



# **MATERIALS RECOVERY FOR THE FUTURE: FLEXIBLE PACKAGING RESEARCH PROGRAM**

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SERDC | November 9, 2016



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MATERIALS RECOVERY  
FOR THE FUTURE

- 1 Who We Are
- 2 Why Research is Important to Do Now
- 3 Our 2016 Research Report
- 4 Where We Go From Here

# FLEXIBLE PACKAGING SORTATION AT MATERIALS RECOVERY FACILITIES

Research Report

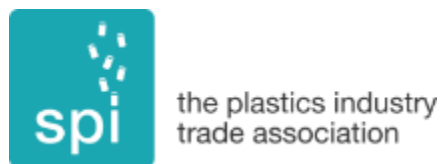




# **MATERIALS RECOVERY FOR THE FUTURE**

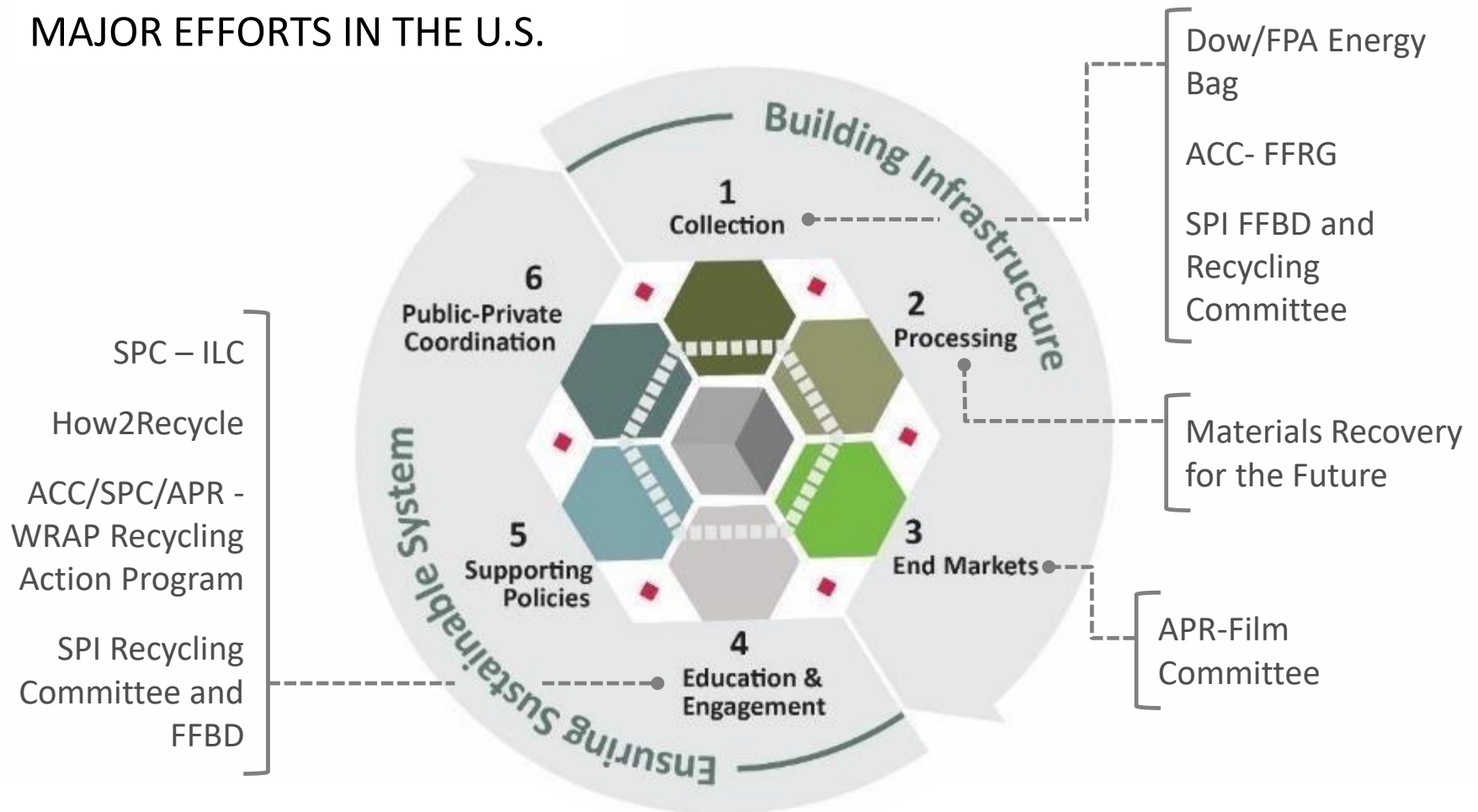
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Research Collaborative



# MRFF FOCUS IS THE PROCESSING ELEMENT OF THE SUSTAINABLE RECOVERY VALUE CHAIN

MAJOR EFFORTS IN THE U.S.




