



Profiting from Cap and Trade

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Regional Municipality of Durham



STRIVE FOR SUSTAINABILITY

SOLID WASTE & RECYCLING CONFERENCE *with* TRADE SHOW



May 21 - 24, 2017

Overview

1. The regulation
2. The carbon market
3. The waste sector
4. The opportunity



Ontario's Proposed Cap and Trade Program

- April 2015 - Ontario proposed a cap and trade plan to reduce carbon emissions in the province and join those already implemented in Quebec and California.
- February 24, 2016 - Bill 172 – “The Climate Change Mitigation and Low-carbon Economy Act” was introduced as part of the Provincial budget.

- Passed May 18, 2016

<https://www.ontario.ca/laws/regulation/r16144#BK68>

- Ontario expects to eventually raise up to \$1.9 billion annually from the sale of carbon allowances (maybe less)
- March 22 - first auction raised \$472M
- Next auction June 22

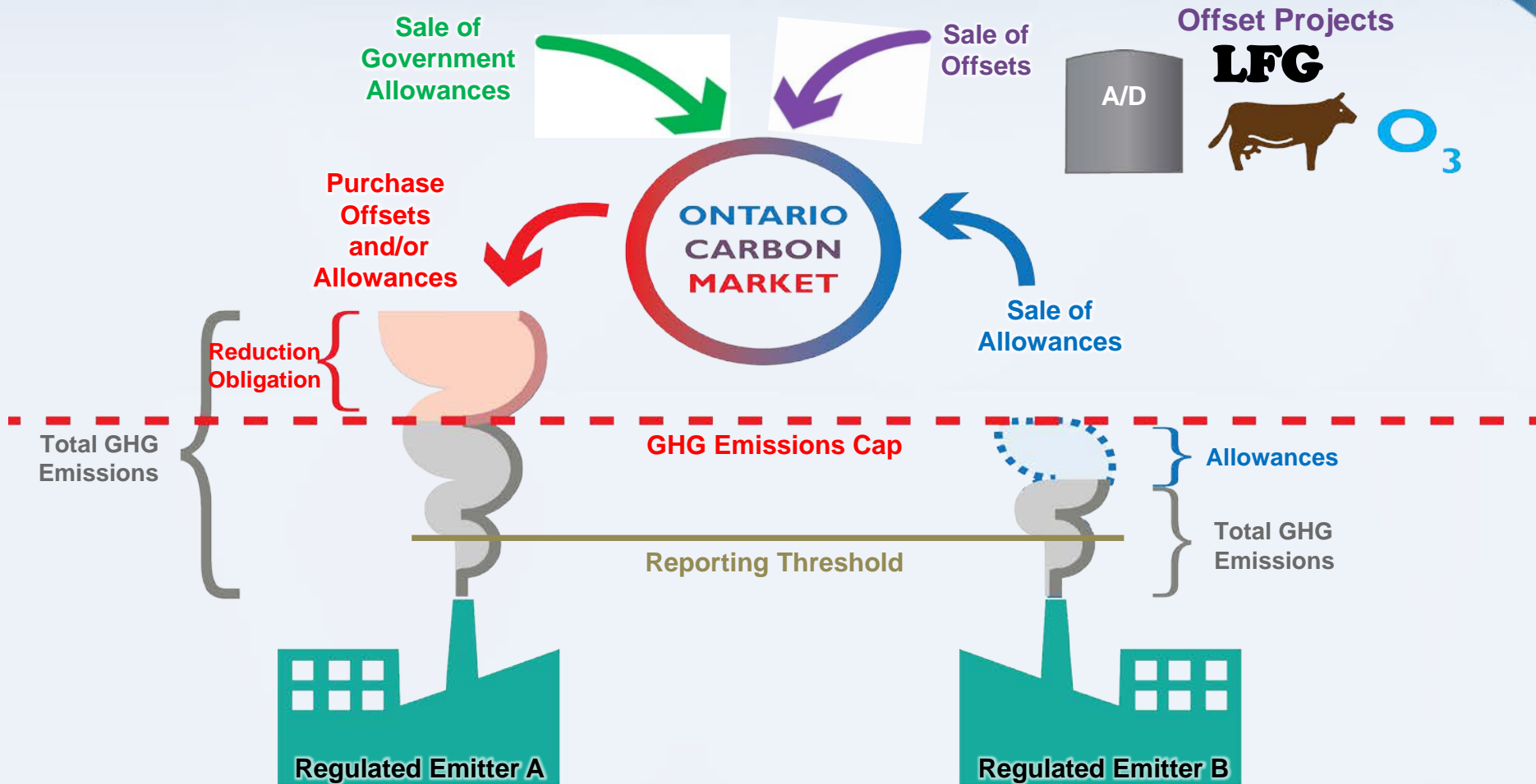
How Will The Proposed Program Work?

