Recycling for Impact

Lessons from China's National Sword

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CURC Pre-Conference Work Shop

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Nothing Left To Waste

Overview

- How did we get here?
- What's been the impact?
- Is recycling dead? (spoiler alert, no)
- How do we make recycling sustainable going forward?

How Did We Get Here?

Dynamics in the U.S. Leading to A Near Death Experience in Recycling

Collection Context

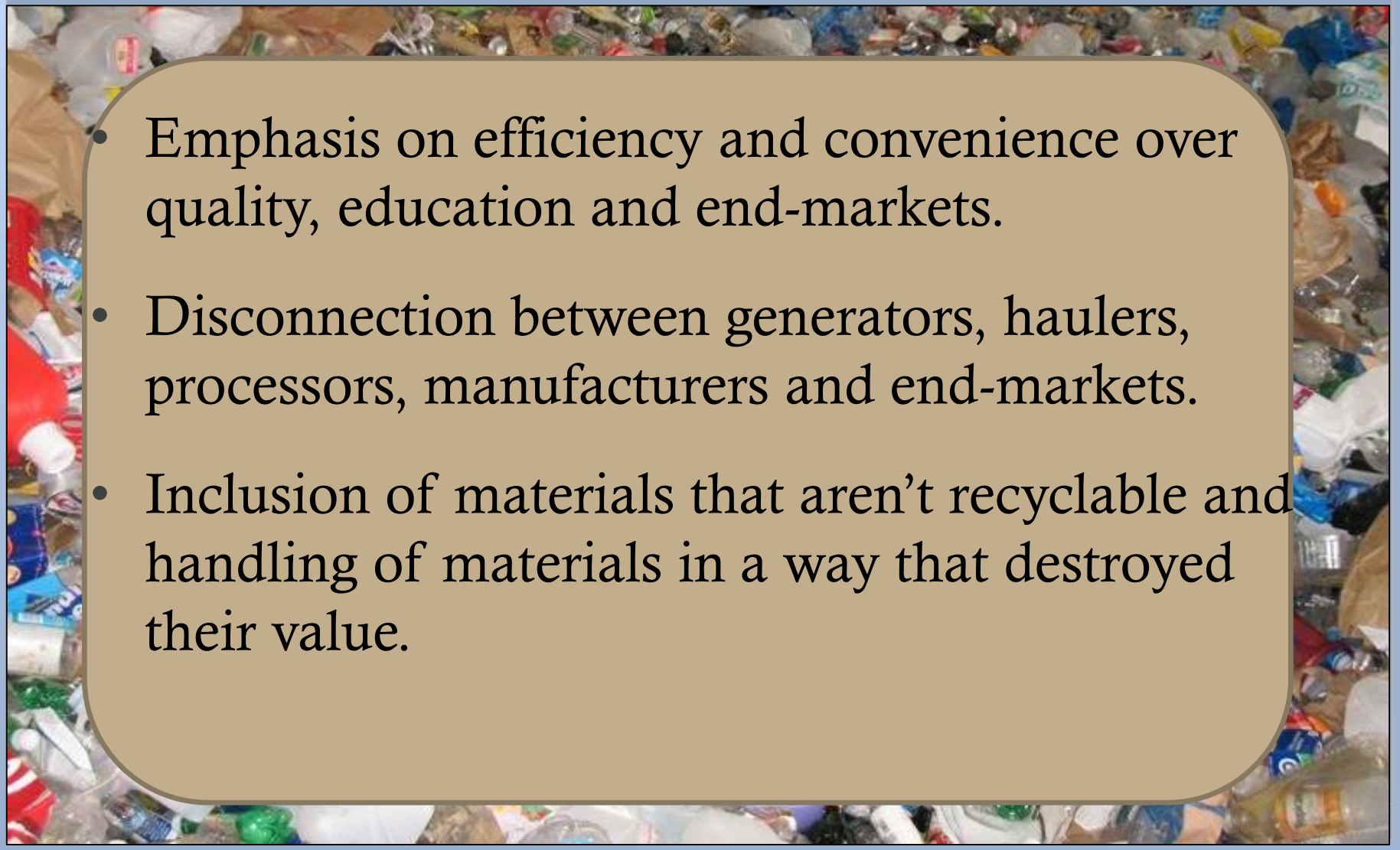
- Consolidation of community based haulers to multi-nationals.
- Move to single stream collection with carts.
- Customer focus on diversion goals, with measurement at “curb”.
- Lack of EPR efforts.

