Piecing together a physical flow account for plastic material

Environmental-Economic Accounts Section
Environment and Energy Statistics Division

Delivering insight through data for a better Canada

Objectives

- Present Statistics Canada's experience compiling a physical flow account for plastic material
  - Strategies
  - Challenges

Overview

- Who we are
- Background
- Account structure
- Compilation strategy
- Challenges
- Current development
- Discussion

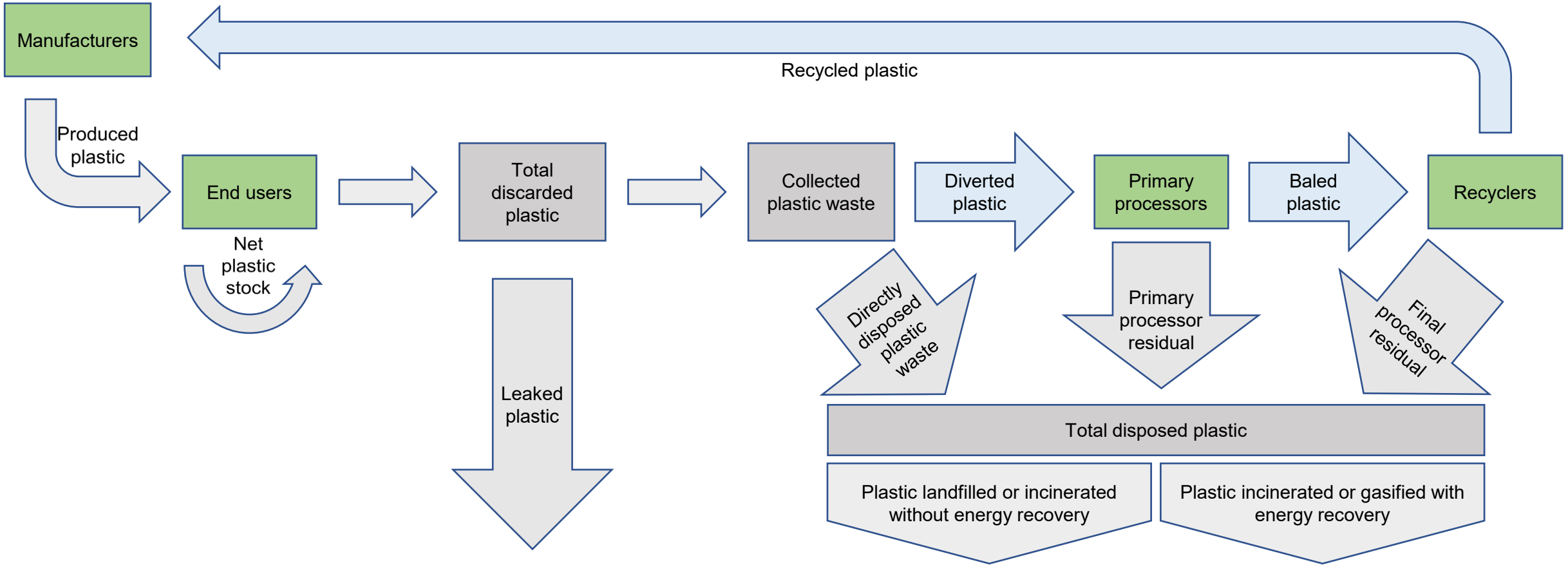
Who we are

- Environmental-Economics Accounts Section (EEAS) in the Environment and Energy Statistics Division (EESD) of Statistics Canada (StatCan)
- EEAS produces environmental accounts that follow the System of Environmental-Economic Accounting (SEEA), which aligns with the System of National Accounts (SNA)
  - Natural Resource Asset Accounts (NRAA)
  - Physical Flow Accounts (PFA)
    - Energy account
    - Greenhouse gas account
    - Water account
    - Physical flows by final demand category
    - Direct plus indirect intensity
    - **Pilot physical flow account for plastic material**

Background

- Action on addressing plastic waste is a political priority in Canada
- Environment and Climate Change Canada (ECCC) commissioned Deloitte to study the flow of plastic in the Canadian economy, and the final report was delivered in 2019
- Upon the completion of Deloitte's report, ECCC approached Statistics Canada (StatCan) to further develop a pilot physical flow account for plastic material (PFAPM)
- In November 2021, StatCan released nationally aggregated preliminary estimates for reference years 2012-2018
- In March 2022, StatCan will release final estimates for the pilot PFAPM, which will include provincial, product, and resin detail

Account structure



Compilation Strategy

- Combine supply use tables (SUTs) with price data for production and consumption of plastic
- Combine Waste Management Survey (WMS) data with waste characterization studies and other industry association and waste management program data sources for disposal and fate of plastic
- Estimate net stock of plastic remaining in use as either i) a residual between consumption and disposal or ii) an estimate based on product lifetime data
- Continue to use some estimates from Deloitte's study to create parameters to fill gaps