## OUR VISION

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







Companies are committed to  
finding recovery solutions for  
flexible plastic packaging



“We don’t want **landfills to be excavated** in 50 years and our flexible plastic bags, bearing **our company’s name**, show up as “permanent branded litter”... the problem is bigger than one company, so **it makes sense to work in a research collaboration.**”

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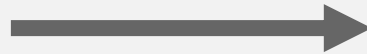
MRFF PARTNER COMPANY  
REPRESENTATIVE



# CONSUMERS ARE LOOKING FOR PACKAGING THAT CAN BE RECYCLED ACROSS A RANGE OF CATEGORIES

% consumers indicating “*recyclable packaging*” is very/somewhat important to their purchase of the following types of products

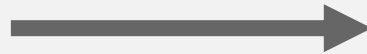
Household cleaning



80%



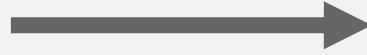
Personal care



73%



Food and beverage



73%



# Consumers are interested in learning about what companies are doing to lessen packaging and reduce the waste they produce

About 1 out of every 2 consumers are interested in learning more about what companies are doing to...

- ✓ Use more **recycled contents** in their products and **packaging** (46%)
- ✓ Use **less packaging** (45%)
- ✓ Reduce the amount of **trash** and other **waste** they produce (51%)



Companies have an opportunity to build strong brand loyalty with interested customers that want to see more environmentally-friendly packaging practices.

# Products and companies which keep sustainability as a focus are being viewed in a more positive light

Adding tangible benefits to products, such as recyclable packaging, can make a difference in how much consumers are willing to spend on environmentally-friendly products.

% general population who completely/somewhat agree that <i>knowing a company is mindful of its impact on the environment and society...</i>				
	2009		2015	
Knowing...makes me <b>more likely to try their products or services.</b>	52%	▲	57%	➡ MORE LIKELY TO TRY
Knowing...makes me <b>more likely to buy their products repeatedly</b>	48%	▲	53%	➡ MORE LIKELY TO PURCHASE
Knowing...makes me <b>more likely to talk with my friends and family about the company.</b>	40%	▲	46%	➡ MORE LIKELY TO INFLUENCE
Knowing...makes me <b>less concerned with the price of their products</b>	25%	▲	33%	➡ LESS PRICE SENSITIVE