Processing Context

- Technology
- Producer Packaging Trends
- Labor Standards
- Consolidated Supply

http://apfoodonline.com/industry/going-holographic-with-flexible-packaging/

Result



- Emphasis on efficiency and convenience over quality, education and end-markets.
- Disconnection between generators, haulers, processors, manufacturers and end-markets.
- Inclusion of materials that aren't recyclable and handling of materials in a way that destroyed their value.

Meanwhile, in China…

- Opportunity for China:
  - 1980s: Ships sailing back empty.
  - 2000: Import 17% of all recyclables collected in U.S.
  - 2016: Import 40% of all recyclables collected in U.S. ($5.6 billion)

China's Actions on Recycling

- Timeline
  - 2013: **Green Fence** Implemented (passed in 2006 and 2010) – intensive inspections of incoming material.
  - 2017: **National Sword** Implemented drastically reducing import permits and banning imports of mixed paper, mixed plastic and 24 other grades of recyclables.
  - 2018: "**Blue Sky program**" implemented to inspect all materials at point of origin before buying materials for export – at processors cost. Set max contamination rates for all recyclables at **.5%**.
  - 2018: Ongoing retaliation to Trump Tariffs (aluminum and steel)
  - 2019: Expected announcements on if China will permanently ban all "unprocessed" recycling imports.

National Sword's Impact on Recycling

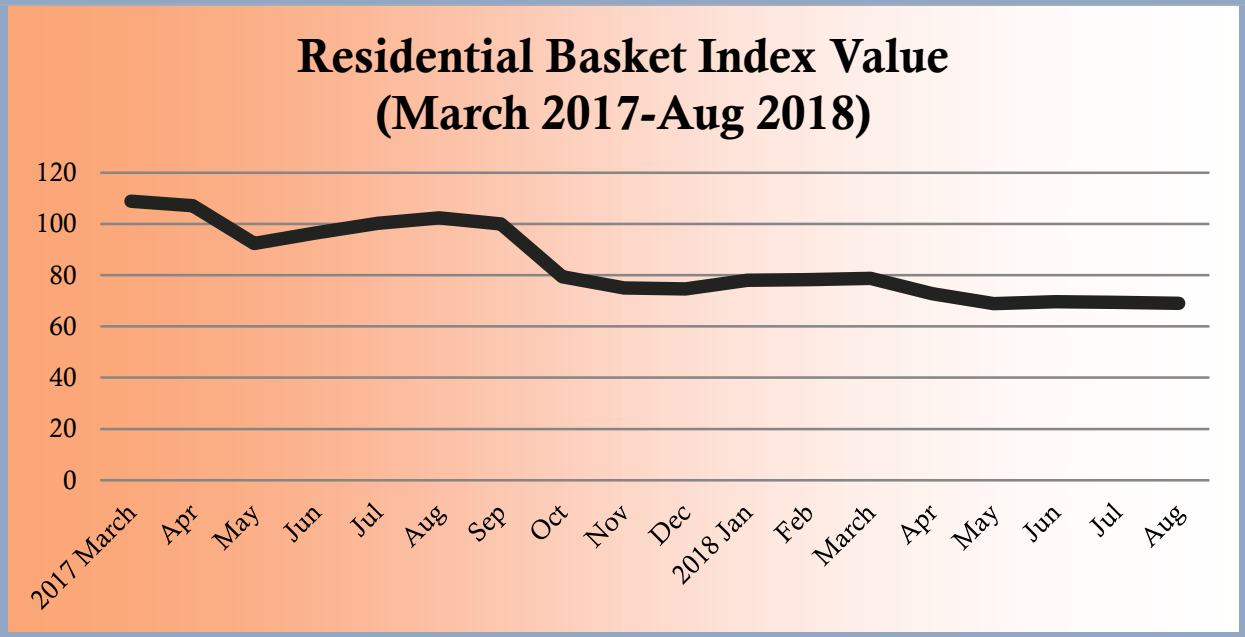
https://recyclinginternational.com/plastics/isri-18-of-us-china-scrap-trade-at-risk/

Loss of Markets and Increased Domestic Supply

Waste 360: China's Changing Import Regulations-0 What does it all mean

- Exports of mixed paper fell by 95% in 2017.
- Only 50% of exports have found another home (at least temporarily).

