

An Evolving Revolution – The Story of Recycling 2016



**Dylan de Thomas,
Resource Recycling**

**Michigan Recycling
Coalition Annual
Conference**

May 4, 2016

**RESOURCE
RECYCLING**

About Resource Recycling, Inc.

RESOURCE
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March 2016

www.resource-recycling.com



E-SCRAP NEWS

December 2015

www.e-scrapna.com



PLASTICS
RECYCLING UPDATE

February 2016

www.plasticrecycling.com



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About Resource Recycling, Inc.

SAVE THE DATE FOR

RESOURCE
RECYCLING CONFERENCE
2016

AUGUST 30 – SEPTEMBER 1 | NEW ORLEANS
HILTON NEW ORLEANS RIVERSIDE

SAVE THE DATE FOR

E-SCRAP
2016

SEPTEMBER 20–22
NEW ORLEANS | HYATT REGENCY

SAVE THE DATE

  **PLASTICS**
RECYCLING · 2017

MARCH 6 - 8 · NEW ORLEANS

.....

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Recycling is Dying...

D.C. Politics

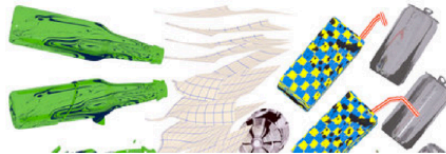
American recycling is stalling, and the big blue bin is one reason why

Recycling Industry Facing 'Nationwide Crisis,' Waste Management CEO Says

SundayReview | OPINION

The Reign of Recycling

By JOHN TIERNEY OCT. 3, 2015



IF you live in the United States, you probably do some form of recycling. It's likely that you separate paper from plastic and glass and metal. You rinse the bottles and cans, and you might put food scraps in a container destined

ing industry in the US is
nationwide crisis" as



facilities increasingly lose money and demand for recyclables, Waste Management CEO David
d the Washington Post.

any's recycling division posted a loss of nearly \$16 the first quarter of the year, the newspaper reports. It uttered almost 1 in 10 of its largest recycling facilities

'Heavy Hitters' in waste management call recycling 'broken model'

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... And It's All Glass' Fault

Glass 'recycled' in curbside bins actually goes to landfill

Orange Grove Center not yet ready to sort it; raising \$1.6 million for new recycling equipment

Houston City Council Approves New Recycling Contract, Excludes Glass

Residents now have four months until a ban on glass in green bins goes into effect.

BUSINESS

High Costs Put Cracks in Glass-Recycling Programs

Some cities pull back as processors begin to charge for accepting trash-heavy shipments

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... And It's All Oil's Fault

MARKETS

Recycling Becomes a Tougher Sell as Oil Prices Drop

The fall in oil prices has dragged down the price of virgin plastic, erasing recyclers' advantage

planet money

How The Price Of Oil Caused A Downturn In The Recycling Business

ENERGY & ENVIRONMENT

Skid in Oil Prices Pulls the Recycling Industry Down With It

By DAVID GELLES FEB. 12, 2016

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... And It's All Single-Stream's Fault

Starting the 1st Week in July 2012
ALL TOGETHER NOW
 Recycle in a SINGLE STREAM
 Single-Stream Recycling for all ages

PLEASE
 No Plastic Bags
 No Liquids
 No Garbage
 No Stumps
 No Combustibles

• No items of length
 > 36 inches or width
 > 18 inches
 • No items with
 sharp edges or
 protrusions
 • No items with
 hazardous
 materials
 • No items with
 hazardous
 liquids

Materia Común Municipal, Utilízala Activamente

SINGLE STREAM
all-in-one
RECYCLING

Paper
 Plastic
 Metal
 Glass

WMA

Single Stream Recycling
 [Reciclaje de un solo flujo]

WMA

SINGLE STREAM
RECYCLING

Materiales Aceptados

blue skies
 recycling

Single-Stream Recycling - NOW IN EFFECT !!

ALL Clean Recycling

Waste Management
 Recycling
 845-750-3632

ALL RECYCLING "IN-ONE-CAN"

SINGLE STREAM RECYCLING
 ACCEPTABLE ITEMS / ARTICULOS RECICLABLES

UNACCEPTABLE ITEMS / ARTICULOS NO RECICLABLES

SINGLE STREAM
RECYCLING

GLASS PLASTIC METAL PAPER



SINGLE-STREAM RECYCLING

1 2 3 4 5 6 7 8 9 10 11 12

Now Heavy Corrugated Recycling
Recycle It's the Law!

No more sorting

www.cityofnewhaven.com/recycling

SINGLE STREAM
Recyclables

SINGLE STREAM RECYCLING
 Recycle like you've never recycled before

STONEHILL
 GOES GREEN

Single-Stream Recycling

Click to view poster.

We're making it easy to recycle!

casella

YOUR COMPANY NAME HERE (OPTIONAL)

PAPER
 office paper • cardboard
 junk mail • paperboard
 newspapers
 magazines

PLASTIC
 PET HDPE LDPE
 PS OTHER

METAL
 aluminum cans
 tin and steel cans
 aluminum foil

GLASS
 bottles • jars

ALL IN ONE BIN

NO FOOD WASTE OR STYROFOAM

Single Stream Recycling
 [Reciclaje de un solo flujo]

WMA
 Think Green!

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... And It's All *Our* Fault?



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What We're Talking About Today

- What *Is* Recycling?
- How Did We Get Here?
- Going, Going, Global
- Driving to Greater Drivers
- Partnering Up to Keep it Sustainable

What Are Recyclables Anyway?



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What Are Recyclables Anyway?

- *Raw materials* (that compete with other raw materials)
- You don't sell scrap, someone buys it



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What Are Recyclables Anyway?

- Supply disconnected from demand
- When demand drops, supply keeps on coming
- Quality matters ...
- But so does sustainability

