Sustainability Centre

China’s Waste Plastics Import Ban: What Happened Since, What’s Next for Business?

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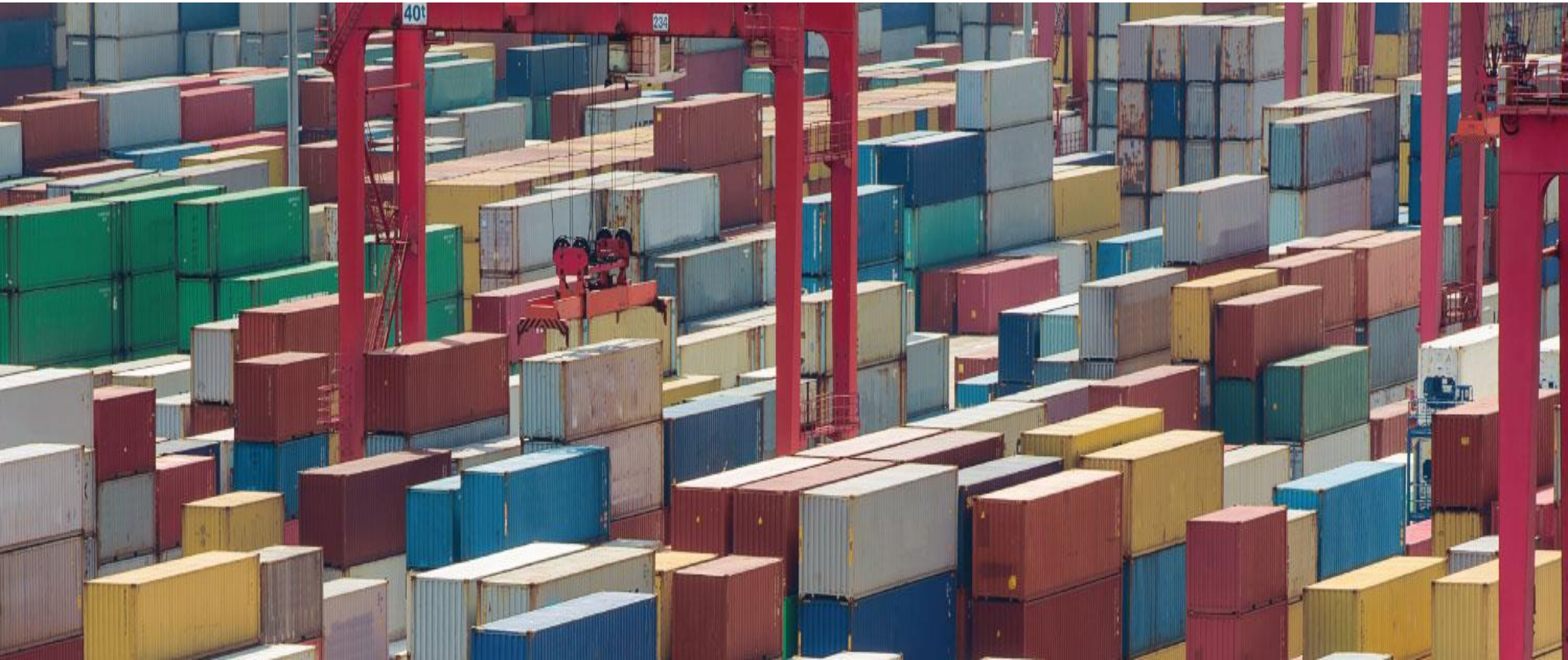
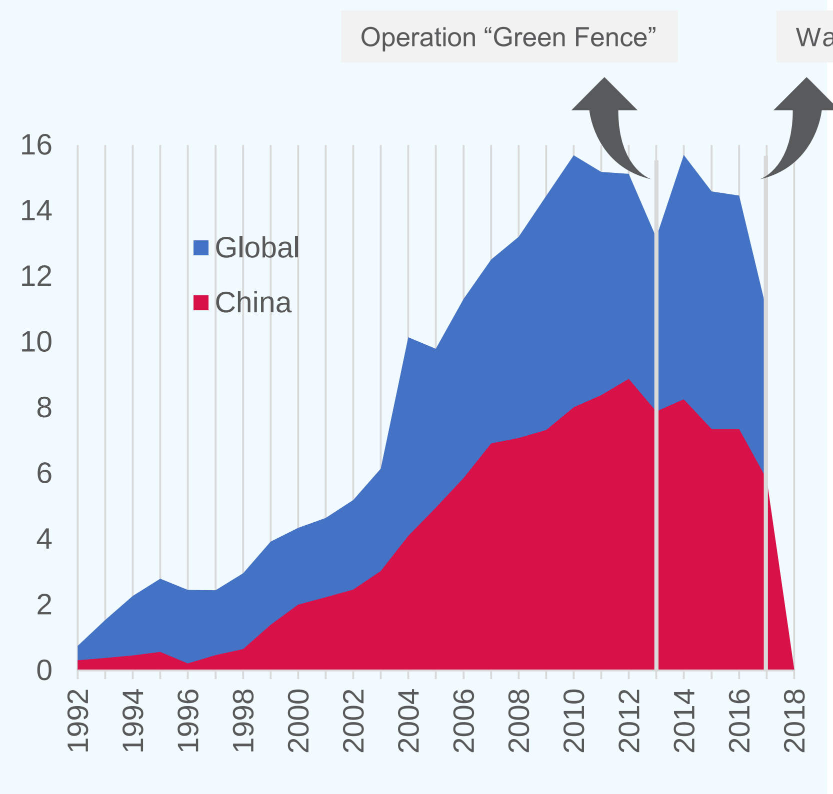
China’s Waste Plastics Import Ban: What Happened Since, What’s Next for Business?

