

Municipal Perspective on Thermal Treatment Facilities for Nova Scotia

Presented by:

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Presentation Outline

- ▶ **Current Operational System**
 - ▶ Facilities & Partnerships
 - ▶ What's Working
- ▶ **Questions, Comments and Concerns from Municipalities**
 - ▶ Stranded Assets: From landfills to transfer stations
 - ▶ Feedstock: What's 'really' in? What options to support challenging materials?
 - ▶ Outside of NS Materials?
 - ▶ Enforcement & Compliance
 - ▶ 20-year Messaging: World Leaders - We don't want to lose that
- ▶ **Conclusions**

Current Operational System

Types of Facilities

- ▶ Municipal owned/operated
- ▶ Regionally owned/operated
- ▶ Privately owned/operated
- ▶ Public-Private relationship

Considerations for Facilities

- ▶ Operational control
- ▶ Product cycle confidence (Where do materials end up?)
- ▶ Jobs
- ▶ Geography (Do you build or do you truck?)
- ▶ Funding
- ▶ Community perception

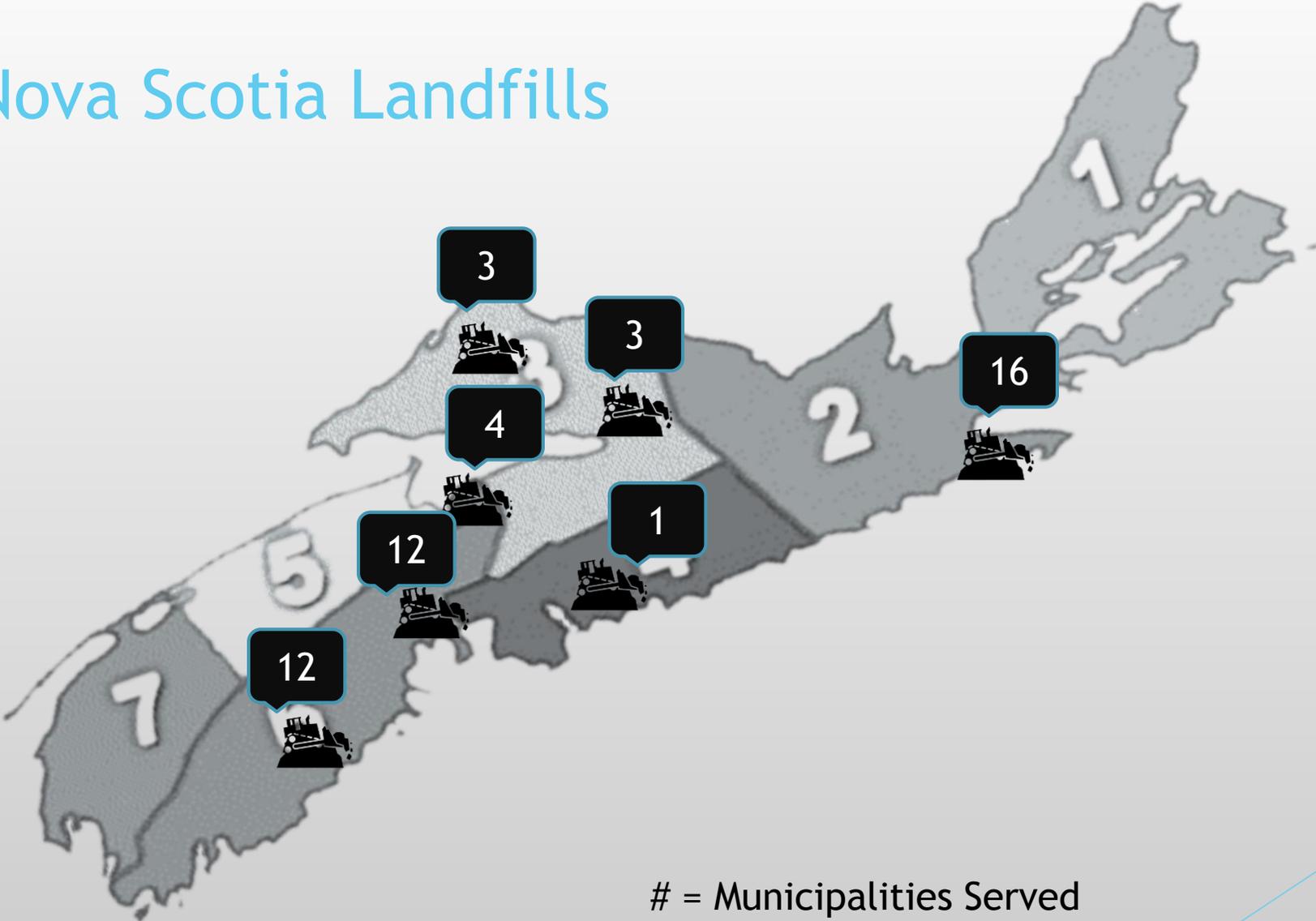
Nova Scotia Solid Waste - By the Numbers

