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Director, GreenBlue & Sustainable Packaging Coalition

The State of Sustainability or Moving Towards a Circular Economy Together

Plymouth, Michigan/ May 3, 2016 / Governors Recycling Summit



What is SPC's/ GreenBlue's Role?

- Influence the Debate
- Provide Education
- Enhance Supply Chain Collaboration
- Create Action



Working *together* to broaden the understanding of packaging sustainability, develop meaningful improvements

Reports



Packaging design tools



Educational courses



Conferences



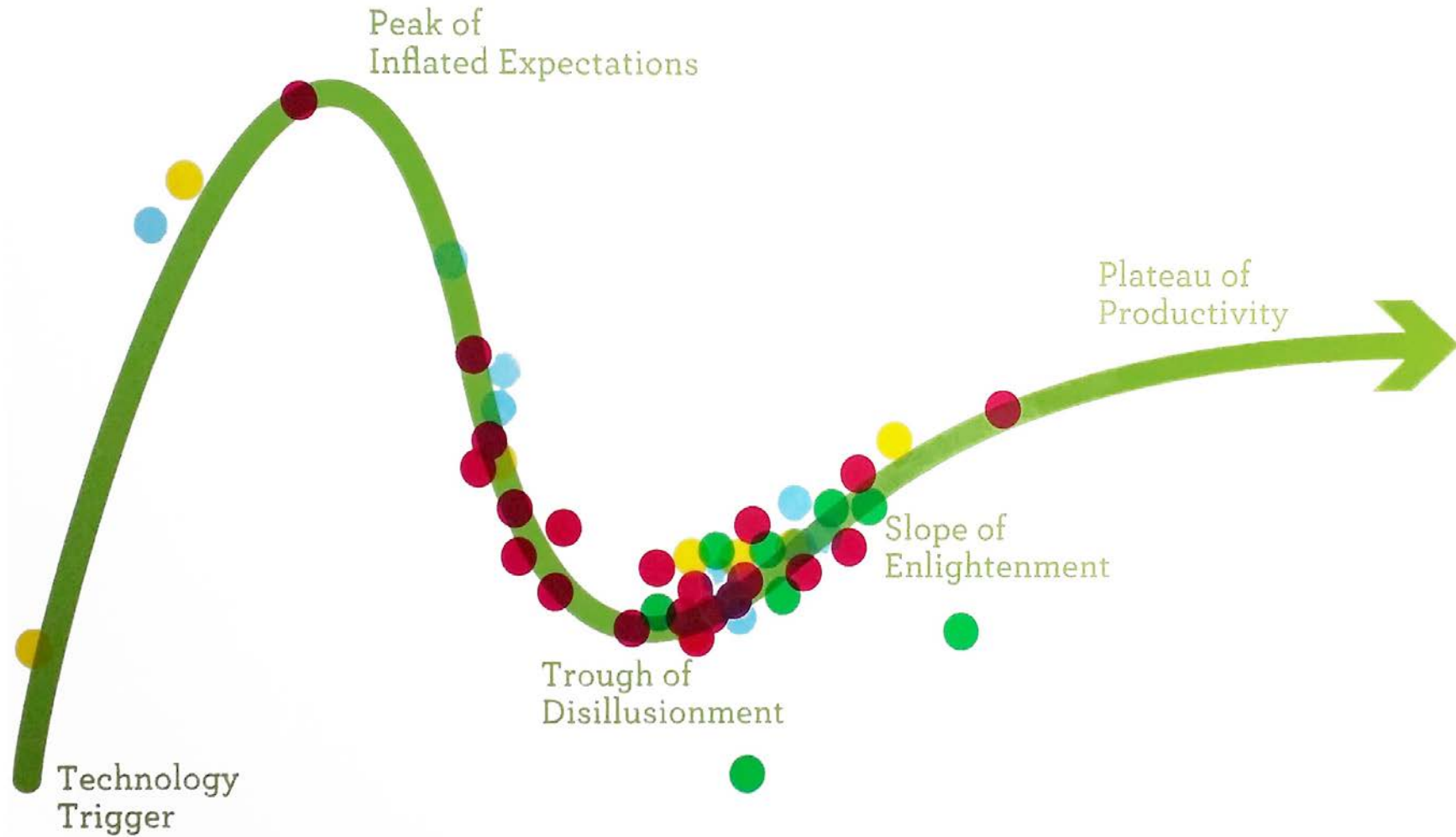
SPC ADVANCE
PORTLAND – SEPT 19-21

Consulting



State of Sustainability

March 27, 2014



State of Green Business 2015

“Companies collectively have been nibbling at the edges of challenges like **climate change, food security, ecosystems preservation, resource efficiency** and the like. Whether and how they take on the big problems will be another critical story to watch.”

“Recent improvements in resource efficiency, although welcome, are not enough to break the link between economic growth and environmental decay. As a result, the business risks of unsustainable natural capital consumption are increasing.”



State of Green Business 2016

“If ever there was an inflection point in the world of sustainable business, it took place in December in Paris... For the first time, the world seems on an inexorable course to transform business as usual.”

“Still, the question remains: **Are companies truly stepping up their efforts to address the full range of sustainability impacts,** or is it just a few leaders? ... Whatever the answer, the outcomes of COP21 mean that the **pace of change will likely accelerate during the latter part of the decade.**”



Resource Consumption & GDP

Resource prices have increased significantly since the turn of the century

McKinsey Commodity Price Index¹

Real price index: 100 = years 1999–2001²



1 Based on arithmetic average of four commodity sub-indexes: food, non-food agricultural raw materials, metals, and energy.

2 Data for 2013 are calculated based on average of the first three months of 2013.

SOURCE: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organisation for Economic Co-operation and Development statistics; Food and Agriculture Organization of the United Nations; UN Comtrade; McKinsey Global Institute analysis

“For every 1% increase in GDP, resource use has risen 0.4%”

(“The Circular Advantage.” Accenture analysis based on data from SERI and Dittrich M. 2014. *Global Material Flow Database*. World Bank GDP data, www.data.worldbank.org/)

Commodity prices have historically been inversely related to growth, but this relationship changed in 2000.

(World Bank commodity price data)

How to turn sustainability into a billion-dollar business



Freya Williams
CEO, Futerra North
America

“The biggest barrier to adoption of sustainable practices, though, is lack of knowledge of how it can be done profitably.”

“Many businesses have tried and failed with “green” or “eco-friendly” products, and they’ve given up because they assume that “green doesn’t sell.”

“That’s why the Green Giants are so exciting. They prove that addressing sustainability and social good need not be in conflict with delivering shareholder value; in fact, sustainability and social good can drive it.”

“The Green Giants bring the debate into the present tense; it’s not just that it could be done but that it has been and is being done—here and now.”



Freya Williams
CEO, Futerra North
America

Green Giants:

- Make it better, not just greener (built in not bolted on)
- Disruptive innovation
- A higher purpose
- Mainstream appeal
- Transparency (action not advertising)

*Chipotle - Unilever - Whole Foods Market - Natura - Tesla -
IKEA(sustainable life at home) - GE(Ecomagination) -
Nike(Flyknit) Toyota(Prius)*

PROJECT ROI

Defining the Competitive and Financial Advantages of Corporate Responsibility and Sustainability