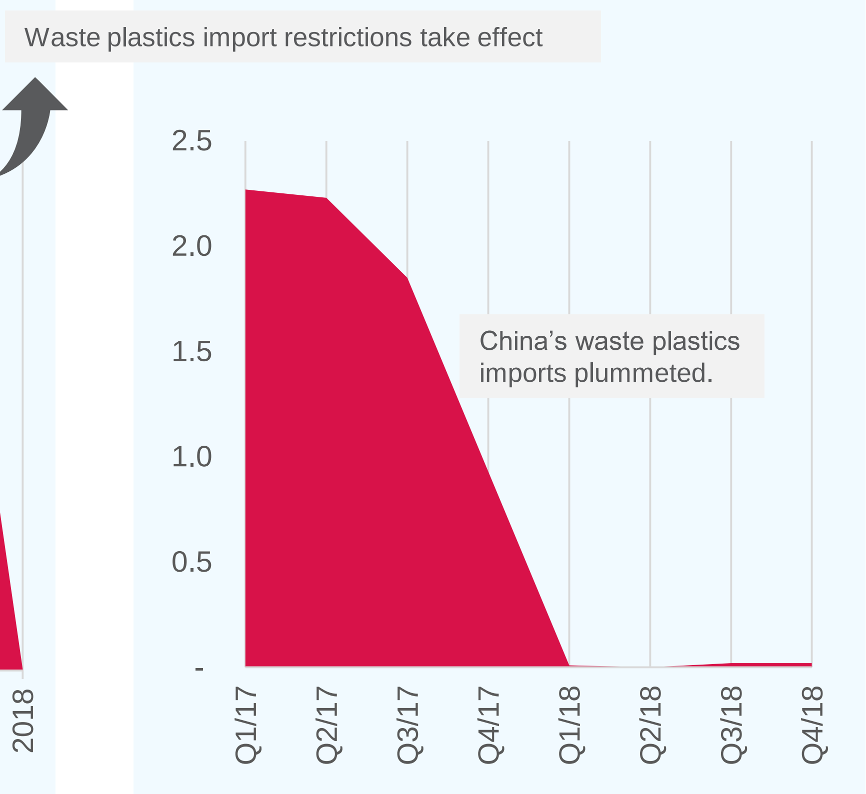


China firmly closed its doors on waste plastic imports

Historic trend of global trade and China's imports of waste plastics (million tons)



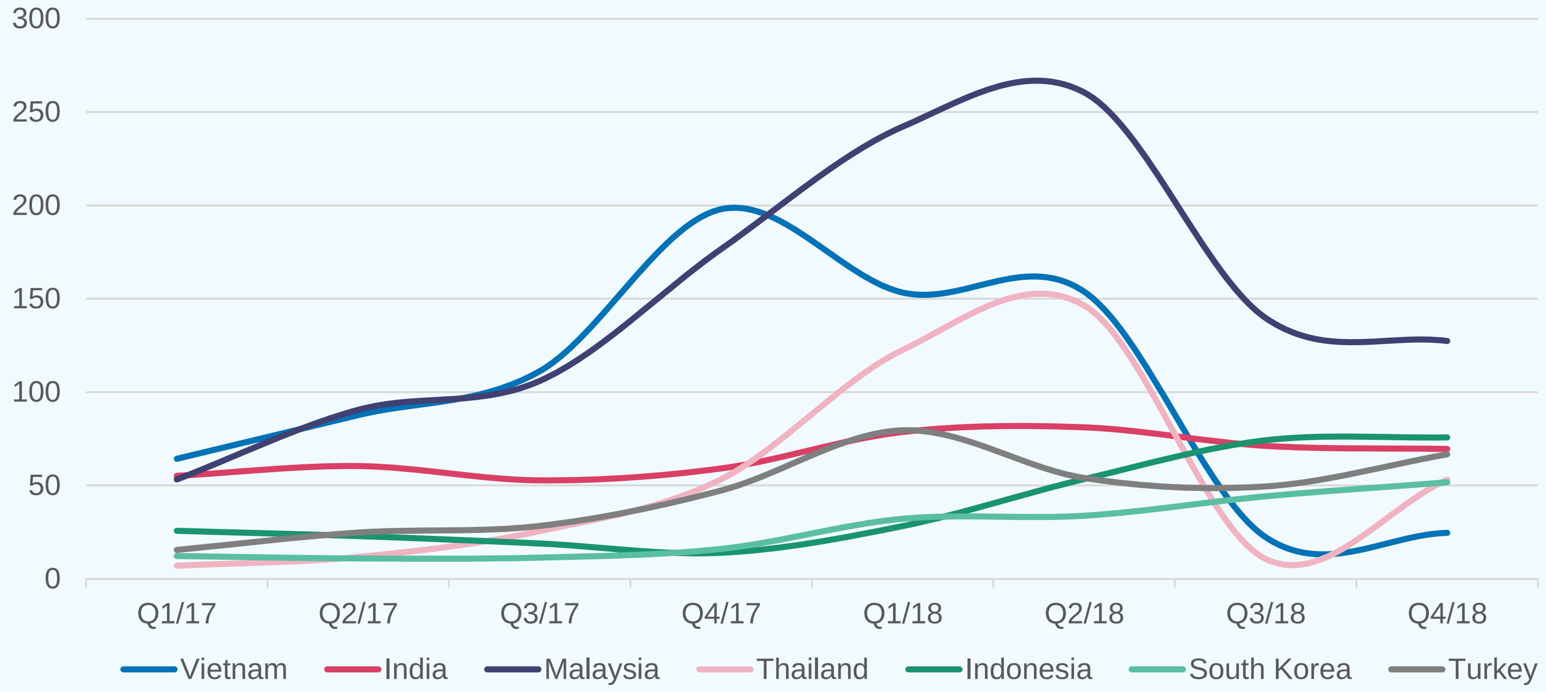
Quarterly China plastics waste imports impacted by the ban (million tons)