	Population	950,000+
	Municipalities	50
	2 nd Generation Landfills	7
	Material Recovery Facilities (MRF)	9
	Organics Processing Facilities	15
	Transfer Stations	17
	Construction & Demolition Debris Sites	32

In addition to these facilities, Nova Scotia has:

- 75+ ENVIRO-DEPOT™
- 20+ EPRA Drop-Offs (electronics)
- 540+ Tire Drop-Offs
- 6 Textile Collection Organizations with countless drop-off locations

Nova Scotia Landfills

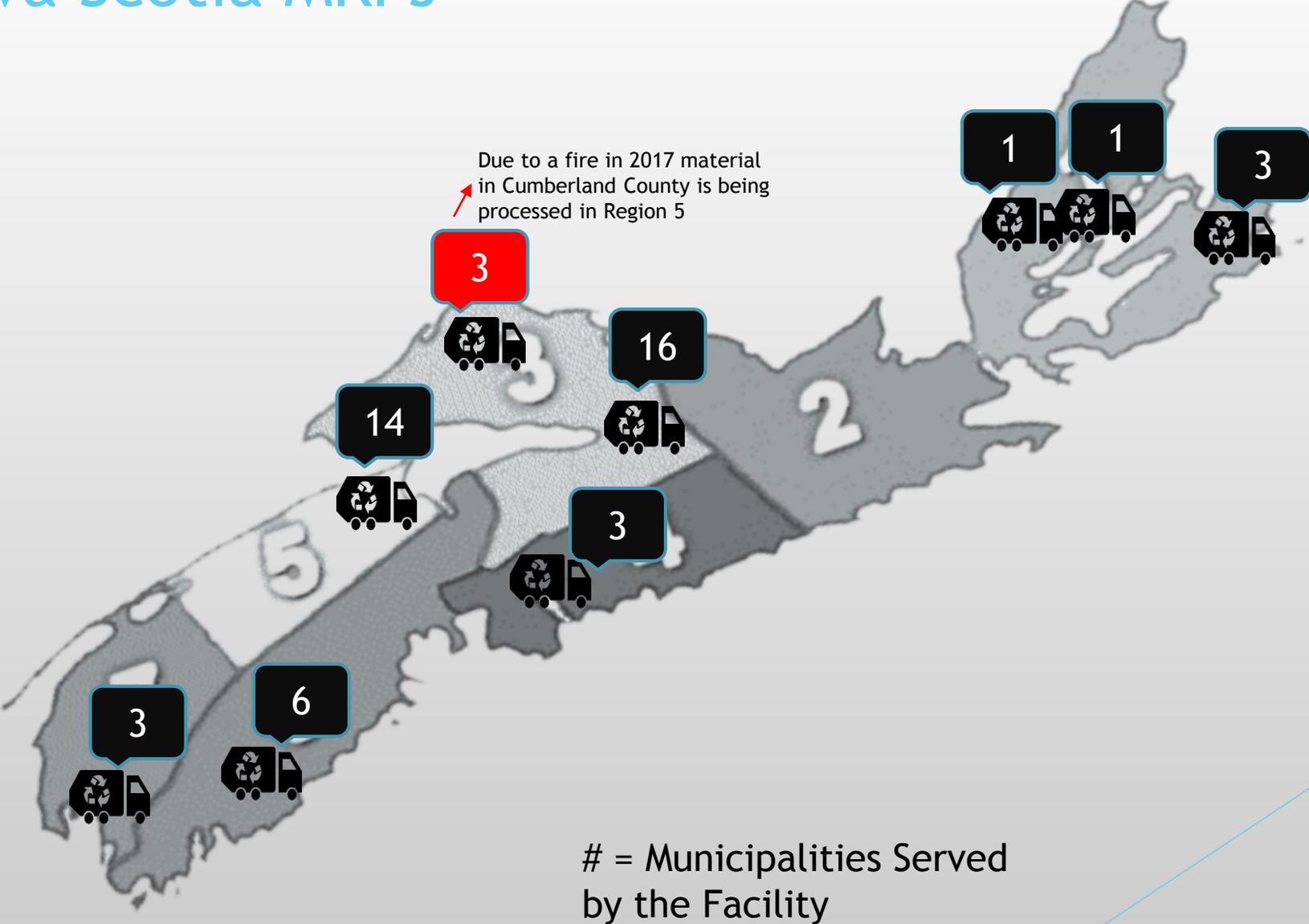


= Municipalities Served by the Facility

NS Landfills - Municipal Connections

Guysborough	Colchester	Cumberland	Halifax	Chester	Queens	West Hants
Inverness Port Hawkesbury CBRM Victoria Richmond Pictou (Town) Pictou (County) New Glasgow Stellarton Trenton Westville St. Mary's Antigonish (Town) Antigonish (County) Mulgrave Guysborough	Truro Stewiacke Colchester	Amherst Oxford Cumberland	Halifax	Annapolis Royal Berwick Kentville Middleton Wolfville Kings Lunenburg (Town) Lunenburg (County) Mahone Bay Bridgewater Chester Halifax - ICI	Shelburne (Town) Shelburne (County) Clark's Harbour Barrington Digby (Town) Digby (County) Yarmouth (Town) Yarmouth (County) Argyle Clare Lockport Queens	East Hants West Hants Windsor Halifax - ICI Annapolis

