition for this resin from industries such as textiles, along with dynamics including the pricing of virgin vs recycled PET.

Supply is constrained but there are some ways we can increase residential PET collection.
The Recycling Partnership will launch an industry-wide residential recycling intervention to capture more than 340 million pounds of post-consumer recycled plastic and more than 2 billion pounds of other packaging materials.

We are targeting USD $250 million over 5 years.

The report identifies specific strategies to put the capital to immediate use to benefit U.S. communities.
## Initiative 2: “Unlocking Supply”

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Households Reached (in millions)</th>
<th>Industry Investment (in USD millions)</th>
<th>New Pounds Collected (in millions of pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PET</td>
<td>HDPE</td>
<td>PP</td>
</tr>
<tr>
<td>Conversion from bins to carts</td>
<td>4</td>
<td>$104</td>
<td>30</td>
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<td>Optimization of recycling behavior</td>
<td>7</td>
<td>$28</td>
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</tr>
<tr>
<td>New curbside access</td>
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<td>New multifamily recycling access</td>
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<td>$40</td>
<td>74</td>
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<td><strong>TOTAL</strong></td>
<td><strong>18 million households</strong></td>
<td><strong>USD $250 million</strong></td>
<td><strong>204 million pounds</strong></td>
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<td>(102,000 tons)</td>
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FINDING 3

INTRACTABLE UNDERLYING CHALLENGES NECESSITATE A PARALLEL EXPLORATION OF HOW TO BUILD A SUSTAINABLY FUNDED AND RESPONSIVE FUTURE SYSTEM
This new initiative calls for $250 million over five years to design and implement the recycling system of the future to advance technology, build more robust data systems and enhance consumer participation.
Summary & Next Steps

Pathway to Recyclability

Unlocking Supply

Recycling 2.0

Transformative Policy

Cultivate Further Innovation & Collaboration
## Initiative 2: “Unlocking Supply”

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WE WERE EXTERNALIZING THE LABOR OF SORTING THE MATERIAL, BUT NOW THAT CHINA HAS GOTTEN TO THE POINT THAT THEIR OWN LABOR FORCE HAS MATURATED AND GROWN, THEY'RE ABOUT TO EXTERNALIZE IT THEMSELVES.

THEY'RE STILL BUYING A LOT OF THE SAME MATERIALS: THEY'RE JUST BUYING IT FROM OTHER PARTS OF S.E. ASIA.