The Evolution of Materials Use



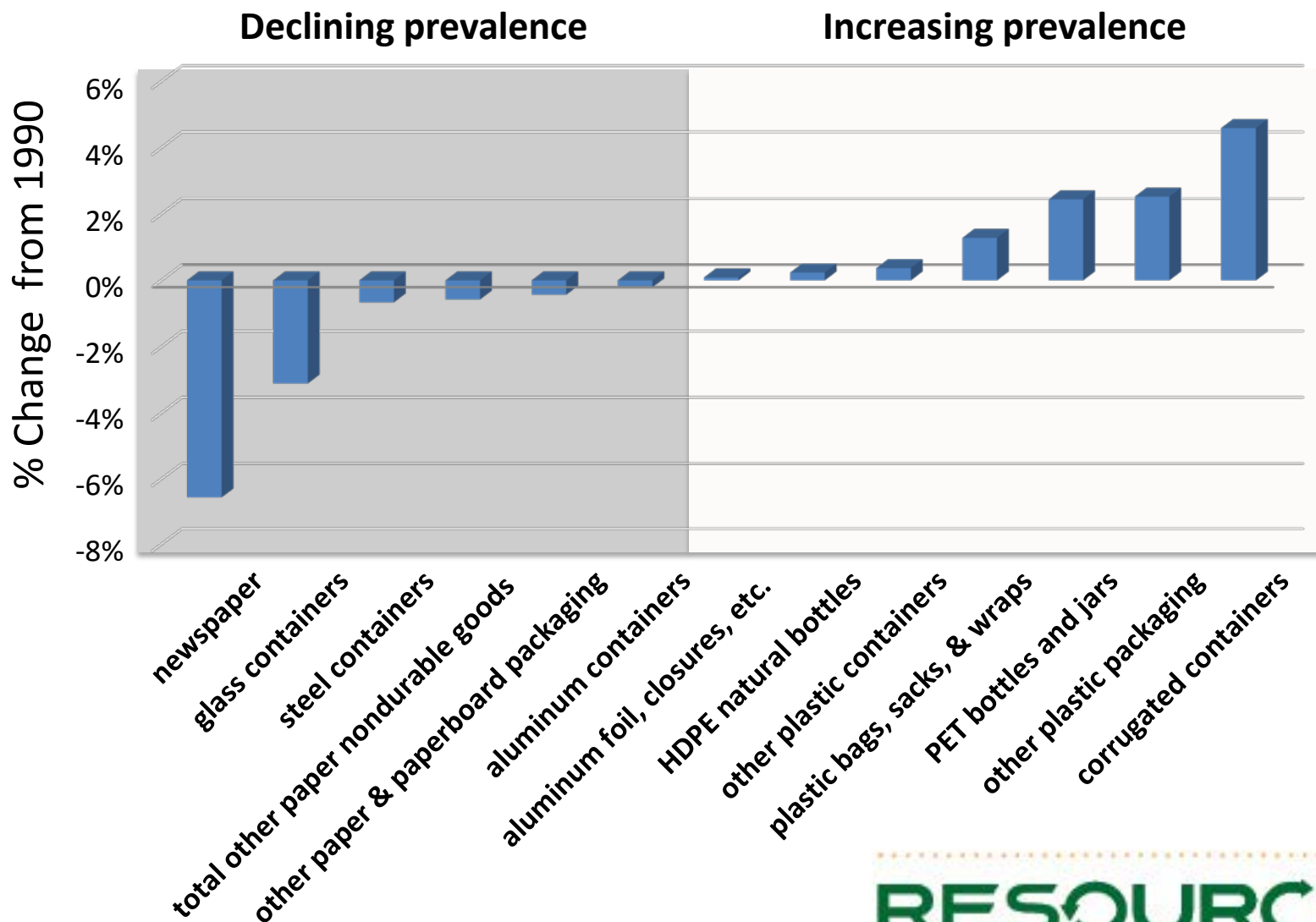
The Evolution of Materials Use



Source: Chaz Miller, NW&RA

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Change in Paper and Packaging in 2012 since 1990



SOURCE: Resource Recycling Systems, 2014

Paper: 2000 - 2013

- 19,140,000 ton loss
- 22% decrease
- Mostly printed paper
- Online shopping



Plastics: 2000 - 2013

- 6,960,000 ton gain
- 27% increase
- Packaging is 43%
- Durables on the rise



The Evolution of Packaging



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The Evolution of Packaging



Glass bottle, metal cap to
HDPE bottle, PP cap



HDPE Bottle, PP Cap
to **multi-layer,**
flexible film pouch

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The Evolution of Packaging



From steel can, paper label adhesive to **multi-layer, foil-lined flexible film pouch**



From glass jar, metal lid and paper label adhesive to **multi-layer, multi-resin pouch with PP enclosure**

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The Evolution of Packaging



*Pharma /
Over-the-counter*



Baby Food & Formula



*Cookies /
Crackers*



Coffee



Shaving



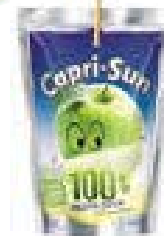
Pet Food



Nuts



Personal Care



Juice

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What MRFs Have to Do With It

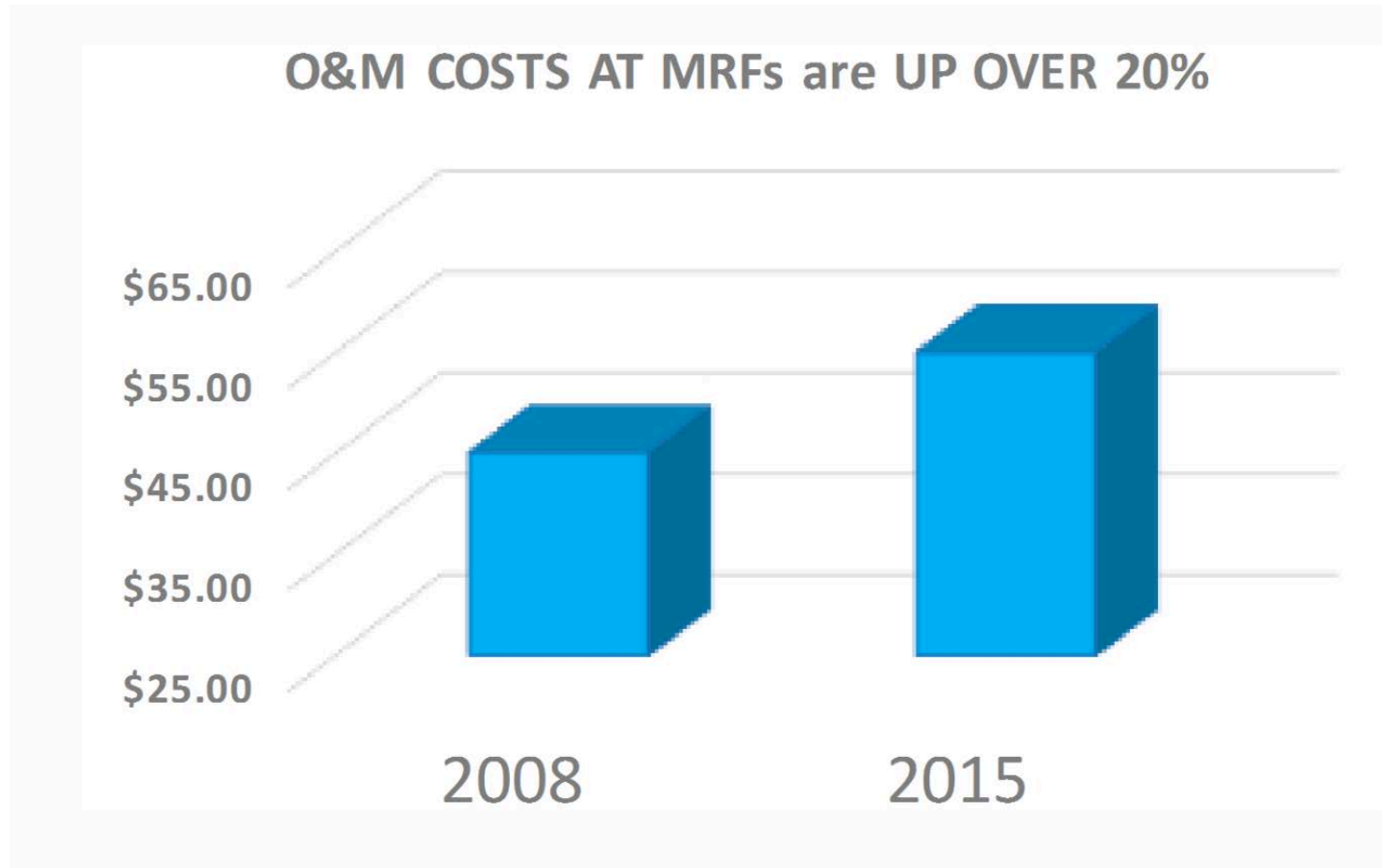
- MRFs are manufacturing facilities producing a feedstock
- Quality matters
- Single-stream MRFs the standard
- Many designed and built before/for “old” material mix

From Processors to Reclaimers

- ...And from MRFs and PRFs to markets
- Bale yields
- Increased processing costs

