

Recycling at a Crossroads

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Institute of
Scrap Recycling
Industries, Inc.

- ISRI – an Introduction
- Today's Recycling Industry – a Snapshot
- Challenges, Opportunities and Outlook
 - Market
 - Non-Market
- Discussion

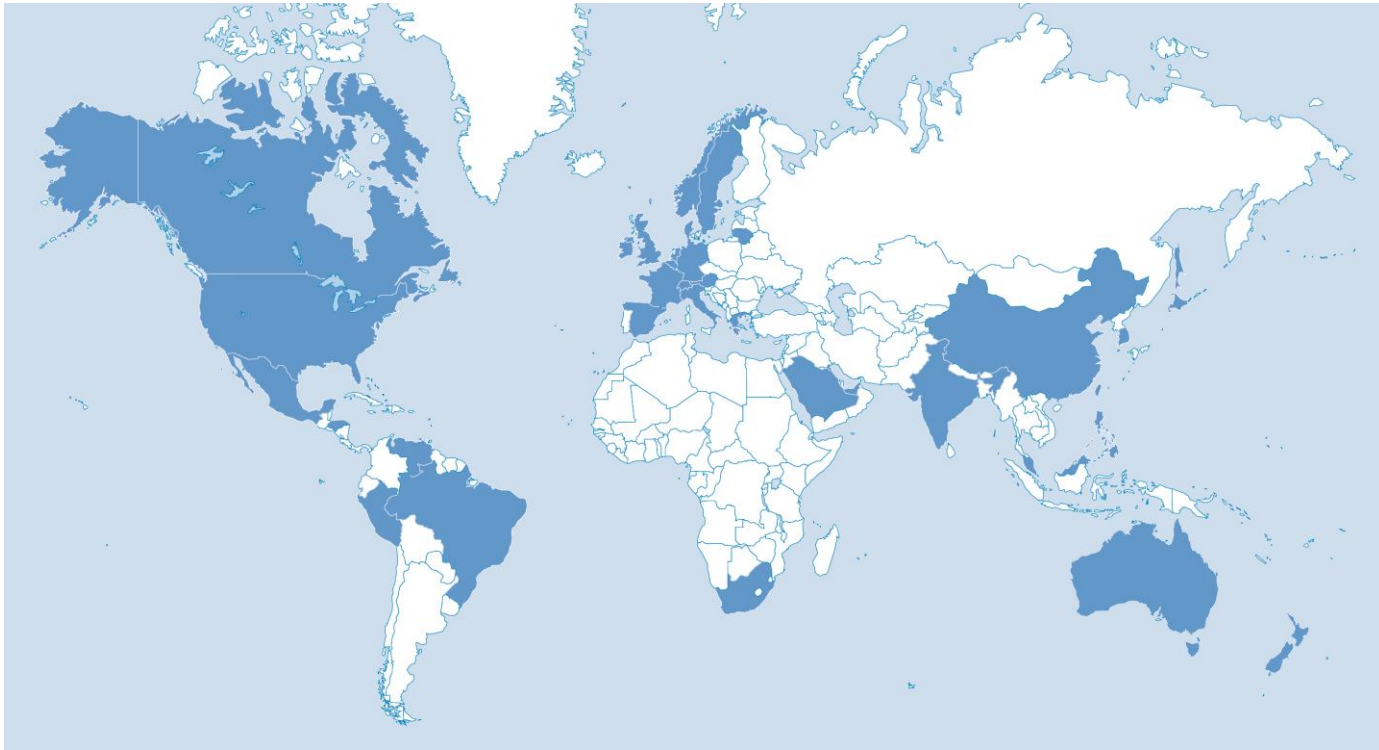
ISRI – An Introduction

ISRI: Voice of the Recycling Industry



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Industries, Inc.

