



Excerpt from City Administrator Report – 12.18.2018

ICMA – Future of Recycling Presentation - I will discuss some of the new trends being discussed nationally.



Pete Keller

Vice President, Recycling and Sustainability Republic Services

Pete is responsible for defining and implementing the strategic direction of the sustainability platform for Republic Services, to meet both business objectives and customer needs. His dedication to our Blue Planet is best noted by Republic Services' recognition as the only Recycling and Waste company in the world to be named to the Dow Jones Sustainability Index. Pete is a thought leader in the industry, with contributions to recycling infrastructure development, standards and optimization, development of renewable energy projects, and customer solutions that support the organization's commitment to sustainability.

Pete has a Bachelor's Degree in Civil Engineering from Worcester Polytechnic Institute and has served on numerous industry boards and committees during his career.



Richard Coupland III

Vice President, Municipal Sales Republic Services

Mr. Coupland joined Republic Services in 2015 as vice president of Municipal Sales. He currently leads the Municipal market vertical, consisting of partnerships with more than 2400 municipal cities in 40 states. His team provides consultative support to their Municipal partners, to understand and navigate changes in the industry, as well as emerging technology and methods.

Richard received his Bachelor of Science degree in Mechanical Engineering from the Virginia Military Institute, and his Masters degree in Business Administration from the W.P. Carey School of Business at Arizona State University.

Notable Comments:

- ▶ Even if China did not do what they did, there would have been a discussion anyway due to market demands and shifts...
- ▶ Also known as Blue Sky is China Sword...
- ▶ Used to get \$100 per ton now are paying \$10 or receiving \$10... For Paper...
- ▶ Negative value flip on the commodity... Were getting 65% return now paying %65... slower processing, admin, O & M +++
- ▶ Stream and market discussion... Storage and logistics choke points...
- ▶ Cost of running MRF has doubled... more labor and equipment due to stream contaminants...
- ▶ Aspirational recycling... public education is key moving forward...
- ▶ There are only five markets that are worth generating a commodity...
- ▶ Cleaning stream is important, but market conditions have shifted so much that it will not make a difference...
- ▶ Commodity market has failed... have to ask for the actual costs instead of hopeful economics...
- ▶ Value has bottomed out of the business model... Too costly to do this...
- ▶ They could build confidence intervals when buying equipment and acquiring companies, but this structural change in the commodities market has changed everything... they are unable to get a return that works to operate and maintain services...



- ▶ Bidding process will have to change or no one will be able to provide services...
- ▶ All uses to recycle create CO2 problems... GHG savings explanation...
- ▶ All tons are not the same. EPA Data not Company data...
- ▶ 66% are Paper
- ▶ 1% are Aluminum; only 18% of cans are recycled.
- ▶ Recycling mandates will have to change... it is impossible.
- ▶ Plateau issues... water bottles that won't standup etc. changes...
- ▶ Weight based goals are antiquated...
- ▶ Measuring success must change away from weight.

The ICMA logo is displayed in white, bold, sans-serif capital letters within a dark blue rectangular box. The background of the slide features a blurred, long-exposure photograph of a city street with buildings and traffic, overlaid with a blue horizontal bar at the top.

ICMA

Recycling is Broken

Year End Update - 2018

Pete Keller – VP, Recycling and Sustainability

Richard Coupland – VP, Municipal Sales

Recap: Trends Strain Existing Model

Trends



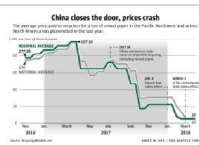
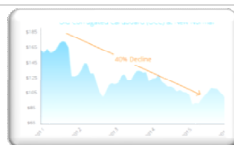
2000

2015



48,000 plastic bottles = 1 ton¹

92,000 plastic bottles = 1 ton¹



Implications

Some material changing faster than capital investment cycles

18M tons in 2000 → ~2M in 2015

Some material has limited end markets

HDPE (Good) → off-spec PET (Limited)

Material light-weighting skews current success metrics

Water Bottles → Almost 2x transactions

Commodity markets have steadily declined

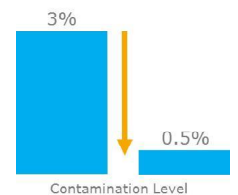
OCC down 40% → Mixed Paper down 95%

Recap: China Sword Explained

For decades, China has been the largest importer of the world's recycled commodity, and the U.S. was 40% of the inbound stream