Ontario's Cap and Trade System applies to point source emissions, transportation and heating fuel supply, and electricity distribution.

Bill 172 provides:

- An outline for how the carbon market will be regulated and how it will work for each regulated facility
- Eligibility for free allocations and how these allocations will decline in the first compliance period
- An outline for when offsets can be used and registration requirements; offset protocols will be developed in a separate regulation to be published later

How Will The Proposed Program Work?



- Targets:
 - 15% below 1990 levels by 2020
 - 37% below 1990 levels by 2030
 - 80% below 1990 levels by 2050
- Functional unit: 1 tonne of carbon dioxide equivalent
- Reporting and cap for all facilities emitting over 25,000 tonnes of carbon dioxide per year
- first compliance period is **January 1, 2017 to December 31, 2020.**



CO_{2e}



Examples of Major Industrial Emitters

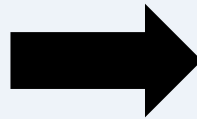
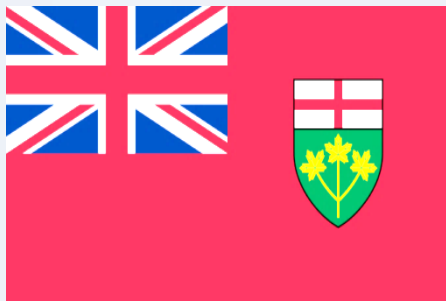
Adipic acid production.	Magnesium production.
Ammonia production.	Natural Gas distribution
Carbonate use.	Nitric acid production.
Cement production.	Coal storage.
Copper and nickel production.	Petrochemical production.
Electricity generation.	Petroleum product supply
Electricity Importation	Petroleum refining.
Ferroalloy production.	Phosphoric acid production.
General stationary combustion.	Primary aluminum production.
Glass production.	Pulp and paper production.
HCFC-22 production HFC-23 destruction.	Refinery fuel gas use.
Hydrogen production.	Soda ash production.
Iron and steel production.	Mobile Emissions (Voluntary)
Lead production	Zinc production.
Fuel distribution.	Electricity transmission and distribution

Waste Sector – Regulated?