Source: Comtrade, China Customs, The Conference Board

Diversion to markets with weak infrastructure? Not a long-term solution

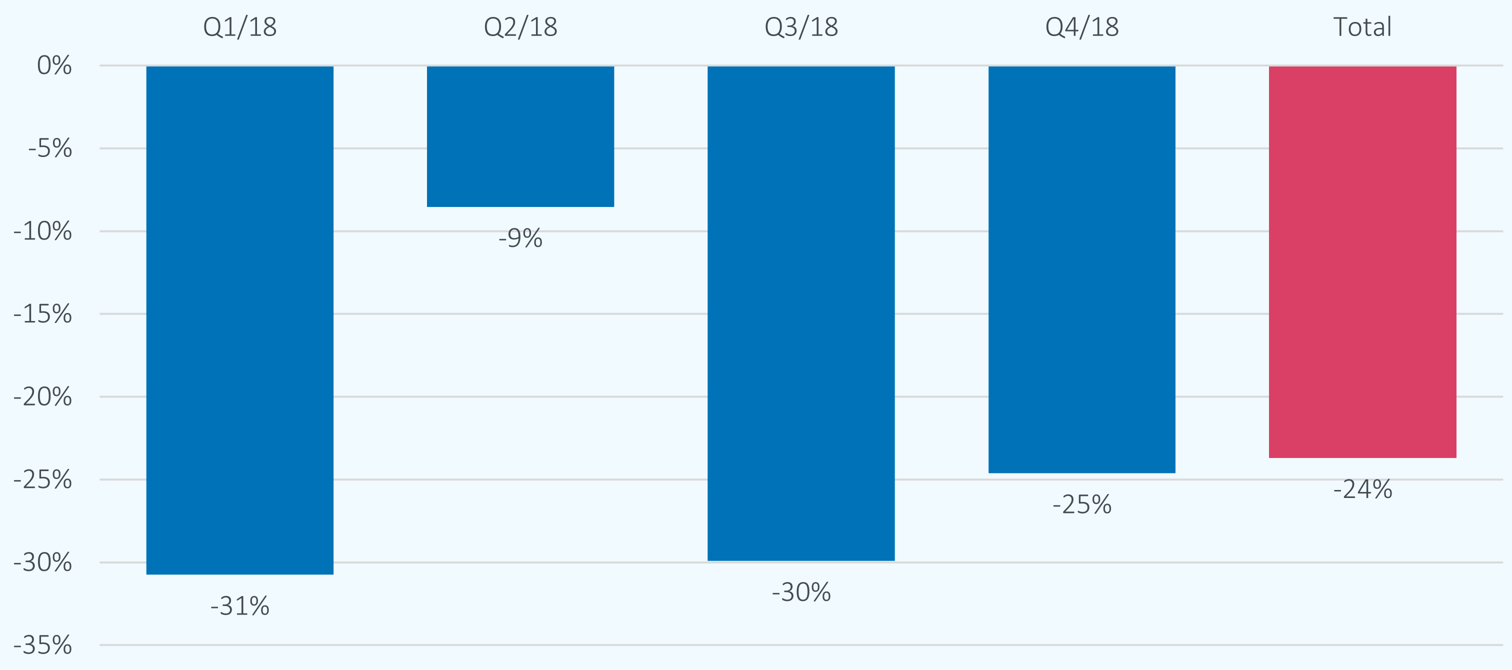
Quarterly plastics waste imports from top 10 global exporters (volume, thousand tons)