CR's *potential* value for market value, share price, and risk reduction

Increase market value by up to:
4-6%

Over a 15 year period, increase shareholder value by:
USD \$1.28 billion

Increase valuation for companies with strong stakeholder relationships:
40-80%

Reduce the cost of equity by:
1%

Reduce share price volatility:
2-10%

Avoid market losses from crises:
USD \$378 million

Reduce systematic risk by:
4%

Reduce the cost of debt by:
40% or more

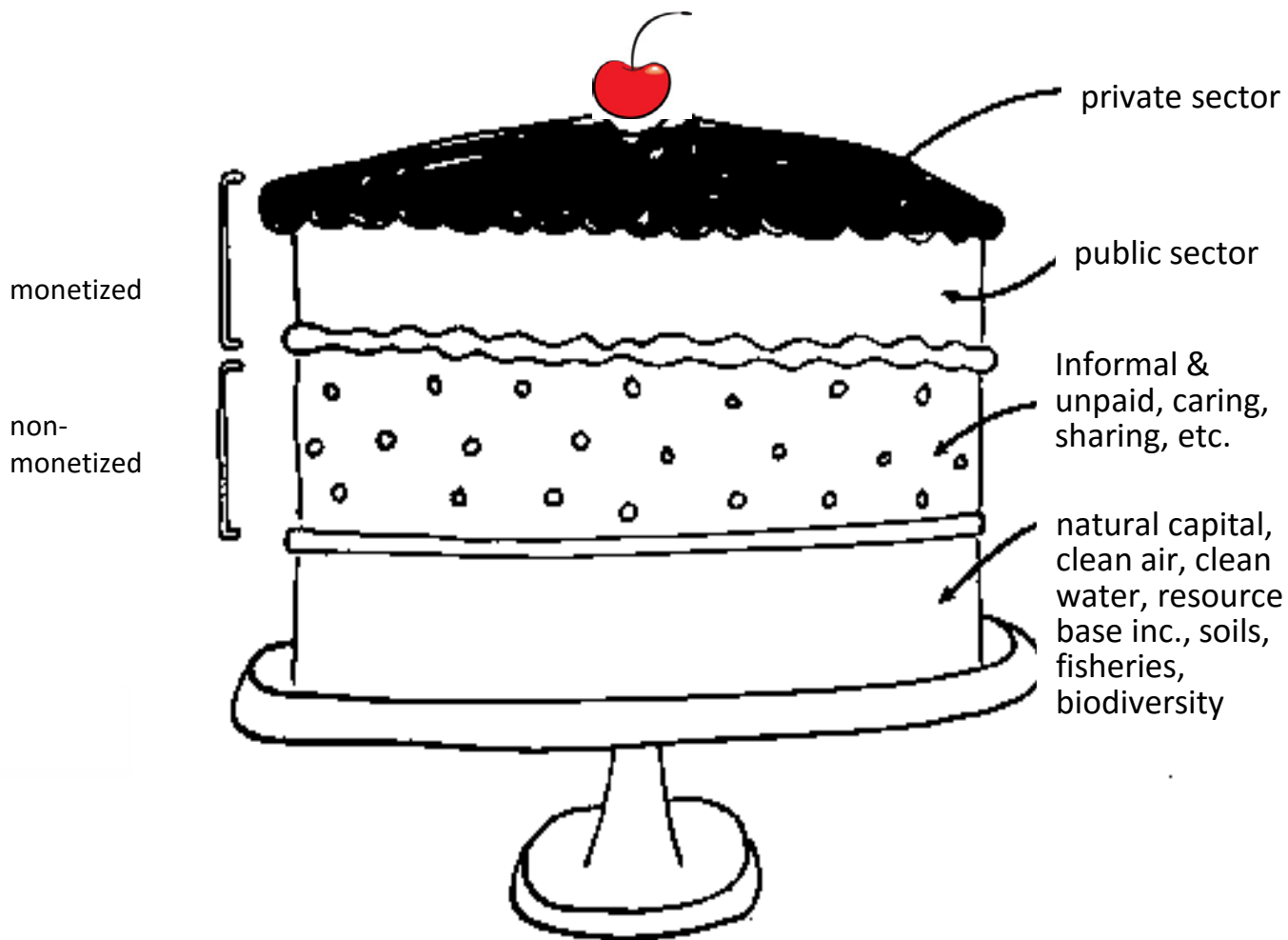
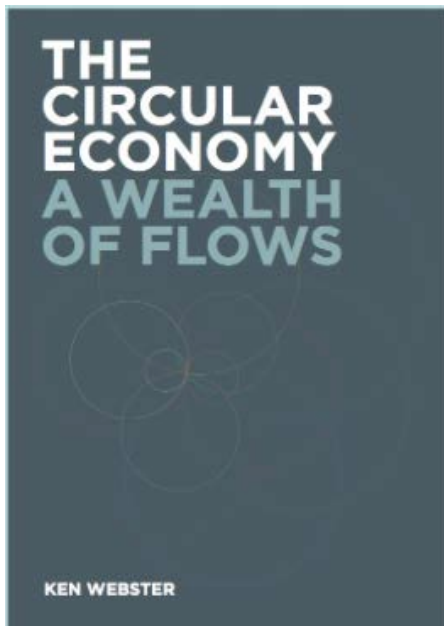
What is Changing the Conservation:

- Recognition that sustainability is good for business
- Understanding that being less bad is not good enough
- The easy wins where sustainability is aligned with cost savings are more challenging to find.
- The recognition that sustainability needs to be embedded into the business strategy not tacked on.
- Desire for transparency
- Big Data
- The Circular Economy

How might we break the link between economic growth and environmental decay?

How might we create sustainable and regenerative growth engines for the future?

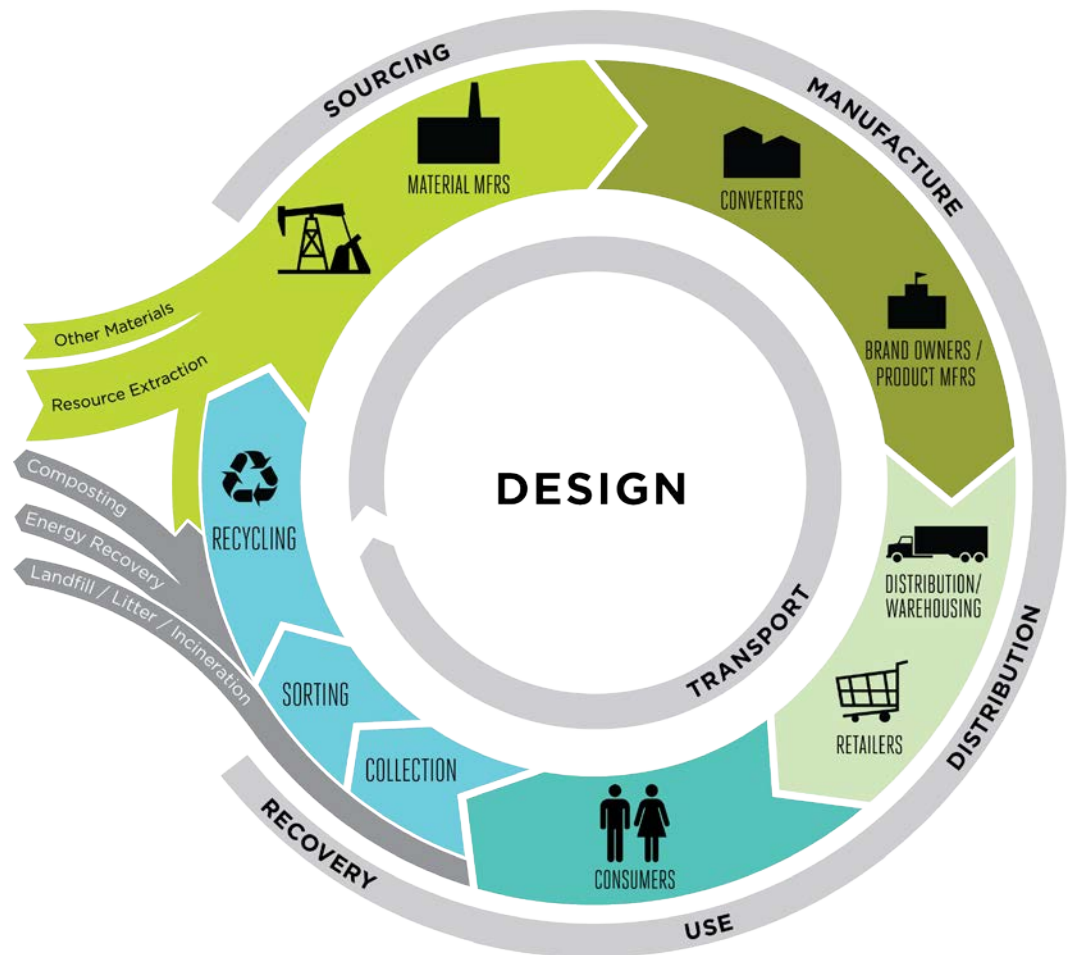
Economy as a three-layered cake (with icing)



What is a Circular Economy?

A circular economy is an industrial system that is restorative or regenerative by intention and design.

McKinsey and Accenture have estimated this to be a trillion-dollar opportunity









































Why Circular?

- Economic Opportunity
- Resource Preservation
- Regenerative Business Models
- Because We Must



Examples

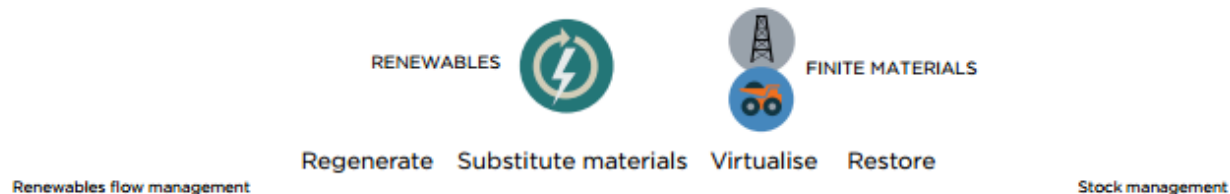
<p>REgenerate </p>	<ul style="list-style-type: none"> Shift to renewable energy and materials Reclaim, retain, and restore health of ecosystems Return recovered biological resources to the biosphere 	    
<p>Share </p>	<ul style="list-style-type: none"> Share assets (e.g. cars, rooms, appliances) Reuse/secondhand Prolong life through maintenance, design for durability, upgradability, etc. 	   
<p>Optimise </p>	<ul style="list-style-type: none"> Increase performance/efficiency of product Remove waste in production and supply chain Leverage big data, automation, remote sensing and steering 	     
<p>Loop </p>	<ul style="list-style-type: none"> Remanufacture products or components Recycle materials Digest anaerobic Extract biochemicals from organic waste 	       
<p>Virtualise </p>	<ul style="list-style-type: none"> Books, music, travel, online shopping, autonomous vehicles etc. 	      
<p>Exchange </p>	<ul style="list-style-type: none"> Replace old with advanced non-renewable materials Apply new technologies (e.g. 3D printing) Choose new product/service (e.g. multimodal transport) 	    

McKinsey's "REsolve" framework, which isolates six strategies to incorporate circular economy concepts into a business.