DYLAN DE THOMAS
V.P. OF INDUSTRY COLLABORATION AT THE RECYCLING PARTNERSHIP
$398 MM in investments, over 387,000 tons of annual consumption and over 760 jobs
<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th>City</th>
<th>Tons Per Year</th>
<th>Feedstock</th>
<th>Cost</th>
<th>Target Date to Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roy Tech</td>
<td>AL</td>
<td>Marshall County</td>
<td>20,000</td>
<td>Post industrial plastic scrap</td>
<td>Not disclosed</td>
<td>Summer 2018</td>
</tr>
<tr>
<td>Ecomelida</td>
<td>SC</td>
<td>Orangeburg</td>
<td>2,200</td>
<td>food and beverage cartons</td>
<td>52,000,000</td>
<td>fourth quarter of 2018.</td>
</tr>
<tr>
<td>Tian Yuan/Shaw Brothers</td>
<td>IN</td>
<td>Salem</td>
<td>Not disclosed</td>
<td>secondary plastic resins</td>
<td>2,300,000</td>
<td>Late 2018</td>
</tr>
<tr>
<td>Green Tech Solutions</td>
<td>SC</td>
<td>Blacksburg</td>
<td>Not disclosed</td>
<td>Scrap, plastics, metal, e-waste</td>
<td>75,000,000</td>
<td>2nd quarter of 2019</td>
</tr>
<tr>
<td>UPT</td>
<td>GA</td>
<td>Montezuma</td>
<td>24,000</td>
<td>HDPE, LDPE, AG, Plastic PC</td>
<td>Not disclosed</td>
<td></td>
</tr>
<tr>
<td>EFS</td>
<td>Not disclosed</td>
<td>Not disclosed</td>
<td>25,000</td>
<td>HDPE, LDPE, PP</td>
<td>$20,000,000</td>
<td></td>
</tr>
<tr>
<td>Azek</td>
<td>OH</td>
<td>Wilmington</td>
<td>50,000</td>
<td>HDPE, LDPE</td>
<td>$25,000,000</td>
<td>Apr-19</td>
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<tr>
<td>GDB International</td>
<td>NJ</td>
<td>New Brunswick</td>
<td></td>
<td>LDPE, LLDPE, HDPE</td>
<td></td>
<td>Early 2019</td>
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<tr>
<td>GDB International</td>
<td>OH</td>
<td>Dayton</td>
<td></td>
<td>LDPE, LLDPE, HDPE</td>
<td></td>
<td></td>
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<tr>
<td>East-Terra Plastics</td>
<td>IN</td>
<td>Indianapolis</td>
<td>HDPE, PET, PE</td>
<td></td>
<td>$1,000,000</td>
<td></td>
</tr>
<tr>
<td>PureCycle Technologies</td>
<td>OH</td>
<td>Ironton</td>
<td>59,500</td>
<td>PP</td>
<td>$120,000,000</td>
<td>2021</td>
</tr>
<tr>
<td>Merlin Plastics</td>
<td>BC</td>
<td>Delta</td>
<td>15,000</td>
<td>Post capacity by</td>
<td>$20,000,000</td>
<td>End-2019</td>
</tr>
<tr>
<td>Peninsula Plastics</td>
<td>CA</td>
<td>Turlock</td>
<td>55,000</td>
<td>PET, PP, PE</td>
<td>Not disclosed - over $4,000,000</td>
<td></td>
</tr>
<tr>
<td>DAK Americas</td>
<td>IN</td>
<td>Richmond</td>
<td>73,000</td>
<td>PET bottles</td>
<td></td>
<td></td>
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<tr>
<td>MCM Plastic</td>
<td>LA</td>
<td>Livingston</td>
<td>PVC, plastic residue</td>
<td></td>
<td>$2,700,000</td>
<td></td>
</tr>
<tr>
<td>CarbonLite</td>
<td>PA</td>
<td>Muhlenberg</td>
<td>75,000</td>
<td>PET</td>
<td>$80,000,000</td>
<td>First quarter of 2020</td>
</tr>
<tr>
<td>GreenCycle</td>
<td>AZ</td>
<td>Phoenix</td>
<td>40,000</td>
<td>12k annual tons of A&amp;B grade film and 28k annual tons of MRP</td>
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<td></td>
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<td>GreenCycle</td>
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<td>Duncan</td>
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What’s Next for Plastics?

Plastics Reclaimers Buying and Building:

- EFS (HDPE, LDPE, PP)
- Azek (HDPE, LDPE)
- GDB International (HDPE, LDPE)
- East-Terra Plastics (HDPE, LDPE, PP, PET)
- PureCycle Technologies (PP)
- Merlin Plastics (LDPE, HDPE, PS)
- Peninsula Plastics (PET, PP, PE)
What’s Next for Plastics?

Plastics Reclalmers Buying and Building:

• Roy Tech (Post-Industrial)
• Ecomelida (Cartons, PE)
• GreenCycle (LDPE, Mixed Rigid-s/PE)
• Tian Yuan/Shaw Brothers (PE)
• Green Tech Solutions (E-Plastics)
• UPT (HDPE, LDPE, PC, Ag Plastics)
TOGETHER
Transforming Recycling For Good
RECYCLING DEMAND CHAMPIONS

INCREASING THEIR PCR USE BY

25.9 MILLION POUNDS OF POSTCONSUMER RESINS

PCR USES INCLUDE:
PALLETS
GAYLORD LINERS
LABELS
PACKAGING
CAN LINERS
TRASH & RECYCLING BINS
FILM PRODUCTS

RESULTING IN THESE ESTIMATED IMPACTS

GREENHOUSE GAS EMISSIONS FROM 6,369 PASSENGER VEHICLES DRIVEN FOR 1 YEAR*  

JOB CREATION IN PLASTIC RECYCLING FOR 337 PEOPLE**

ALL THE PLASTIC RECYCLABLES FROM A CITY THE SIZE OF MINNEAPOLIS, MINNESOTA***  
(422,331 POPULATION)

THE APR RECYCLING DEMAND CHAMPIONS - STRENGTHENING AND INCREASING DOMESTIC DEMAND FOR RECYCLABLE PLASTICS

Data sources:
*EP A WARM Model
**Private consultant/industry experts
***The Recycling Partnership
TOGETHER
Transforming Recycling For Good
Thank You!

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www.RecyclingPartnership.org