

# Canada-wide

## Plastic Packaging Data Flows:

Deliverable 3: Data flow current reality and future potential roadmap

February 2025



## About the Canada Plastics Pact

The Canada Plastics Pact is made up of a diverse mix of leading organizations and governments from across Canada's plastics value chain who are committed to eliminating plastic waste and pollution, while advancing a circular economy for plastics.

By fostering innovation, collaboration and collective action, we are developing, testing and scaling solutions to the systemic barriers that will keep the **right** plastics in the economy and **all** plastics out of people, animals and nature.

CPP is a [Generate Canada](#) Solution Space, advancing a shared vision for a strong and inclusive economy that thrives within nature's limits.

Canada Plastics Pact is also an active participant in the Plastics Pact Network, convened by the [Ellen MacArthur Foundation](#) and the [Waste and Resource Action Programme](#) (WRAP).

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*Prepared by:*



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## EXECUTIVE SUMMARY

Despite an abundance of data collection and reporting activity being undertaken by various actors across the plastics value chain, Canada does not have the systems level data and information it needs to understand and take decisive and strategic action to prevent and reduce plastics packaging disposal and leakage into the environment (i.e., through litter, mismanaged disposal, or other losses). Three key issues prevent Canada from having a strategic systems approach to collecting plastic packaging data, including a lack of:

- data accessibility (i.e., data that exists but cannot be accessed due to a lack of data platforms or a willingness to share it);
- data availability (i.e., data that does not exist because it is not being collected due to regulatory exemptions and non-compliance, value chain actors not being compelled to provide it through a chain of custody, a lack of resources to collect it); and
- data adequacy (i.e., data being collected in a form that does not lend itself to being compiled and compared along with other existing data sets due to a lack of common data language, a lack of standardization in how it is being collected, reported, and normalized).

The upcoming Canadian Federal Registry creates the legal impetus to fill in these data gaps. The obligation to report will require reporters to seek out the necessary data. Reporting is being phased in over time to allow reporters time to seek information from their value chains and fulfill their reporting obligations. A review of the data currently being collected Canada-wide makes it clear that some of the data required for the Registry does not readily exist and will not be easy for obligated reporters to establish. Canada-wide solutions are needed to enable and assist those obligated to report to meet their obligations. As a result, until these data gaps are filled, Canada will not have all of the systems level data it needs to assess and define the strategic actions that will be needed to fully achieve a circular economy for plastic packaging in our country.

Canada is not alone in its quest to fill these data gaps. Best practices are emerging in Australia, Europe, and the United States to better quantify and understand plastic packaging flows, and to make more informed and strategic tactics to prevent and reduce leakage of plastics from a circular economy. Key best practices identified include setting requirements or guidance for:

- plastic packaging content traceability, labelling, and reporting;
- pre-market recyclability assessments, as an evidence-based method to inform factual labelling for consumer management of post-consumer materials;
- pre-market design specifications;
- roadmaps that detail industry specific information gaps;
- actors along the plastics value chain to report in a standardized fashion into databases that are compiled for public release;
- actors along the plastics value chain to report on specific packaging attributes such as use of post consumer resin (i.e., PCR)<sup>1</sup>, reuse and refill, or recyclability;
- quality and assessment criteria for plastic recyclate; and
- the points of measurement for when 'recycling' has taken place (i.e., whether chemical or mechanical recycling processes are used).

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<sup>1</sup> Recycled plastics resins are sometimes denoted as 'r(Plastic Resin)', e.g., polypropylene recyclate may be denoted rPP.

The final chapter of this report proposes a high-level roadmap, based on the emerging best practices, to fill Canada-wide data gaps, simplify data capture and reporting by stakeholders, and establish a Canada-wide strategic master dataset. The gaps are listed by component of the plastic packaging value chain from the point of first manufacture through its final disposition. The recommendations are organized by government action, standards or guidance development, and commercial solutions.