Voice of the Recycling Industry



1,300

Member
companies

4,000

Recycling facilities
worldwide

34

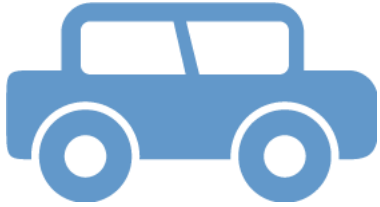
Countries

ISRI Members Process and Broker The Full Range of Scrap Commodities



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Voice of the Recycling Industry



**Ferrous &
non-ferrous
metals**



Paper

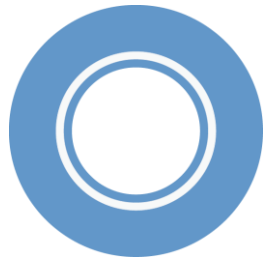


Plastics

Glass



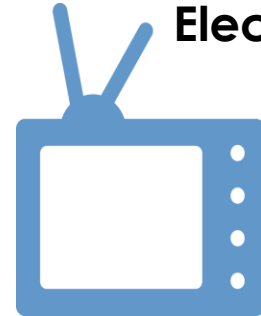
Rubber



Textiles



Electronics



***ISRI is the Voice of the Recycling Industry,
Promoting Safe, Economically Sustainable
and Environmentally Responsible
Recycling through Networking, Advocacy
and Education.***

Our Priorities

Workplace
safety



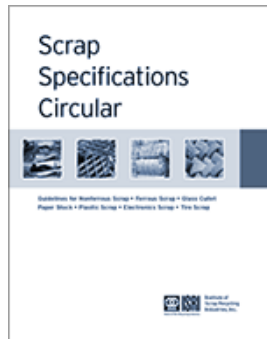
Responsible
Recycling



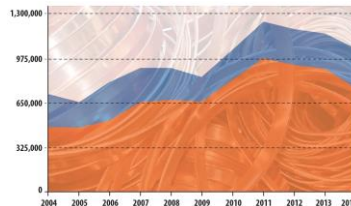
Free & Fair
Trade



Scrap \neq Waste



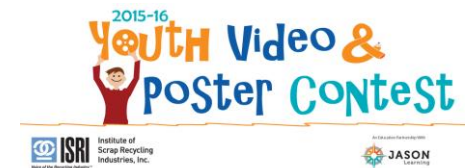
Market Intelligence



Education,
Training &
Networking



Awareness



Today's Recycling Industry – a Snapshot

\$105 Billion Industry

130,000,000+ tons processed annually,
inclusive of commercial, industrial & residential

67 million tons	ferrous
47 million tons	paper
5+ million tons	aluminum
1.8 million tons	copper
3.5 million tons	plastics
100+ million	tires





149,000 direct employment

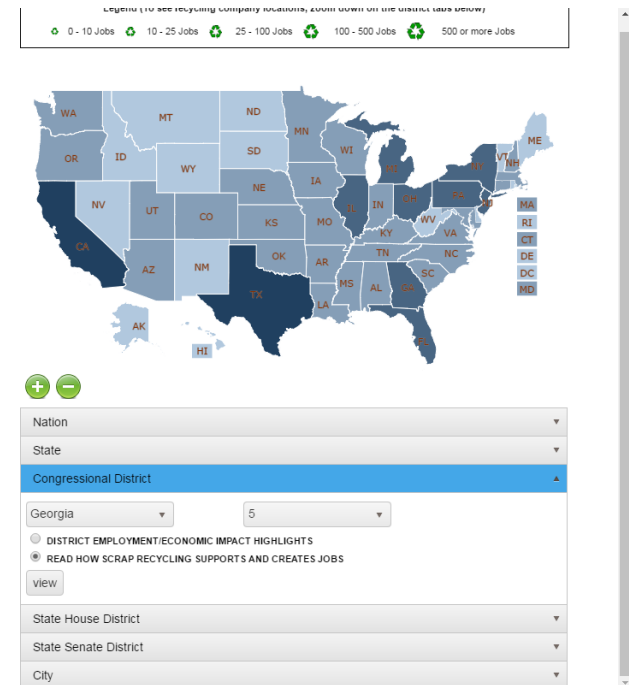
plus **323,000** jobs throughout the economy
indirectly supported by recycling

generating **\$11.2 billion** in federal, state &
local tax revenues

Good paying, green jobs
\$77,153 average wages & benefits paid

Jobs
Data/Economic
Impact available
(ISRI.org/jobstudy)

by State, Congressional District,
State House District, State Senate
District & City



Source: John Dunham & Associates (guerillaeconomics.com)