# TOTAL LIFE CYCLE MANAGEMENT IS THE EXPECTATION FOR PACKAGING

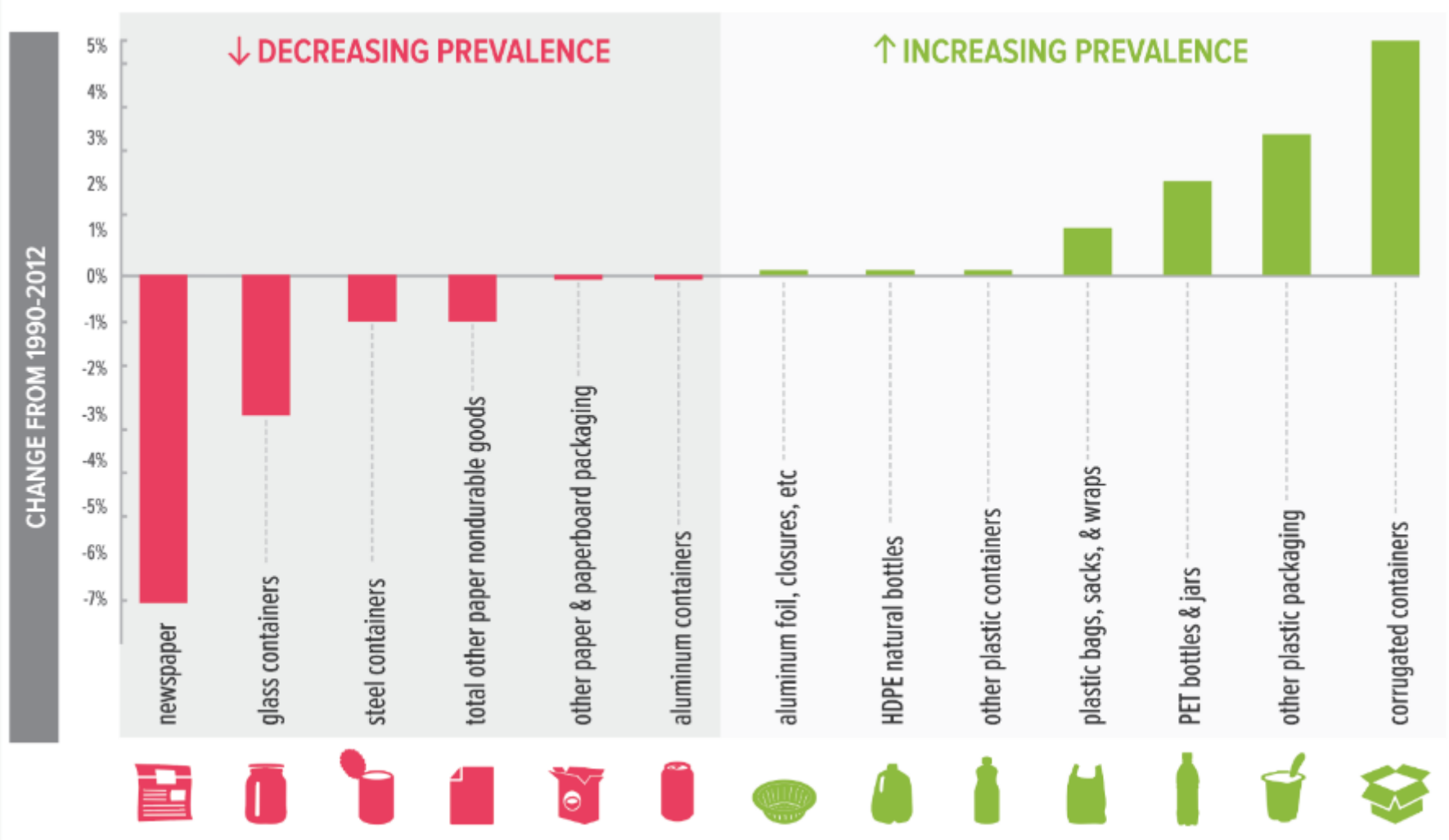
While flexible packaging performs well from a life cycle perspective, many stakeholders expect end-of-life management options to improve.



\*[Flexible Packaging: Less Resources, Energy, Emissions & Waste](#)

# THE PACKAGING STREAM IS EVOLVING –

## 2012 to 1990 Baseline



\*% of waste stream | Source: RRS






# PACKAGING EVOLUTION – RISK AS OPPORTUNITY



Flexible packaging currently present in residential recycling stream as contaminant

Acts like paper in a material recovery facility (MRF); ends up in same places

Positive sort for flexibles may:

- increase quality of MRF paper products while reducing costs of further processing
  - create new MRF flexible plastic bale
- 

# THE RECOVERY VALUE CHAIN: COLLABORATION IS KEY GIVEN OVERLAPPING INTERESTS





## THE PROBLEM:

Flexible Packaging Presents Processing Challenges for Today's MRFs

# 4 KEY QUESTIONS FOR MRFF RESEARCH



## 1 | ACCESS

Bagged or Loose?



## 2 | MRF

How can it be affordably sorted at the MRF?



## 3 | PLASTICS RECOVERY FACILITY

How can increased value be created for the material?