A summary of the recommended government actions include:

- Establishing guidance and impetus for a national traceability framework (e.g., Australia's National Traceability Framework).<sup>2</sup>
- Supporting or facilitating the development of standardized data language and interoperable data platforms to enable chain of custody (e.g., guidance, stimulus). Where industry-wide tools and systems exist, they could be better leveraged (e.g., GSI Canada's data reporting standards and ECCnet Registry).
- Requiring evidence-based recyclability labelling (i.e., labelling backed by accredited third-party vetted data) to support establishment of a direct feedback loop for producers about their packaging design (e.g., PREP Design);<sup>3</sup>
- Establishing a process for estimating supply Canada-wide and by province/territory and publicly reporting on all plastic packaging supplied;
- Standardizing reporting on plastic packaging across producer responsibility organizations (PROs) and governments to enable data compilation across programs and jurisdictions;
- Requiring waste haulers to report on end-fate of materials they manage (e.g., standardized manifesting of materials from collection through final disposition);
- Requiring waste facilities (e.g., MRFs, transfer stations, compost facilities, landfills, incinerators) to report publicly on mass balance of the materials they manage;
- Adopting any Canada-wide standard on reporting standardization relating to plastic packaging;
- Undertaking litter audits Canada-wide to capture data on plastics packaging leakage directly into the environment;
- Requiring material recovery facilities (MRFs) to publish mass balance plastic packaging data based on standard method;
- Requiring regulated programs to report on the recyclability of the 'whole' package, including end-fate due to labelling, attachments, etc.;
- Adopting / regulating Canada-wide rules about the definition of and requirements for reporting on reuse / refill (e.g., adopt and implement Canada-wide reuse standards, which are currently under development by CSA Group and PR3); and
- Requiring a consistent standard Canada-wide for the measurement of recycling.

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<sup>2</sup> Australian Government. 2023. A national framework for recycled content traceability guidelines. Available at: <https://www.dcceew.gov.au/sites/default/files/documents/national-framework-recycled-content-traceability.pdf>

<sup>3</sup> PREP Design. n.d. The circular economy relies firstly on design of recyclable packaging. Available at: <https://prep.design/>

Recommendations for standards and guidance include those for:

- traceability –e.g., chain of custody;
- definitions, categories of plastic packaging, and data reporting;
- conversion factors for units to weight measurements;
- waste audit methodology –i.e., protocol for minimum requirements for auditing plastic packaging amounts by category and by sector;
- hauler reporting to generators;
- waste facility reporting;
- calculating sorting rates for plastic packaging formats at MRFs;
- definition of reusable; and
- reuse/refill reporting.

There are currently several organizations in Canada working to develop new and enhance existing standards. For example, CSA Group is working with PR3 to establish a set of US-Canada bi-national reuse/refill standards. However, even when standards exist, their ability to affect change depends on their adoption. Critical mass adoption of common standards and guidelines is essential to enabling the level and quality of data capture and reporting that will be necessary to enable a plastics circular economy. Where standards exist, these should be adopted or regulated Canada-wide to ensure critical mass adoption. A recommendation was also made to implement CSA R117 Plastics Recycling: Definitions, Measuring, and Reporting.

The needed new commercial solutions identified include developing:

- interoperable data platforms to capture data and transfer it along the value chain;
- a common data language to enable data and information to be compiled and clearly communicated;
- tools to enable the ability to assess information on potential designs that impact recyclability;
- tools for producers (particularly smaller producers) to find supplies of packaging with PCR;
- new technologies to support weight-based reporting by service providers (e.g., waste haulers, landfill operators) and wider adoption of existing technologies by other actors along the value chain (e.g., producers);
- electronic manifesting systems for haulers (i.e., current scales on trucks cannot be certified);
- improved methods to assess sorting and reprocessing yield rates;
- improved sorting technologies to reduce plastics disposal at MRFs and reprocessors; and
- platforms to enable voluntary tracking of plastic packaging reusables at an industry level.

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## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	i
LIST OF ABBREVIATIONS .....	viii
1 INTRODUCTION .....	1
1.1 Context .....	1
1.2 Issues .....	2
1.3 Project Objectives .....	4
2 CURRENT STATE DATA & INFORMATION CAPTURE .....	4
2.1 Understanding the Complexity of Data and Information Flows.....	4
2.1.1 Upstream plastics flows.....	5
2.1.2 Downstream plastics flows.....	7
2.1.3 One tier of visibility.....	9
2.2 Data Collection Agents and Information Sources and Tools.....	11
2.2.1 Federal Government & Agencies .....	11
2.2.2 GSI Canada Global Trade Item Numbers, Bar Codes, including its ECCnet Registry .....	13
2.2.3 Canada Plastics Pact.....	17
2.2.4 Provincial and Territorial Governments and Program Operators.....	17
2.2.5 Local governments .....	18
2.2.6 ICI Generators.....	19
2.2.7 Environmental, Social, and Governance (ESG) Reporters .....	20
2.3 Current State of Plastic Packaging Flow Measurement.....	21
2.4 Current State Solid Waste and Circular Economy Data Standards and Guidance.....	23
3 ASSESSMENT OF CURRENT STATE DATA GAPS .....	27
3.1.1 Context for Gaps Assessment .....	27
3.1.2 Gap Assessment.....	28
3.1.3 Gap 1: Inaccessible Data .....	28
3.1.4 Gap 2: Unavailable Data .....	32
3.1.5 Gap 3: Inadequate Data .....	36
4 TRENDS FOR IMPROVING DATA CAPTURE AND REPORTING .....	44
4.1 Trends from Australia.....	44
4.2 Trends from Europe.....	47
4.3 Trends from the United States .....	61
5 IMPROVING DATA AND REPORTING: A CANADA-WIDE ROADMAP .....	63
5.1 Conclusions .....	63
5.2 Proposed Roadmap.....	64