Recycling in the United States: Jobs



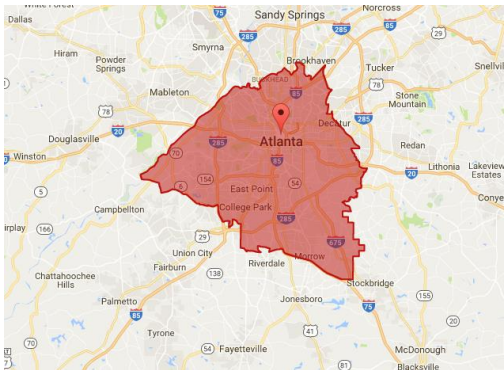
The U.S. Scrap Recycling Industry Creates and Supports Jobs in
Georgia

	Jobs	Wages	Economic Impact
Direct Impacts			
Recyclers	5,071	\$338,176,800	\$1,581,132,500
Brokers	83	\$7,418,400	\$18,533,100
Total Direct Impacts	5,154	\$345,595,200	\$1,599,665,600
	Federal Taxes	State and Local Taxes	Total Taxes
Business Taxes	\$216,620,800	\$121,888,800	\$338,509,600

Some details may not add due to rounding

The U.S. Scrap Recycling Industry Creates and Supports Jobs in
Georgia Congressional District 5

	Jobs	Wages	Economic Impact
Direct Impacts			
Recyclers	877	\$57,791,300	\$227,218,300
Brokers	39	\$3,485,700	\$8,708,300
Total Direct Impacts	916	\$61,277,000	\$235,926,600



Recycled Materials Supply 40% of the Global Raw Material Needs ...

... US steelmakers rely on ferrous scrap to make two-thirds of the steel produced each year

... More than 50% of the US paper industry's needs are met each year through the use of recovered fiber produced from such items as old newspapers, office paper and used corrugated boxes.

... A third of US Aluminum supply comes from soda cans, aluminum siding & other forms of aluminum scrap

Both Quantity and Quality are key to the Strength of that Link in the Supply Chain

Part of the Global Industry

37

Total exported from U.S.
(million metric tons)

\$18B

Value of U.S. materials
exported

156

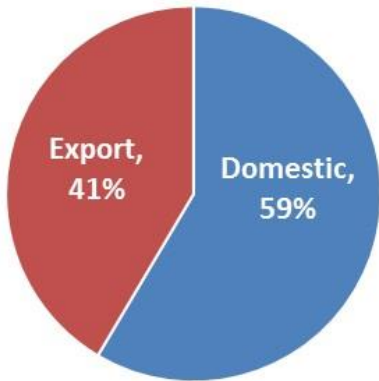
Destination countries to which
recyclables were sold

- *The U.S. is the largest exporter of scrap commodities in the world.*
- *With approximately 30% of scrap processed in US destined for export in recent years, the health of the US recycling industry is directly tied to the health of the global economy.*
- *Leading Export Destinations: China (\$6B), Canada (\$2B), South Korea (\$960M), Mexico (\$955M), Turkey (\$932M), and India (\$914M)*

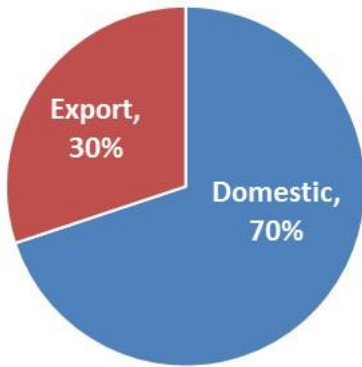
Most of the Scrap Processed in the U.S. is Consumed Domestically