Challenges

- Production side
  - Unconventional environmentally-extended input-output analysis
    - Plastic in products vs plastic driven by final demand
    - Domestic technology assumption
  - Economic value to physical volume conversions
    - Validation
    - Time series
- Fate side
  - Alignment of multiple data sources
    - Inconsistent coverage
    - Inconsistent terminology and classifications
      - Products
      - Recycling processes
  - Result is data gaps
- General
  - Desired uses don’t always match data
    - E.g. “single use plastics” aren’t an SUPC commodity

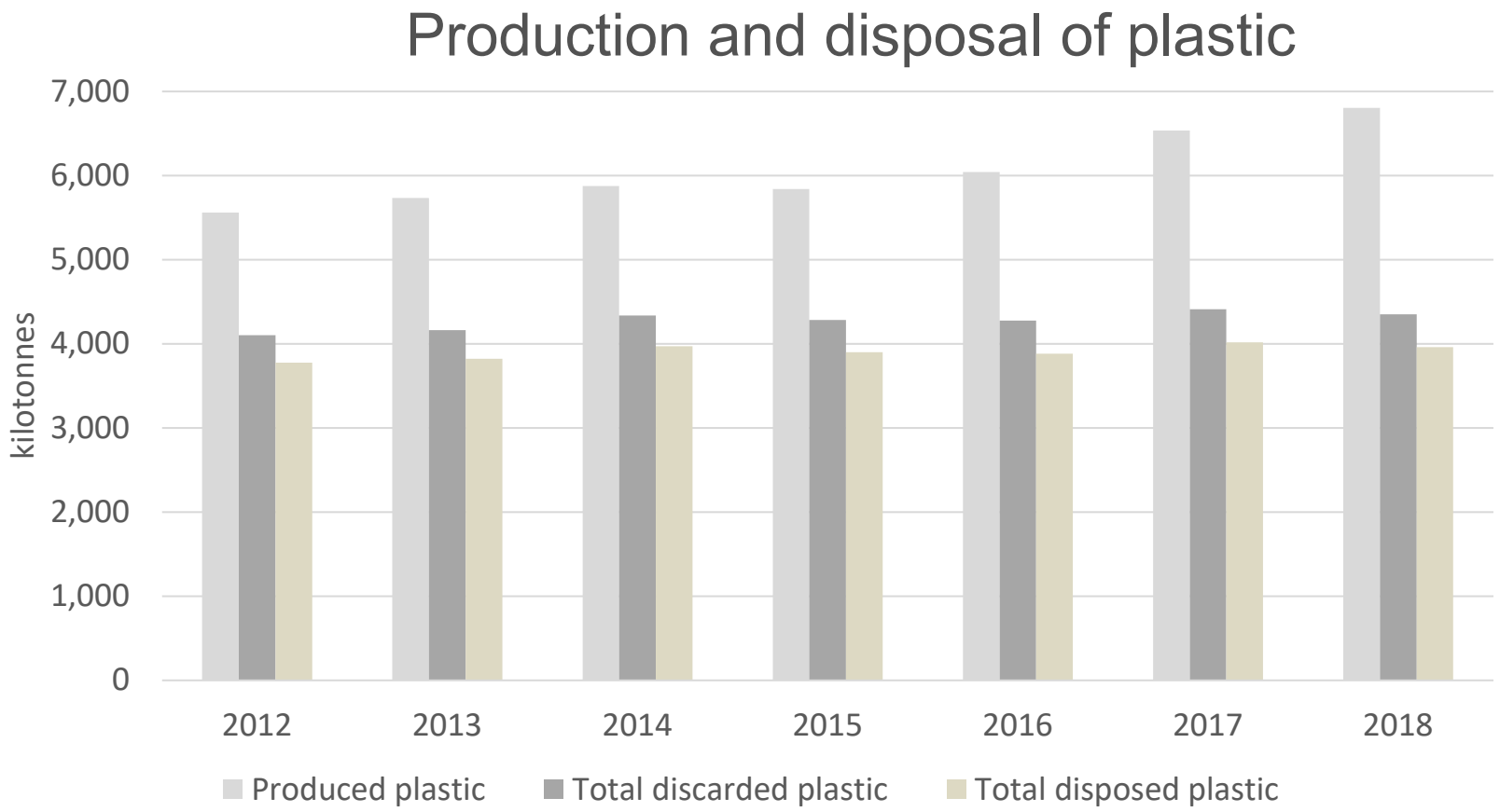
Good fortunes

- Regulatory frameworks that precipitate creation and reporting of good data
  - Extended producer programs (e.g. electronics, packaging, printed paper)
  - Hazardous waste
- Ability to draw on established statistical products
  - Supply Use Tables
  - Waste Management Survey
- Valuable data from government agencies, industry organizations, and reports, e.g.:
  - STINA Inc. - Deloitte
  - Alberta Recycling Management Authority - Ontario Electronic Stewardship Program
  - Recyc-Québec - Recycle New Brunswick
  - BC EPR programs