Circular economy – an industrial system that is restorative and regenerative by design

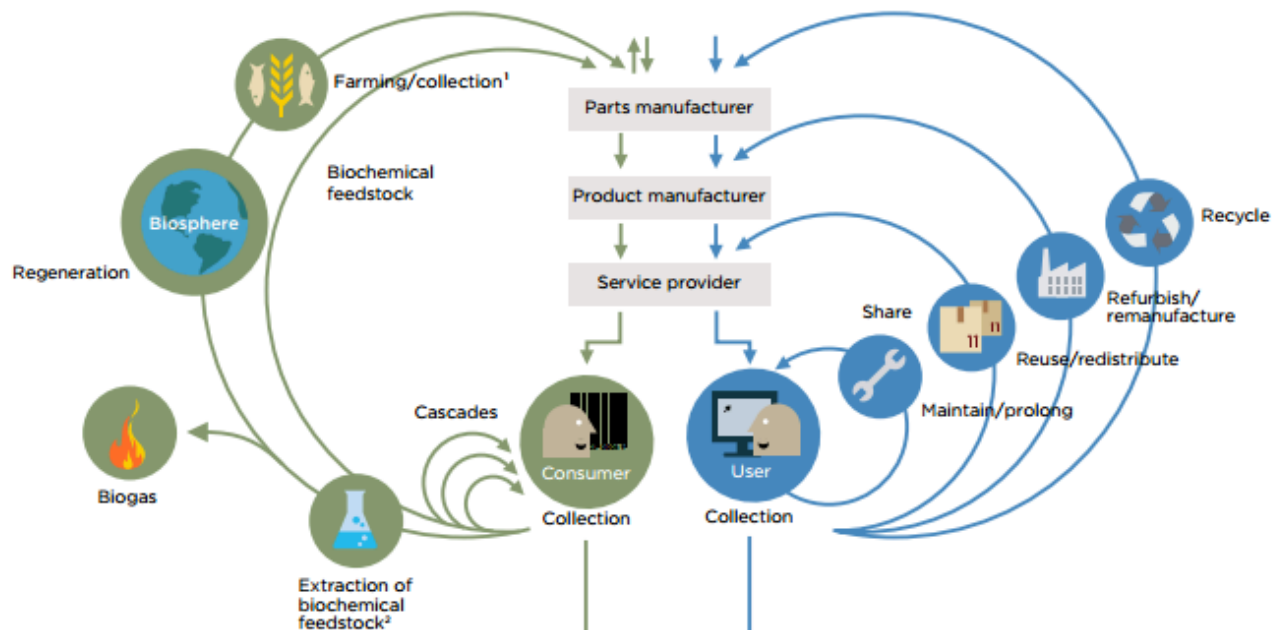
PRINCIPLE 1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange



PRINCIPLE 2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE 3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

¹ Hunting and fishing

² Can take both post-harvest and post-consumer waste as an input

SOURCE: Ellen MacArthur Foundation, SUN and McKinsey Center for Business and Environment, *Growth Within: A Circular Economy Vision for a Competitive Europe* (2015).

Drawing from Braungart & McDonough, *Cradle to Cradle* (C2C).



1

The smaller the loop (activity-wise and geographically) the more profitable and resource efficient it is.

2

Loops have no beginning and no end.

3

The speed of the circular flows is crucial: the efficiency of managing stock in the circular economy increases with a decreasing flow speed.

4

Continued ownership is cost efficient: reuse, repair and remanufacture without a change of ownership saves double transaction costs.

5



How Do We Get There?

Sustainable Materials Management



- +New Business Models
- +Technology Enablers
- +Policy Frameworks
- +Financial Incentives

Q: How do we get to a Circular Economy?

A: Collaboration & Partnerships



Closing the Loop on the new Ford F-150



Protecting nature. Preserving life.™

PepsiCo and TNC started Recycle for Nature to increase recycling



U B E R

Social media campaign to collect donations



Crowdsourcing to tackle social and environmental problems

New ways of counting : New ways of thinking

"Through the current weight-based accounting system, all methods of recovery are equal [when it comes to cutting emissions]. All materials are equal. All markets are equal," said David Allaway, senior policy analyst for Oregon's Department of Environmental Quality.

WasteDive

By Arlene

Karidis | April 26,

2016

Oregon will become one of the earliest adopters of life cycle analysis as they change focus.

"I think we would probably see more focus on materials that have high energy benefits from recycling, such as metal and plastics. Under this new system, aluminum will count more than a ton of glass. Recycling will count more than composting"

(Allaway)

Key Drivers and Influencers- Sustainable Packaging 2016

Price of Oil

- Economic viability of recycling
- China Green Fence and the oversupply of virgin resin

Circular Economy

- EU Directives
- The New Plastics Economy Report

COP21

US EPA Sustainable Materials Management Program Strategic Plan October 2015

- Sustainable packaging
- Food waste reduction goal
- ReFed Report

Blue Economy



COP 21

Significant opportunity for business to contribute:

- Financially
- Best Practices
- Technology Transfer

GreenBiz April 20, 2016

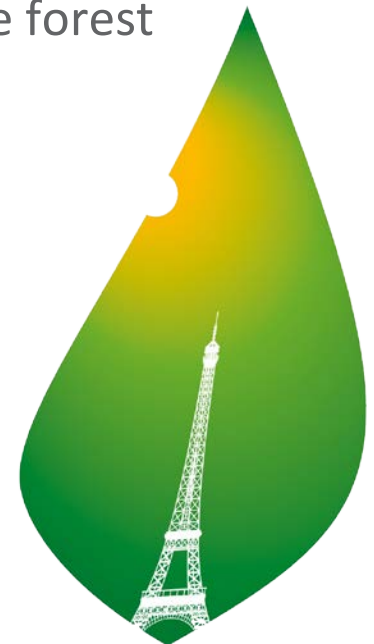
Big companies back clean power:
Apple, Google, Microsoft, Amazon,
Ikea, Mars

Cities and States go 100%
renewable (Hawaii, San Diego)



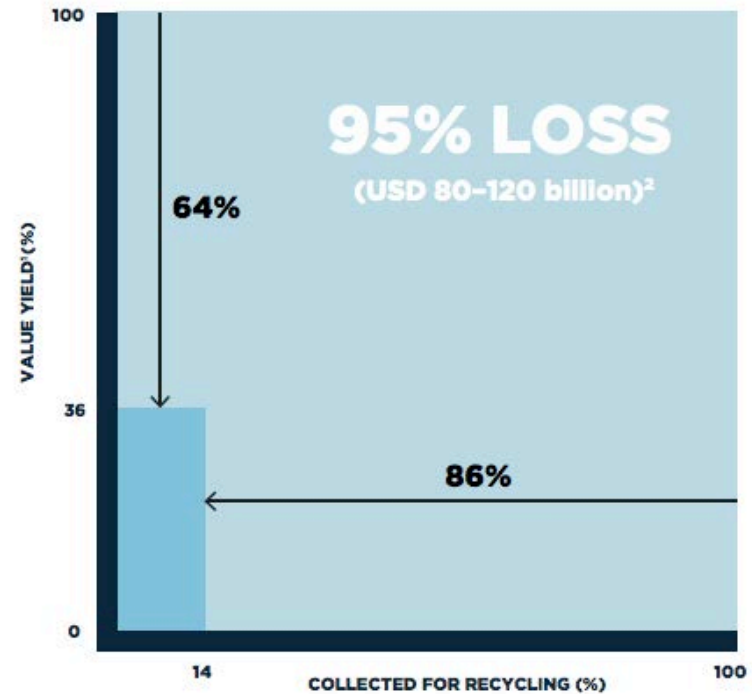
Opportunities for:

- Energy reduction
- Support of alternative energy
- Support for recycling
- Support food waste reduction
- Support for sustainable forest management
- Zero waste to landfill



The New Plastics Economy (2016)

FIGURE 3: PLASTIC PACKAGING MATERIAL VALUE LOSS AFTER ONE USE CYCLE



1 Value yield = volume yield * price yield, where volume yield = output volumes / input volumes, and price yield = USD per tonne of reprocessed material / USD per tonne of virgin material

2 Current situation based on 14% recycling rate, 72% volume yield and 50% price yield. Total volume of plastic packaging of 78 Mt, given a weighted average price of 1,100-1,600 USD/t

Source: Expert interviews; Plastic News; Deloitte, *Increased EU Plastics Recycling Targets: Environmental, Economic and Social Impact Assessment Final Report* (2015); The Plastics Exchange; plasticker; EUWID; Eurostat.