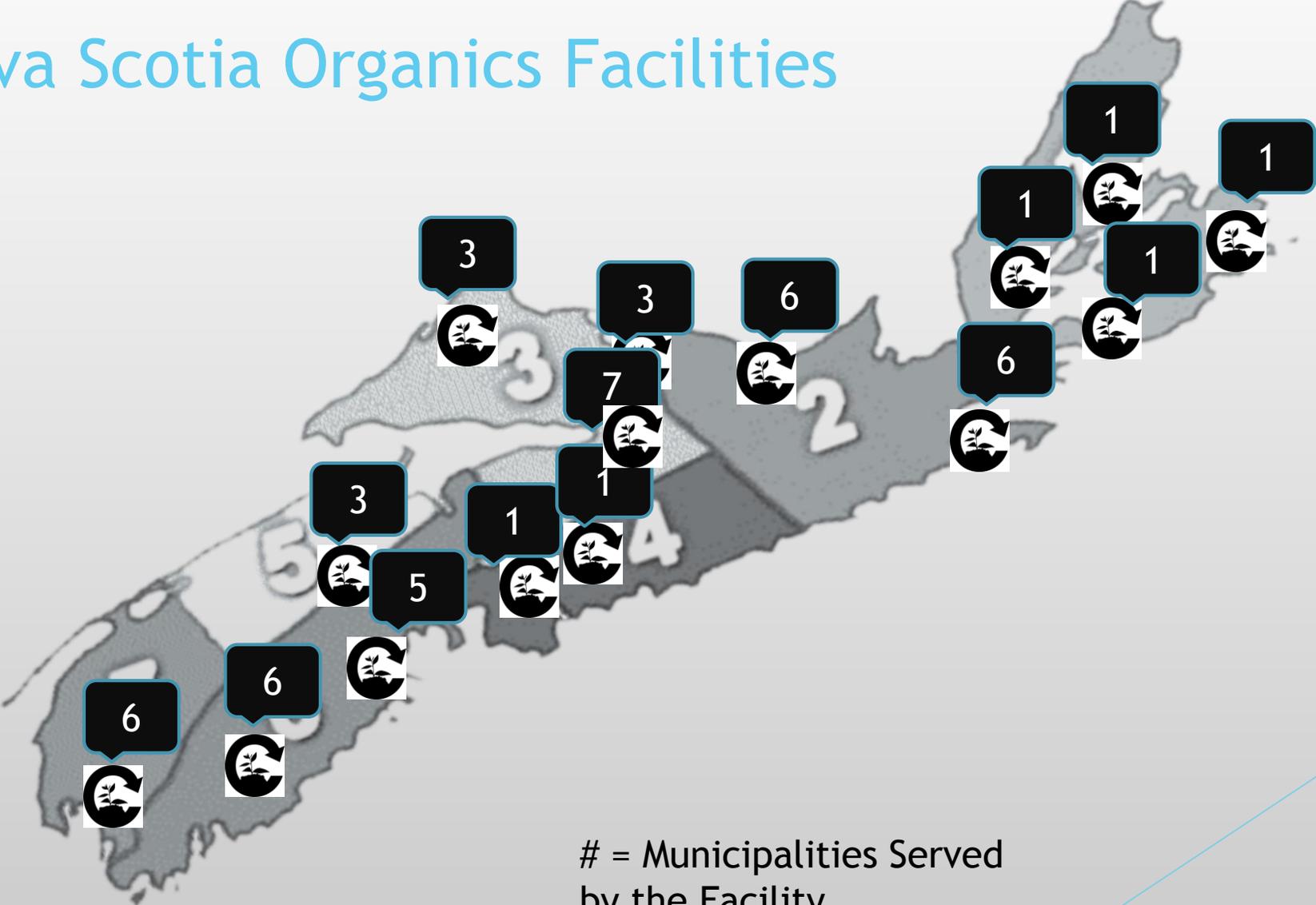
Nova Scotia MRFs



NS MRFs - Municipal Connections

Camdon Recycling Ltd.	CBRM, Richmond, Port Hawkesbury
Stathlorne	Inverness
Victoria	Victoria
Cumberland Joint Services	Amherst, Oxford, Cumberland (currently going to Scotia Recycling due to 2017 fire)
Colchester	East Hants, Pictou (Town & County), New Glasgow, Stellarton, Trenton, Westville, St. Mary's, Antigonish (Town & County), Guysborough, Mulgrave, Truro, Stewiacke, Colchester, Windsor
Halifax	Chester (Lunenburg Town), Halifax
Scotia Recycling (Kentville)	Annapolis Royal, Annapolis County, Berwick, Kentville, Middleton, Wolfville, Kings, West Hants, Mahone Bay, Lunenburg (County), Bridgewater, Digby (Town & County), Clare
Queens	Lockport, Queens, Shelburne (Town & County), Clark's Harbour, Barrington
Scotia Recycling (Yarmouth)	Yarmouth (Town & County), Argyle