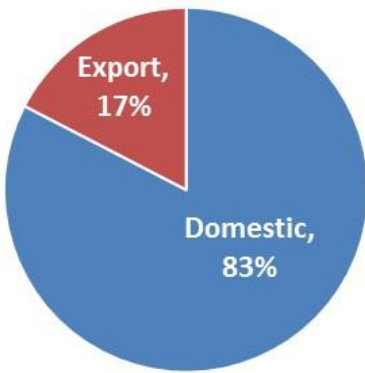
U.S. Recovered Paper and Fiber



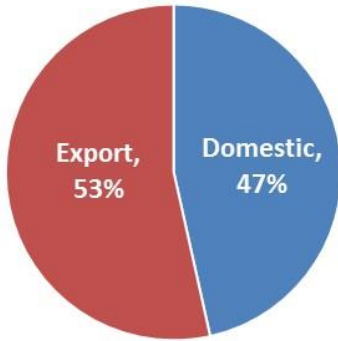
U.S. Aluminum Scrap Recovery



U.S. Iron and Steel Scrap



U.S. Copper & Copper Alloy Scrap

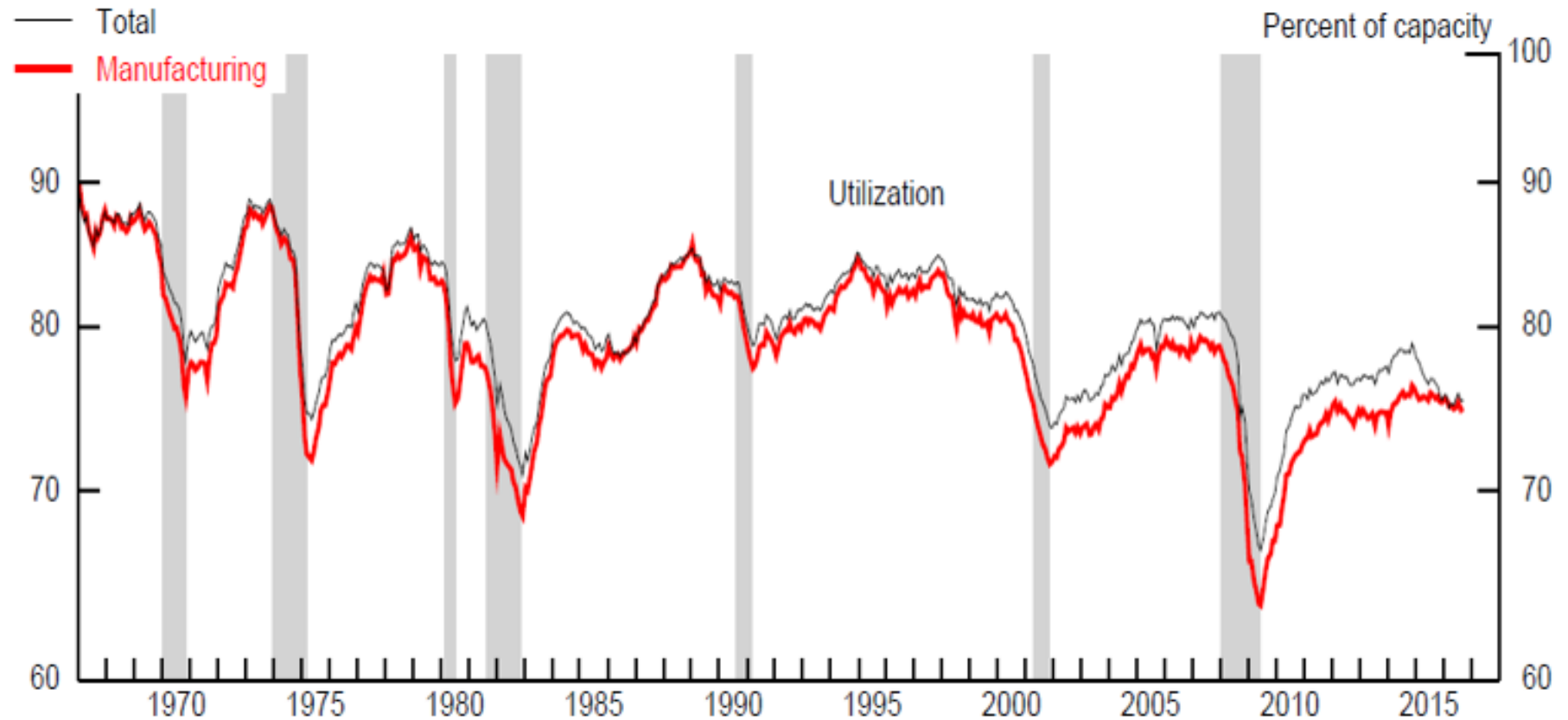


Challenges, Opportunities and Outlook

The health of the recycling industry is closely related to the health of the global economy, and thus sensitive to ...