5.3 Final Considerations.....	71
APPENDIX A: REGULATED SYSTEMS CANADA-WIDE MANAGING PLASTIC PACKAGING.....	72
APPENDIX B: SUMMARY OF DATA COLLECTION AGENCIES AND REPORTING CANADA-WIDE .....	87
APPENDIX C: FEDERAL PLASTICS REGISTRY.....	93
C- 1: Timelines for Federal Plastic Registry.....	94
C- 2: Preparation for Federal Registry reporting requirements.....	95
C- 3: Other plastic-related regulations in Canada.....	95
APPENDIX D: ESG DISCLOSURE AND REPORTING STANDARDS.....	96
D- 1: Background.....	96
D- 2: ESG reporting and disclosure requirements for companies in Canada.....	96
D- 3: CSSB proposed reporting requirements and standards proposed.....	97
APPENDIX E: DATA AVAILABILITY AND GAPS BY COMPONENT OF PLASTICS VALUE CHAIN .....	98
APPENDIX F: DATA GAPS BY DATA COLLECTION AGENT.....	101

## TABLES

Table 1: CPP commitments and current state of Canadian marketplace.....	2
Table 2: About GSI Canada.....	14
Table 3: CSA Group Overview.....	25
Table 4: Packaging EPR Producer Exemptions.....	34
Table 5: Plastic supplied data collected from producers and by program operators for DRS containers in 2022.....	37
Table 6: Simplified view of plastic supplied data collected from producers and by program operators for PPP systems in 2022.....	38
Table 7: Plastic supplied data collected from producers and by program operators for used automotive fluid containers.....	40
Table 8: Office of the Auditor General of Ontario findings related to ICI waste audits.....	42
Table 9: Emerging Trends and Requirements for Improved Data and Reporting in Australia	45
Table 10: Emerging Trends and Requirements for Improved Data and Reporting in Europe.	48
Table 11: Emerging Standards, Definitions and Guidance.....	52
Table 12: Emerging solutions to fill data gaps.....	59
Table 13: Emerging Trends and Requirements for Improved Reporting from the United States .....	61
Table 14: Roadmap for improving Canada-wide plastic packaging value chain data.....	65
Table 15: Regulated provincial & territorial single-use item distribution reduction policies affecting plastic packaging.....	72

Table 16: Regulated provincial & territorial disposal ban policies affecting plastic packaging.	73
Table 17: Regulated provincial & territorial PPP systems.	74
Table 18: Regulated provincial & territorial deposit return systems for beverage containers.	77
Table 19: Regulated provincial & territorial automotive fluid container systems.	82
Table 20: Regulated provincial & territorial hazardous and special product container systems (other than automotive fluid containers).	84
Table 21: Regulated provincial & territorial agricultural plastic systems.	86
Table 22: Canada-wide data collection agencies, number and types of data collection systems, and purpose of data collection.	87
Table 23: Federal Plastic Registry reporting categories for affecting plastic packaging.	93
Table 24: Overview of plastic packaging data generation and management in Canada by area of the plastics value chain.	98
Table 25: Gaps in current data systems	101

## FIGURES

Figure 1: EMF depiction of the circular economy.	5
Figure 2: Simplified view of the upstream chain of custody for the manufacture of a single material beverage container.	6
Figure 3: Flow of data required for tracking the flow of plastics in a circular economy.	8
Figure 4: Information flow before and after the obligated producer.	10
Figure 5: Data gaps that prevent Canada from fully understanding its plastic footprint.	23
Figure 6: Producer reporting on packaging supplied.	30
Figure 7: Data that is challenging for all producers to acquire and report to stewardship systems.	32
Figure 8: Measurement of recycling in EPR policies in Canada	41