Mandatory reporting in Ontario

- O.Reg 398/15 formerly O.Reg. 452/09



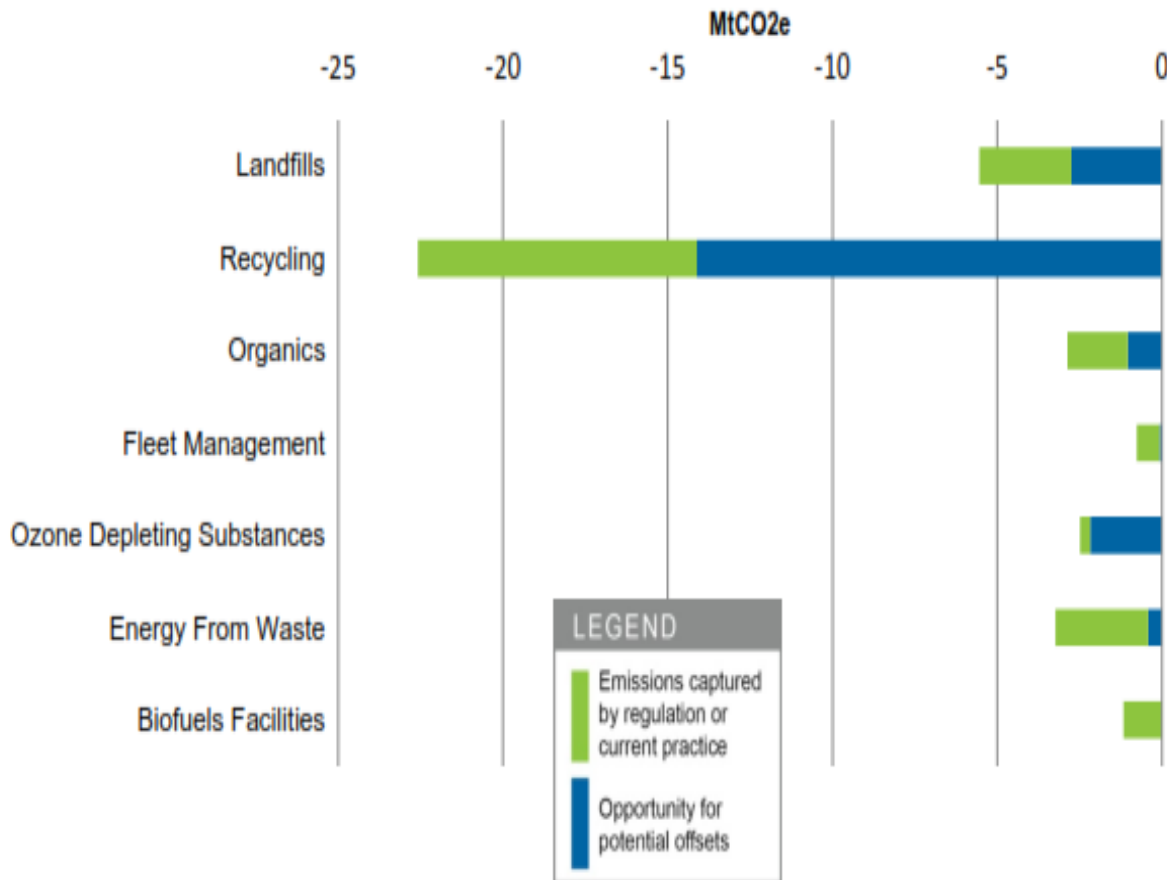
Except....