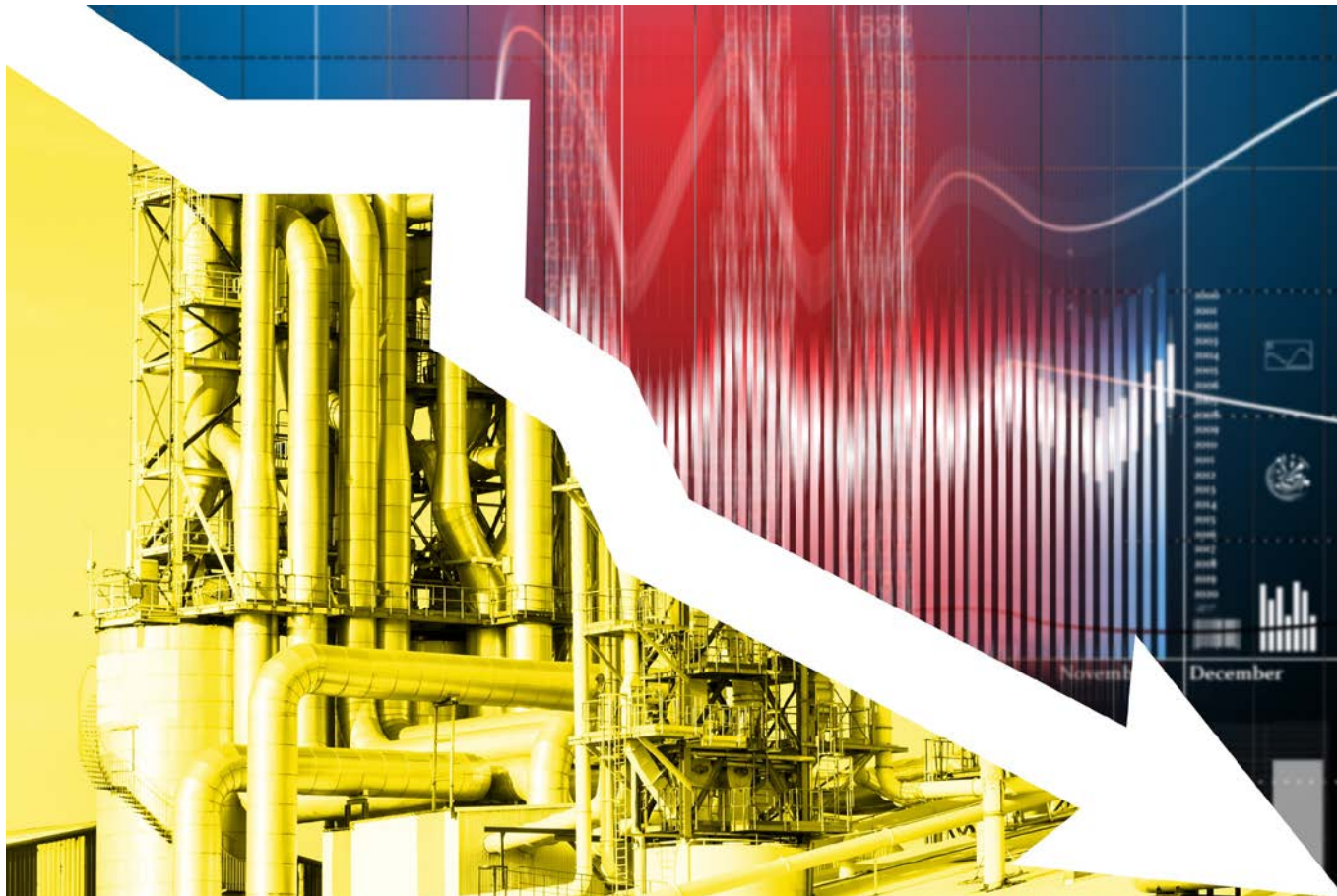


Rising Operating Costs



Source: Resource Recycling Systems, 2015

Recycling Commodity Markets Overview



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The Ugly Equation

Strong dollar +

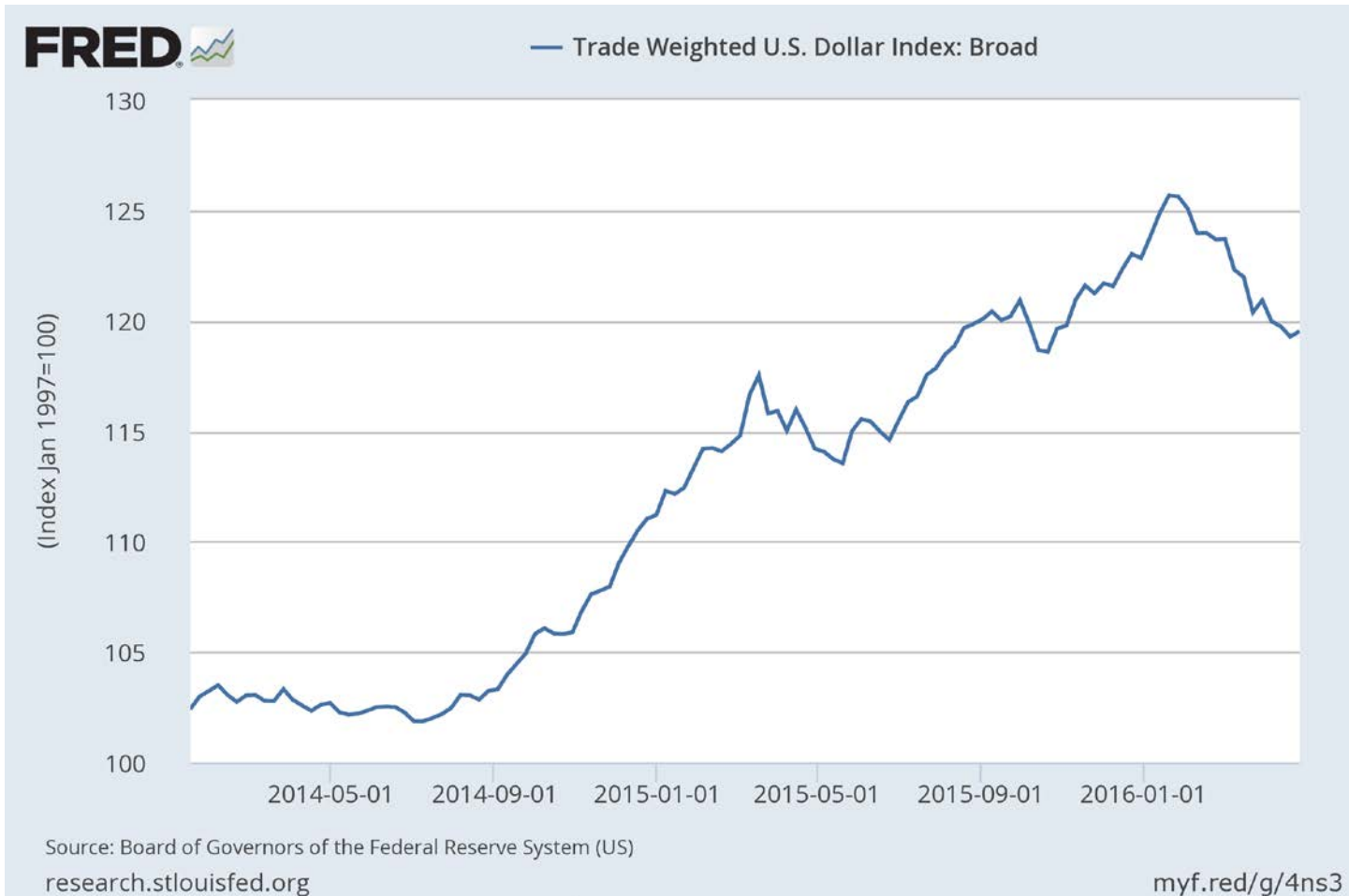
Excess production of crude and
other commodities +

Changes in China +

Increased processing costs

= Down market, disappearing
margins, hurting industry

Strong U.S. Dollar



Source: Federal Reserve Bank of St. Louis May 3, 2016



Low Oil Prices

Crude oil (barrel)

