



# Emerging Issues in Recycling

An examination of the recycling market including details on specific materials **BY MARC J. ROGOFF**

**T**here have been ebbs and flows in the recycling market over the past 35 years. Price volatility in recycling markets is almost a universal truth across the globe. Being able to manage the ever-fluctuating changes in market prices can either produce success or break the community recycling program. Most recycling industry observers have agreed that prices for most, if not all, recycled materials tend to follow expansions and contractions in the overall world or national economy such as major economic recessions and market crashes. This article will briefly discuss some of the recent changes in 2017 to recycling markets in the United States.

## Recycling Markets

The paragraphs that follow briefly describe and discuss the current pricing information

and data for national recycling markets, and markets in the United States, where available. Clearly, 2016 was a difficult one for these markets. The data show a slight upturn of the markets so far in 2017.

**Aluminum Cans.** Conditions in the various aluminum scrap markets appear to be improving to many authoritative sources in the scrap market due to an increase in consumer demand. This has increased the prices received by recyclers across the United States. For example, at the time of this writing aluminum cans in March received an average national price of \$0.66 per pound increasing from a low of \$0.61 per pound in January, an almost 8% increase.

**Ferrous.** Domestic steel production statistics point to a slight increase in the domestic steelmaking sector. Recent pricing data show an upward trend so far in 2017

from an average high of \$144 per ton in January to a high of \$170 per ton in March, an almost 18% increase.

### **High Density Polyethylene (HDPE).**

There are two types of HDPE bottle grade material: the homopolymer and copolymer. The homopolymer has a stiffer molecular structure and is typically used for dairy, water, and juice bottles. The copolymer HDPE is produced by injecting molding and is more chemically resistant to contents such as detergents and household cleaners. These two types of HDPE are incompatible and cannot be mixed together for best pricing.

In January, there was a marked increase in price paid (\$0.11 per pound), followed a significant increase in price over the fall. March has seen a significant uptick in price (\$0.13 per pound), primarily due to the changes in the global market of

oil and natural gas.

**Glass Bottles.** Glass, which has been in use for thousands of years, is a transparent substance, made primarily from sand, soda ash, and limestone. Glass containers are produced in three colors: clear (flint), brown (amber), and green. The primary markets for glass containers are the 75 glass container manufacturing plants in the United States. Due to the increase of single stream recycling systems, glass bottles tend to be crushed, which lowers its quality and marketability.

A review of the recycling database generated by Recycling Markets. Net indicates that the current market price for recycled glass is -\$20 per ton (March 2017), which has further declined from -\$10 per ton over the past two years. In other words, most recyclers in the US have had to pay available markets to dispose of recovered glass bottles.

**Polyethylene Terephthalate (PET).** Plastic resins are synthetic materials made from oil and gas that are combined in a polymerizing process. PET is a clear plastic resin used to make beverage bottles and food containers. To the surprise of hardly anyone, the prime determinant of the price of recycled plastic is the current and expected price of crude oil or natural gas. Along with increasing volatility in global oil equity prices and exchange rates, crude oil price volatility increased significantly during 2015, reflecting uncertainty about potential lower economic and oil demand growth in emerging market countries. According to reports prepared by the Energy Information Administration of the US Department of Energy, continuing increases in global liquids inventories have put significant downward pressure on oil and natural gas market prices.

PET markets have seen a slight increase so far in 2017 with an average high of \$0.13 per pound in March increasing from \$0.105 in January. Overseas markets for all recovered plastics are still considered poor by most recyclers, due to materials being held up at Chinese ports for quality concerns. As a consequence, recyclers are looking for domestic markets for these materials.

**Mixed Paper.** Waste paper, a significant portion of the solid waste stream, is bought and sold on the basis of grade, and prices vary accordingly. Paper grades are generally defined as specified by the Paper Stock Institute of America, which lists specific guidelines that define different grades of paper based on type and preparation. Mixed paper

is the comingling of various paper grades in typical residential recycling programs, such as old mail, paperboard packaging, magazines, copy and computer paper, egg cartons, etc., for recycling.