Durham York Energy Centre

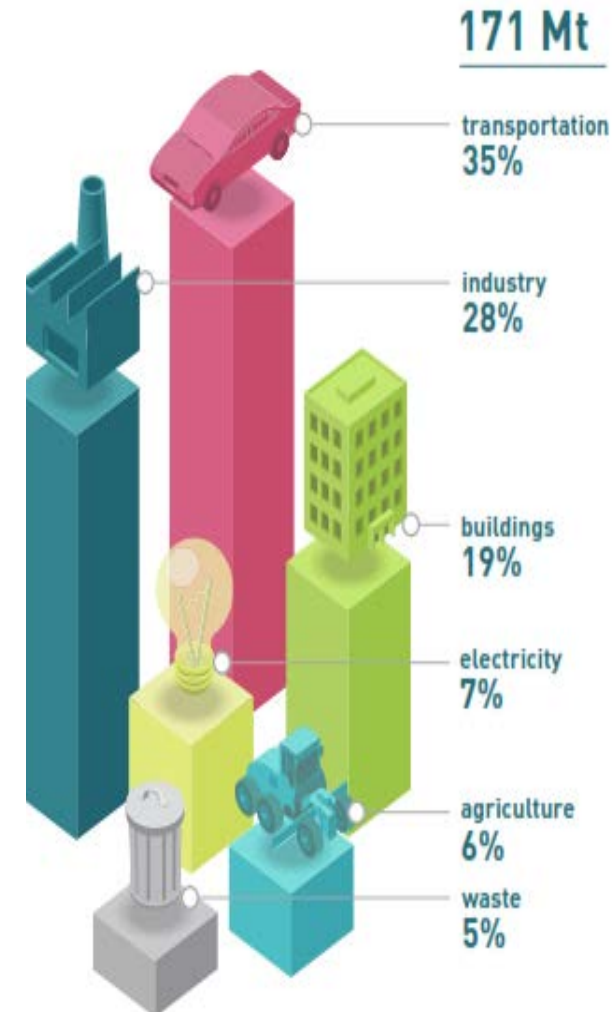
- 140,000 tonnes/yr
- 17 Megawatts



Emissions from Waste



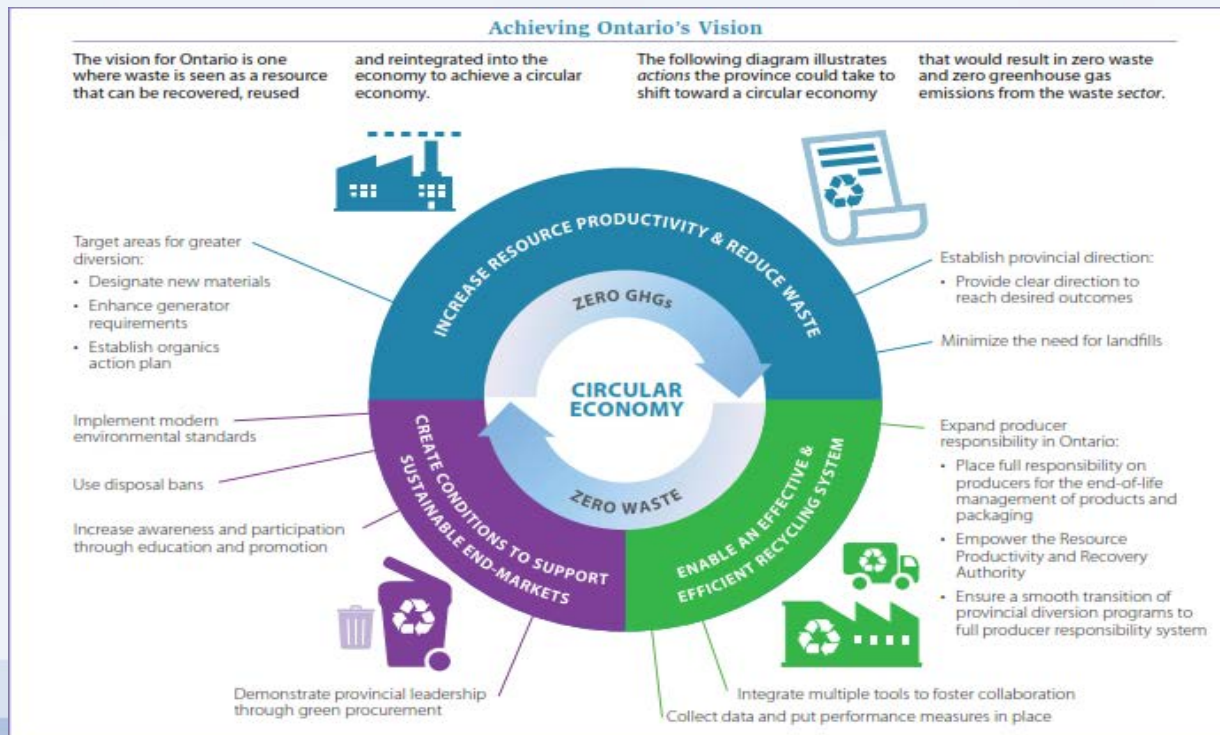
Emissions by Sector, 2013



Waste-Free Ontario Act

Ontario's vision can be fulfilled with this Strategy's two goals:

1. zero waste in the province
2. zero greenhouse gas emissions from the waste sector



2016 MOECC Mandate

September 2016

- Developing an Organics Action Plan to divert more organic waste from landfills and to assist in the implementation of the Climate Change Action Plan. A draft plan will be posted for public consultation in 2017 with implementation by spring 2018.
- Ensuring the transition of the blue box program and the revised role of municipalities will not negatively impact Ontarians' experience with and access to blue box services.