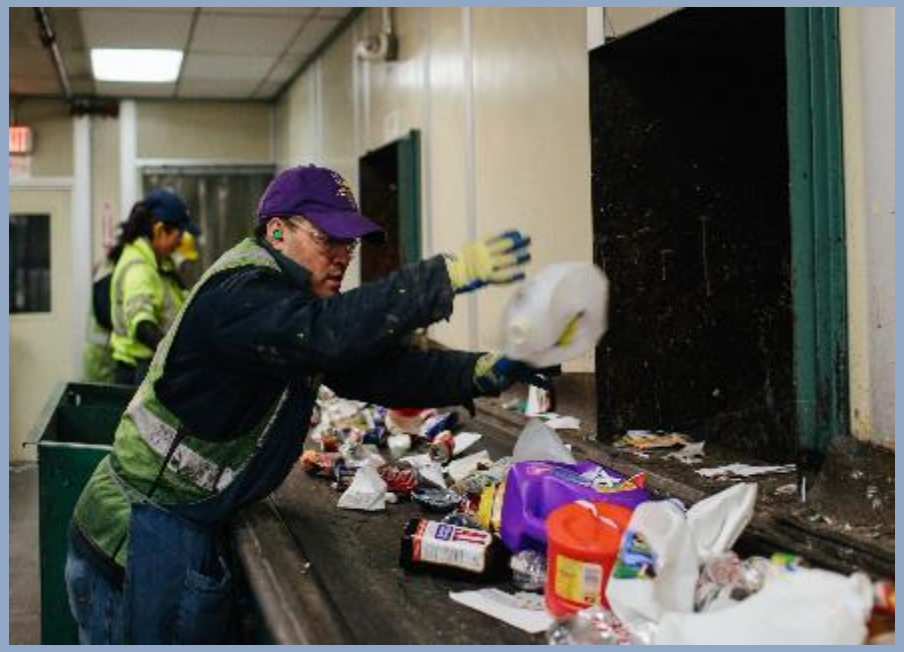
Price and Movement



- Regional Impacts Vary Greatly
  - Movement – Domestic markets dependent on quality and relationships.
  - Price – Basket value down 35%

Industry Responses

- Work to improve quality.
- Develop new end markets.
- Price increases for new services.
- Efforts to renegotiate existing contracts.
- Fines for contamination.
- Reduction or termination of services (rare).



Recycling is not dead… and it is in crisis.

The U.S. domestic recycling industry accounts for 757,000 stable jobs and $36.6 billion in wages and $6.7 billion in state, local and federal taxes.

The recycling industry has been through significant market fluctuations before.

We're starting to see some commodity prices level off.

We need to change the way we recycle to preserve the environmental and economic stability of future recycling.

WHAT CAN WE DO?

Make sure that HOW you recycle,
reflects WHY you recycle.