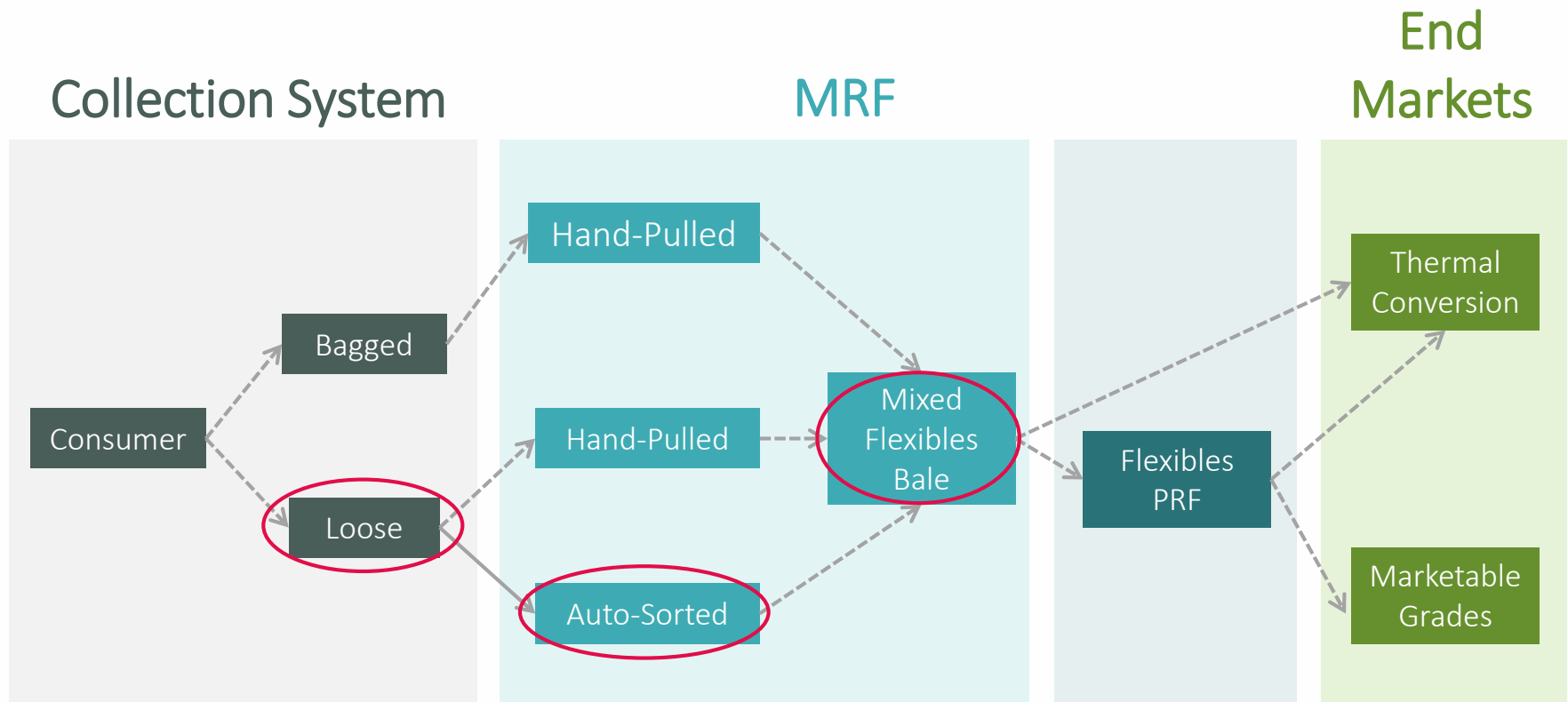


## 4 | NEW PRODUCTS OR ENERGY

What are viable end markets for the range of materials?

# THE KEY PATHWAY FOR OUR RESEARCH –

Can loose flexible plastic be separated in a MRF system?



Without affecting the other value streams?





## 2016 RESEARCH RESULTS

Baseline Test • Equipment Testing  
MRF Testing





1

# Baseline Test Conducted November 2015

88%

of flexible  
plastic  
packaging  
flowed to the  
fiber lines



Optical sorters  
extracted a  
**relatively clean**  
**stream** of flexibles  
from the fiber