Nova Scotia Organics Facilities



= Municipalities Served by the Facility

NS Organics Facilities - The Connections

Cape Breton Regional: self process	Miller Compost (private): Halifax
Inverness: self process(ICI only)	Goodwood (previously New Era): Halifax
Queens (pre-process then transfer to Northridge Farms): Lockport, Queens, Shelburne (Town & County), Clark's Harbour, Barrington	Northridge Farms (private): Annapolis, Windsor, West Hants
Victoria County: self process	Richmond: self process
Guysborough: St. Mary's, Antigonish (Town & County), Mulgrave, Guysborough, Port Hawkesbury	Lunenburg: Lunenburg (Town & County), Mahone Bay, Chester, Bridgewater
Colchester: Truro, Stewiacke, Colchester	Pictou County: Pictou (Town & County), New Glasgow, Stellarton, Trenton, Westville
Cumberland: Amherst, Oxford, Cumberland	Fundy Compost (private): East Hants, Annapolis Royal, Berwick, Kentville, Middleton, Wolfville, Kings
Yarmouth: Yarmouth (Town & County), Argyle, Digby (Town & County), Clare	

Municipal Achievements

Nova Scotia has a mature and highly integrated solid waste system

- ▶ High level of public support and high participation rates
- ▶ High level of public outreach, education programs

The lowest disposal rate in Canada

- ▶ Municipalities always looking at ways to reduce and divert solid waste
 - ▶ Recent additions such as drywall, textiles, cat litter
- ▶ Provincial and Municipal regulatory requirements
- ▶ Incentives to encourage diversion
 - ▶ Tipping fee structures, funding programs

Municipal Achievements

▶ Economic benefits of recycling, composting

- ▶ Employs thousands in NS
- ▶ Reduced demand on natural resources
- ▶ Value added materials



Challenges

Operational Costs (Year-Over-Year)

- ▶ Municipal solid waste costs have increased by **56%** over the **last 10 years**
- ▶ High fixed infrastructure costs regardless of volume
 - ▶ Many fixed assets require upgrades
 - ▶ Leachate treatment



Challenges

Poor or inaccessible markets:

- ▶ Plastic film, low grade plastic containers, glass
- ▶ Industry using more mixed/laminated packaging
- ▶ Biodegradable plastics
- ▶ C&D waste

Ongoing:

- ▶ Organics, paper and recyclable containers still in residual waste stream after 20 years of education, compliance
- ▶ Contamination in organics and recycling streams
- ▶ Poor compaction materials at landfill
 - ▶ Bulky waste, mattresses, foam polystyrene

Opportunities

Potential options for hard to manage materials

- ▶ Compost “overs”
- ▶ Low grade plastics, dirty plastics
- ▶ Construction and demolition materials; bulky waste
- ▶ Corrugated cardboard
- ▶ **Reduce dependency on uncertain overseas markets**
- ▶ **Potential to simplify and streamline sorting guides**
- ▶ **Need to open our minds and regulations to new ways of operating**
- ▶ **Create a resource from materials being landfilled; potential to mine or extend life of current landfills**

Questions, Comments & Concerns

Stranded Assets: From landfills to transfer stations

- ▶ Potential for higher disposal costs for municipalities to subsidize new infrastructure while maintaining existing or abandoned infrastructure
- ▶ Potential loss of tipping fee revenue at landfills, transfer stations

Oversight for thermal treatment facilities

- ▶ Approvals (how many can NS reasonably 'feed')
- ▶ Volume considerations
- ▶ Acceptable feedstock

Questions, Comments & Concerns

Enforcement & Compliance

- ▶ Will landfills receive a higher level of scrutiny if thermal treatment is considered diversion?
- ▶ Will solid waste from out of province be permitted?

Feedstock

- ▶ What's 'really' in?
- ▶ Options for how to manage items that cannot be accepted at thermal treatment facilities