## LIST OF ABBREVIATIONS

Abbreviation	Meaning
<b>AI</b>	Artificial intelligence
<b>APCO</b>	Australian Packaging Covenant Organisation
<b>B2B</b>	Business to business
<b>B2C</b>	Business to consumer
<b>BoM</b>	Bill of materials
<b>CSDS</b>	Canadian Sustainability Disclosure Standard
<b>CSSB</b>	Canadian Sustainability Standards Board
<b>CEPA</b>	Canadian Environmental Protection Act
<b>CPP</b>	Canada Plastics Pact
<b>DRS</b>	Deposit return system
<b>ÉEQ</b>	Éco Entreprises Québec
<b>EMF</b>	The Ellen MacArthur Foundation
<b>EOL</b>	End-of-life
<b>EPR</b>	Extended producer responsibility
<b>EPS</b>	Expanded polystyrene
<b>EU</b>	European Union
<b>FPP</b>	Flexible plastic packaging
<b>FTE</b>	Fulltime equivalent
<b>GIAI</b>	Global Individual Asset Identifier (applies to fixed assets)
<b>GDTI</b>	Global Document Type Identifier (applies to physical documents)
<b>GLN</b>	Global Location Number (applies to physical locations)
<b>GRAI</b>	Global Returnable Asset Identifier (type of returnable asset)
<b>GTIN</b>	Global Trade Item Number (applies to products, services, individual trade item instances)
<b>HDPE</b>	High density polyethylene
<b>HSP</b>	Hazardous and special products
<b>ICI</b>	Industrial, commercial, and institutional
<b>ISSB</b>	International Sustainability Standards Board
<b>LG</b>	Local governments
<b>LDPE</b>	Low-density polyethylene
<b>LLDPE</b>	Linear low-density polyethylene
<b>MRF</b>	Materials recovery facility
<b>MRP</b>	Mixed rigid plastics

<b>NAPCS</b>	North American Product Classification System
<b>NGOs</b>	Non-government organizations
<b>P&amp;E</b>	Promotion and education
<b>PCR</b>	Post-consumer recycled resin
<b>PET</b>	Polyethylene terephthalate
<b>PFAPM</b>	Physical Flow Account for Plastic Material (Statistics Canada)
<b>PPWR</b>	Packaging and Packaging Waste Regulation (European Union)
<b>PREP</b>	PREP Design
<b>PRO</b>	Producer responsibility organizations
<b>PP</b>	Polypropylene
<b>PPP</b>	Packaging and paper products, including relevant single-use plastics
<b>PR3</b>	PR3 - The Alliance to Advance Reuse
<b>PS</b>	Polystyrene
<b>PVDC</b>	Polyvinylidene chloride
<b>PVC</b>	Polyvinyl Chloride
<b>rPlasticResin</b>	Recycled plastic resin (e.g., rPET, rPP, rPVC, rPE)
<b>RPRA</b>	Resource Recovery and Productivity Authority
<b>SDO</b>	Standard Development Organization
<b>SKU</b>	Stock-keeping unit
<b>SUPC</b>	Supply and Use Product Classification code
<b>SUP</b>	Single-use plastics
<b>SUPD</b>	Single-Use Plastics Directive (European Union)
<b>UPC</b>	Universal Product Code
<b>UK</b>	United Kingdom
<b>WRAP</b>	Waste & Resources Action Programme

# 1 INTRODUCTION

## 1.1 Context

Canada is one of many nations that have committed to end plastic pollution by setting ambitious, effective, and legally binding instruments.<sup>4</sup> It has also committed to designate PFAS as a class of toxic substances under the Canadian Environmental Protection Act (CEPA) and to reduce or eliminate their use in packaging,<sup>5</sup> as well as to reduce the greenhouse gas emissions associated with the disposal of municipal solid waste.<sup>6</sup> At the same time, Canada's provinces and territories are implementing systems to collect, recycle, recover, and prevent plastic wastes. British Columbia is the first province to regulate jurisdiction-wide distribution bans on an extensive list of single-use plastic items that goes beyond single-use carrier bags (e.g., polyvinyl chloride [PVC] film wrap, foam meat trays).<sup>7,8</sup> All of Canada's provinces and territories, except Nunavut, have either regulated or made public commitments to regulate residential – and in Québec also industrial, commercial, and institutional (ICI) – extended producer responsibility (EPR) systems for select single-use plastic products (e.g., takeaway dishware) and packaging and paper products (PPP).<sup>9</sup> Most of these jurisdictions have also either regulated or made public commitments to regulate requirements (EPR or other form of product stewardship) to collect and either recycle or safely dispose (as appropriate):