- Domestic & overseas manufacturing,
- Fluctuations in currency markets,
- Transportation disruptions (e.g., West Coast port strike, Hanjin bankruptcy)
- Energy Prices,
- Flow of imports, and
- Volatility in commodity prices

U.S. Total and Manufacturing Capacity Utilization

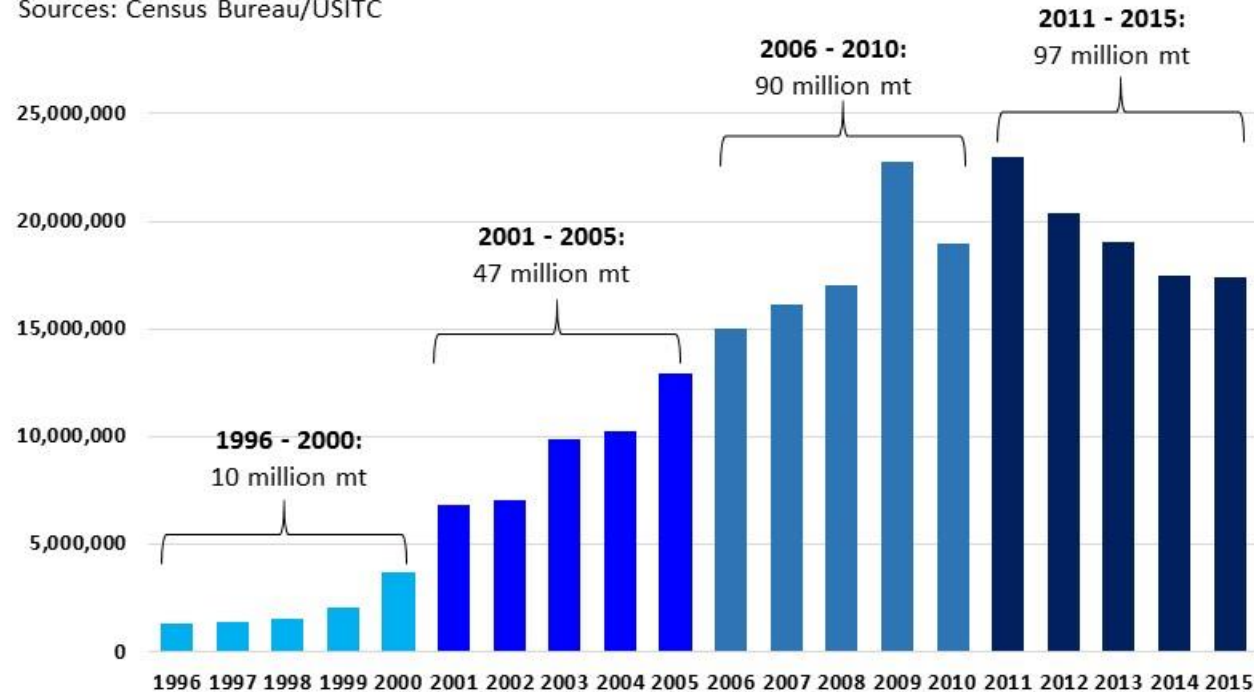


Source: Federal Reserve

EU Market Remains Very Weak Growth in the Middle East has slowed China Still Driving Global Commodity Markets

U.S. Exports of All Scrap Commodities To China (incl. Hong Kong)
1996-2015 (metric tons)