Screens and  
optical  
sorters were  
**overwhelmed**



2

## Equipment Tests Conducted December 2015 - March 2016

90%

of flexible plastic  
packaging was sorted  
from the test stream



Identified ejection  
and recognition  
challenges



3

## MRF Test 1 Conducted May 2016

82%

of the test material  
flowed through the  
optical sorters

70%

Optical sorter  
efficiency



Large quantity of  
paper with the  
ejected flexible  
plastic packaging

4

## MRF Test 2 Conducted July 2016

85%

of flexible plastic  
packaging captured  
by 2 passes of  
optical sorting

89%

of flexible plastic  
packaging  
captured by 3  
passes of optical  
sorting

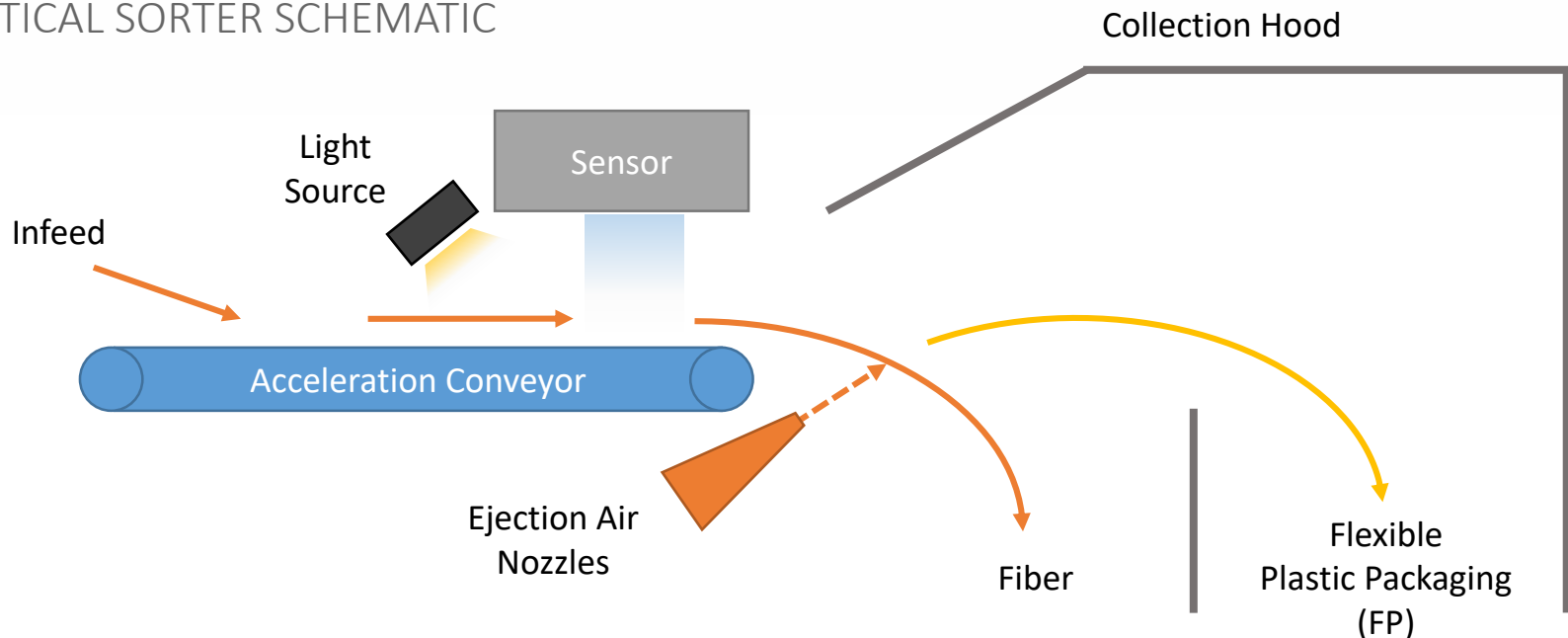


Still a sizable  
quantity of paper  
with the ejected  
flexible plastic  
packaging

# KEY FINDING FOR PHASE II RESEARCH

Airflow control over acceleration conveyor and in collection hood plays a major role in successfully sorting flexible packaging from paper

OPTICAL SORTER SCHEMATIC





## IMPORTANT PARTNERSHIPS FORMED: MRF Test Teams

Larry Baner, Nestle Purina  
Michael Timpane, RRS  
Emmie Leung, Emterra Environmental  
Jeff Wooster, Dow  
Steve Sikra, P&G  
Kerry Sandford, RRS