Up until this current year, much of this material would have gone to the Asian export market. Given the downturn of the Chinese economy and devaluation of its currency, the Yuan, demand from China has been quite slow, as reported by a number of reputable paper market information sources. As such domestic mills are full of these materials. The current 2017 trend so far in mixed paper prices has ranged from a low \$84 per ton in January increasing to \$96 per ton in March.

**Old Corrugated Cardboard (OCC).** Old corrugated containers, referred to as OCC, represents the largest single category of waste paper (40 to 60%) collected for recycling. With the increase of online package delivery services (Amazon, Staples, Target, and Wal-Mart) over the past few years, OCC has greatly increased in recent years. China, Korea, and Japan are among the largest importers of US OCC supplies, which they use to make containers to ship TVs, stereos,

VCRs, etc., back to the United States. The comments made in the previous section on worldwide economic conditions, as well as a rising US dollar, certainly apply to OCC.

The current 2017 trend in mixed paper prices shows another uptick as well from an average high of \$114 per ton in January to a high of \$160 per ton in March, an increase of over 40% so far this year.

## Renegotiation of Processing Agreements

The Solid Waste Association of North America (SWANA) and the National Waste and Recycling Association (NWRA) have recently issued a joint advisory regarding contracting for processing of municipal recyclables. While the Advisory is for general guidance only, it provides illustrative components, which should be included in contracts for these facilities. These include the following:

- A well-drafted contract contains definitions of key terms: Pay particular attention to the words and phrases “Applicable Law,” “Recyclables,” “Maximum Non-Recyclables Level” (sometimes called contamination rate), “Non-Recyclables,” “Residue,” and “Uncontrollable Circum-



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stances” (sometimes called Force Majeure or acts of God).

- Contract term/length, including mutual extension rights/obligations, or a contractor bonus that can be earned through performance
- Specify obligations that survive the term (such as indemnifications, certain reporting requirements, etc.).
- Termination rights, such as cure periods for defaults, no-fault termination for lack of funding, or convenience
- Local agency’s responsibilities and rights, e.g., (dis)approval rights with respect to key personnel and contract delegation and assignment (including sales, mergers, bankruptcy, transfer of ownership, etc.)
- Contractor’s responsibilities and rights
- Performance specifications and standards (e.g., receiving hours, vehicle tipping/turn-around times, weighing protocols including scale house operation, fee collection/security); throughput capacity requirements, identification of acceptable materials; hazardous waste load checking protocol (including responsibility/protocol for handling and paying for hazardous wastes and processing residue); and load rejection rights
- When the contract is for a municipally owned facility: utility consumption guaranties (if local agency pays utility charges), routine and extraordinary maintenance and repair, and replacement of publicly owned equipment and facility
- Other specifications may include waste composition preconditions and reject limits, recovery guaranties and residue management/disposal, allowable levels of non-recyclables and moisture, marketability guaranties, product specifications, materials marketing obligations (including market risk allocation), performance/recovery incentive(s), recovered materials revenue sharing options, and rebate requirements for materials delivered by haulers to the facility
- Public education and outreach program
- Contract administration tools with feedback loops: Record keeping, reporting (performance, operations, and financial), responsiveness standards, access to facility and inspection protocols, and performance (dis)incentives should be reviewed together on a routine schedule

• Compensation/payment structure  
Note: if compensation will include the marketing of the recyclables, material valuations should be taken into account, and they should include:

- Agreed upon value for materials sold, actual value or recognized indices
- What the material is worth at the processing facility—i.e., make allowance for transportation
- Negative values of marketed materials and disposal costs
- Tip fees where applicable
- Consideration of who assumes responsibility for disposal costs, recognizing that inbound material quality and processing efficiencies affect these costs
- Adjustments over time to the percentages



of each recyclable and non-recyclable component set at the inception of the contract. Adjustments through jointly agreed upon protocols for audits should be done at regular intervals.

