

The background features abstract, overlapping green geometric shapes in various shades of green, creating a modern and dynamic look. The shapes are primarily located on the left and right sides of the slide, framing the central text.

Recycling Markets in 2020: What's Next for Curbside Recycling in California

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Potential Industries Inc.

Potential Industries? Who's that?

- Founded in Wilmington in 1975
- Family owned, privately held company
- Core business is processing and marketing recyclable paper, plastics, glass and metals to consuming mills in Asia and North America
- Provider of recycling services to large haulers (WM, Athens, CR&R, Republic) and municipalities (City of Long Beach, LA, Torrance) throughout Southern California
- Leader in adopting technology to efficiently sort curbside materials to their highest and best use.
- Direct supplier of recyclable materials to consuming mills in Asia and North America. Top ten exporter from Port of LA and Long Beach



Evolution of Curbside Recycling in CA: 1990 - 2020

- 1990 - 1995 - Cities throughout California begin implementation of curbside recycling programs to meet the requirements of AB 939 to achieve 50% reduction or recycling by 2000
- 1992 - Potential begins operation of one of the first residential sorting operations in Southern California. City of Long Beach dual stream collection program begins, collecting paper in one stream and plastic, glass and aluminum in another
- 1995 - 2000 - Curbside programs evolve to single stream collection, with paper, plastic, glass and other materials being mixed together. Potential upgrades its sorting capabilities to more effectively separate different material types through the use of screens and magnets
- 2000 - 2015 - Demand from mills and end users in China and other Asian countries drives the market and increases competition for curbside materials. Cities add more materials to the acceptable materials list. Contamination levels increase.
- 2015 - 2020 - China begins implementing policies to restrict contamination levels in imported materials. Bans of Mixed Plastic and Paper follow in 2018



What's In The Bin? Material Composition

Paper 50%

- OCC 25%
- Newspaper 10%
- Mixed Paper 15%

Plastics 10%

- PET #1 2%
- HDPE #2 2%
- PP #5 3%
- MRP / Other 3%

Metal 7%

- Tin Cans 2%
- Aluminum 1%
- Scrap Metals 4%

Glass 13%

Residue 20%

- Plastic Film / Bags
- Wet, Contaminated Material
- Food Waste
- Plastic 3 - 7
- Textiles

Where Does It Go? Material Markets

Paper 50%

- OCC China, Taiwan, Vietnam
- Newspaper Korea, China
- Mixed Paper Indonesia, Malaysia

Plastics 10%

- PET #1 California, Mexico
- HDPE #2 Domestic US, Export
- PP #5 Domestic US
- MRP / Other Various Export

Metal 7%

- Tin Cans Domestic US
- Aluminum Domestic US
- Scrap Metals Southern California

Glass 13%

- 3 Mix Glass Southern California

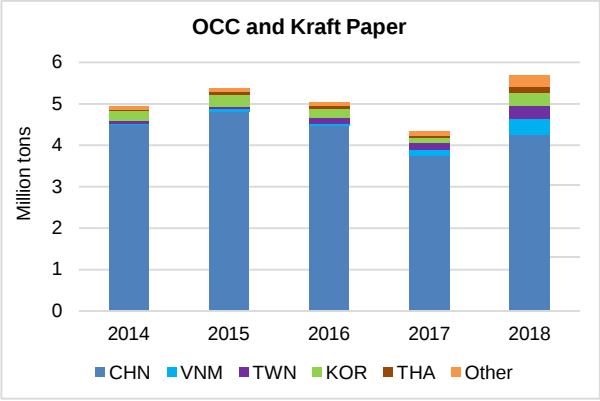
Residue 20%

- SERRF
- Landfill

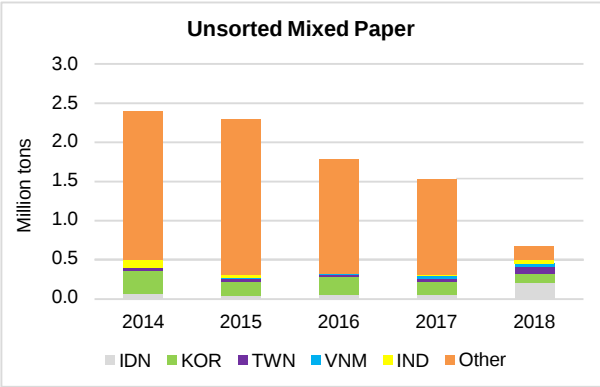
What did China do ?

- Change import license 2017 and beyond
- Ban mix paper n plastic effective Jan 1, 2018
- Prohibitive level $\frac{1}{2}$ % effective March 1, 2018
- Change inspection procedures 2018 and beyond

Materials of Interest



Exports of OCC & Kraft Paper increased by 30% in 2018. China imported 75% of all California OCC exports. Exports to China increased in the last quarter of 2018 as Chinese importers attempted to purchase as much material as possible before new quotas took effect in 2019.



Exports of Unsorted Mixed Paper declined 56 percent in 2018. China's contamination restrictions and regulations on paper scrap caused a 96.5 percent reduction in imports to the country compared to 2017. China is no longer one of the five largest importers of this material.

Potential's Investment in Advanced MRF Technology

In 2018 Potential Industries completed a \$20 Million dollar upgrade to our Material Recovery Facility.

Our system has two lines, and is capable of processing 60+ tons per hour.

The MRF uses a combination of manual sorting (Pre-sort and Post-sort QC), mechanical screens and optical sorting units.

The investment has allowed Potential to meet the high standards now required by China and other countries



PreSort Belt

Remove Bulky Items, Plastic Film and Trash



Paper Belt

Remove Contaminants from Paper Grades



Paper Screen

Separates Glass and Small Items from Paper and Larger Items



Optical Unit

Uses Infrared Light to Identify Different Material Types

MRF Sorting Costs v. Blended Value

- ▶ Sorting Costs \$50, \$100, \$150 per ton
- ▶ Blended Value \$150, \$100, \$50 per ton
- ▶ Technology and Labor costs increasing
- ▶ Scrap value decreasing
- ▶ CRV value fluctuates
- ▶ Disposal costs increasing
- ▶ Source Separated Residential Commingled Ton moved from positive \$ to negative \$
- ▶ Some Municipalities have modified or discontinued curbside programs due to increased costs

The Cost of Contamination

Contamination is the single largest driver of cost increases in recycling operations. Contamination levels have increased over the past several years due to the inclusion of materials with limited markets (esp. plastic packaging)

As consuming mills in Asia have lowered their threshold of acceptable levels of contamination below 1%, Material Recovery Facilities such as Potomac have increased their labor, equipment, and disposal costs to meet the demand.

3 main types of contamination: Trash (items that should not be in the bin), Moisture (excess moisture makes recyclable materials difficult to sort) and Unmarketable Plastics



Where do we go from here?

- ▶ Realistic assessment of where we are today: Increased contamination in Curbside leads to higher sorting costs and limited markets for material
- ▶ SWOT analysis of sorting and marketing options: Market drives demand for higher quality material but also more advanced sorting
- ▶ Decisions on collection and sorting method
- ▶ Modify list of acceptable materials for MRF: Sustainable recycling means some items should be excluded. If there are no markets can some items be considered recyclable
- ▶ Educate and Incentivize participants: Accountability is the key