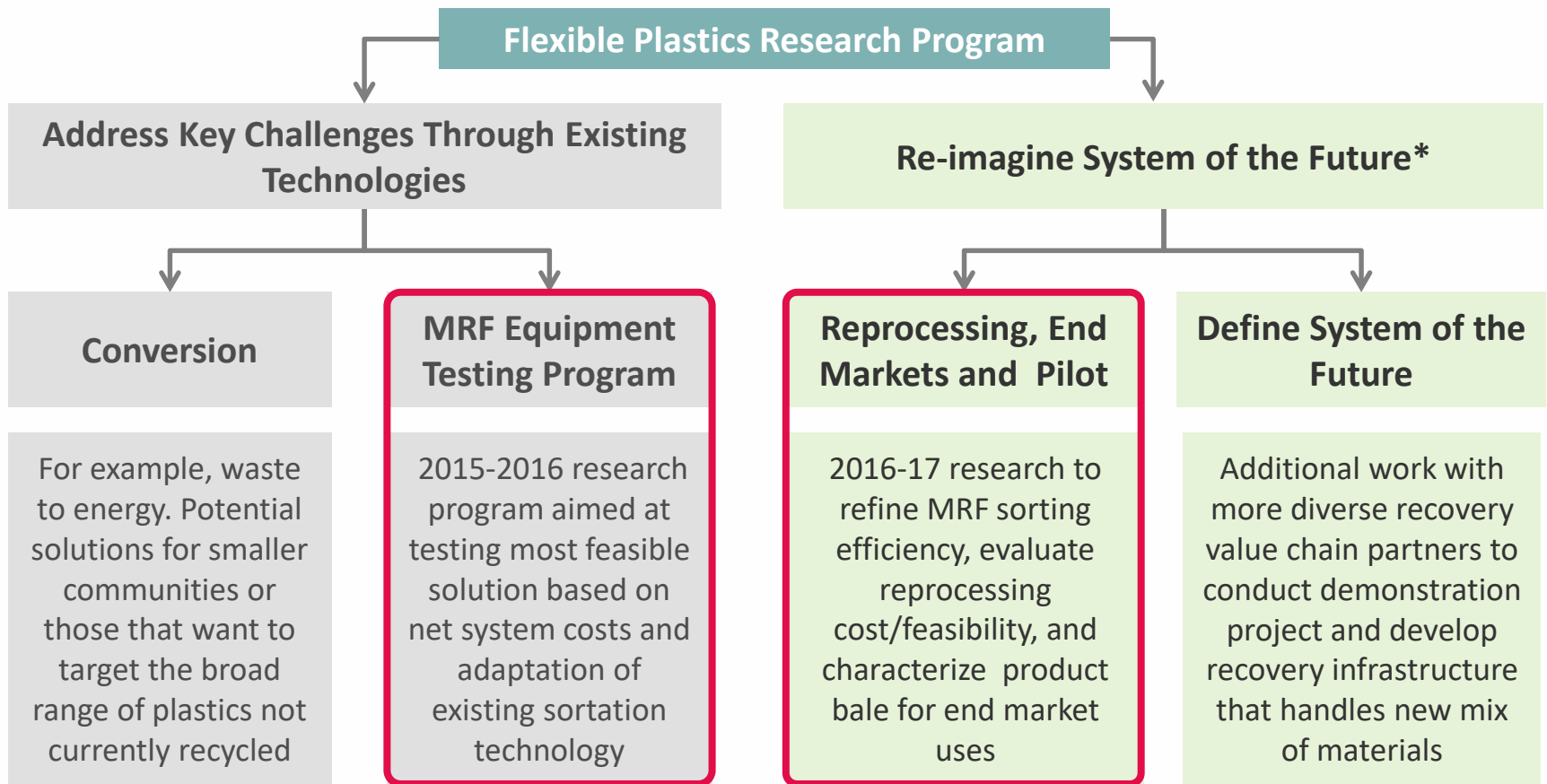
Brennan Madden, RRS  
Chris King, RRS  
Jon Pyper, Dow  
Susan Graff, RRS  
Sandi Childs, APR  
Nevil Davies, Emterra Environmental





# MATERIALS RECOVERY FOR THE FUTURE

## Global Strategy



\*Looking for partners to participate in these programs

# OBJECTIVE

Demonstrate flexible packaging recycling with a partner at a community MRF, with a plan to sort both PE and all others; and, expecting our MRF partner will require equipment modifications and testing—perform lab testing when necessary in support of the implementation at the MRF.

## 2017 Work Streams

End  
Market  
Assessment

Identify  
Community  
MRF Pilot

Equipment  
Testing

Communicate  
& Report  
Engage the  
Recycling  
Industry

# WE INVITE YOU TO BECOME PART OF THE SOLUTION



Success depends on  
broad collaboration  
to solve for  
flexibles recycling.  
Transparent  
sharing of data.



Join our  
mailing list to  
to receive  
MRFF news  
and research  
findings.



Join Us! Become a  
sponsor or  
research partner  
that will culminate  
in a community  
MRF pilot



# THANK YOU

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