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Research exercise: Closed Loop Container Glass Recycling in the State of Ohio

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Title: Close Loop Container Glass Recycling in Ohio

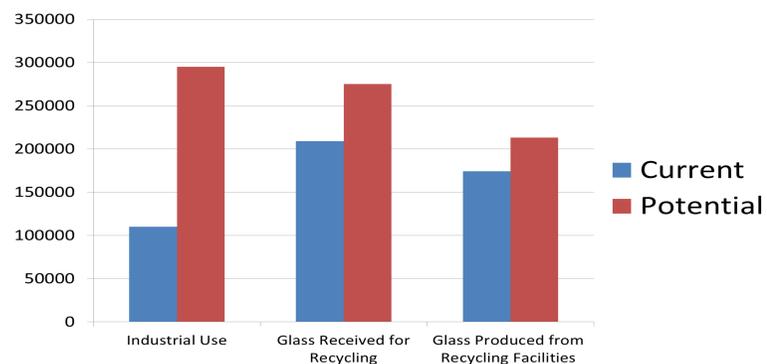
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Abstract

- Ohio is in a unique position when it comes to its ability to receive and process recycled glass material because of its close proximity to a number of glass product manufacturers.
- This gives Ohio recycling companies the ability to collect and process recycled glass with minimal efficiency losses from transportation.
- However, they have far from reached their max potential in recovery rate and material retention.
- This poster examines possible simple solutions in order to increase the efficiency and quality of the glass recycling process as well as the benefits of increased use of recycled glass material by manufacturers.

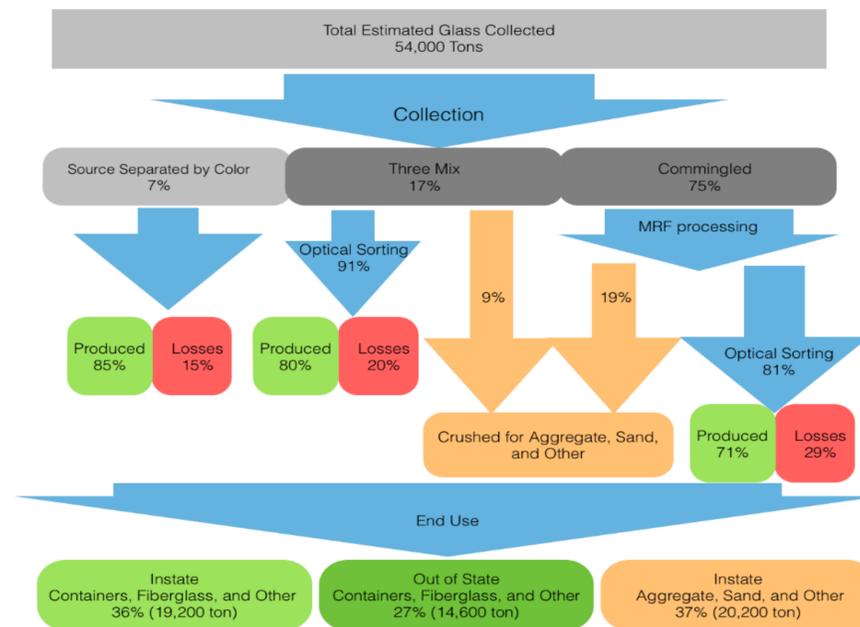
Glass Material Use in Ohio (tons)



Overview

- Currently Ohio is actually producing more recycled glass material than it is consuming.
- However, Ohio is still far from achieving a closed looped system.
- Due to a mixture of glass quality and demands, Ohio still exports a significant amount of recycled glass and imports virgin material creating a huge loss of efficiency.
- The more glass produced will allow more of the glass cullet produced to stay in state in turn resulting in increased efficiency of the recycling process.

Process Overview



Possible Methods for Improvement

- Glass recycling in Ohio, while not perfect, does over all embody a efficient system for collecting and processing the glass given the size of their operation.
- However, there are a couple methods proven to be effective that, if implemented, could be used to better the amount of glass collected and the material retention.

Separate Glass Curbside Recycling:

- As displayed above, when glass is collected separately there is a 9% increase in the material retention.
- A further 5% if the material is collected after being separated by color.
- Simply by asking for the home owner to separate glass from the rest of the recyclables, recycling facilities could increase their effectiveness by almost 10%.

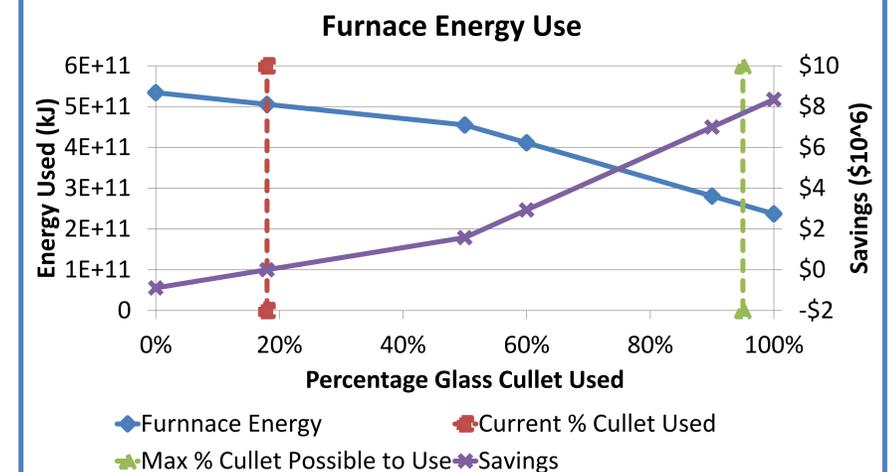
Container Deposit Program:

- A container deposit program typically offers a location for residents to come and drop off their recycling in exchange for a refund.
- This economic incentive not only often increases the rate of local recycling, however, this approach would also make it possible to offer better rewards for separate glass or even separate by color recycling.
- Studies have even shown that these programs can increase the local amount recycled by over 40%.

Benefits of Using Recycled Glass

- There is a significant energy benefit to using recycled glass for manufacturing.
- Recycled glass cullet requires far less energy to be put into the furnace during processing than if only virgin materials were used.
- In addition, recycled cullet can account for up to 95% of the material used to produce a glass product.

Results



	Energy Use (MJ/year)	Savings(\$)	CO2 (kg)
Annual Max Possible Savings	268,488,000	8,352,958	50,300,000

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