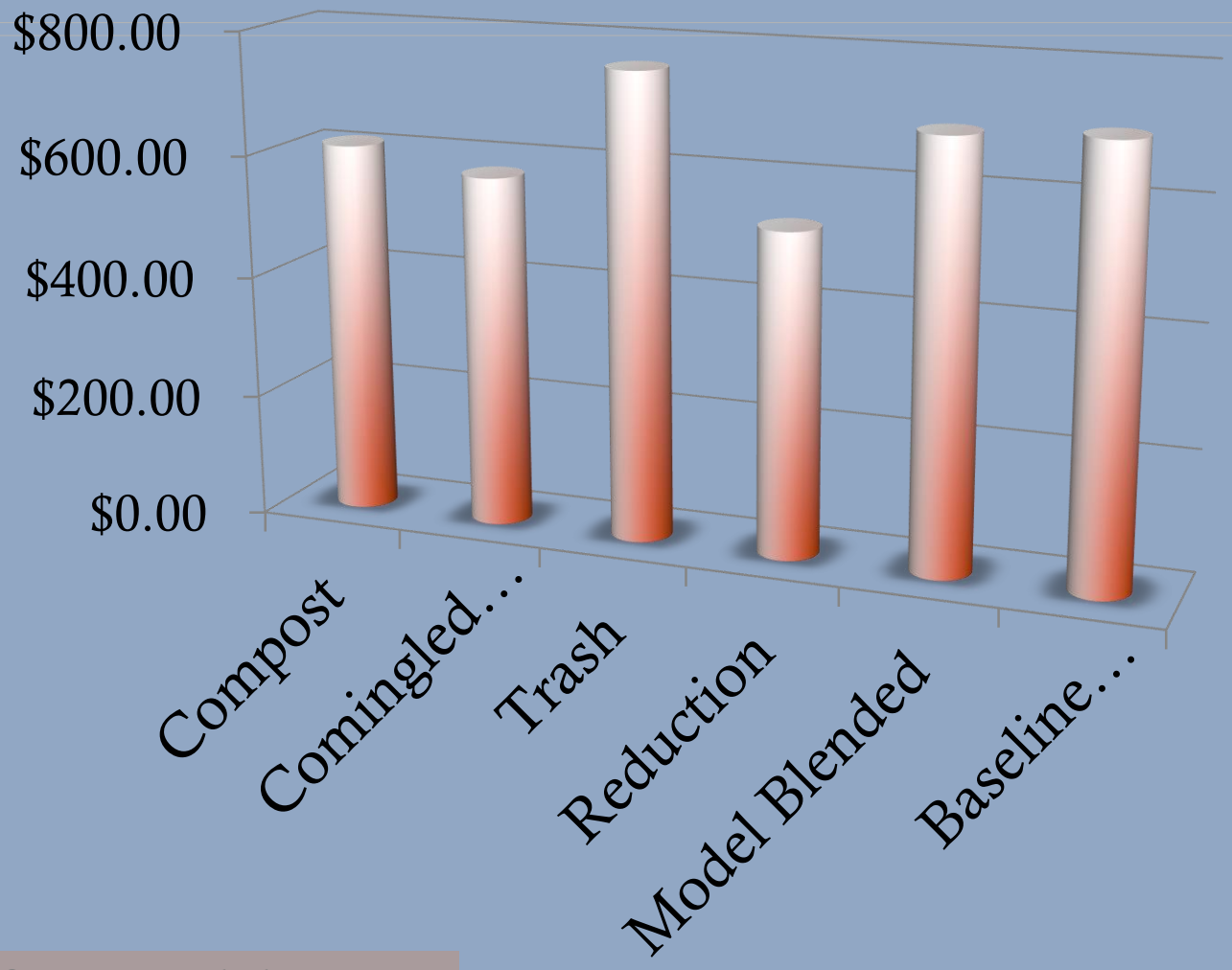
Why Do You Recycle?

Meet your goals….
with the help of recycling.

- Diversion rate as tool- not a goal.
  - What/how to measure.
  - Good measurement:
    - Guides operational decisions
    - Tracks progress and identifies areas for improvement
    - Connects benefits to broader institutional goals