Sources: Census Bureau/USITC

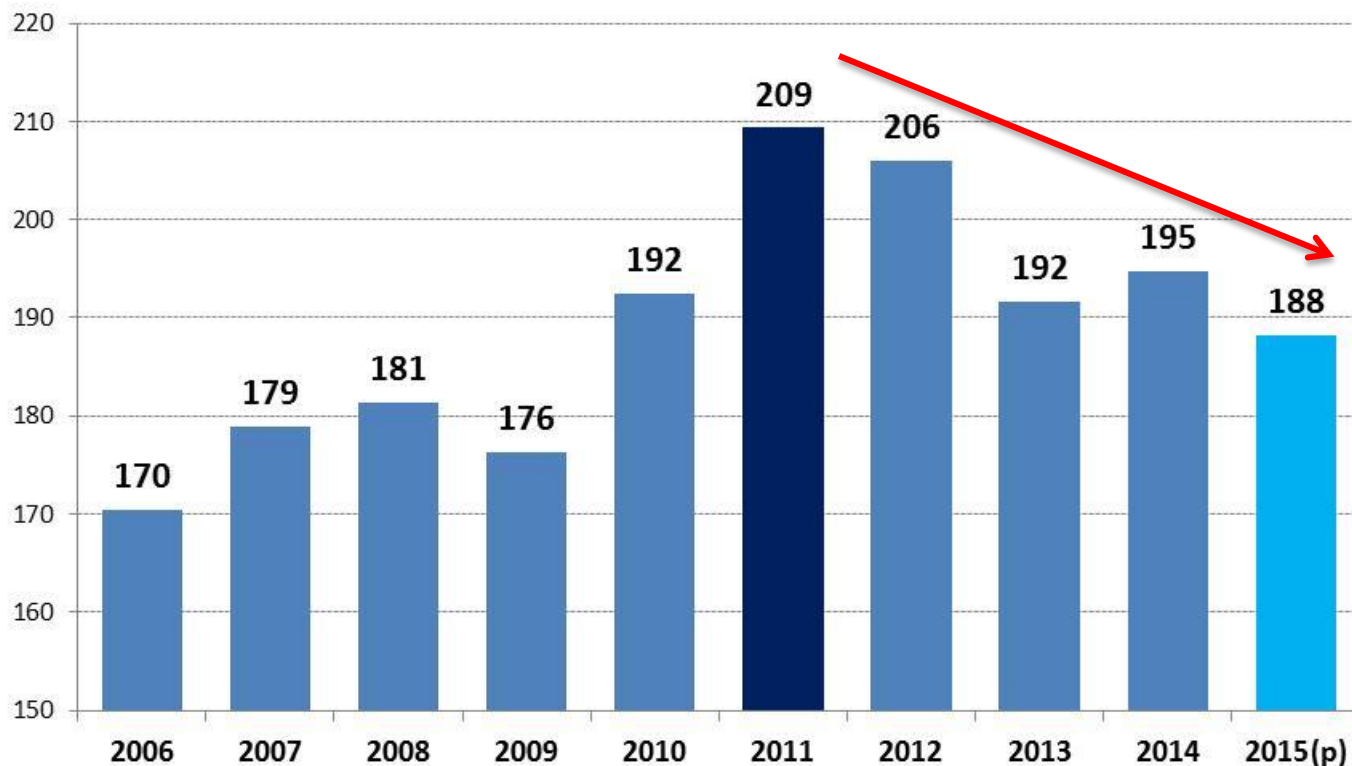


Excess commodity production in China, falling Chinese industrial prices, decelerating Chinese growth and slowing Chinese scrap import demand in recent years contributing to global deflationary pressure and weaker global scrap market conditions.