8:24 PM ET 05/02/2016

\$43.87 -\$27.43 -38.47%



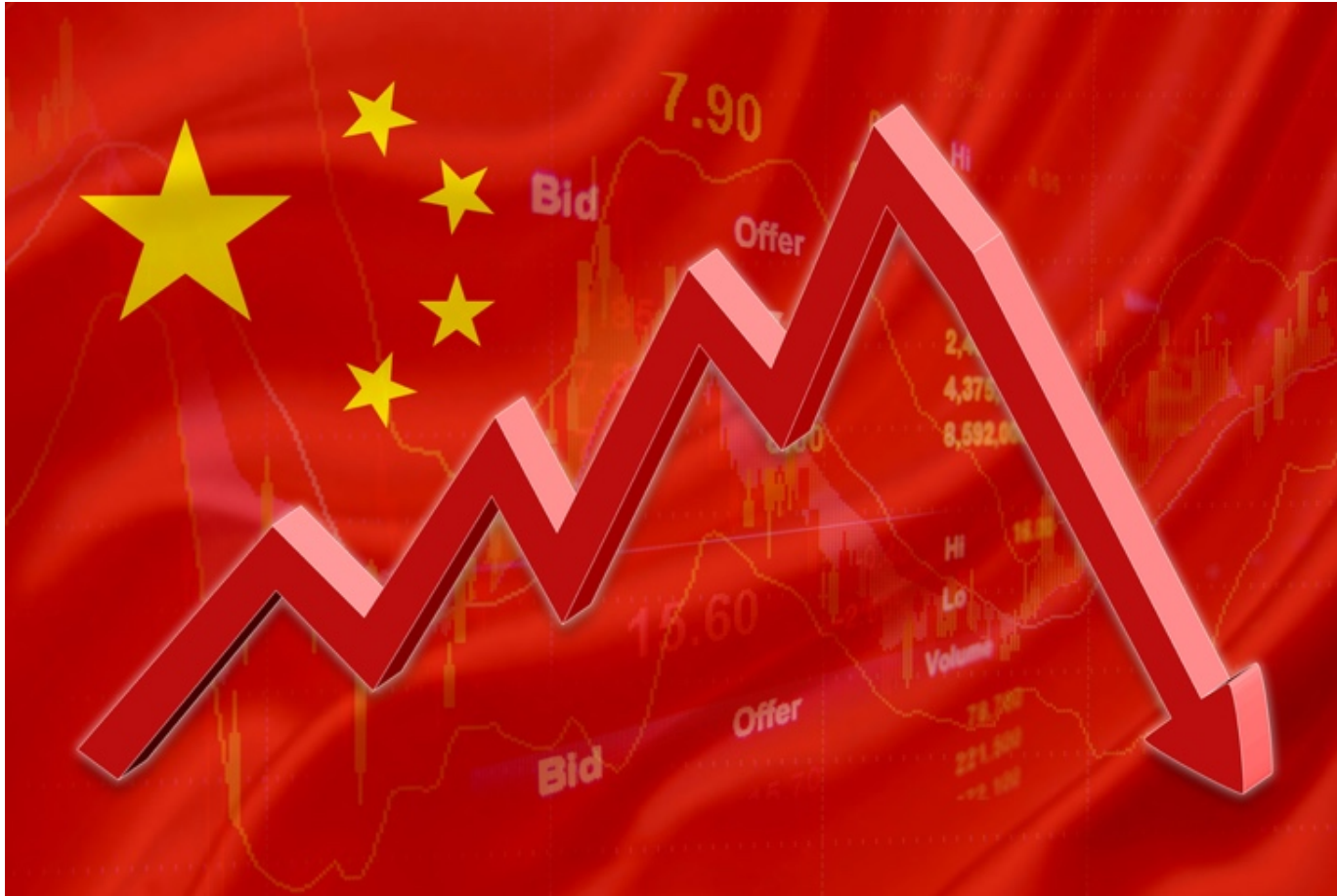
Source: Reuters

The New York Times

Source: New York Times, May 2, 2016



Recycling Commodity Markets Overview

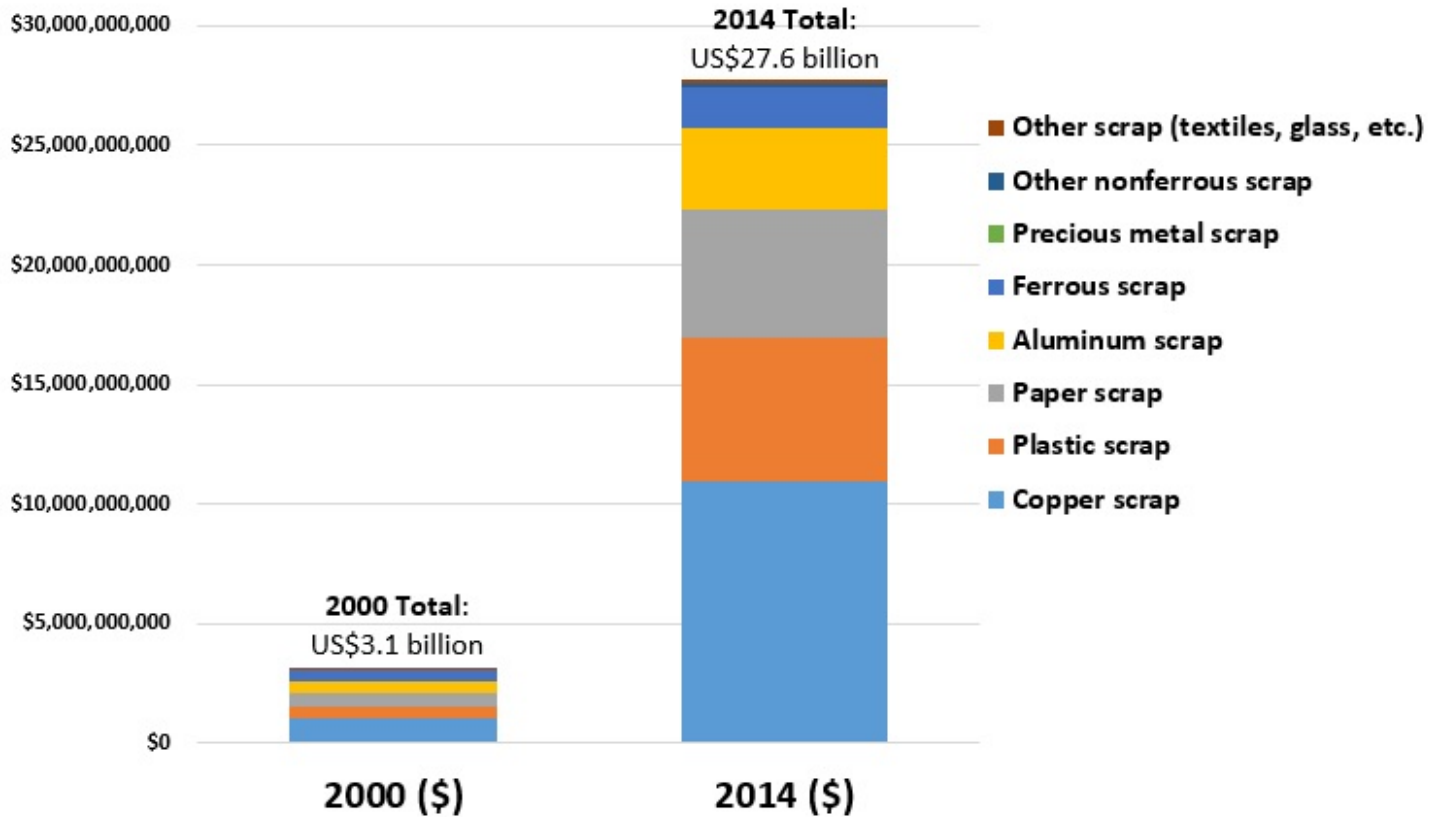


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Context of China

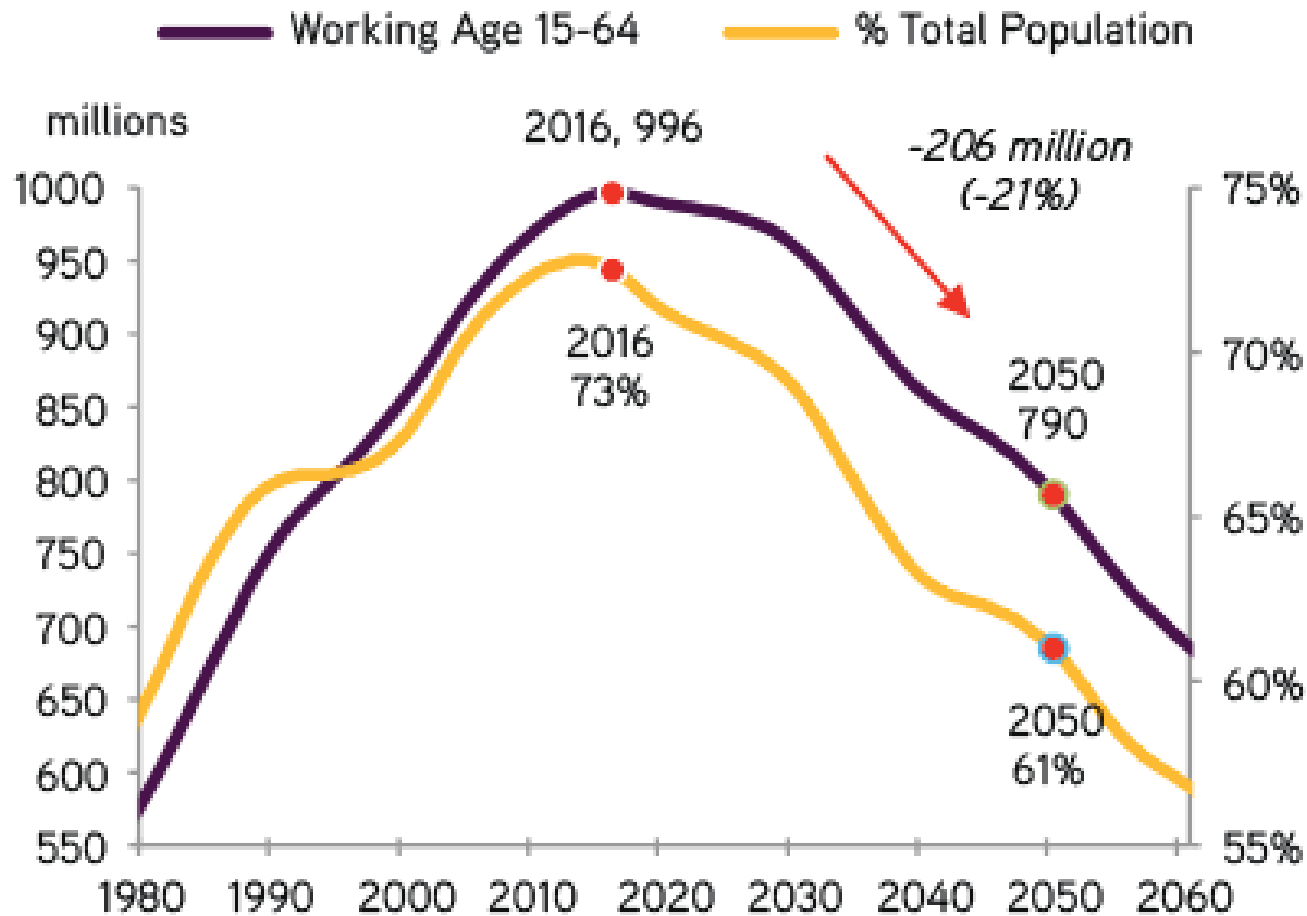
Value of Chinese Scrap Imports from All Origins (US\$)

Source: UN Comtrade Database



China's Working-Age Population Peaking

China: Working Age 15-64

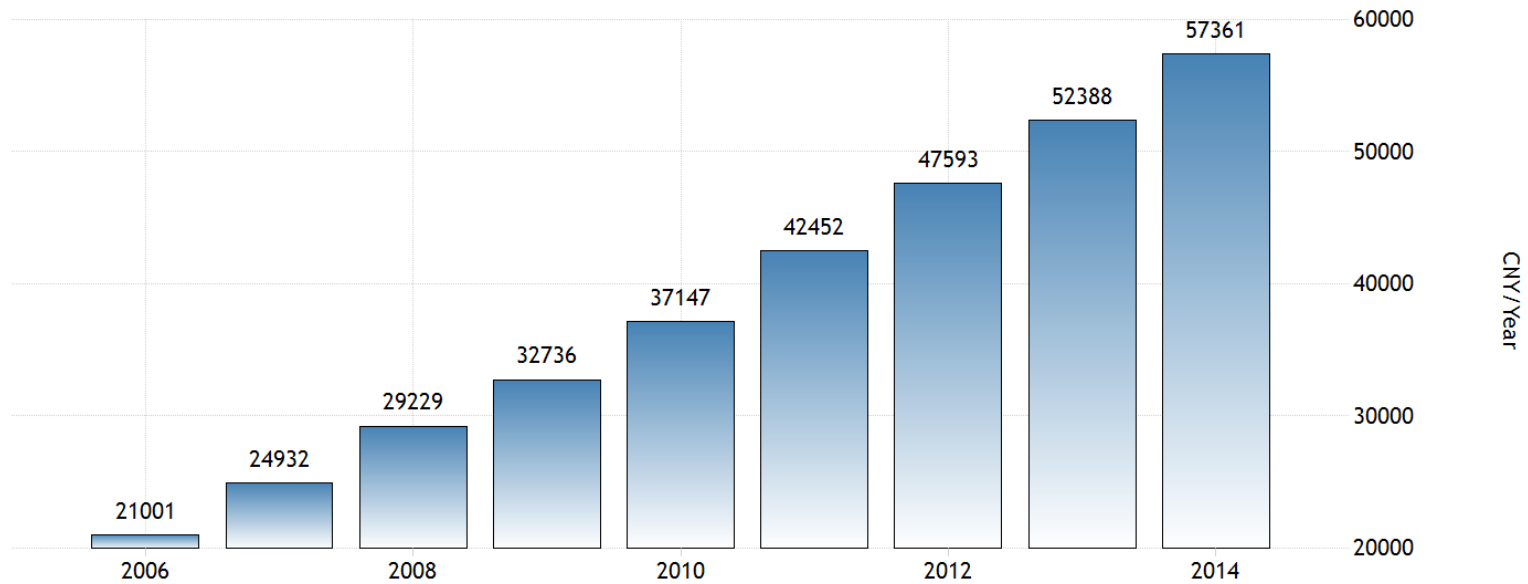


Source: United Nations World Population Prospects

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Which Has Led to Rising Wages

CHINA AVERAGE YEARLY WAGES



SOURCE: WWW.TRADINGECONOMICS.COM | MOHRSS, CHINA

Source: TradingEconomics.com, 2016



The Urbanization “Trick”



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China's Shifting Labor Landscape

Going from this:



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China's Shifting Labor Landscape

To this:



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China's Shifting Labor Landscape

From this:



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China's Shifting Labor Landscape

To this:



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Which Leads (In Part) To...

Annual and YTD U.S. Plastic Scrap Exports (metric tons)