Source: Comtrade, The Conference Board

Permanently reduced levels of waste trade

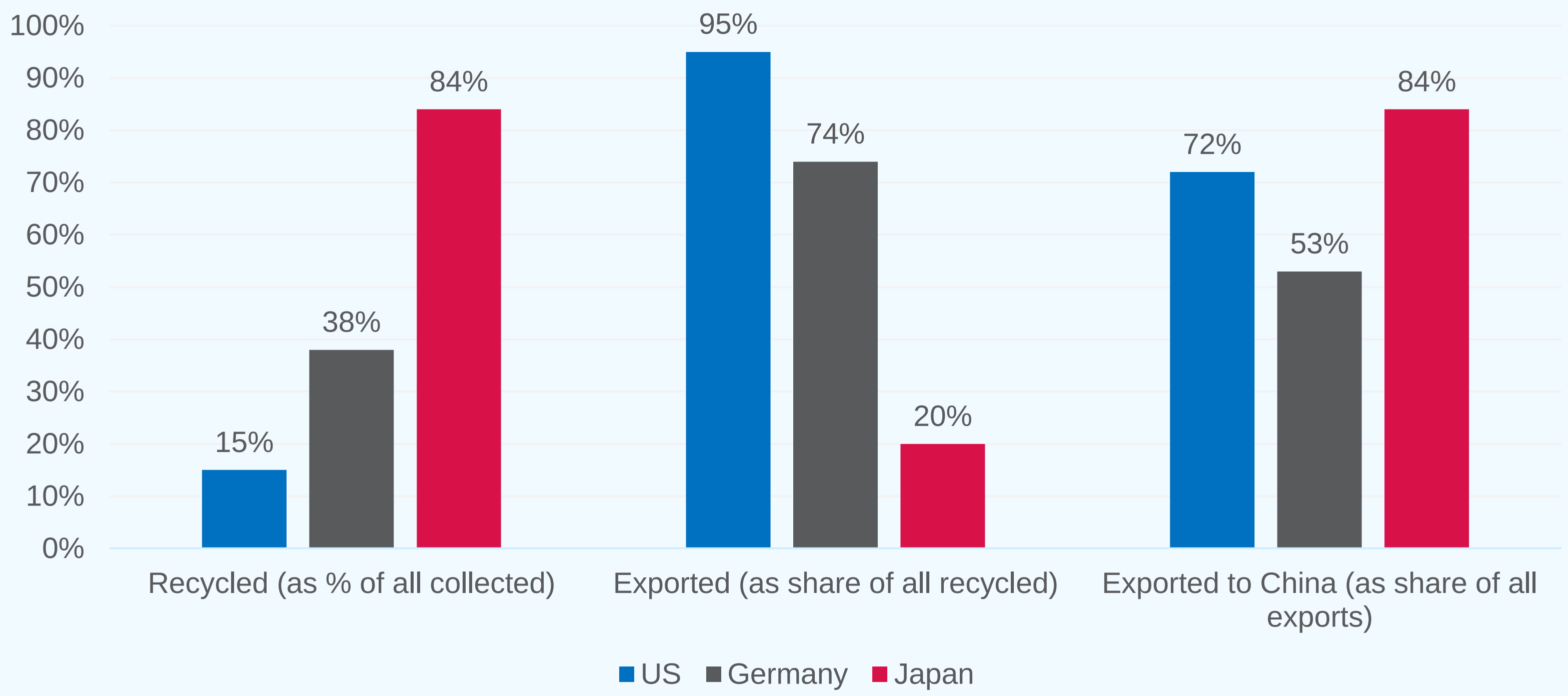
Quarterly plastics waste exports from top 10 exporters (volume, YoY growth)



Source: Comtrade, Eurostat, Portal Site of Official Statistics of Japan website, USA Trade Online, The Conference Board
Exporters include: USA, Japan, Germany, United Kingdom, Belgium, France, Netherlands, Mexico, Spain, Canada. Hong Kong and Vietnam are excluded because they mostly served as transfer hubs for China. Slovenia and South Korea are excluded because their trade value is far lower than other major exporters.

Recycling capabilities and export dependencies vary significantly across countries

Plastics waste treatment and its ultimate place of recycling before the ban (2016)



Source: Comtrade, The Conference Board

Policy intervention will continue to expand

Global

New Amendment to the Basel Convention

- Governs the export of hazardous waste and its disposal.
- Now covers mixed, unrecyclable, and contaminated plastics waste exports.
- Raises the standards of waste plastics allowed to be exported.

EU

European Strategy for Plastics in a Circular Economy

- Aims to transform the way plastic products are designed, used, produced and recycled in the EU.
- Aims to make recycling plastics profitable for business, drive investment and innovation, and reduce overall plastics waste.

EU

EU Extended Producer Responsibility for Packaging

- Extends the producer’s responsibility for a product beyond their current scope to also include the management of their product’s packaging after the product has been used by consumers.
- Will be mandatory for all packaging materials by 2025.

Local

Tightening Regulations in New Waste Export Destinations

- India officially banned all imports of solid waste plastics, effective as of September 2019.
- Malaysia, Thailand, Indonesia, and Vietnam have all enacted restrictions and are considering bans on waste plastics within the next few years.

China's domestic recycling industry will see a major upgrade over the coming decade

Envisioned future of China's waste plastic recycling industry: Leaping from version 1.0 to 2.0

- Shift from landfill and incineration to recycling
- Shift from small-scale workshops to clusters of large companies and value chains
- Application of big data to enable transparent and accountable information infrastructure across value chains
- Innovation and development of recycling technology

- The ban ultimately aims to drastically transform the existing recycling industry to become fully standardized, technologically advanced, environmentally friendly and internationally competitive.
- This indicates a positive outlook for China's domestic recycling industry.
- Massive investments, clear policy incentives, and rigorous oversight will be needed to achieve this.