Effect on Global Scrap Trade

Reported World Scrap* Exports, 2006 - 2015(p) million metric tons

Source: UN Comtrade Database



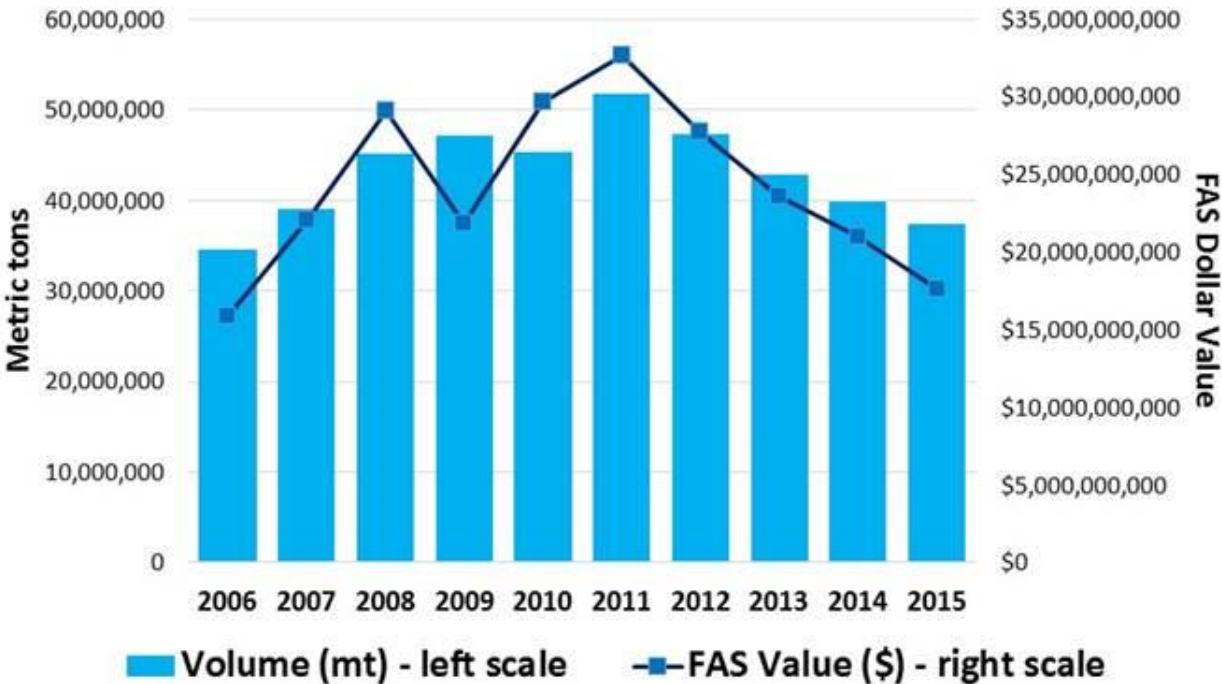
*Exports from all UN reporting countries of scrap plastic, rubber, paper & fiber, glass, textiles, precious metals, base metals and ferrous metals.

2006-2015 volume:
1.9 billion metric tons

US Scrap Exports Follow Same Curve

Annual U.S. Scrap Exports by Volume (metric tons) and FAS Value (\$), 2006 - 2015

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



Prices Hard Hit Across All Commodities



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ISRI Index: Jan 2011 - Sep 2016

(Jan 1998 = 100)



Scrap recycling is a commodities-based business. The ISRI Index fell to the lowest level since the Great Recession in November 2015. The index has again come under pressure, falling 4% in September 2016.

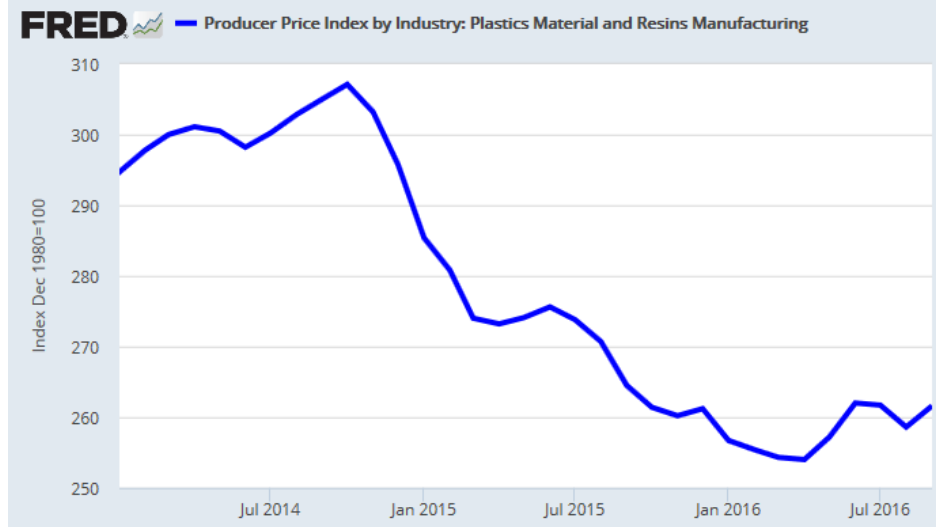
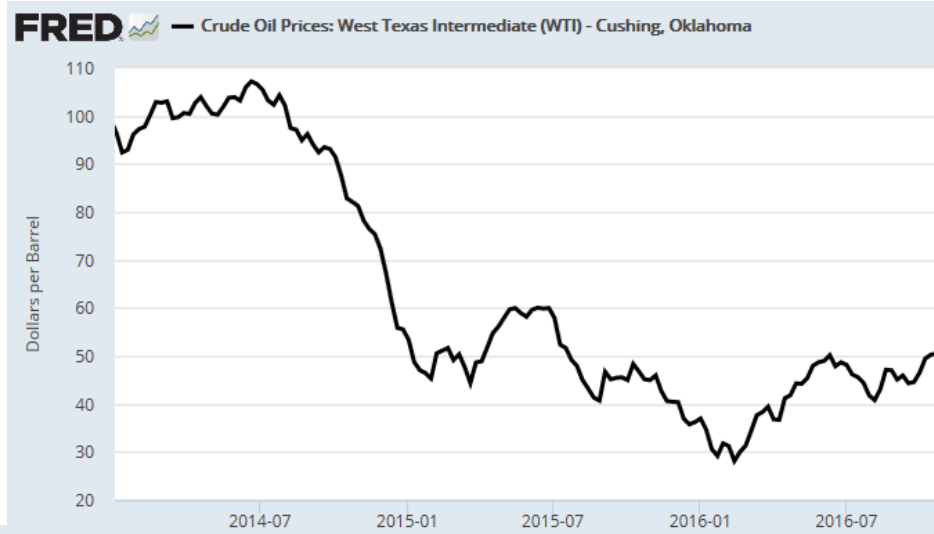
ISRI index: weighted index of recovered paper and fibre, ferrous, copper, and aluminum scrap prices