World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, *The New Plastics Economy-Rethinking the future of plastics*. (2016, www.ellenmacarthurfoundation.org/publications).

The New Plastics Economy (2016)



Key observations:

- System Fragmentation
- “Core aspects of plastics material flows and their economics are still poorly understood”
- 95% global loss after one use equivalent to 80-120 billion USD

Key recommendations

- Create an effective after-use plastics economy
- Reduce Leakage
- Decouple plastics from fossil feedstocks

US EPA Sustainable Materials Management Strategic Plan (Fiscal Year 2017 – 2022)



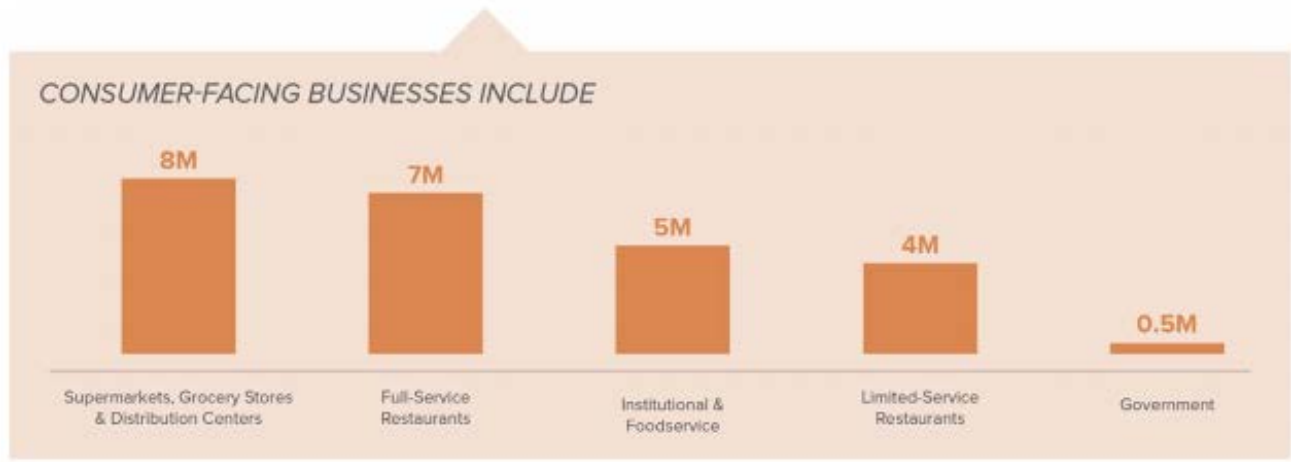
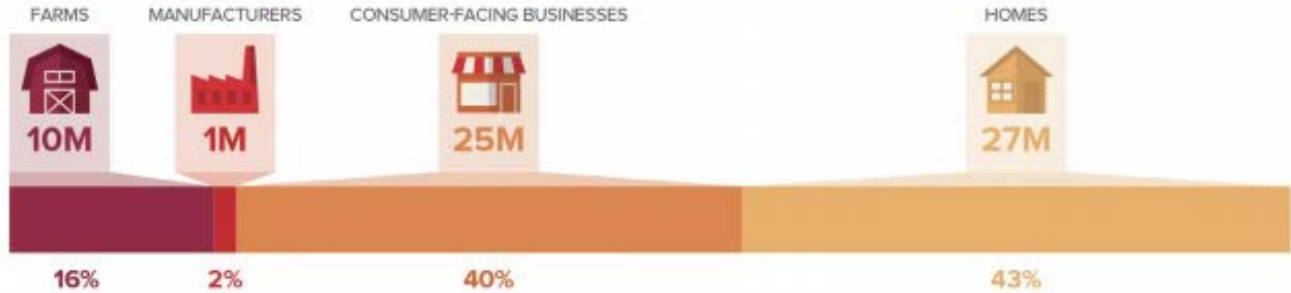
Sustainable Materials Management (SMM)

Strategic Priorities

- The Built Environment
- Sustainable Food Management
 - Food waste reduction goal
- Sustainable Packaging

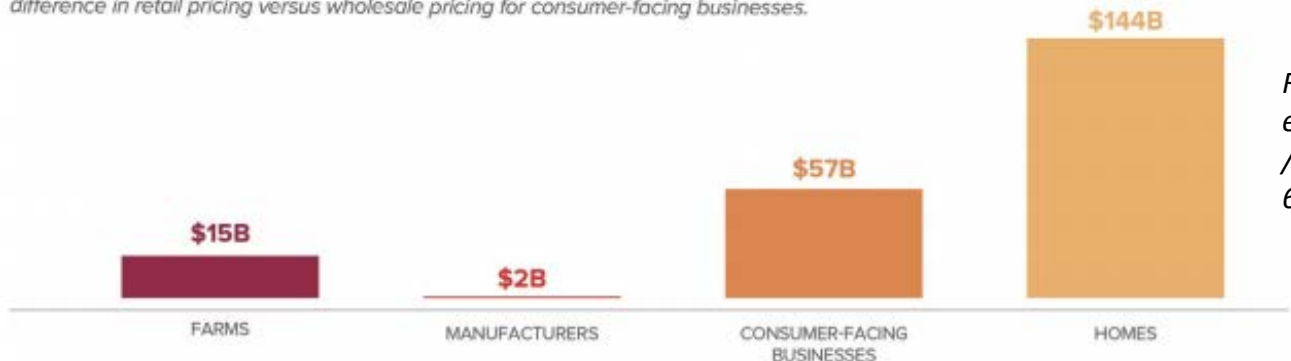
ReFED Report 2016

FOOD WASTED BY WEIGHT — 63 MILLION TONS



VALUE OF WASTE — \$218 BILLION

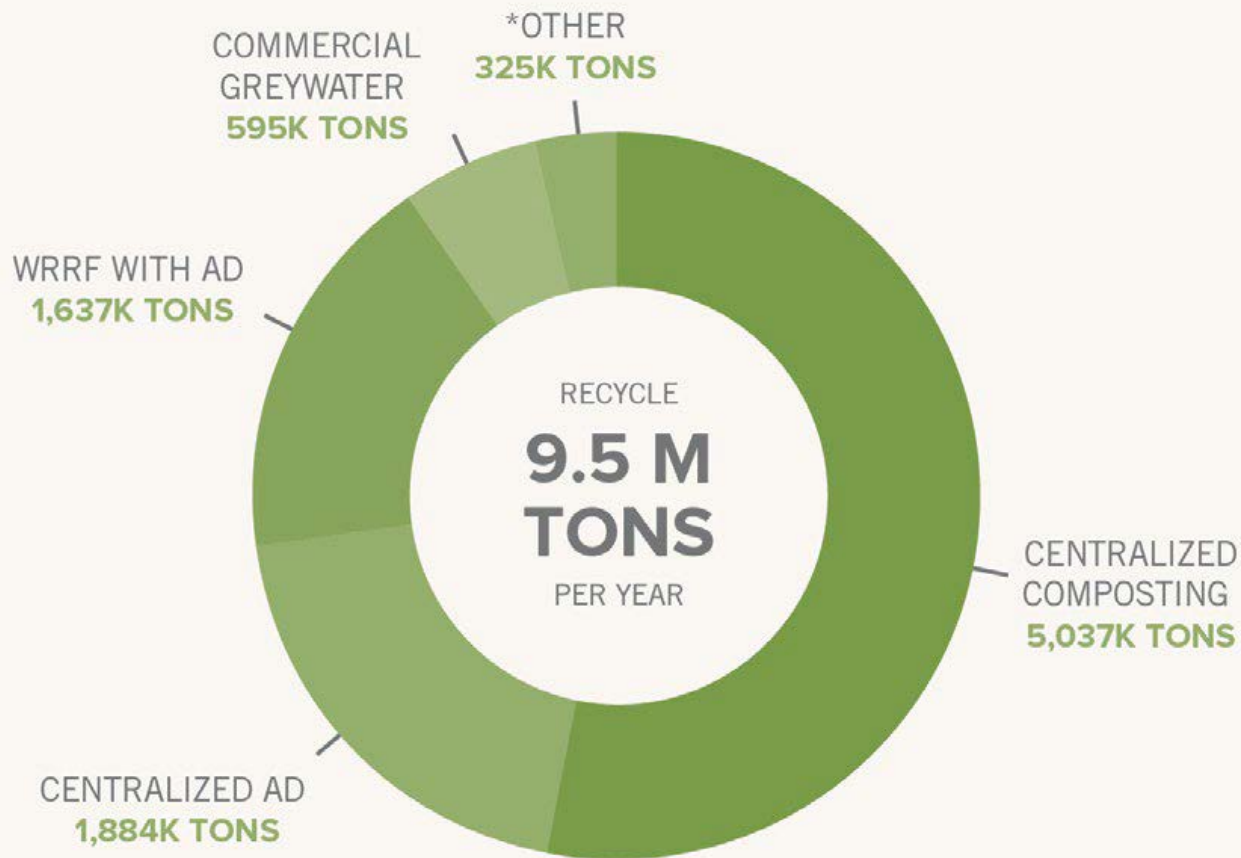
The financial cost of food waste ends up costing consumers the most due to the difference in retail pricing versus wholesale pricing for consumer-facing businesses.