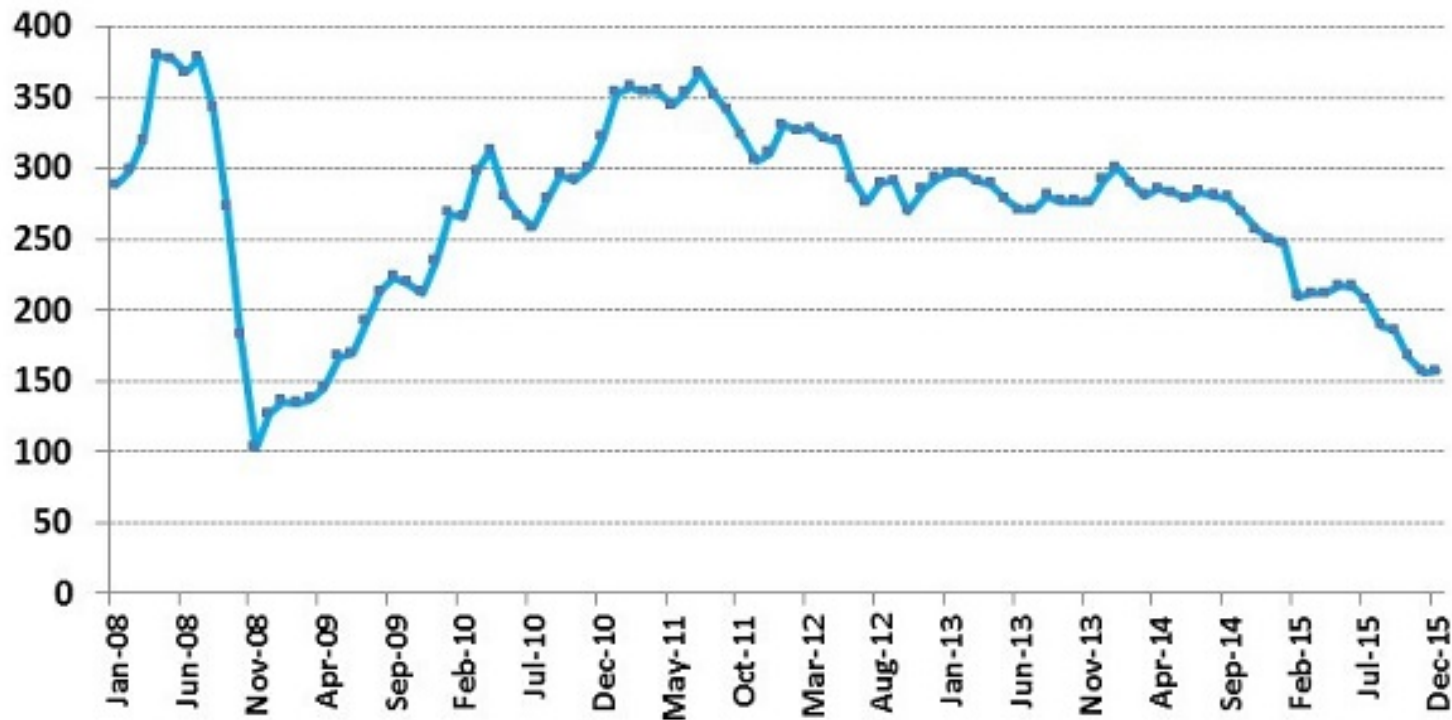
Sources: U.S. Census Bureau/U.S. International Trade Commission

Country	2011	2012	2013	2014	JAN-NOV 2014	JAN-NOV 2015	YTD % CHG
China	1,161,164	1,173,592	1,007,261	1,088,643	1,012,900	814,012	-20%
Hong Kong	606,635	479,093	433,690	563,208	515,358	562,824	9%
Canada	145,531	146,196	137,924	177,858	161,225	218,051	35%
India	72,436	85,342	103,939	86,397	83,023	85,944	4%
Taiwan	16,002	16,194	26,683	29,361	26,772	48,371	81%
Indonesia	20,593	23,311	64,404	81,699	75,249	43,602	-42%
Vietnam	34,936	13,582	22,993	36,076	33,572	42,001	25%
Malaysia	15,444	23,193	50,889	31,664	29,883	30,653	3%
Mexico	20,904	24,007	22,041	23,584	21,600	20,211	-6%
Korea	5,601	5,070	9,979	14,868	13,887	9,591	-31%
El Salvador	1,268	1,868	2,142	4,591	4,471	6,082	36%
Thailand	3,194	998	3,740	14,247	12,884	5,091	-61%
Others	24,169	18,650	23,651	19,493	18,367	21,768	19%
TOTAL	2,127,877	2,011,096	1,909,336	2,171,689	2,009,191	1,908,201	-5%

Aggregate Scrap Material Values

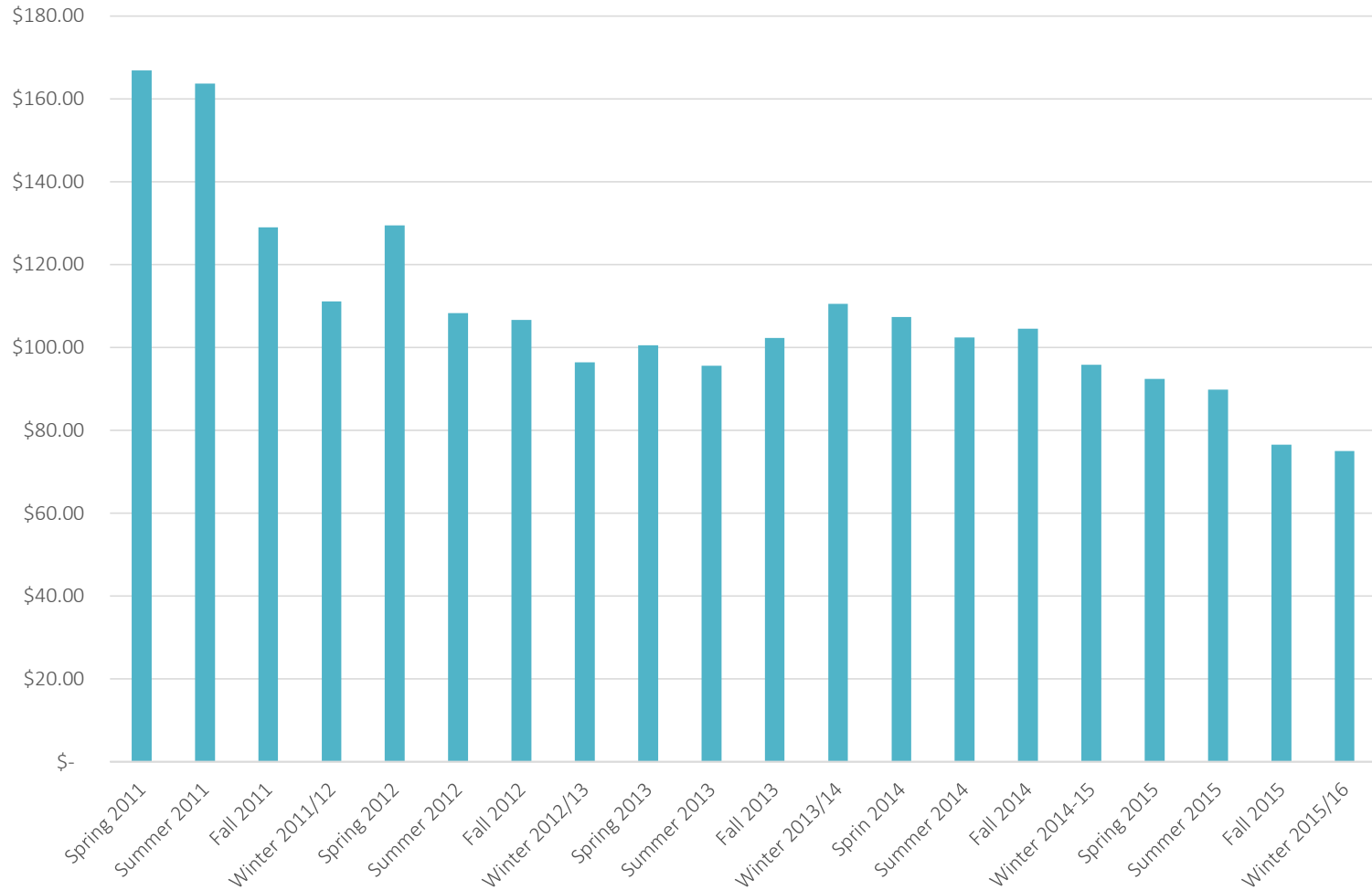
ISRI Index: Jan 2008 - Dec 2015

(Jan 1998 = 100)



Source: Institute of Scrap Recycling Industries, 2016

Value of a Commingled Ton



Source: Scott Mouw, NC DNER, 2016



Well, What's Next?