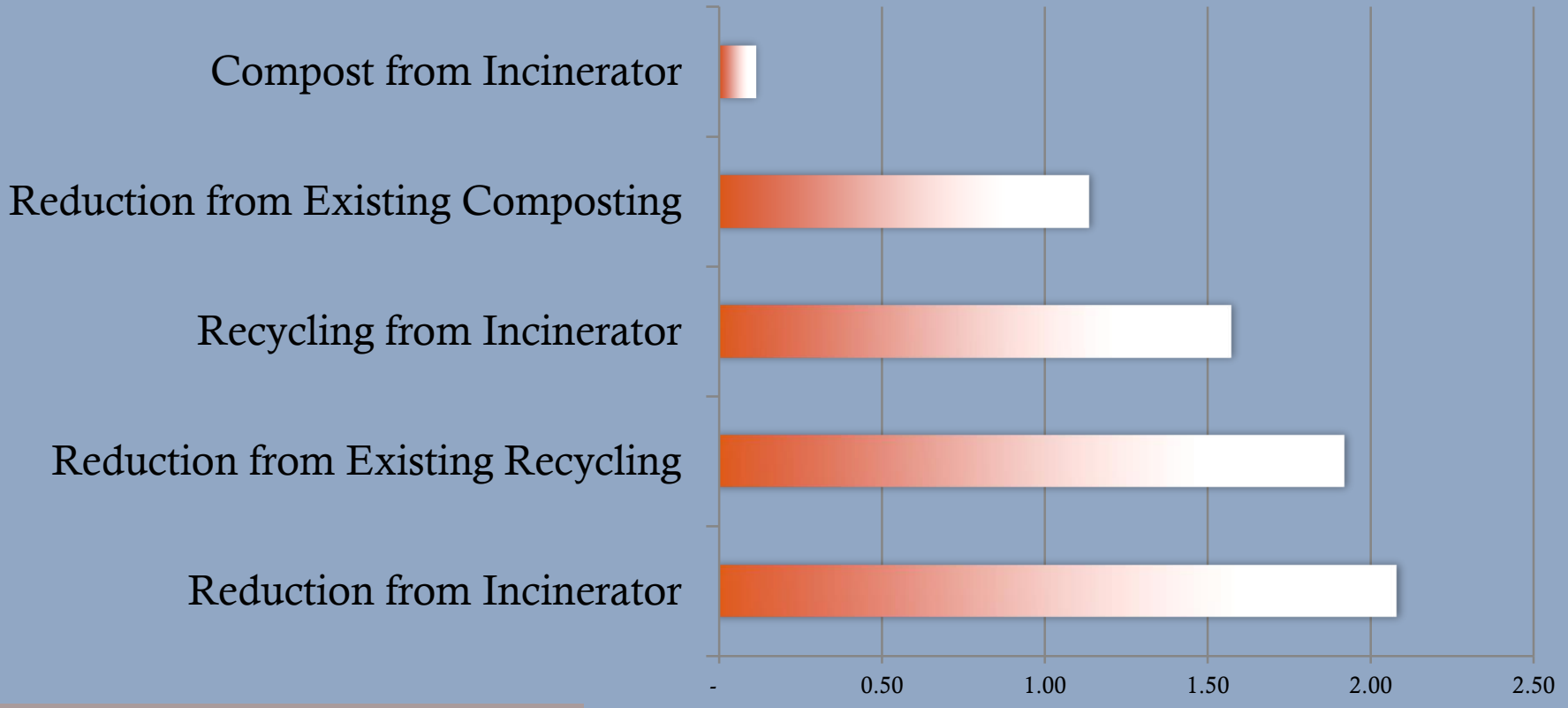
- Recycling's not always the best way to meet your goal.
  - Reduction, Reuse, Rethink
  - Need to include a broad team (purchasing, sustainability, ops, etc.).

Decouple Costs- Fully Loaded



Environmental Impact

Example: Comparative Chart of Carbon Reduction Impact Through Diversion. Shown in MTC02/Ton of Discards Diverted



Example: Summary Costs and Env. Impact Projections

	Diversion Rate	Blended Cost/Ton	Total Cost	Annual savings over baseline	Additional Carbon Reduction Value	Total Annual Savings (including Carbon)
Baseline	31.5%	$702.13	$569,564	**$0.00**	$0.00	**$0.00**
As Modeled	39%	$692.35	$561,633	**$7,931**	$35,257	**$43,188**
Model 2: Recycle and compost everything possible	82%	$621.85	$504,446	**$65,118**	$63,277	**$128,396**
Model 3: Model 2 + 50% reduction of remaining trash	91%	$550.38	$446,470	**$123,094**	$78,803	**$201,897**

Example: Reduce Single Use Plastic

Shows the impact of reducing one time use plastics from each stream. Data is specific to benefit relative to previous discard method (i.e. trash or recycling).