Fast-tracking product life cycle innovation will be critical

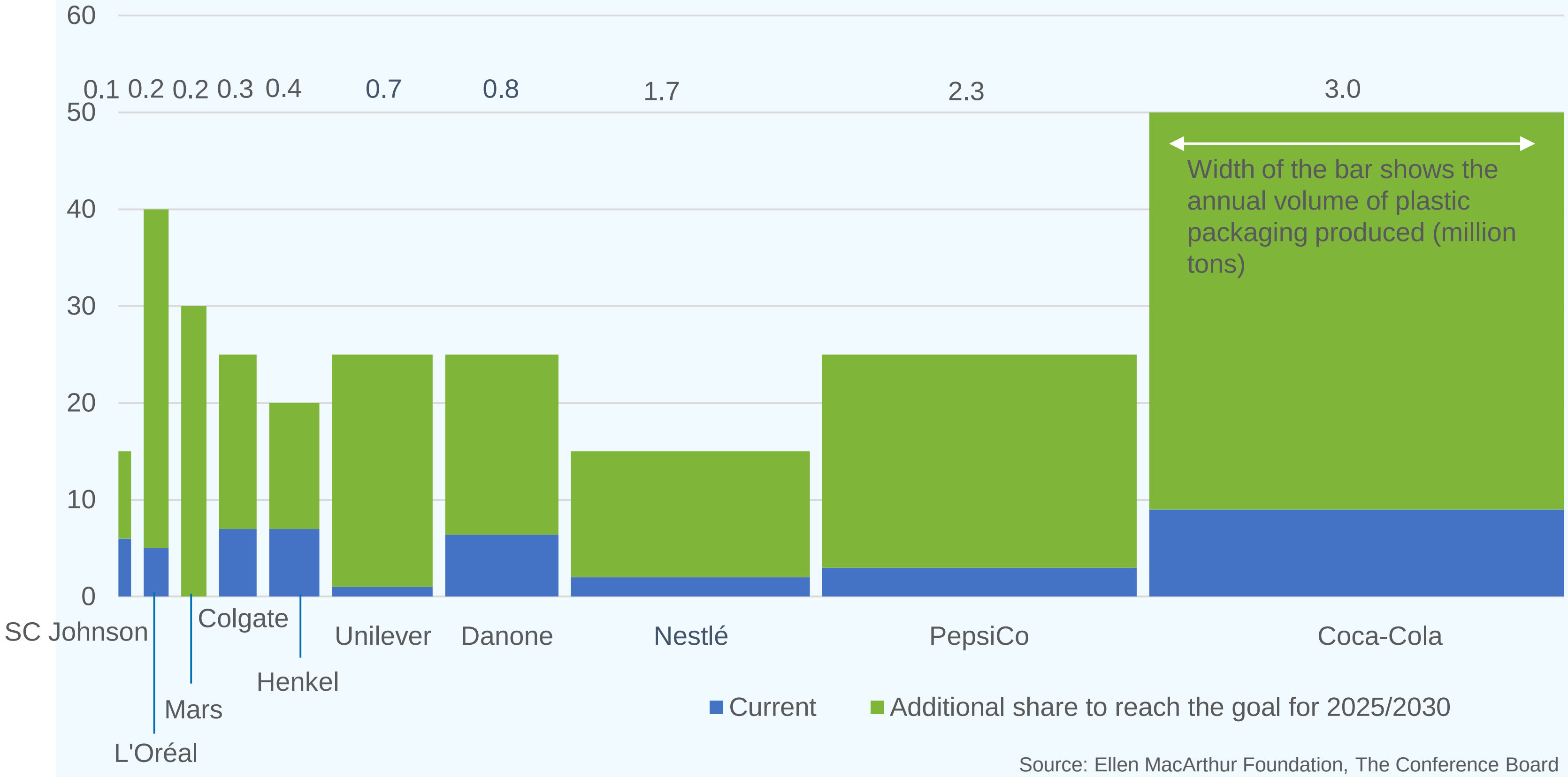
Dual focus: Reduce materials use + improve reusability, recyclability and disposability

Background image source: Ellen McArthur Foundation

Consumer good giants are committing to recycled plastic packaging targets

Post-consumer recycled content as % of total plastic packaging volume (current vs target)

Ten signatory companies of the New Plastics Economy's "Global Commitment" Initiative committed to recycled plastic packaging targets by 2025/2030 and reported progress.



Source: Ellen MacArthur Foundation, The Conference Board

WM Recycling Business Overview

Waste Management Overview

1. By year end 2019.

WHERE WE RECYCLED

Material Recovery Facilities
- 46 Single Stream
- 29 Commercial
- 16 Other
- 11 Construction and De[…]
- 2 Dual Stream

WHAT WE RECYCLED

(in tons)

PAPER	MIXED ORGANICS	FLY ASH	GLASS	METAL
8,635,161	3,591,346	1,168,061	720,594	475,278
PLASTIC	C&D / WOOD	E-WASTE / LAMPS		
349,499	202,329	19,404		

15.16 MILLION TONS
Total Recycled Materials

ORGANIC WASTE

3.6 Million Tons of Organic Material Recycled

15.4 MILLION GALLONS
of EBS produced

Food converted to biogas produced enough renewable energy to power over 1,350 homes

*Total gallons of the EBS® (organic slurry) produced as of 8/2018

44 ORGANICS RECYCLING FACILITIES

The largest organics recycling infrastructure
- 40 Waste Management managed composting and mulching facilities, 13 of which can accept food waste
- 4 CORe® facilities

19 BULKBIN™ PROGRAMS
Utilizing 2,500+ Bins

Serving customers across various industries, including manufacturing, distribution and retail