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Nothing Good is Free

- Recycling costs \$
- MRFs can't bear costs alone
- Quality matters and is *everyone's* responsibility



Playing Fair

Framework For A Fair Deal

Contract Element	Rationale
“Floor” price per ton – may be negative in current markets	Establishes a <u>budgetable</u> cost for communities, with a clear differential over disposal. Protects MRF’s baseline viability
Shared revenue when prices are good	Allows MRF to profit but shares the up-side with communities (e.g. split revenues over \$70 average value threshold)
Long-term contract with renewals	Allows MRFs to invest in upgrades and guarantees community programs access to processing capacity
Clear residue thresholds with shared disposal costs	Holds MRFs accountable to efficient processing but incentivizes community to address quality – e.g., for a threshold residue rate of 10%: < 10%: MRF pays > 10%: community covers excess

Source: Scott Mouw, NC DNER, 2016

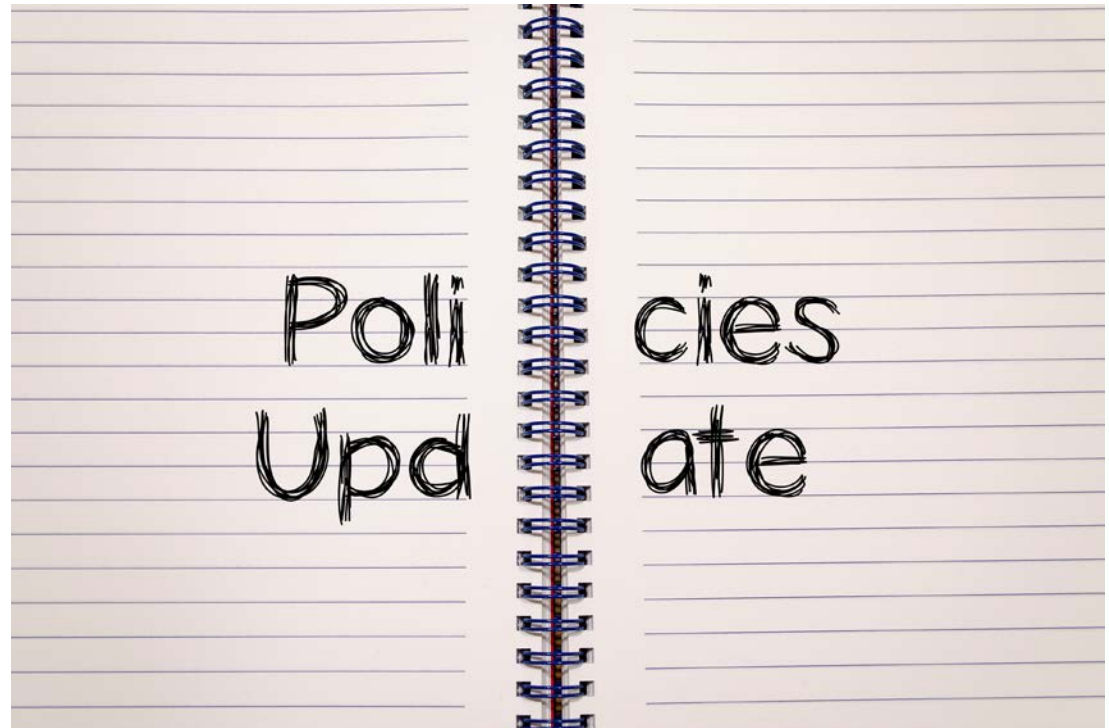


Policy Drivers

- Recycling participation mandates
- Pay-as-you-throw (PAYT)
- Landfill/disposal bans
- High(er) tip fees
- Building code requirements
- Building permit requirements
- EPR

Policy Changes

- Support for consuming industries/end markets
- Universal access to recycling
- Increased awareness
- Access to funding



Recycling in Sustainable Materials Management



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SMM & Recycling

Sustainable Materials Management: What Have We Learned? Where Does Recycling Fit?

1. Recycling conserves resources and reduces pollution
 - “Upstream” benefits are far larger than downstream ones – it’s all about the markets!
2. The environmental impacts of production far outweigh the impacts of disposal
 - Recyclability or “design for reduced (solid) waste” not a consistent predictor of environmental outcomes
3. Ton-for-ton, waste prevention and reuse are better than recycling
 - Prioritize these, or at least don’t undermine them
 - Recycling has potential, but its potential is limited

Source: Oregon DEQ, 2015



Growing Partnerships



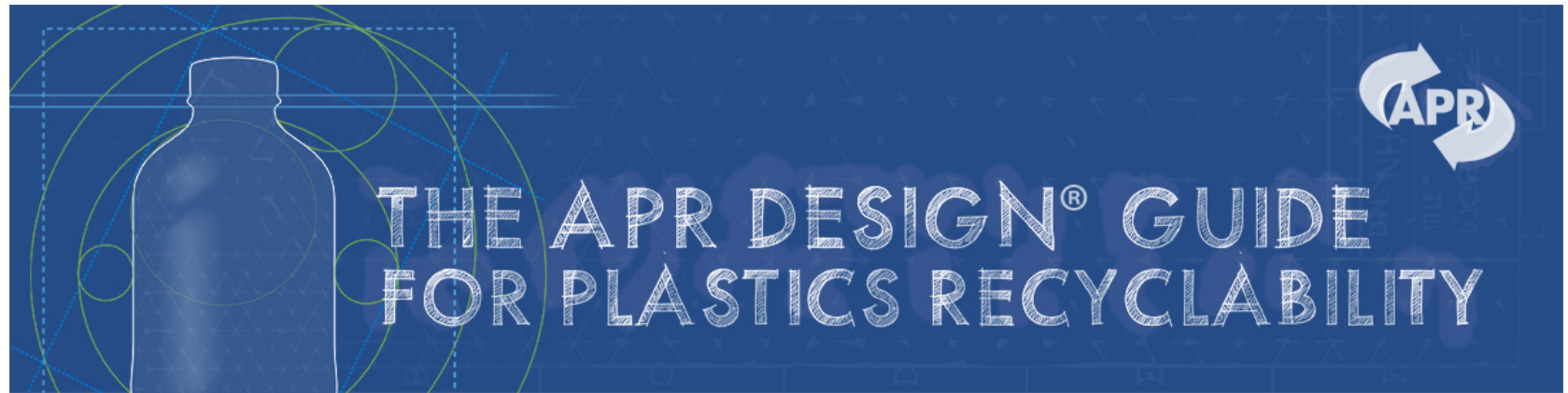
RECYCLINGPARTNERSHIP.ORG

THE RECYCLING
SYSTEM IS
LOOSELY
CONNECTED,
HIGHLY
DEPENDENT
GET CONNECTED.

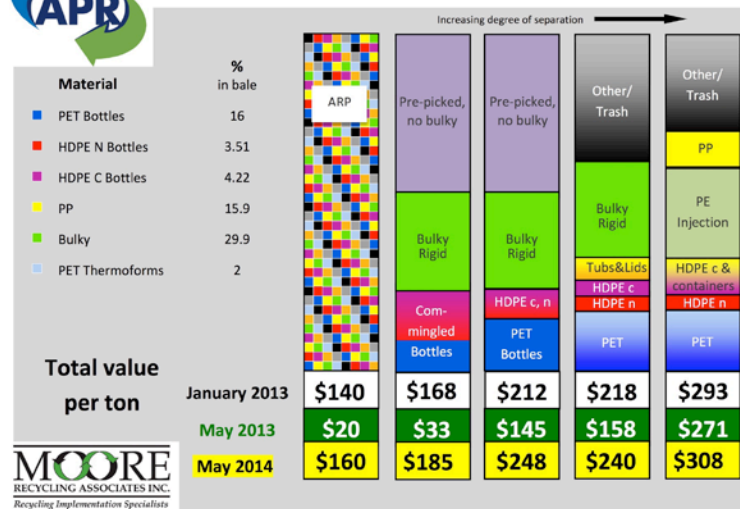


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Partnering Up for Better Tools



SORT FOR VALUE



Partnering Up for Better Tools

WHAT CAN I RECYCLE?

TOP 10 IN THE BIN

1. CARDBOARD
2. PAPER
3. FOOD BOXES
4. MAIL
5. BEVERAGE CANS
6. FOOD CANS
7. GLASS BOTTLES
8. JARS (GLASS & PLASTIC)
9. JUGS
10. PLASTIC BOTTLES AND CAPS

ALSO RECYCLABLE BUT NOT IN CURBSIDE BIN

- PLASTIC BAGS AND WRAPS
- ELECTRONICS
- TEXTILES

Find out about your local recycling options here:

WHAT CAN I RECYCLE?