ReFED.http://www.refed.com/downloads/ReFED_Report_2016.pdf. 2016

ReFED Report 2016

RECYCLING SOLUTIONS DIVERSION POTENTIAL



*OTHER: COMMUNITY COMPOSTING 167 TONS/YR; HOME COMPOSTING 97K TONS/YR; ANIMAL FEED 49K TONS/YR; IN-VESSEL COMPOSTING 12K TONS/YR

Landfilling
FOOD
WASTE
Produces
Methane

EPA GOAL:

Reduce food
waste by **50%**
by **2030**

Lifecycle and Systems Thinking

USE WISELY
Sourcing
Efficiency

ELIMINATE
TOXICITY



RECOVER
MORE

Q: What do you think has the biggest impact on the footprint of a cup of coffee?

A.) The coffee production

B.) The packaging

C.) The coffee brewing



Keurig's GHG Footprint & LCA

CORPORATE GHG FOOTPRINT*



- 10.3% Coffee Cultivation and Processing
- 2.5% Operations
- 6.8% Product Packaging
- 17.6% Brewer Supply Chain
- 5.0% Distribution
- 55.1% Brewer Energy Use
- 2.6% End-of-Life

*Percentages do not total 100% due to rounding.

Q: What material listed has the lowest recycling rate in America?

A.) Glass

C.) Steel

B.) Aluminum

D.) PET



Q: What material listed has the lowest recycling rate in America?

A.) Glass (34%)

C.) Steel (73%)

B.) Aluminum (55%)

D.) PET (31%)

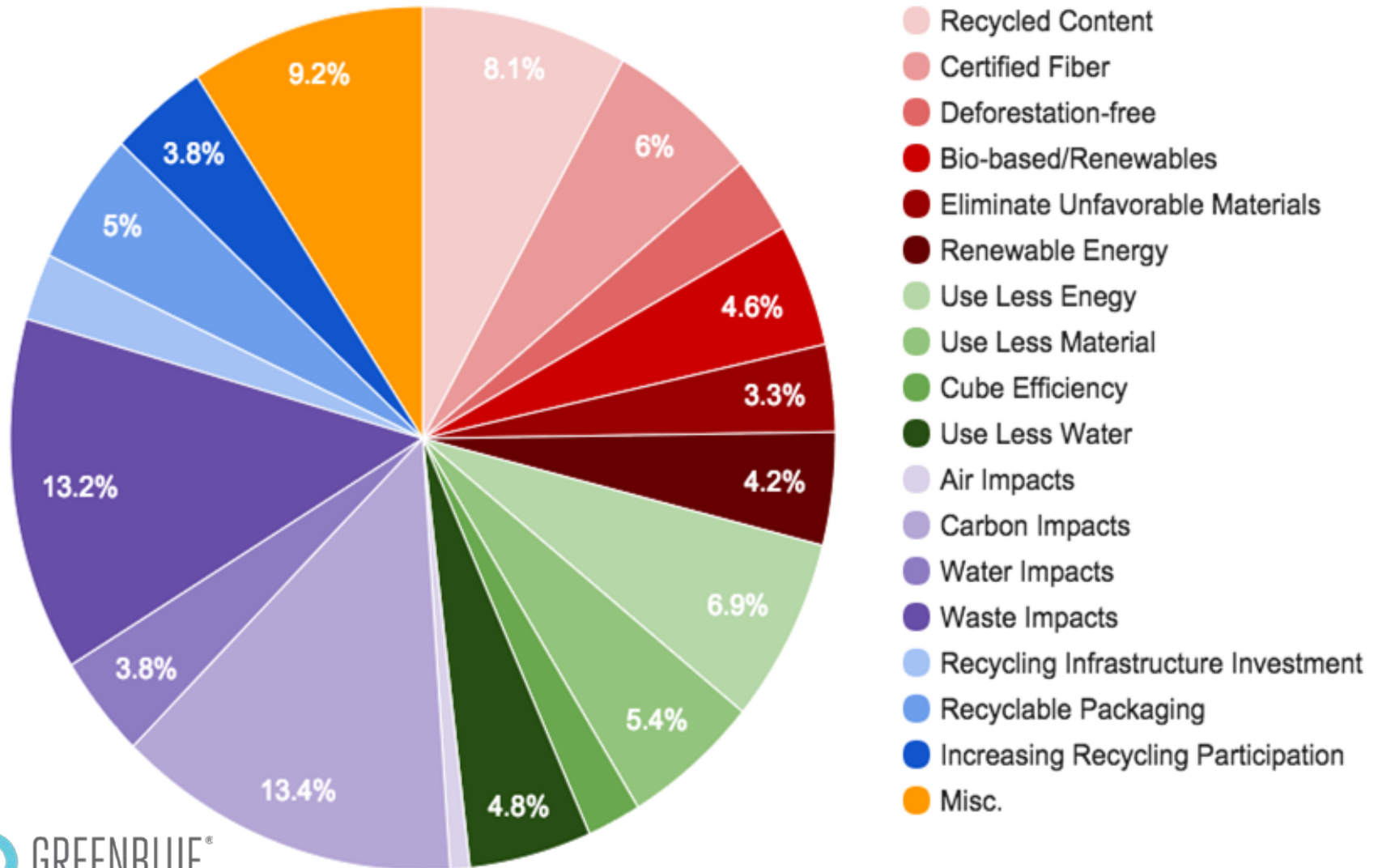


In what area does your company have Q: specific goals?

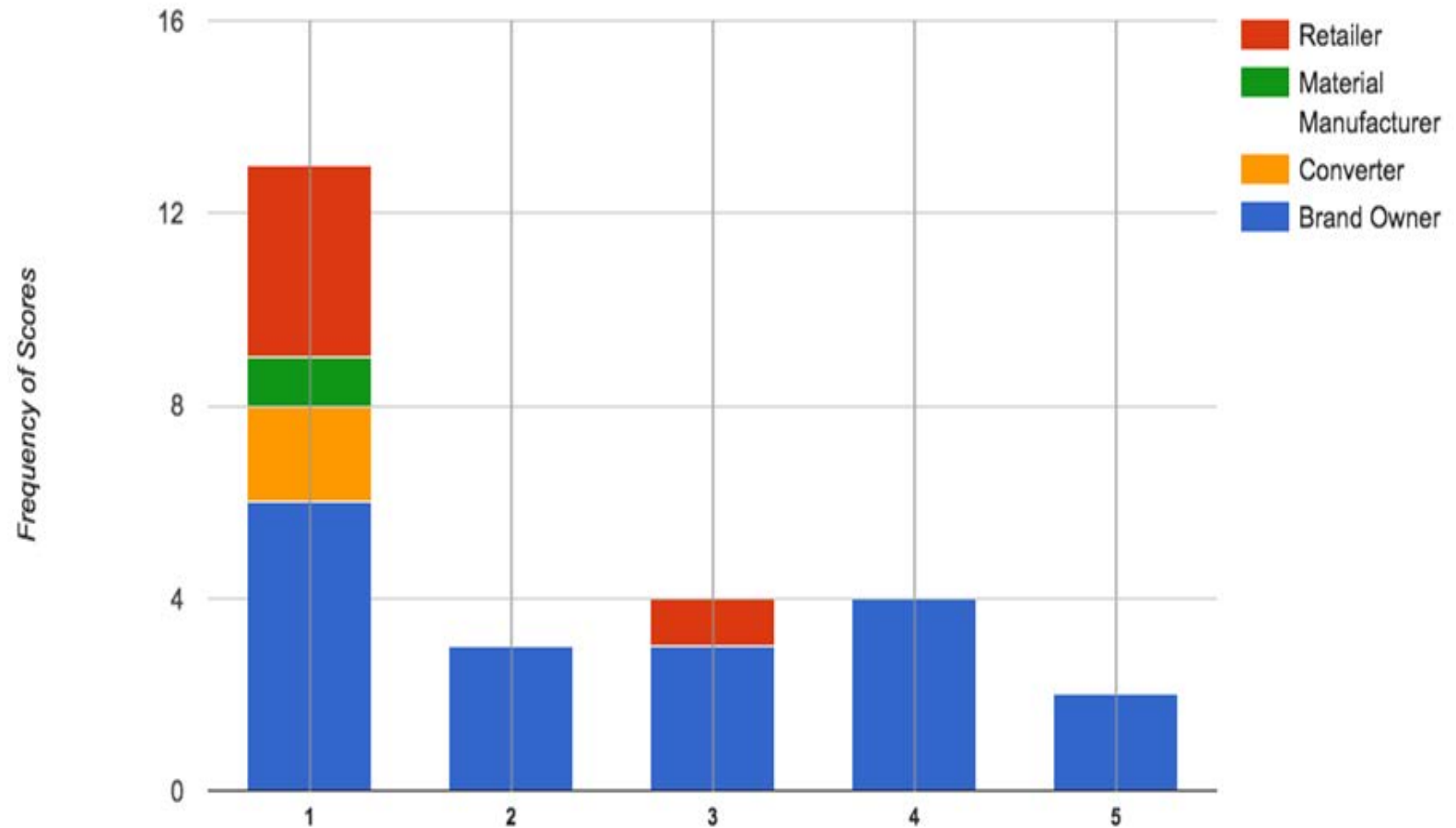
- Increasing recyclability of packaging 43 %
- Reducing packaging weight 43 %
- Post-consumer recycled content usage 39 %
- Reducing energy consumption 37 %
- Elimination of unfavorable substance(s) or material(s) 37 %
- Improving transportation efficiency 36 %
- Reducing solid waste generation 35 %
- Biobased/renewable content usage 31 %
- Reducing greenhouse gas emissions 28 %