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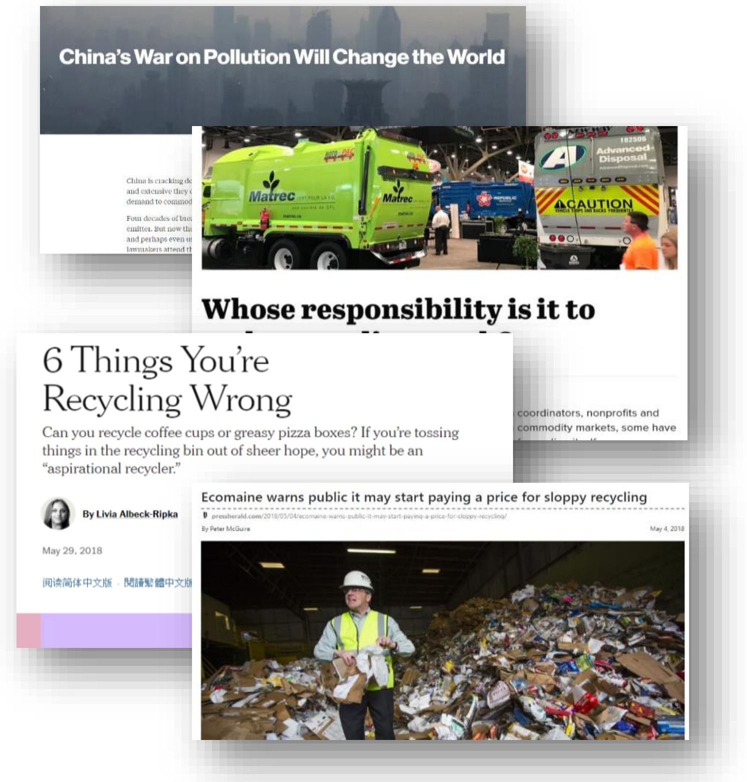
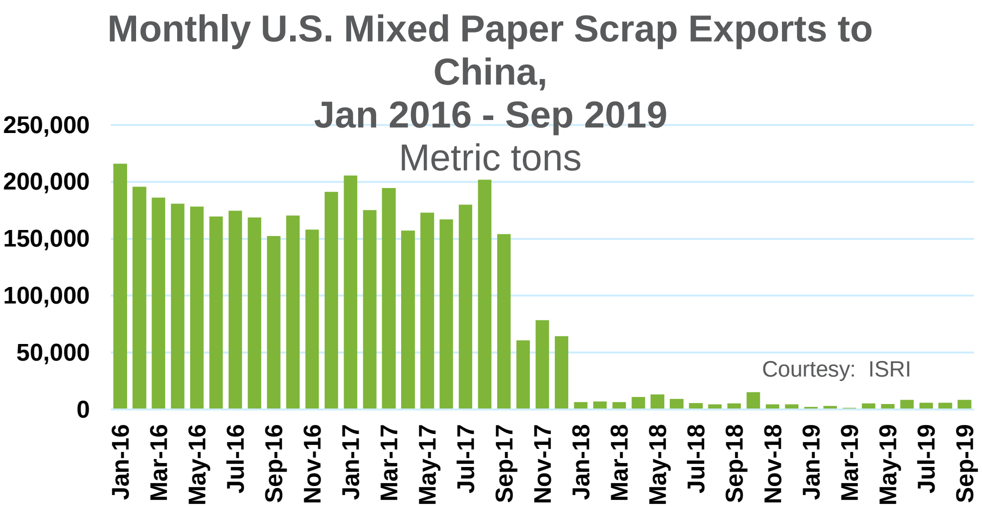
Global Market Shift:
What has Changed

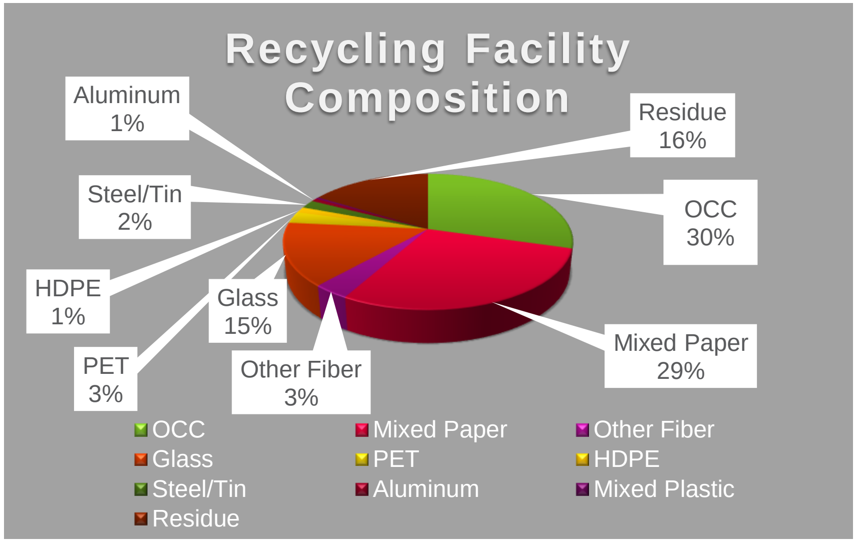
Global Market Changes are Impacting Recycling

- 2017: Over 25% of the world's recyclables were imported by China, including >50% of all paper & plastics
- China's new import policies banning materials & limiting contamination have global impacts on recycling programs in communities across US
- Operation Blue Sky = screening effort at China's ports to inspect loads, enforce material bans & 0.5% contamination limit
- Situation not likely to improve - China is on a path to eliminate imports of all post-consumer recyclables by 2021
- The reduction of China's markets have resulted in an oversupply of commodities & depressed commodity pricing. Supply is high & commodity pricing low