	trash	recycling	compost	Total
plastic %	6.38%	7.77%	.94%	
% that is one time use	80%	80%	80%	
plastic volume	25.20	30.65	5.02	
Carbon Value	($8,147)	(2,759)	($1,622)	($9,772)
Discard Savings	($5,836)	($1,444)	($412)	($6,250)
NET Savings From Reducing Plastics	**($13,983)**	**($5)**	**($2,034)**	**($16,022)**

Education

- Investment and commitment in ongoing education
- Important to share beyond the "how"
  - Why is it important?
  - What happens to recycling?
- Institutionalize program and campus wide buy-in

Working With Local Contractors

- Get to know your operators.

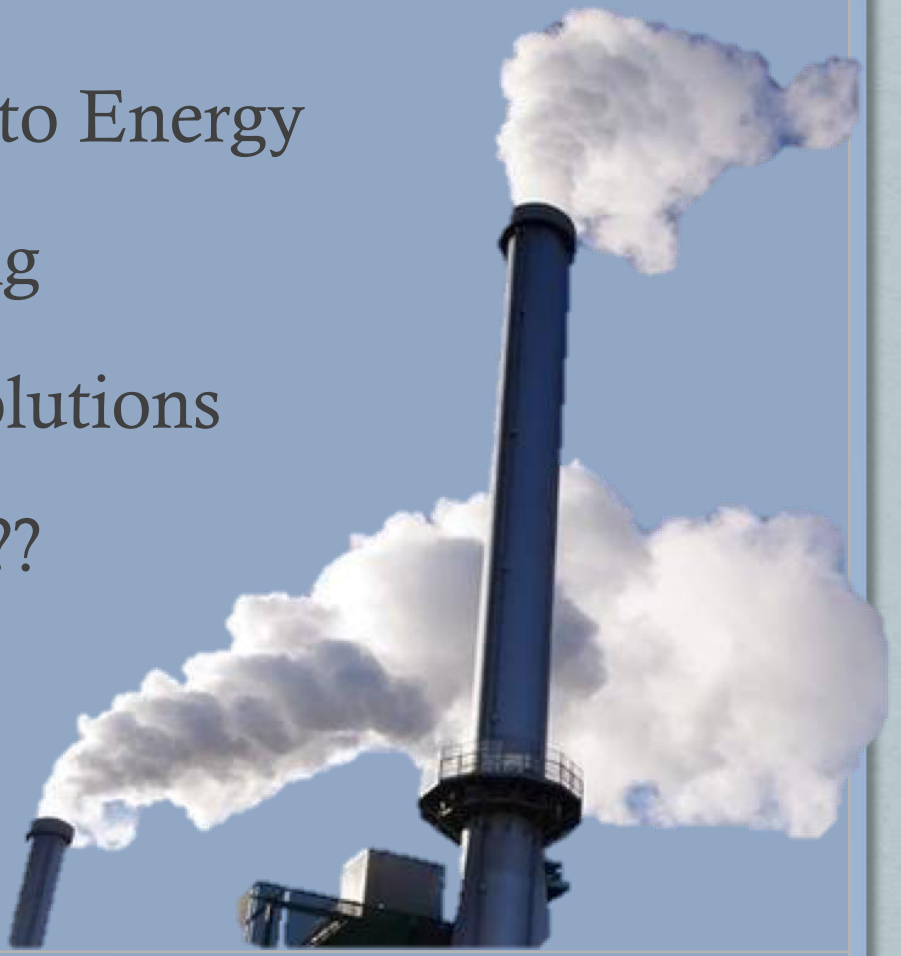
- Understand the marketplace.

- Take advantage of local opportunities in your operations plan.

- Develop contracts that meet help meet your goals.

Beware of…

- "Recovery" aka Waste to Energy
- Mixed Waste Processing
- "Marketing" Driven Solutions
- Chemical Recycling - ???



Conclusion

- Know why you're recycling.
- Connect the dots.
  - Purchasing
  - Collection
  - Processing
  - End-Markets
- Recycle and keep pushing further to meet your goals.
- Our current recycling system may not be perfect- but we can keep it impactful!

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