156 companies, 521 goals identified

Goal Categories



Recyclable Packaging (recovery): 26 identified

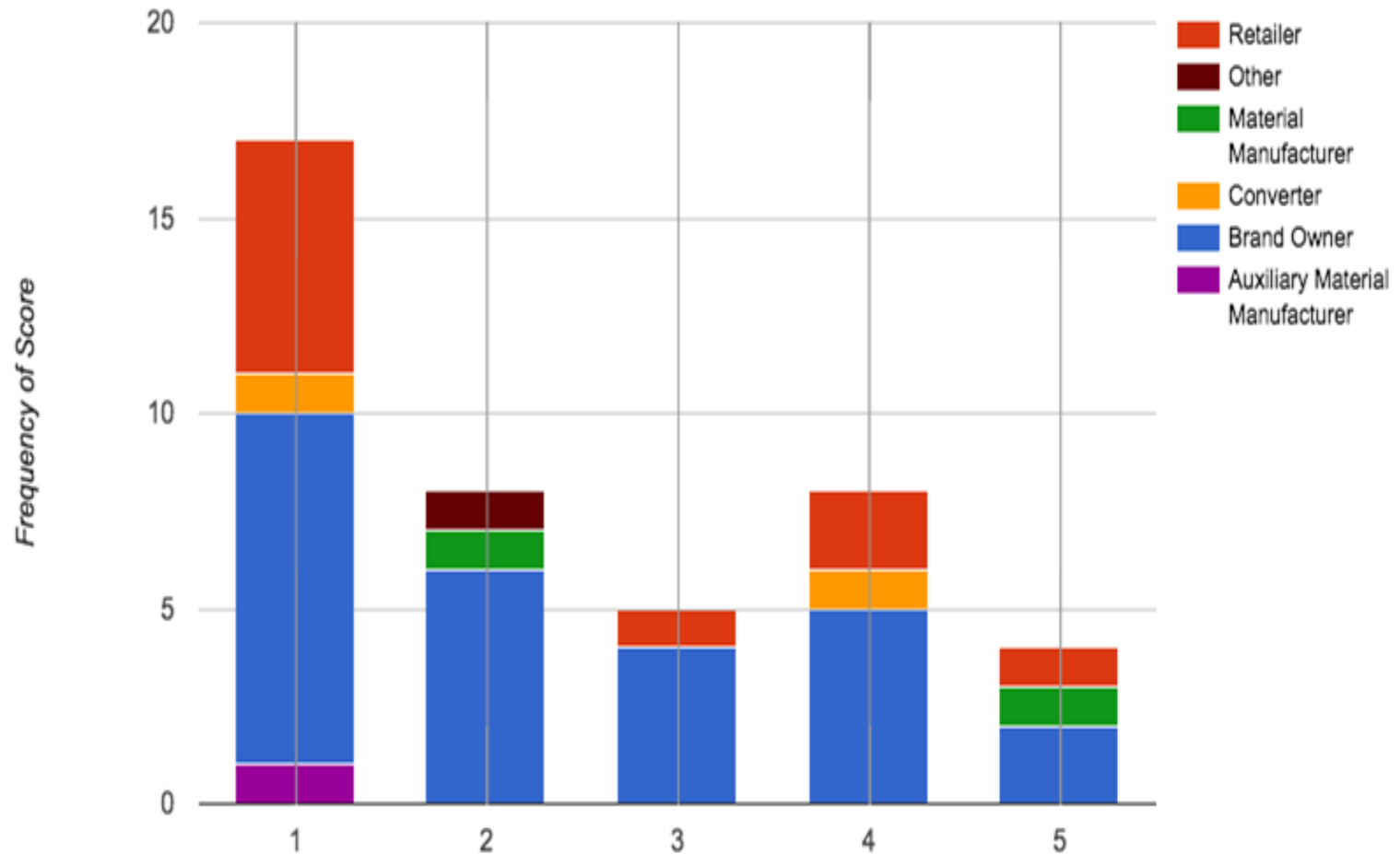


recyclable packaging

(1) "Use only recyclable packaging materials as available and appropriate"

(5) "By 2020, use at least 74% recyclable material in the total mass of XXX packaging in Brazil"

Recycled Content (sourcing): 42 identified

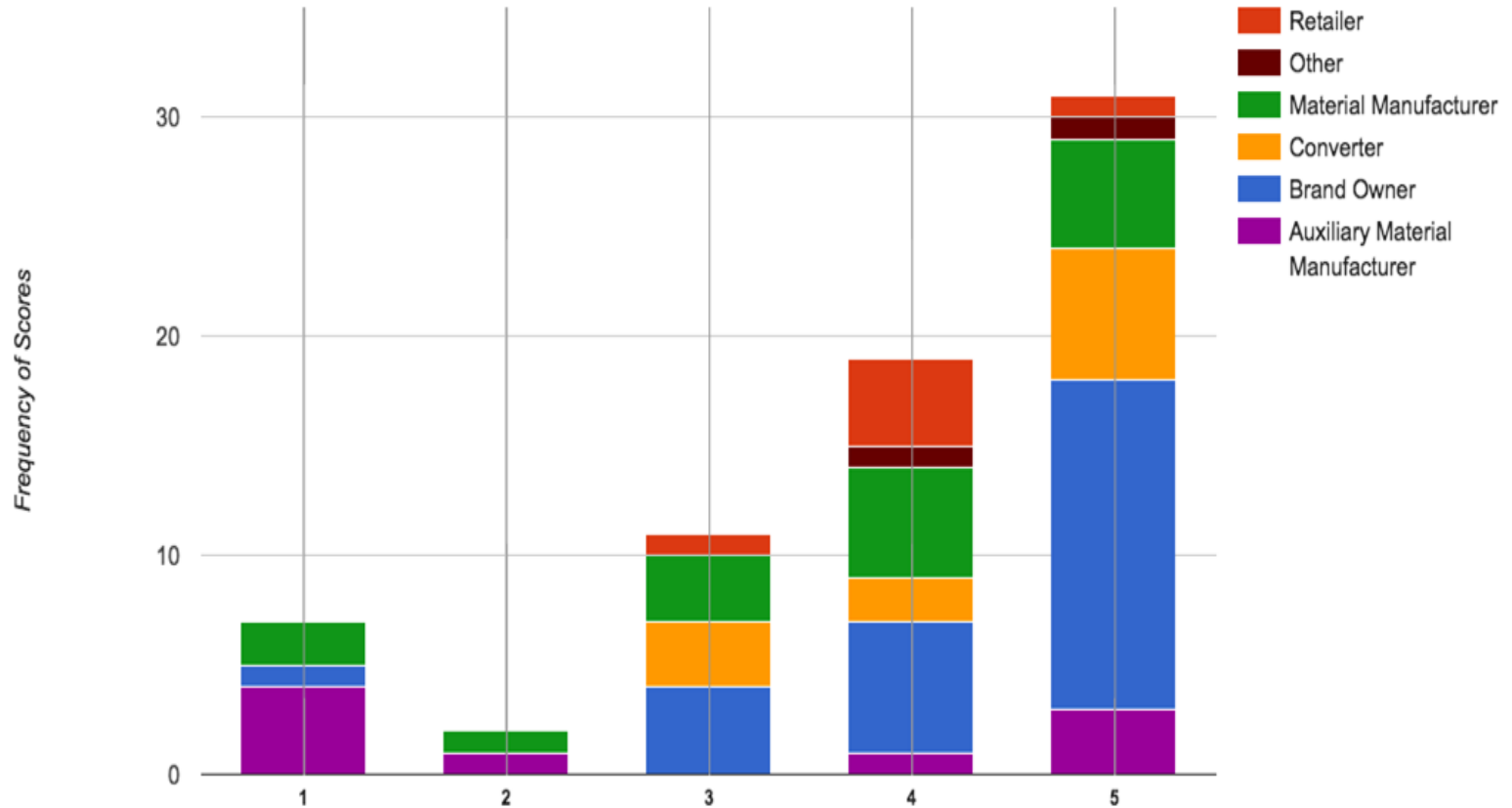


recycled content

(1) "Incorporate post-consumer recycled content where feasible"