Paper & Plastic Export Volumes

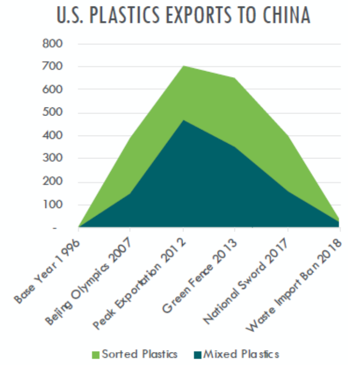




Annual and YTD U.S. Plastic Scrap Exports by Polymer, 2016 – Sep 2019

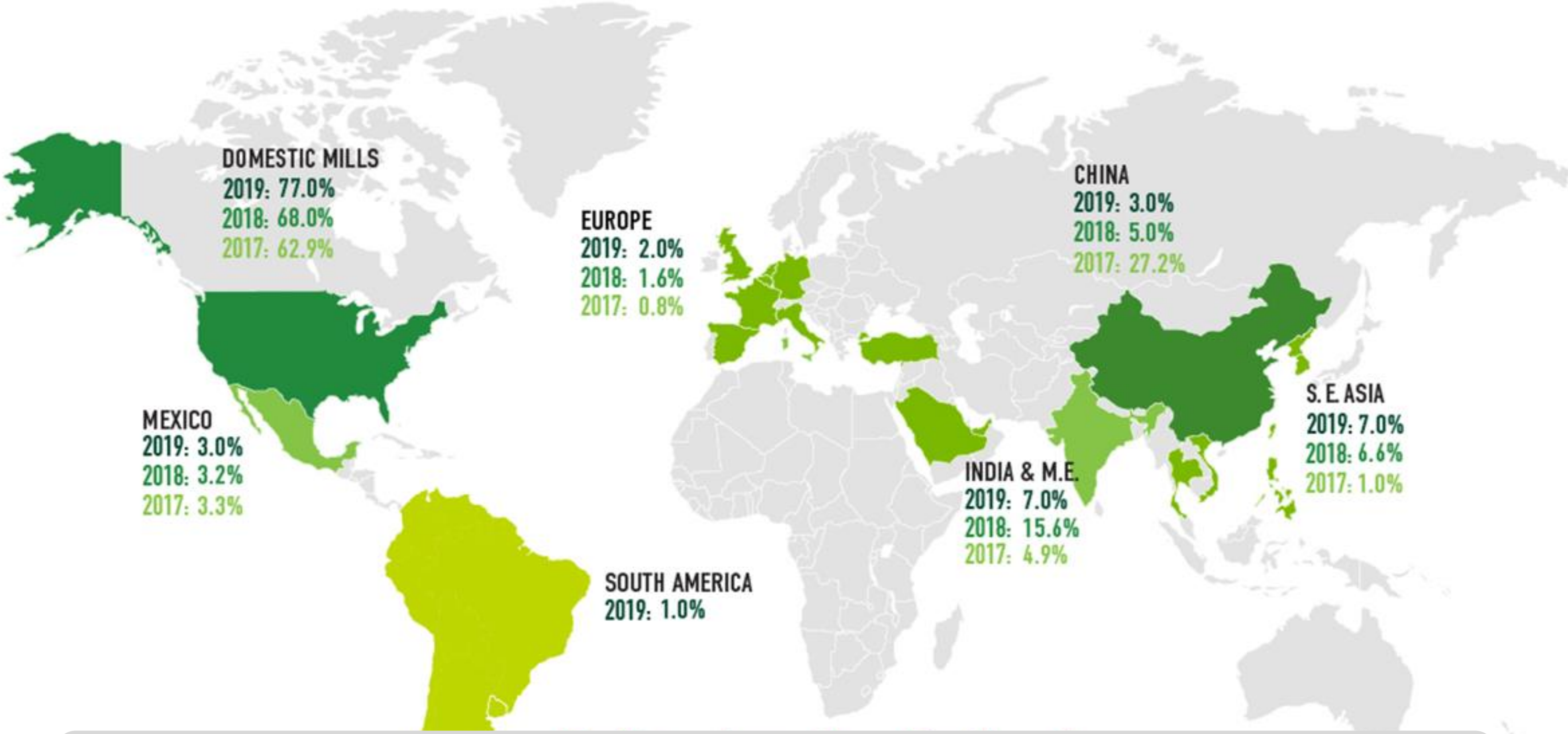
Metric tons	2016	2017	2018	Jan-Sep 2018	Jan-Sep 2019	YTD % CHG
PET	252,147	223,176	116,899	93,233	63,805	-31.6%
POLYETHYLENE	712,007	635,741	414,074	320,352	209,851	-34.5%
PVC	234,014	160,401	140,986	125,654	26,357	-79.0%
POLYSTYRENE	34,911	44,577	26,610	21,106	26,819	27.1%
OTHER	704,031	603,947	374,621	310,605	178,436	-42.6%
Total:	1,937,110	1,667,842	1,073,191	870,949	505,268	-42.0%

Courtesy: ISRI



How do these changes impact recyclers?

1. Global market movement has been disrupted



Recyclers have been forced to find new global markets:

- WM was the 7th largest exporter of all goods from the U.S. in 2017, exporting 37% of our recyclables (27% to China).
- In 2019, we export 23% of our recyclables, and <3% to China.