- plastic packaging for hazardous and special products (e.g., household cleaners, pharmaceuticals, paint, automotive fluid such as oil and antifreeze); and
- agricultural plastics (e.g., commercial pesticide and fertilizer containers, bale wrap, grain bags).<sup>10</sup>

All of these jurisdictions, except Nunavut, also have deposit return systems (DRSs) in place to manage various types of plastic beverage containers.<sup>11</sup> At the same time, more than 100 municipalities Canada-wide have regulated varying forms of distribution restrictions on select single-use plastic products (i.e., typically single-use carrier bags and food serviceware) to stem their local flow.<sup>12</sup>

Underneath this regulatory umbrella, the Canada Plastics Pact (CPP) is also working to end plastic pollution Canada-wide. CPP brings together businesses, policymakers, associations, and non-government organizations (NGOs) to work towards a shared vision of a circular economy for plastic. CPP members include those that operate at all points along the plastics

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<sup>4</sup> High Ambition Coalition to End Plastic Pollution. 2024. HAC member states ministerial joint statement for INC-4). Available at: <https://hactoendplasticpollution.org/wp-content/uploads/2024/04/Final-HAC-Ministerial-Joint-Statement-for-INC-4-for-publication-65-members-.pdf>

<sup>5</sup> Government of Canada. 2023. Draft state of per- and polyfluoroalkyl substances (PFAS) report. Available at: <https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/draft-state-per-polyfluoroalkyl-substances-report.html>

<sup>6</sup> Government of Canada. 2022. Reducing methane emissions from Canada's municipal solid waste landfills. Available at: <https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/2022reducingmethaneDD-eng.pdf>

<sup>7</sup> Government of British Columbia. Single-Use and Plastic Waste Prevention Regulation. Last updated 2023. Available at: [https://www.bclaws.gov.bc.ca/civix/document/id/oic/oic\\_cur/0642\\_2023](https://www.bclaws.gov.bc.ca/civix/document/id/oic/oic_cur/0642_2023)

<sup>8</sup> Canada-wide there are five provinces and territories that have either taken action to reduce or ban the distribution of plastic carrier bags, including British Columbia (banned in 2023), Nova Scotia (banned in 2019), Prince Edward Island (banned in 2020), Yukon Territory (banned in 2021), and Northwest Territories (single use bag surcharge established in 2010). For a list of applicable regulations see Appendix A.

<sup>9</sup> For a list of applicable regulations see Appendix A.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Retail Council of Canada. March 1, 2024. Single-use plastic, 2024 chart. Available through Retail Council of Canada.

value chain, including plastic resin manufacturers, product and packaging manufacturers, brand holders, waste service providers, and reprocessors.

## 1.2 Issues

While understanding the need for data capture to assess progress against goals, CPP's stakeholders are facing data reporting barriers and data request fatigue. They are required to report data and information on the plastic packaging they supply to market to different stakeholders – including their customers, governments, and compliance scheme operators – for different purposes and in different forms. CPP partners also report to CPP itself against the four key targets established in its [Roadmap to 2025](#),<sup>13</sup> which enables CPP to provide an ongoing assessment of progress (**Table 1**).

**Table 1: CPP commitments and current state of Canadian marketplace<sup>14</sup>**

Target	Commitment	Progress
1	Define a list of plastic packaging that is to be designated as problematic or unnecessary and take measures to eliminate them by 2025.	100% of CPP Signatories have plans to eliminate eight problematic items.
2	Support efforts towards 100% of plastic packaging being designed to be reusable, recyclable, or compostable by 2025.	43% of plastic packaging placed on the market by CPP Partners is designated as reusable, recyclable, or compostable.
3	Undertake ambitious actions to ensure that at least 50% of plastic packaging is effectively recycled or composted by 2025.	Based on the most current and reliable data available, it is estimated that 24% of plastic packaging was recycled in Canada in 2022.
4	Ensure an average of at least 30% recycled content across all plastic packaging (by weight) by 2025.	12% was the average amount of post-consumer recycled resin (PCR) (by weight) across plastic packaging used by CPP Partners.