Current development

- Single comprehensive method for estimating plastic content of domestic products and trade
- Improved method for estimating stock of plastic remaining in use
- Improved price data
- Use of manufacturing survey data for product recipes
- Incorporation of trade data for baled plastic
- Refinement of product categories
- Inclusion of additional fate data sources

Data highlights



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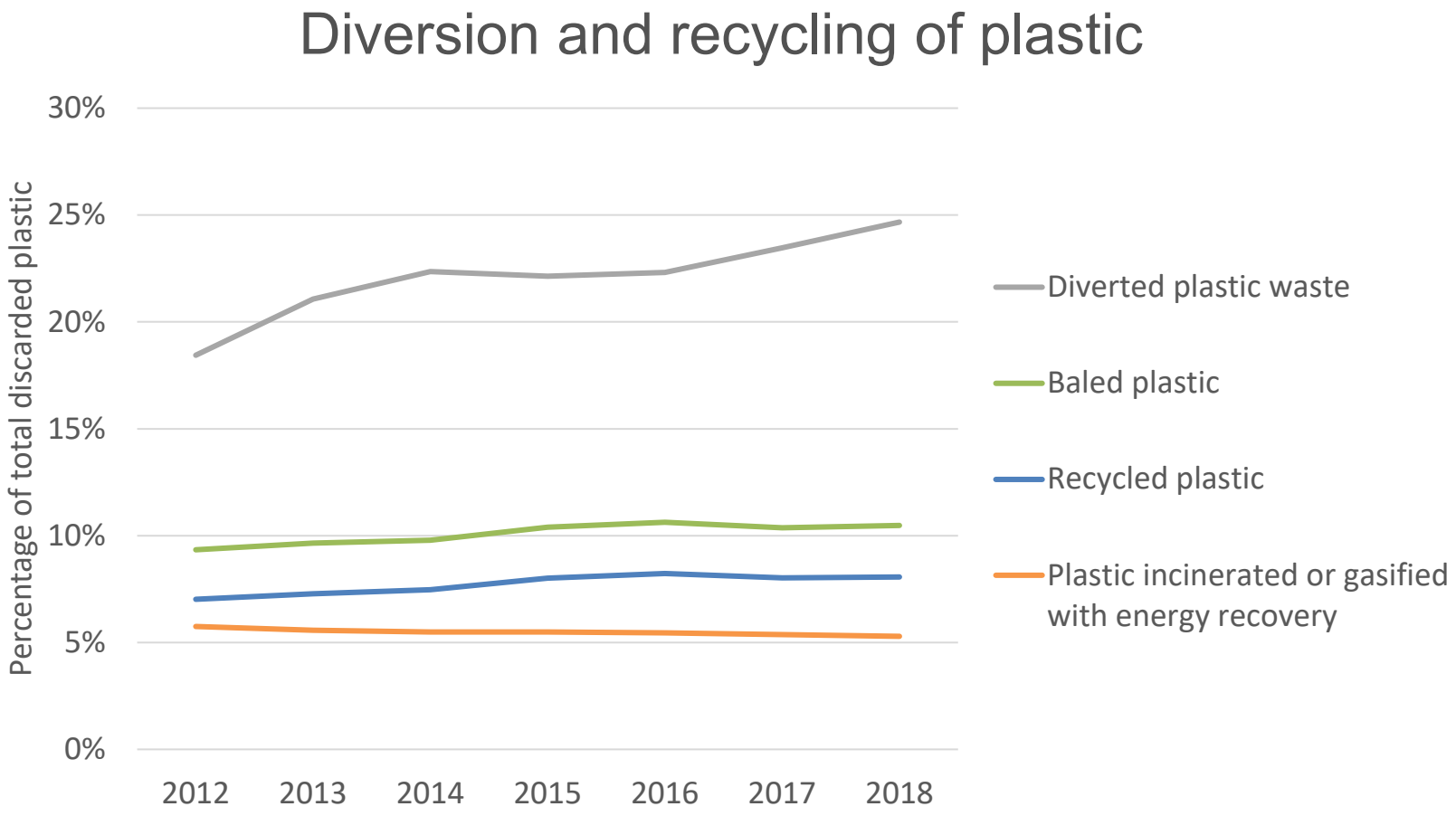

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Preliminary release Daily article
https://www150.statcan.gc.ca/n1/daily-quotidien/211109/dq211109e-eng.htm

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