WM does not export residential plastics

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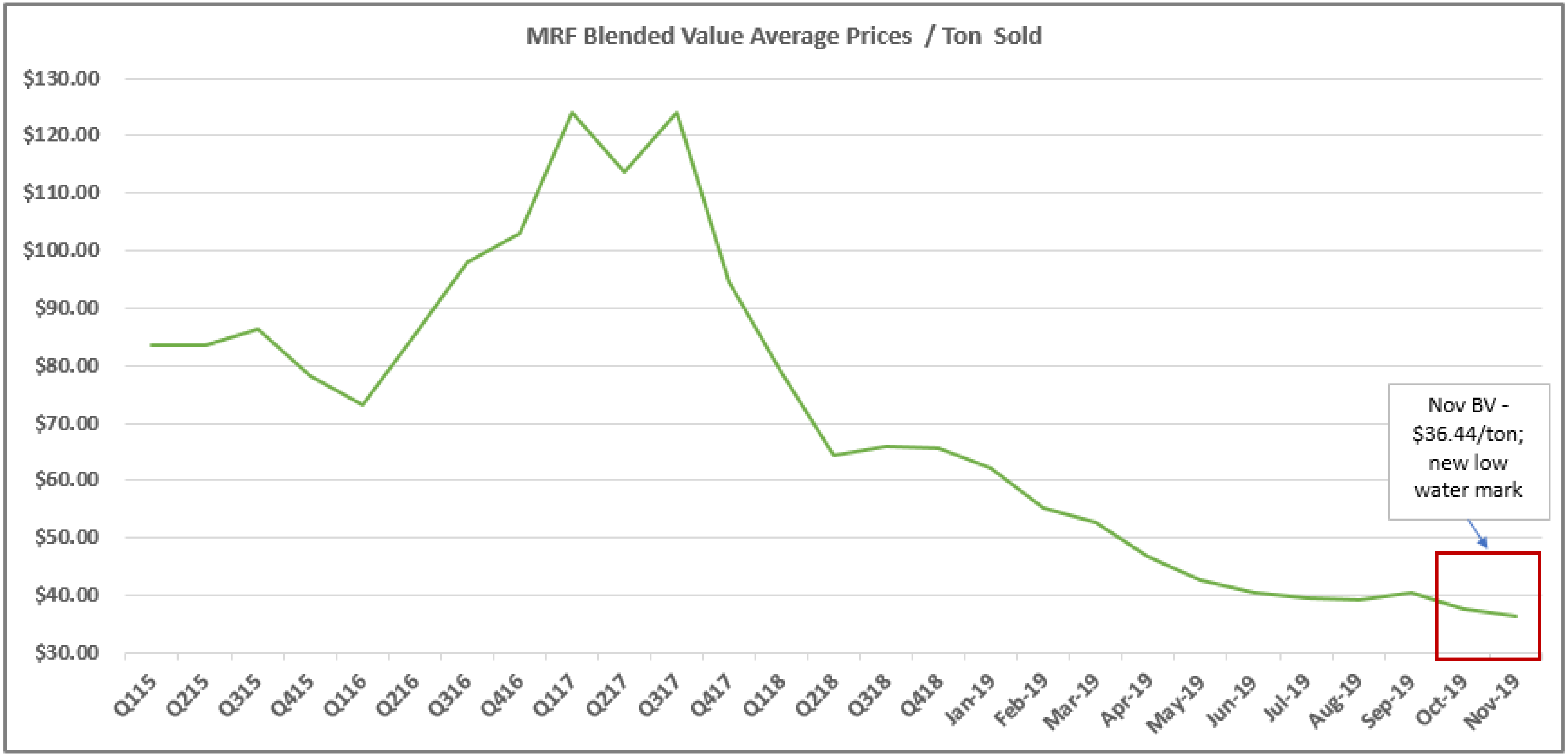
2. Demand has constricted, prices have fallen



3. Costs have increased to meet quality requirements while value has decreased

Commodity revenue has decreased while costs have increased

- Collection and processing costs exceed value of material
- The supply of recyclables is inelastic:

✓ Contracts require collection

✓ MRFs must continue to move material regardless of commodity value

✓ There is no relationship between residential recycling supply and end market demand

MATERIAL RECOVERY FACILITY (MRF)	2017	2019	Var
Revenue from Commodity Sales	$ 120.00	$ 38.00	$ (82.00)
Average MRF Processing Costs	$ 80.00	$ 90.00	$ (10.00)
Per Ton Profit/ (Loss)	$ 40.00	$ (52.00)	$ (92.00)

What does this mean for the future?

Recycling programs are being carefully scrutinized

What Recycling is NOT:

- **A feel-good activity** to justify purchases
- **A trash alternative.** Recycling is not intended to be simply a way to feel good about putting less stuff in our trash can
- **A solution of low quality material.** Manufacturers will only purchase the recyclables if they meet quality requirements
- **The solution for marine debris**
- **Free….**

What Recycling is:

- **A commodities business.** It is driven by market demand
- **Driven by demand**. If there is no market on the other end to utilize the material, the recyclables will not move … and recycling has not occurred.
- **Quality dependent.** Manufacturers will only purchase the recyclables if they meet quality requirements

Global markets conditions are driving new conversations about recycling: Our goal isn't to recycle more, but to reduce environmental impacts.

We are focusing on end markets and recycling as a feedstock

Global market shifts have forced change in the recycling industry's business approach. Recyclers are focused on processing materials that create strong end market value:

- Processing cost recovered first
- Consideration of contamination levels and cost
- End market demand, coupled with volume and value matter.

Wrap up:
Looking ahead and some good news

Where do we go from here?

- **Challenges create Opportunity**
  - Questioning paradigms makes us better
  - The industry is improving systems and processes
  - Investments are being made in infrastructure, technology and education
  - We are getting smarter at what we do and how we do it
- **Recyclers are in it for the long term: Markets will improve**
  - We are moving material to market
  - Almost 80% of all recyclables ship to domestic markets
  - Residential plastics are shipped to domestic markets
  - Domestic demand is developing
- **We are recycling**
  - Policies are shaping future packaging and programs
  - Most cities continue to recycle and are adapting in different ways
  - We are seeing renewed interest in and commitments to recycling

The dialogue around recycling has become more sophisticated.
We encourage discussion, and policies, that consider the broader environmental impacts of recycling and materials management.

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Discussion

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