Canada's newly regulated Federal Plastics Registry is an example of new data reporting requirements facing the plastics value chain. On April 20, 2024, the federal government published its "Section 46 Notice, Canada Gazette, Part I" about the Federal Plastics Registry.<sup>15</sup> This notice outlines new plastics reporting requirements for companies – including resin manufacturers, service providers, generators, and producers of plastic products – for the calendar years 2024, 2025, and 2026.

<sup>13</sup> Canada Plastics Pact. 2021. Roadmap to 2025. A shared action plan to build a circular economy for plastics packaging. Available at: [https://roadmap.plasticspact.ca/wp-content/uploads/2021/10/PPP\\_Roadmap\\_VI\\_Oct2021.pdf](https://roadmap.plasticspact.ca/wp-content/uploads/2021/10/PPP_Roadmap_VI_Oct2021.pdf)

<sup>14</sup> Canada Plastics Pact. 2023. 2022 Annual Report. Available at: <https://plasticspact.ca/2022-annual-report/>

<sup>15</sup> Government of Canada. 2024. Canada Gazette, Part I, Volume 158, Number 16: Government notices: Notice with respect to reporting of plastic resins and certain plastic products for the Federal Plastics Registry for 2024, 2025 and 2026. Available at: <https://www.gazette.gc.ca/rp-pr/p1/2024/2024-04-20/html/notice-avis-eng.html>

Yet, despite the plethora of plastics flow data from along the plastics value chain and despite recent advancements in plastics flow tracking, Canada still lacks the data and information needed to fully understand:

1. its plastics packaging flow from a systems perspective – i.e., how plastic packaging moves throughout the value chain, including how much is being generated by whom, where it is ending up, and the drivers enabling or causing its final disposition; and
2. which types and formats of plastic packaging (including labels, attachments, and additives) are fully recoverable at end-of-life and how that might differ across the country.

The relative and combined effects of different choices in packaging design on material circularity (e.g., recyclability, reusability) remains elusive. Moreover, CPP stakeholders are raising concerns about the data collection efforts implemented to fill those gaps. They are concerned they are required to report data with a level of detail that is not readily accessible – e.g., due to a lack of visibility into upstream materials flow activities (especially those out of country), the terms of existing commercial contractual relationships that are difficult to amend, and a historical lack of internal data capture systems to track plastics use in the form required (e.g., plastic resin per tonne). One CPP partner, who was interviewed for this work, stated that transport packaging, like film wrap, is often treated and tracked through internal company records as "office supplies" in the same manner as copy paper, masking tape, facial tissues, or other stationary. Companies may have receipts for the purchase of film wrap, but they may not have information on the type of resin the wrap is made from, nor how much of it was used on each pallet or box wrapped.

A recent report by the Office of the Auditor General of Canada highlighted some of the current deficiencies related to Canada's ability to measure against its goal of reaching zero plastic waste by 2030, and it underlined the need for collaboration between the federal government, provinces, territories, municipalities, and the private sector for Canada-Wide progress to be effectively measured and reported.<sup>16</sup> Reporting on plastics usage, disposal, and the ensuing environmental impacts is increasingly costly and time-consuming. Where data gaps exist, ambiguity over the best course of action remains, and decision paralysis encourages the status quo.

CPP is working to improve data collection and management on two fronts:

1. To fill known data gaps faced by actors along the plastics value chain to enable and inform improved strategies to end plastic pollution.
2. To reduce data collection inefficiencies by working with partners to recommend standards, guidance, and reporting systems that could streamline the data that needs to be collected.

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<sup>16</sup> Office of the Auditor General of Canada. 2024. Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada. Report 3: Zero Plastic Waste. Available at: [https://www.oag-bvg.gc.ca/internet/docs/parl\\_cesd\\_202404\\_03\\_e.pdf](https://www.oag-bvg.gc.ca/internet/docs/parl_cesd_202404_03_e.pdf)

### 1.3 Project Objectives

This project was designed to support CPP by:

1. Providing an overview of Canada's current plastic packaging data flows, including current gaps.
2. Providing an outline of an idealized future state for data management systems in Canada based on best practices, accredited standards, and regulatory trends in Canada and other jurisdictions.
3. Identifying the gaps between the current and the idealized future state.
4. