

# Thinking Outside the Landfill

WASTE TO ENERGY IN NOVA SCOTIA

# Current Solid Waste Status

- A provincewide network:
  - 23 waste transfer sites, 7 second generation landfills, 27 C&D disposal sites, 18 compost sites
- Per capita disposal rate 45% below national average – 423kg/p
- Diverting 110,000t C&D, 105,000t organics, 50,000t recyclables
- Disposing 121,000t C&D, 281,000t garbage
- Plus ten of thousands of tonnes in private sector
- ~ 4,000 FTE

# Regulation and Waste Management

- Pre 1995 - hundreds of 1<sup>st</sup> generation landfills (burial, open burning, teepee burners, incinerators) have operated in NS.
  - Leachate generation impacting water quality, burning waste impacting air quality
- 1995 – Solid Waste Resource Management Regulations
  - 50% diversion from disposal by 2000, NS only province to achieve target
  - Designated materials ban on disposal landfilling or incineration
  - 40 first generation landfills and CBRM incinerator operational
  - Waste transfer stations, composting and recycling facilities expansion

# Regulation and Waste Management

- Commercial boiler, power plant, and kilns
  - Can receive separated wastes, viewed as commodities
  - Not considered incineration or subject to material bans. Material standards for use as fuels have been specified when necessary.
- Materials approved for use as supplemental fuels include:
  - C&D wood, used oil, drilling fluids, asphalt flake, 50:50 mix flake and plastics, used tires, “FOG” cake

# Regulation and Waste Management

- 2006 – all first generation landfills closed or converted to C&D sites
  - 7 second generation landfills operational
  - EGSPA – kept 50% diversion goal, added disposal target of 300 kg/p by 2015
- Drivers for advancing interest in waste to energy:
  - Increasing costs for solid waste management - ~ \$80 million net annually
  - Spike in oil prices: Feb 2011-Sept 2014 WTI \$90+/barrel US
  - Renewable Energy Act (2010)
  - Chinese plastics embargo

# Renewable Energy Act (2010)

- Intended to achieve 40% low impact renewable energy by 2020
- Feed in Tariff: \$.175/KWh for CHP biomass facilities. Program ended in 2015
- “renewable low-impact electricity” produced from:
  - Sustainably harvested biomass, landfill gas, any resource replenished through natural processes or through sustainable management practices

# Renewable Energy Act (2010)

- “biomass” is untreated organic material, but does not include material for which other diversion methods are viable
- Renewable low-impact energy and biomass definitions were developed to acknowledge that SSO has a viable diversion method (composting/AD) and that municipal solid waste was not considered renewable

# Regulatory Amendments

- NSE focus: enabling innovative solutions to waste management by eliminating unnecessary barriers while protecting the waste hierarchy. Reuse, recycling and composting are preferable to energy recovery.
- Classifying advanced technologies as equivalent to incineration was identified by technology proponents as a barrier to adoption



# Regulatory Amendments

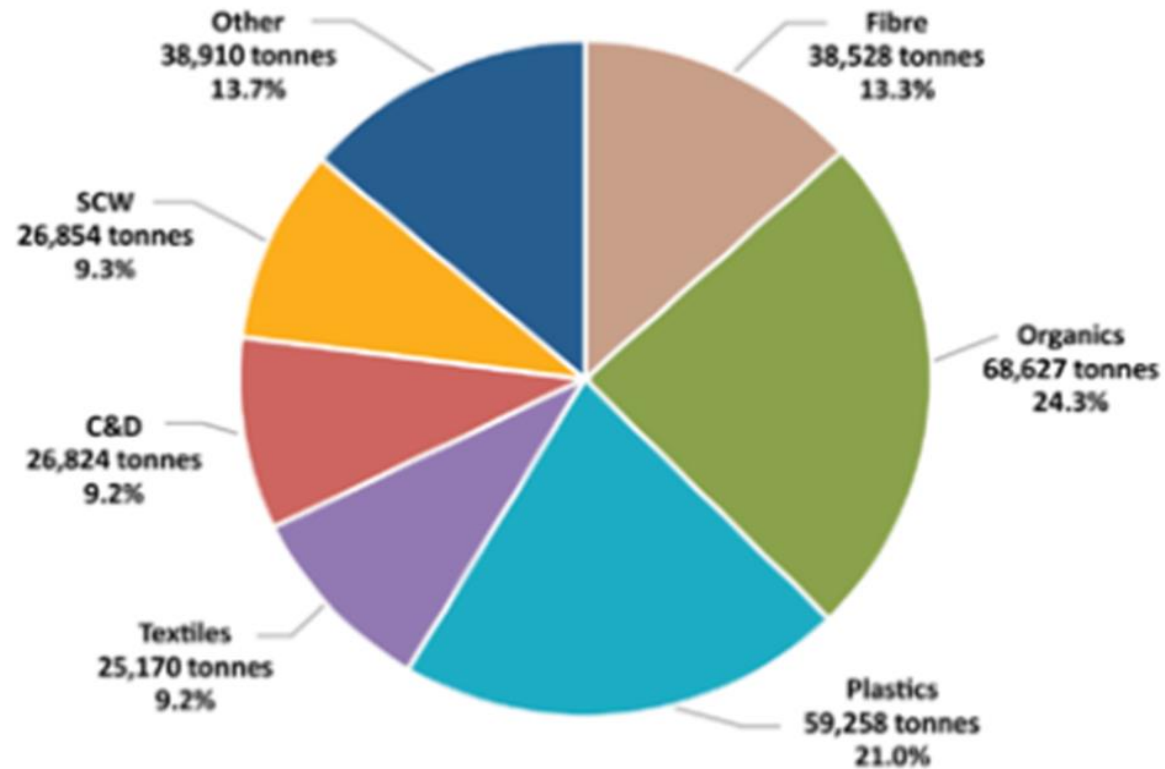
- 2016 amendments to separate thermal treatment from incineration
  - “thermal treatment facility” means a facility for the thermal treatment of municipal solid waste to produce liquid or gaseous fuels or energy, but does not include an incinerator
  - New Class 1 Environmental Assessment trigger for “thermal treatment facility”
  - Designated material ban continued to apply to all facilities

# Regulatory Amendments

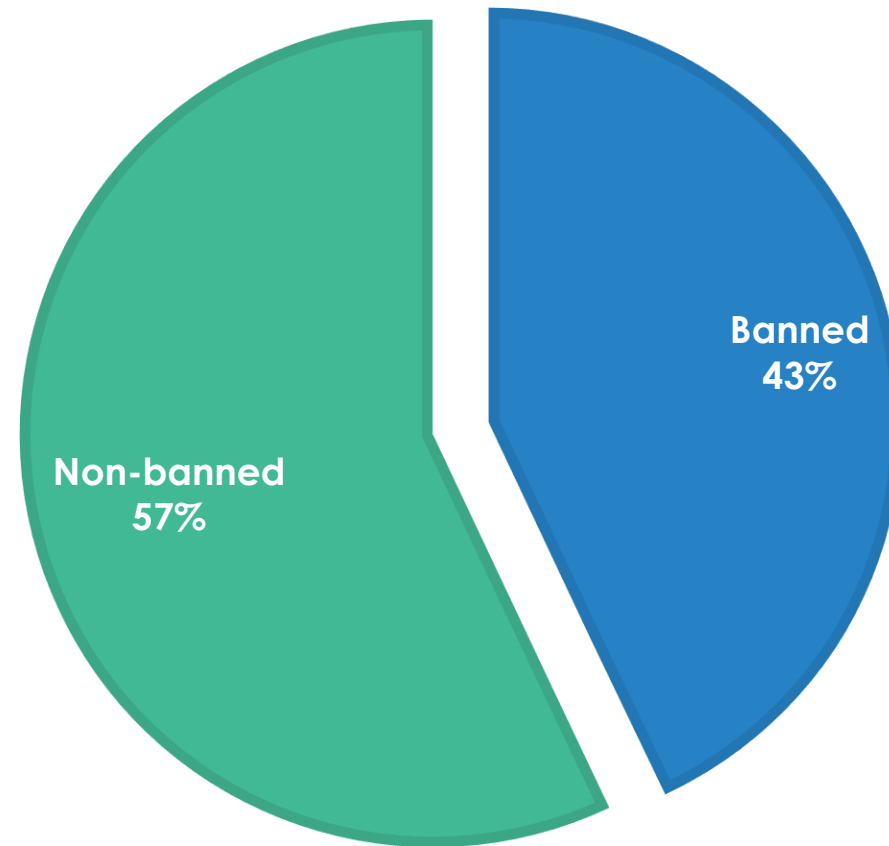
- Proponents identify designated banned materials as impediment to financing
- NSE has no intention to eliminate bans, but wants to provide regulatory clarity
- 2019 amendments allow thermal treatment facilities to receive waste containing banned materials
  - Operating approvals will require that facilities only accept waste from generators who practice source separation to an appropriate standard

# Waste Audit 2017

Landfills Province-wide — Residential + ICI (2017)



# Waste Audit 2017



Thank You

Don MacQueen, P.Eng.

Environmental Engineer, Resource Management  
Nova Scotia Environment

[Donald.macqueen@novascotia.ca](mailto:Donald.macqueen@novascotia.ca)