(5) "Increase the level of recycled content in our packaging by 10% by 2015, from a 2007 baseline"

Carbon Impacts: 70 identified



Carbon Impact Scale examples:

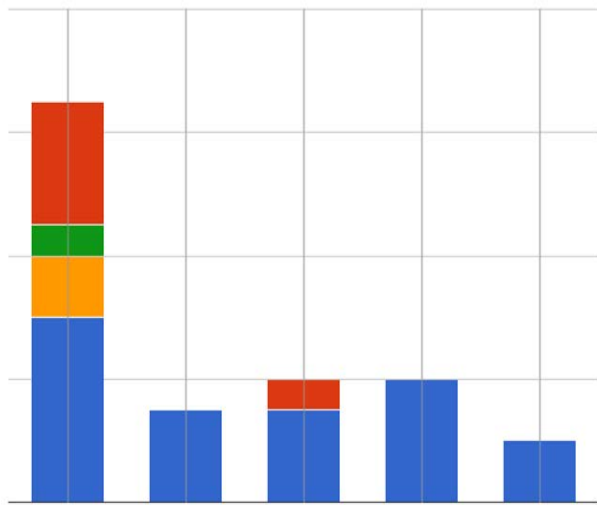
(1) "We are pursuing measures to fight global warming and reduce CO2"

(5) "Reduce total CO2 equivalent emissions by 65% per container by 2020 compared to 2007 baseline"

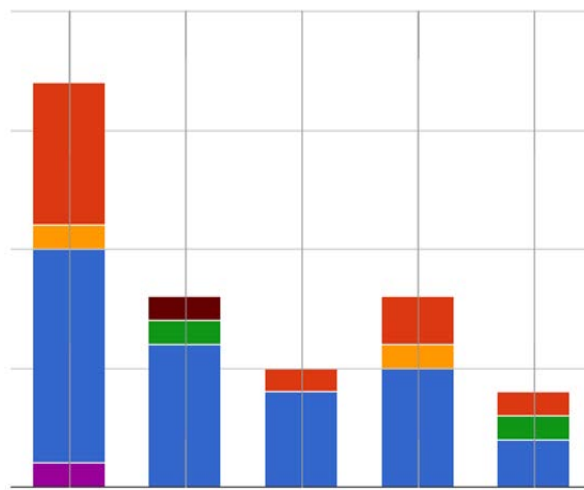
SPC Goals Project 2016

Findings:

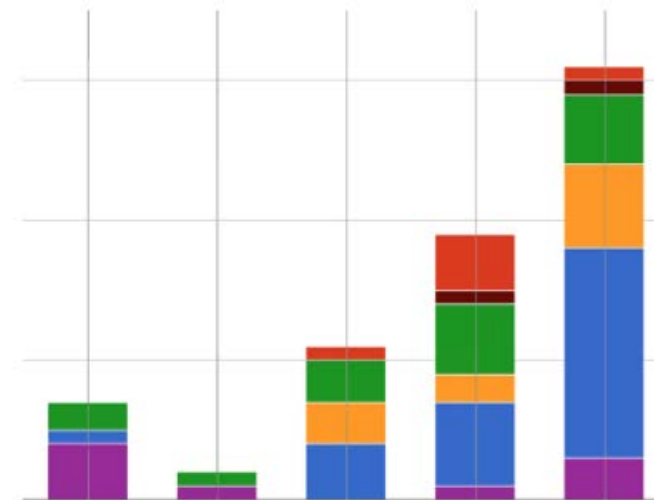
Recyclable packaging



Recycled Content



Carbon Impacts



- Retailer
- Material Manufacturer
- Converter
- Brand Owner

WHAT IS

How2Recycle?



How2Recycle is a coalition of forward-thinking brands who are empowering consumers through smart packaging labels.



GENERAL MILLS



It's a smarter label system.

Example for
Frozen Food Package

RECYCLABILITY ICON

Indicates the recyclability of the packaging component

SPECIAL INSTRUCTIONS

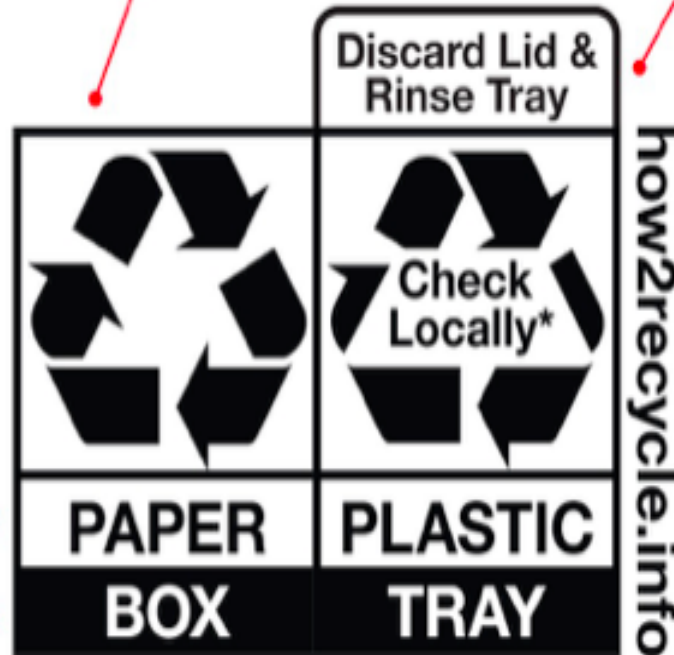
Additional information to ensure proper recycling

PACKAGING MATERIAL

Identifies the material type of packaging component

PACKAGING COMPONENT

The specific part of the package referenced by the label



PROGRAM WEBSITE

Provides information on the label, local recycling resources, and additional recycling tips

***Not recycled in all communities**

How2Recycle is designed with the consumer in mind.



***Not recycled in all communities**

Widely Recycled

At least 60% of Americans can recycle this package at curbside recycling or drop-off recycling.

Sometimes Recycled

Between 60% and 20% of Americans can recycle this package at curbside recycling or drop-off recycling. Check your local program.

Not Yet Recycled

Either less than 20% of Americans can recycle this package, or, it could cause a problem in a recycling facility.

Store Drop-off

Anyone who lives near a store that accepts plastic bags and wraps for recycling can take this packaging to that store and recycle it there.

How2Recycle

IS MAKING A DIFFERENCE



commonly present in cleaning products
No phosphates. Full ingredient descriptions available at seventhgeneration.com.

Directions for Use: Spray directly onto garment, covering stain completely. For best results, let sit for 5 minutes prior to washing. Appropriate for use in both HE and standard machines. Works well in all wash temperatures. Safe for use on colorfast washables. Not recommended for use on wool or silk. Test in an inconspicuous area first.

Safety Information: **EYE AND SKIN CONTACT:** If product comes in contact with eyes or skin, flush out with water.
IF SWALLOWED: Drink plenty of water and consult a physician.
IF INHALED: If irritation or allergic reaction occurs, seek immediate medical attention. Do not treat garment while wearing. **KEEP OUT OF THE REACH OF CHILDREN.**