- Allowances for changes in the contract over time, due to such circumstances as acts of God, changes in market conditions (including—but not limited to—lack of commercially reasonable market availability for processed recyclables; changes in market specifications affecting the salability of recyclables; changes in law (e.g., bottle bills) affecting the recyclability of materials; and changes in the quantity, quality, or composition of the inbound recyclables). Note: quantities could be affected by the removal of more valuable commodities from the mix or allowance of scavenging, and these issues should be addressed. Any other change, which prevents, precludes, or substantially affects the benefit(s) bargained for under the agreement (mutually agreed upon by local agency and contractor)

- Compensation adjustment methodologies for any increase or decrease in services or other obligations required of the Contractor due to changes in contract conditions and at time of any contract extensions, such as increases in cost due to mandated wage increases and/or changes in fuel costs
- Flexibility for the contractor to dispose of recyclables when no reasonable commercial market exists (mutually agreed upon by local agency and contractor pursuant to predetermined standards)
- Defaults, cure periods, and remedies
- Representations and continuing warranties
- Dispute resolution and enforcement options
- Performance assurance (e.g., bonds, letter of credit) where the ability to perform may be in doubt

### Contamination

In recent months, practically all of the major industry MRF providers (Republic, ReCommunity, Waste Management, etc.) have issued policy papers and press releases and presented

at national professional conferences that suggest that the recycling industry is under economic pressure resulting from the following events:

- Recyclables stream composition changes: shifts in consumer preferences (reduced paper and newsprint due to online consumption of news), increasing levels on non-recyclables in the bin (non-recyclable bio-based packaging (PLA) and composite plastic packaging, and industry-driven product light weighting (beverage containers becoming thinner and lighter).
- Rising labor costs: legislative actions continue to increase minimum wage rates (\$0.50 an hour can increase labor costs by as much as \$3 per ton).
- Increasing maintenance and downtime: non-recyclables in stream causing increased downtime (“wishful recycling”, wire, propane tanks, needles, higher maintenance costs and safety issues)
- Processing costs: China “Green Fence” requirements driving up costs; CPI

adjustments not keeping up with increased costs

- Depressed commodity prices: global prices in prolonged freefall. Forecasts vary on how long oil prices will stay low. Some industry analysts predict pricing will not return to higher rates until 2020.
- Establish a MRF processing fee and a method for the parties to receive a tiered revenue share that increases when revenues exceed a certain level.
- Calculate revenue share based on actual revenues rather than industry indices.
- Ensure that composition audits reflect actual commodity mixes and are done at appropriate intervals.
- Improve public education efforts to help improve inbound quality.
- Pass through of labor increases caused by new laws (minimum wage increases)
- Enable the MRF operator to reject loads with a high percentage of non-recyclables.
- Annual CPI with a minimum
- Increased recyclable quality controls by the use of greater sorting equipment efficiency to maintain low residual levels

## Glass

And, there's glass. Glass has been a commodity that has been included in all recycling programs since the advent of most private and public collection programs. It is heavy and contributes mightily to community diversion goals. However, more than a third of the glass oftentimes breaks during collection, jams up conveyors, and melts at MRF facilities, and, as a result, contaminates baled material. Lastly, glass is made from a common and cheap material—sand. So, the price for recovered glass is usually marginal. Some in our industry have argued for restricting or eliminating glass for these reasons alone.

In many parts of the country, glass is increasingly becoming too expensive to handle in curbside recycling programs. For example, cities like Harrisburg, PA, and Charleston, WV, have instructed their residents to place glass containers in the normal trash rather than in a recycling bin because it is more cost effective for these cities.

## Closing Thoughts

Recycling markets appear to be on the

upswing as of this writing. However, as much of these commodities are tied with the price of oil on the world markets it unknown whether or not this trend will continue. What is known is the ever-increasing concern about contaminants reaching MRFs and markets in Asia. China has instituted a system of X-raying bales of materials entering their ports as a means to improve product quality. Contamination is a concern for MRF operators in the US, resulting in many processing contracts being negotiated and requirements for contamination audits

of incoming recyclables streams.

## Resources

*RecycleMarkets.net* March 2017.

SWANA, "Best Contracting Practices for Local Residential Recycling Programs." <https://swana.org/News/SWANAandN-WRAJointAdvisory.aspx>. **MSW**

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