Questions, Comments & Concerns

20-year Message: World Leaders

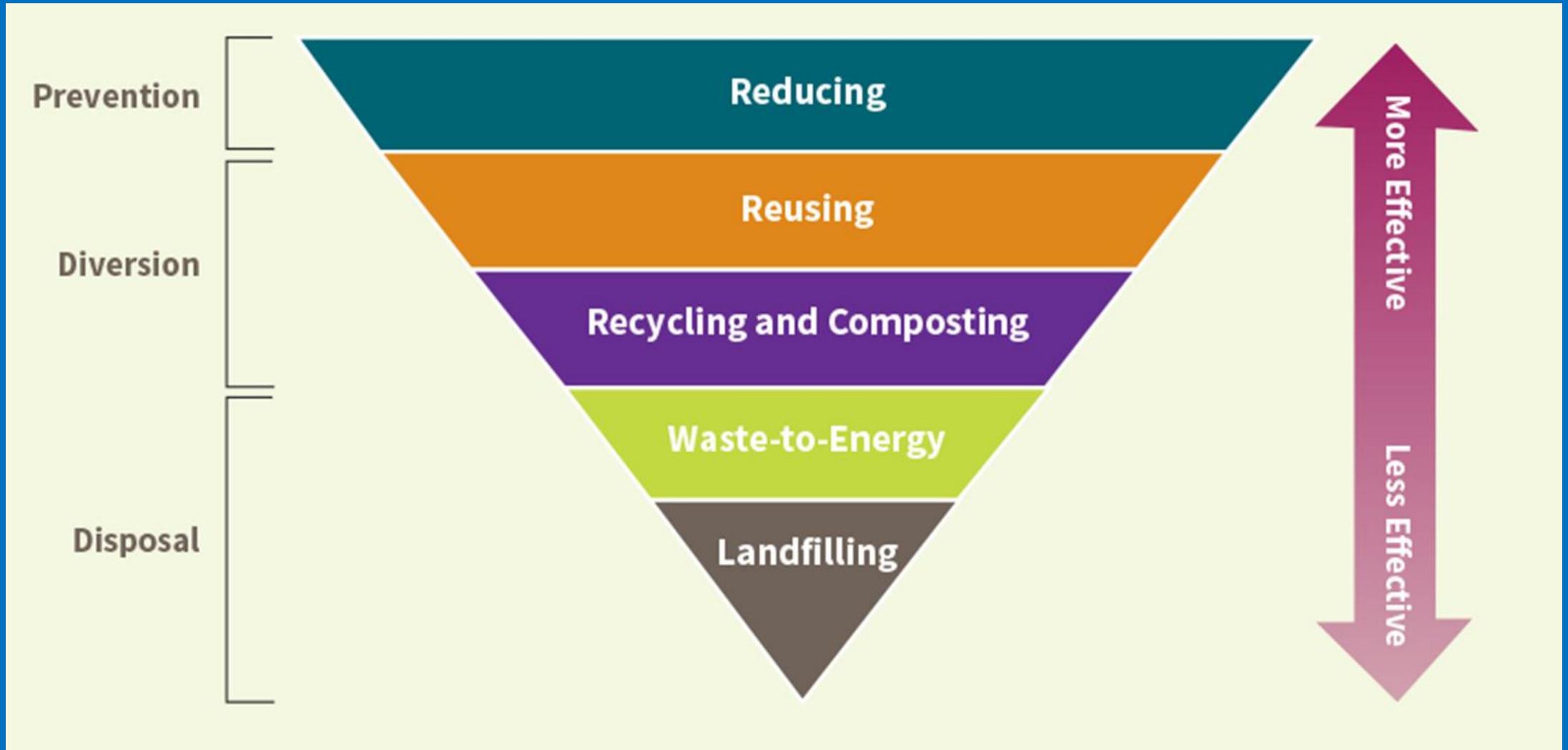
- ▶ Public acceptance
- ▶ Could reduce importance of waste reduction, reuse and recycling initiatives

Other Comments:

- ▶ Inequities associated with Diversion funding
- ▶ What if the technology fails?
- ▶ Why Nova Scotia?



Waste Hierarchy



Conclusion

Thermal treatment processes in Nova Scotia should consider:

Social Acceptance, Environment

- ▶ Allows for public buy-in while emphasizing waste prevention and diversion as more effective solutions for the management of solid waste
- ▶ How the technology affects the environment

Operational Efficiencies

- ▶ How the technology fits into our highly integrated solid waste system

Fiscal Responsibility

- ▶ What are the short & long term financial implications with the addition of thermal treatment facilities?