Contact us: seventhgeneration.com | 800-456-1191 | info@seventhgeneration.com

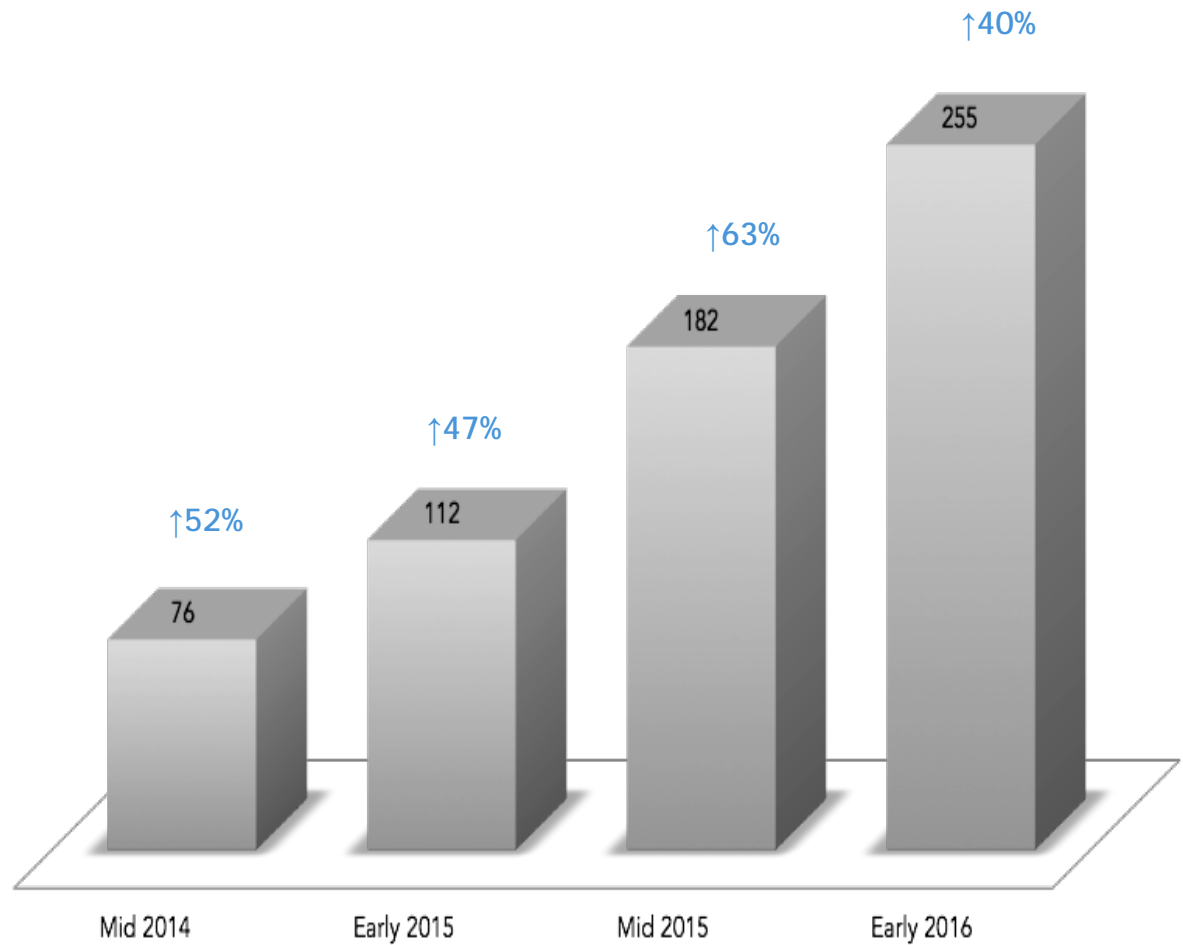
We dedicate 10% of our profits to organizations working for positive change.
Made in USA/Manufactured for: Seventh Generation, Inc.
60 Lake Street, Burlington, VT 05401
©2011 Seventh Generation, Inc.



83%

Of consumers **learn** from
How2Recycle

Over time,
consumers tell us
that How2Recycle
has caused them
to **recycle more,**
and **recycle more**
accurately.



77%

Of consumers **like a
company more** for using
How2Recycle.

Sparks internal conversation about recyclability

Gives brands an easy way to talk about recyclability with suppliers

Provides avenues for packaging innovation

Helps brands connect with their consumers in a new way

Broadens perspective on material and format choices

Is a way to create success stories for your company and your team



WHAT IS NEXT FOR

How2Recycle?





ReStart the Cycle

A [How2Recycle](http://how2recycle.info) Initiative

What are the best levers to
stimulate the market for recycled
materials?

Reality is surprising.

Recycling vs. Waste in Raleigh, North Carolina

Material	Lbs in Waste	Lbs in Rcy	Total Lbs
Mixed Paper	181	53	234
Cardboard (OCC)	39	61	100
Newspaper	35	92	127
PET Bottles	27	18	45
HDPE Bottles	14	11	25
Rigid Plastics	26	1	27
Other Plastic Containers	26	0	26
Glass	45	112	157
Steel	20	36	56
Aluminum	7	5	12
Total	420	389	810

Source: Scott Mouw & Rob Taylor,
NC Division of Environmental
Assistance and Customer Service,
Resource Recycling Conference,
September 2015.



Recycling rates
also vary wildly
based on
geography.

Material	Raleigh, NC			Cary, NC			Cincinnati, OH			Tucson, AZ		
	Lbs. in Waste	Lbs. in Rcy	Total Lbs.	Lbs. in Waste	Lbs. in Rcy	Total Lbs.	Lbs. in Waste	Lbs. in Rcy	Total Lbs.	Lbs. in Waste	Lbs. in Rcy	Total Lbs.
Newspaper	34.5	92.1	126.6	21.6	113.7	135.3	38.4	83.9	122.3	58.1	93.7	151.8
OCC	38.9	61.5	100.4	31.1	78.4	109.4	71.8	57.8	129.7	69.5	64.6	134.1
Mixed Paper	181.3	52.8	234.2	217.4	96.5	314.0	215.4	71.3	286.7	154.9	79.6	234.5
PET	27.3	17.6	44.9	21.6	22.7	44.4	38.4	16.8	55.2	15.1	18.8	33.8
HDPE	14.4	11.0	25.4	9.5	0.0	9.5	35.1	10.4	45.4	15.1	11.6	26.6
Rigid Plastics	25.9	1.0	26.9	27.0	0.0	27.0	51.8	1.6	53.4	0.0	1.8	1.8
Other Plastic Containers	25.9	0.3	26.3	29.7	18.4	48.1	60.1	3.2	63.3	94.7	3.6	98.2
Glass	44.6	112.2	156.8	64.8	125.3	190.2	58.4	92.5	151.0	49.5	103.4	152.9
Steel	20.1	35.9	56.1	20.3	14.2	34.5	25.0	10.5	35.5	21.5	11.7	33.2
Aluminum	7.2	5.0	12.2	5.4	5.5	10.9	16.7	4.1	20.8	8.6	4.6	13.2
Total	420.3	389.5	809.7	448.4	474.7	923.1	611.2	352.1	963.3	486.9	393.4	880.3

Source: Scott Mouw & Rob Taylor,
NC Division of Environmental
Assistance and Customer Service,
Resource Recycling Conference,
September 2015.

ReStart the Cycle

by getting

How2Recycle on
the valuable, easy
wins.



Restart the Cycle's Focus Items

Material	Format
PET	Bottles
HDPE	Bottles
Metal	Cans
Paper	Boxes



Why do we think this will work?

67%

Of consumers assume packaging is NOT recyclable if they don't see a recycling claim on package.

57%

Of consumers look to a product's packaging first for recycling information before looking elsewhere.

Carton Council, 2016.



Remarkable Industry Collaboration Partners in the Centralized Recycling Study

Study Lead



Study Partners



Project Team



Advisory Committee



Study Background

- Sponsors have come together to establish national figures for the availability of recycling programs for a wide array of materials.
- Study will evaluate availability of recycling programs generally and for over 40 individual products and packages.

Study Goals

- Standard Methodology Across Commodities
- Avoid Duplication of Efforts

- Understand Recyclability for Making Product Claims

- Availability of Recycling Programs Nationally

- National Metrics on Program Characteristics and Barriers to Participation



Sustainable
Packaging
Coalition
& Compostable
Packaging

FOOD WASTE

How can compostable
packaging play an
important role in
capturing
food waste?

EPA GOAL:

Reduce food
waste by **50%**
by **2030**



how2compost.info

How2Compost

COMING 2016

This is a draft label.

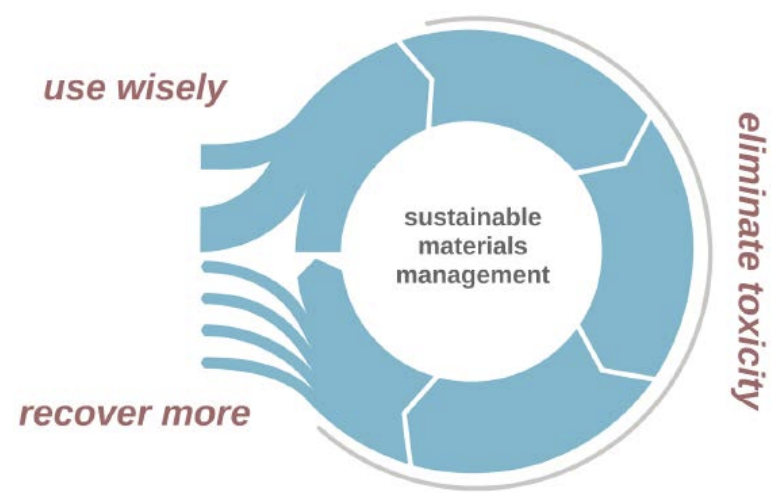
CONSUMER TESTING: Now

LABEL LAUNCH: Summer 2016

***Not in backyard;
Composting
programs for this
cup may not
exist in your area.**

What is SPC's/ GreenBlue's Role?

- Influence the Debate
- Provide Education
- Enhance Supply Chain Collaboration
- Create Action



What is Your Role?



Thank you!

Nina Goodrich
Nina.Goodrich@greenblue.org