TOP 10 IN THE BIN

1. CARDBOARD
2. PAPER
3. FOOD BOXES

[Learn More](#)

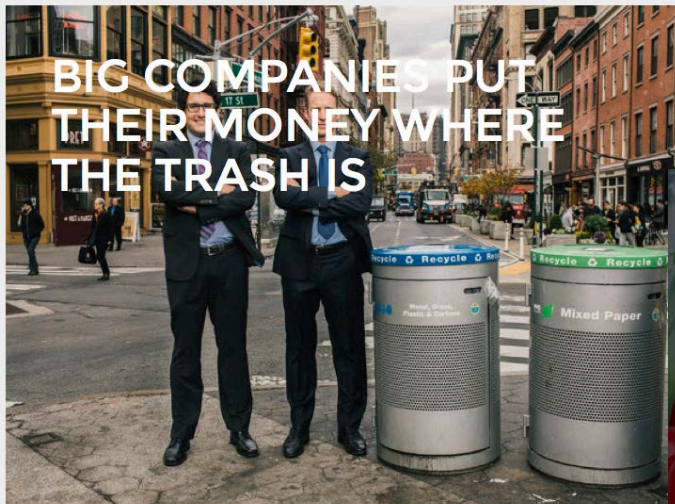
KEEP AMERICA
BEAUTIFUL

 National
Waste & Recycling
Association
Collect. Recycle. Innovate.

 SWANA
WASTE AND RECYCLING ASSOCIATION OF NORTH AMERICA

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Partnering for Funding



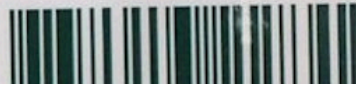
The New York Times



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Partnering Up for Better Tools

Donate 10% of our profits to organizations working for positive change.
 USA/Manufactured for: Seventh Generation, Inc.
 6 Street, Burlington, VT 05401
 Seventh Generation, Inc.



THIS BOTTLE IS MADE FROM PLASTIC YOU RECYCLED



how2recycle.info

AAI1322C11

PAPER CARTON	PLASTIC COVER	PLASTIC TRAY

Rinse Before Recycling

how2recycle.info

*Not recycled in all communities



Growing Partnerships



THE RECYCLING PARTNERSHIP



MAKE A MEASURABLE IMPACT

Truly improve recycling in the United States



MORE EFFECTIVE LOCAL GOVERNMENT PROGRAMS

Strengthen the reverse supply chain through public-private partnerships



Enough with the Doomsday

- Markets Cyclical
- Mixed paper is up \$15 per ton, and OCC is expected to move higher.
- Ferrous scrap is up over \$100 per ton in recent months.
- HDPE went up by 28 percent this month.



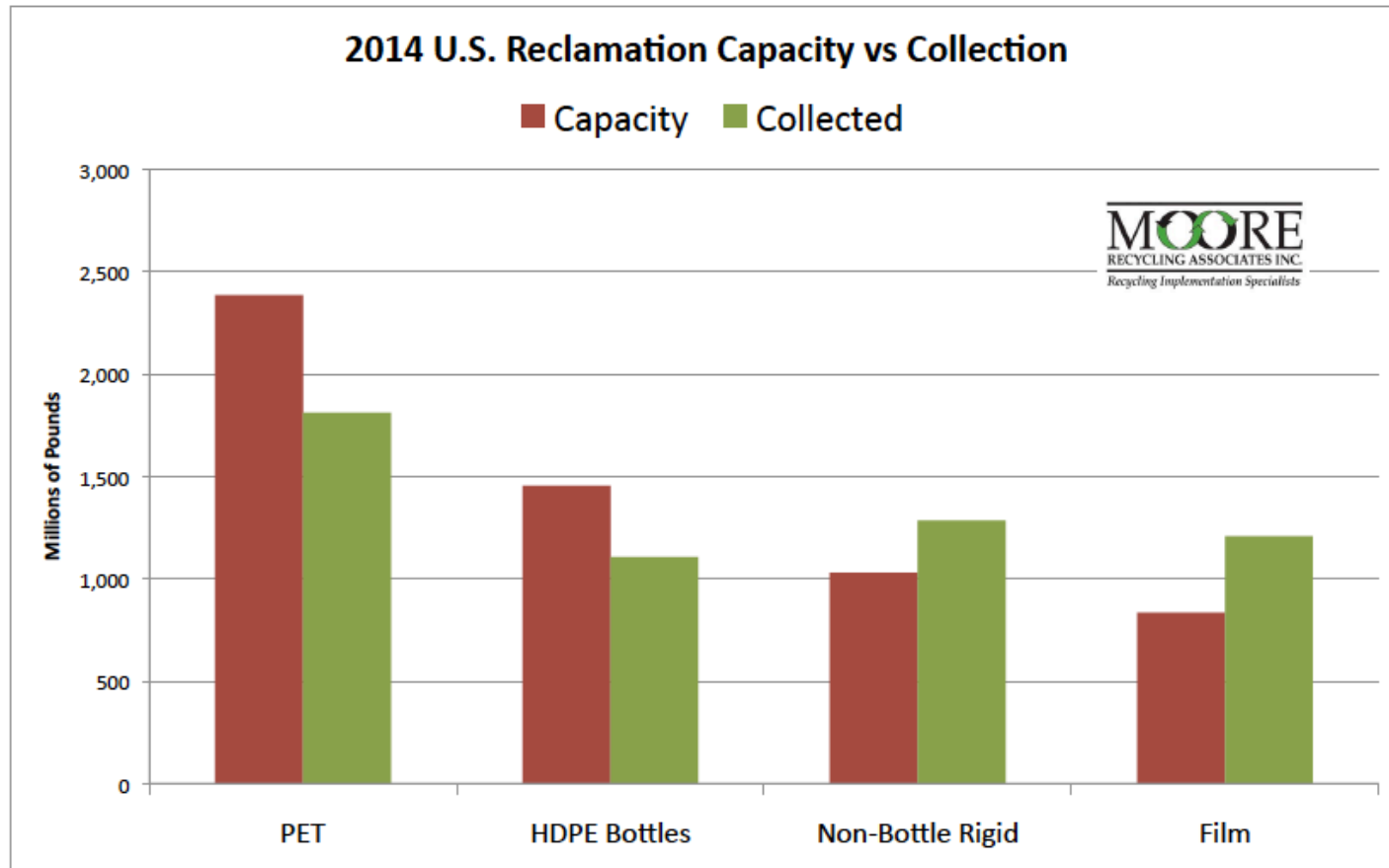
More Good News

- SE Asian Markets Growing
- Low Oil Also Means Fuel Savings
- Increased Partnerships/Industry Engagement
- Innovations Abound
- Acting Local...



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We've Got the Room...



Source: Moore Recycling Associates, 2015



Energy consequences of not recycling

Material	Annual lbs per Household	Barrels Saved per Ton	Barrels Lost Annually	Energy Value Lost (@\$75/bbl in billion dollars)	Value per Household
Fiber	1,821.6	1.70	85,425,000	\$6.407	\$116.14
Aluminum Cans	27.0	40.00	28,936,875	\$2.170	\$40.47
PET Bottles	39.0	16.30	28,115,870	\$2.108	\$23.87
HDPE Bottles	30.1	16.30	20,454,870	\$1.534	\$18.41
Glass Bottles	883.4	0.12	4,543,855	\$.341	\$3.98
Steel Cans	19.2	1.80	1,141,756	\$.085	\$1.30
Total	2,820.4	1.93	168,618,226	\$12.645	\$204.16

Source: SWANA/SRI



Top Five Recycling Program Takeaways

1. Recyclables are Raw Materials
2. Silver Bullets Don't Exist
3. Partner Up/Use Available Tools
4. Recycling Costs \$, but it's Better than Wasting
5. Doesn't Work Unless Done Well



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Thank You!

Dylan de Thomas

503-233-1305 ext. 116

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www.resource-recycling.com

***Save the Date for the Resource Recycling
Conference Aug 30-Sept.1 in New Orleans***

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