Energy Prices as the Driver for Plastics



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As energy prices have
fallen, so has the price of
plastics ...



Impacts ...

- Recyclers squeezed due to price & volume declines, contamination
- Import competition
- Excess/idled capacity in automobile shredding
- Margin compression
- Closures across recycling industry
 - multi-generational metals recycling businesses
 - Single stream MRFs due to unsustainable business model

Industry Managing By ...

- Increased investments in technologies to increase yields (except residential)
- Increased focus on “other” commodities; greater integration across commodity sectors
- Industry consolidation
- Cutting costs

Long Term – positive, but immediate short term challenging

Increased Challenges Surrounding Quality of Recyclables Entering the Recycling Stream from Residential Sources...

- Move to one-bin collection systems raising significant concern over potential effects on ability to recover specification-grade material
- Recyclers of paper & plastics seeing a general decrease in quality of recyclables coming out of municipal stream
 - **ISRI's MRF Council:** development of “Inbound Residential Curbside Specifications”; glass specifications also in development
- ***In contrast***, commercial and industrial sources of recovered fiber continue to be a good source of quality fiber at healthy volumes.
 - *Lesson (?): need to focus on economically viable materials*

Pressure also on the Quantity of Recyclables Entering the Stream ...

- Collection system price sensitive: As commodity prices fall, the incentive on the part of peddlers to bring recyclables to the market declines
- Decline of newspaper circulation, and all graphic paper grades
- Light-weighting across commodity spectrum: Newspapers, PET, aluminum cans

Constantly Changing Design of Consumer Products and durable goods

- More complex
- Emergence of new materials & sometimes difficult to recycle materials
 - Degradable Additives
 - Boron
 - Clad materials
 - Carbon fiber reinforced plastics

ISRI's DFR program: working with manufacturers to raise awareness and identify issues before becomes an end-of-life issue

Non-uniformity in definitions and terms

- What is waste and what is a recyclable?
- What is recycling versus disposal?
- How can we compare recycling rates if we do not establish common definitions and formulas?

What is collected in the blue bin at the end of the driveway is only a small part of the entire picture of recycling here in the U.S.

Opportunities Ahead/Outlook



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- Recyclers increasingly focused on safety, operational efficiency, quality and product diversification
- Shift in thinking to sustainable materials management
- Targeted investment in technology (& acquisitions)
- Opportunities for ISRI and other industry groups to educate:
 - policymakers & the public about the economic and environmental benefits of recycling
 - the next generation



DEADLINE: JANUARY 20, 2017

LEARN MORE

Recycling is a cyclical, evolving industry with long-term positive trends.

Please join us for the **2017 ISRI
Convention & Expo** to be held
April 22-27, 2017 in New Orleans!
www.isriconvention.org



ISRI 2017 CONVENTION & EXPOSITION
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Thank You!

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