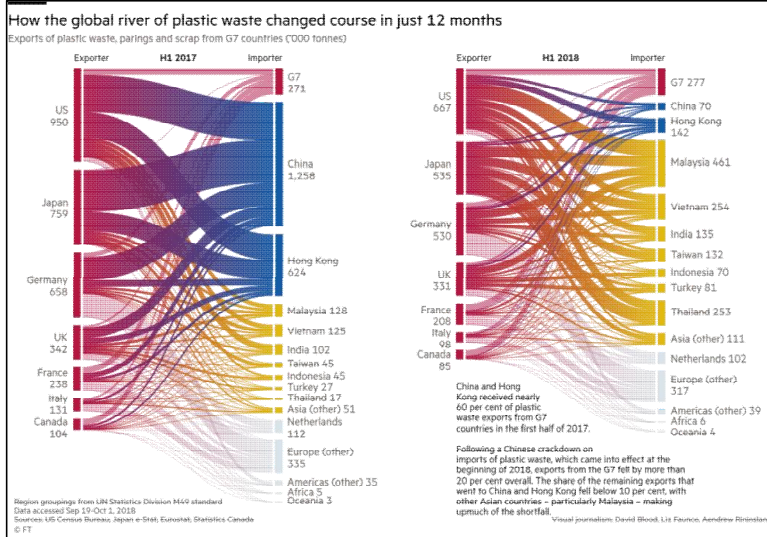
In 2017, China announced efforts to clean up the country, which included dramatic changes for acceptance criteria of imported recyclables

- A significant reduction in acceptable contamination levels (From ~3% to 0.5%) in any recovered paper and plastic grades
- Additionally, China banned all mixed paper from import, regardless of contamination levels. (20% of historical stream)



Reductions took effect in March 2018, which drove costs and changes at most recycling facilities in the country to meet new standards

Post-China: Shift in Commodity Markets

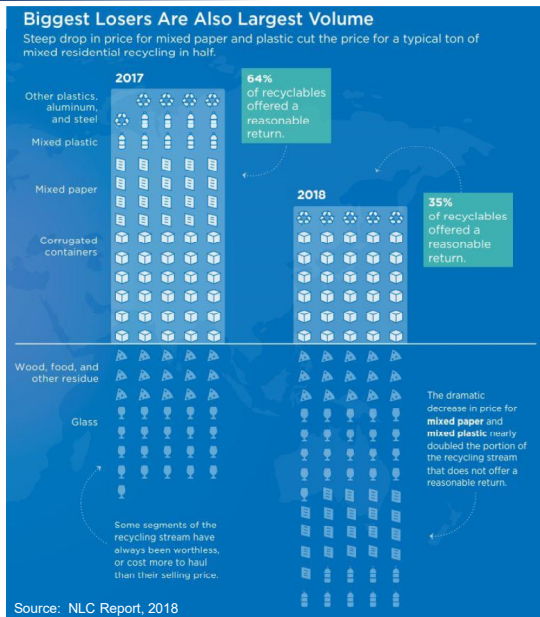


Source: Financial Times, Oct 24, 2018

- China consumed a majority of commodities globally
- Alternate markets are saturated; some countries unprepared for influx

Supply and demand economics kick in as commodities flood alternate markets worldwide

Post-China: Dramatic Shift in Values



- Normal supply and demand theories in play
- Excess material results in low/negative value for most commodities (Mixed Paper and Mixed Plastics)
- Only 35% of processed commodities have current positive value (Metals and OCC)

Recycling processors move the material, but average values are down 50%+ from recent years

Recycling Costs: Then and Now

THEN

	Household cost artificially low to foster adoption	Costs lower due to inbound material being cleaner and heavier	Commodity values strong, due to supply & demand and cleaner material	Low contamination averages, attributed to focus on basics and no diversion mandates					
Industry Avg	\$2.00/Mo	\$60/Ton	\$200/Ton	\$25/Ton					
Net Position	(\$3.00/Mo)	+	(\$1.50/Mo)	+	\$4.60/Mo	+	(\$0.10/Mo)	=	\$0.00