Durham is Exploring Opportunities

Total annual solid waste – 245,000 tpy

Recycling – 55,000tpy marketed

Organics – 74,000tpy composted

Re-Use/Other – 6,000tpy reused/recycled

Residual – 110,000tpy to DYEC

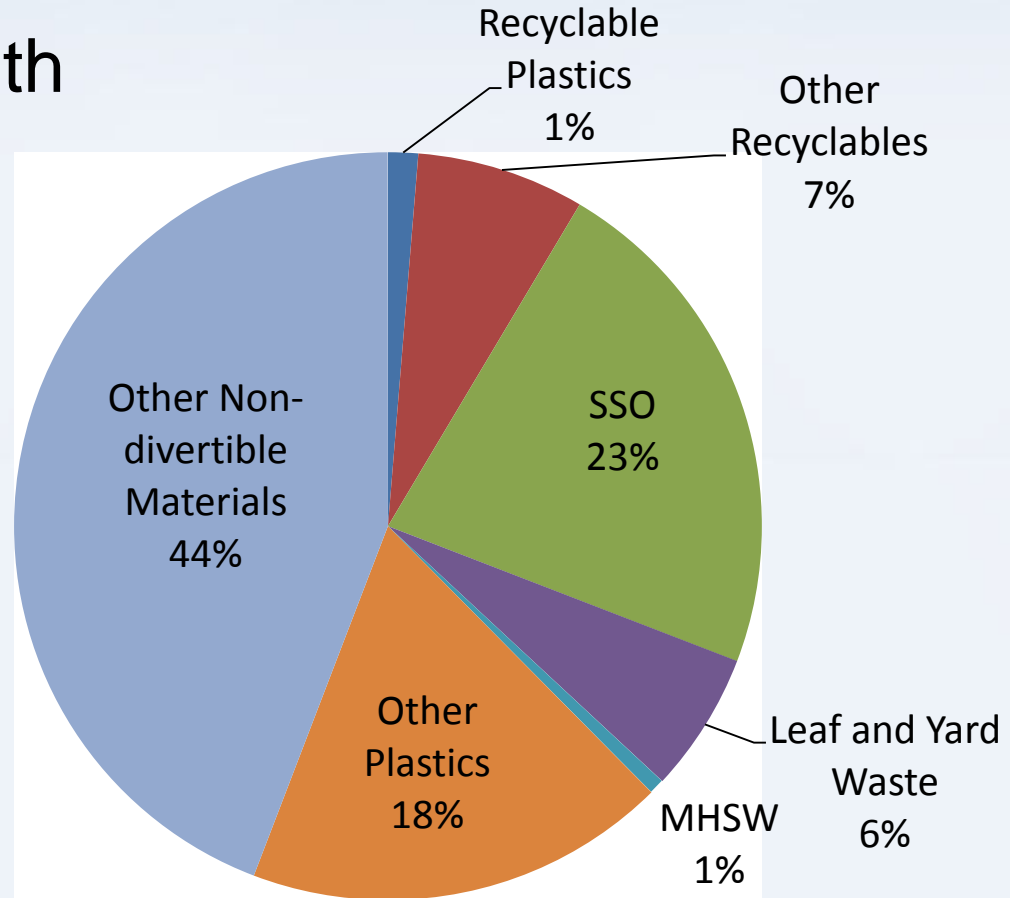
56% Diversion - 2016



Durham is Exploring Opportunities

What can we do with what's left in the garbage bag?

Household garbage contains over 50% divertible material!



Enhanced Recovery Strategy

- 32,000tpy of organic waste is lost to residual fraction every year – could be recovered
- 9,000tpy of recyclable material is lost to residual fraction every year – could be recycled
- Improved pre-sorting and anaerobic digestion technologies will facilitate greatest capture of these resources
- Pre-sorting can prepare for future recycling (EPR) opportunities
- Energy recovery, fertilizer recovery and increased recycling will maximize cap and trade offset opportunities while minimizing greenhouse gases

Moving Forward in 2016

In 2016 Durham:

- Issued an RFP for enhanced integrated waste management system (IWMS) that included pre-sorting transfer facility and Anaerobic Digestion to maximize resource recovery and offset fossil fuel use

In 2017 Durham will :

- Finalize financial analysis, business plan and service delivery modelling for IWMS solution
- Select processing technologies capable of recovering maximum amounts of organic and recyclable materials from residual waste generated by single and multi-family homes

Future Carbon Reduction Opportunities

In the future, Durham will also investigate:

- Carbon capture from DYEC emissions through engineered biomass growth (such as algae) for use as an alternative fuel source
- Use of renewable natural gas in waste collection vehicles
- Low temperature waste heat for greenhouses
- Continue to explore additional EPR opportunities
- Continued advocacy to shape Ontario's carbon policy and enhance climate change mitigation through innovative waste management initiatives

Thank-you

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GHD