COLLECTION



PROCESSING



COMMODITY



RESIDUAL



NOW

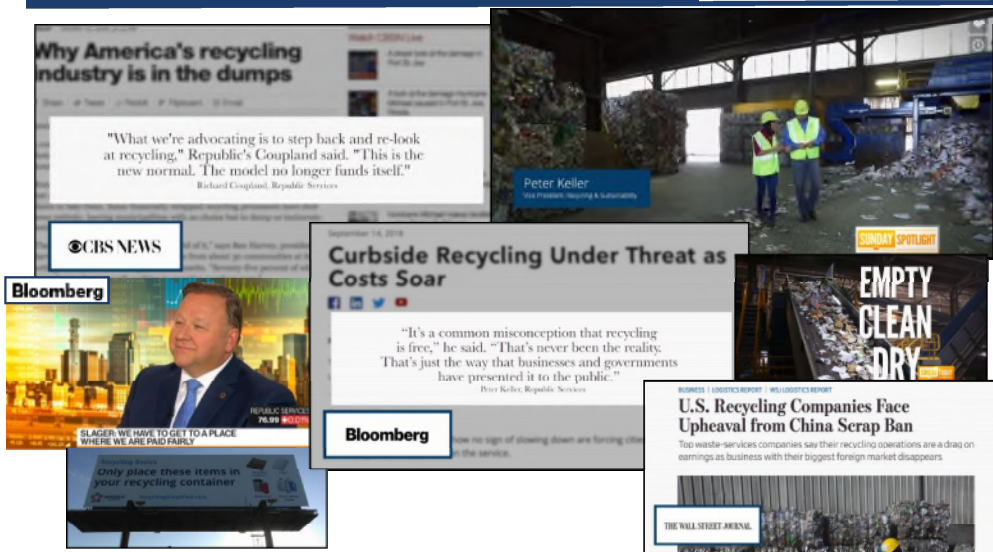
	Still artificially low despite higher costs to run collection service	Dramatically higher costs from labor, technology and equipment, along with lighter material	Average values down significantly, further impacted by China Sword	Contamination average up to 30%, requiring more transport and disposal					
Industry Avg	\$3.00/Mo	\$100/Ton	\$100/Ton	\$50/Ton					
Net Position	(\$4.00/Mo)	+	(\$2.50/Mo)	+	\$1.50/Mo	+	(\$0.50/Mo)	=	(\$5.50)

Recommended Business Model



The cost of a recycling program is the sum of fees for two services; the **Collection Fee** and the **Net Processing Fee**

Informing the Public



- Public needs to understand the issue
- Economic reset is needed for long-term viability
- Public awareness on what and how to recycle

Over 1 billion media impressions on the topic, on articles interviewing Republic Services team alone

Public Education: Clean Up the Stream

New simplified educational collateral that can be distributed to residents and businesses

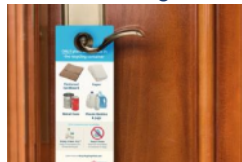
Container Labels



Container Tags



Door Tags



Reference Guides



Brochures



Post Cards & Bill Inserts



Posters



Billboards



Emails

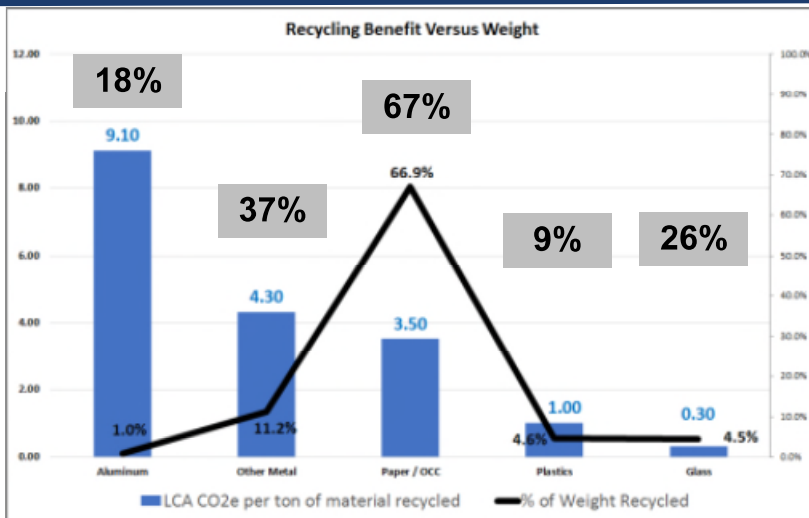


Print Ads



Most collateral is available on www.RecyclingSimplified.com,
or from your Municipal Sales Manager

Measurements of Success



- Current metrics focus on weight
- Incentivizes “any” rather than “the right” diversion
- Some of the more beneficial CO₂e materials are lighter

xx% = % of Generation Currently Recycled

Source: Advancing Sustainable Material Management 2015 Fact Sheet, EPA, 2018

Weight-based goals don't correlate to GHG benefits.

Reconsider “Any Diversion” (weight) vs “Good Diversion” (GHG)

Reassessment of Accepted Materials

- Programs have drifted to focus on total diversion rates, rather than what materials are truly beneficial to recycle
- Some collected materials are recyclable, but lack local end markets, or have a negative recycling value. These realities render the processed materials unmarketable
- Municipalities need to shift program focus to Sustainable Materials Management-based views, which looks at the overall benefits of each accepted material in the stream



(\$10)

Sorted glass has a negative value



Some packages have evolved to less marketable materials

Recycling programs must focus on Sustainable Materials Management, not simply diverting material that may have no beneficial use

Key Topics Going Forward

- Evaluate program recyclables that offer best benefit to planet
- Consider better metrics to track success
- Increase public education, leading to lower contamination and better commodity values
- Update the business model – Two services provided in a recycling program (without reliance on commodity value)

The path to creating a durable recycling program requires multi-faceted approach



We'll handle it from here.™

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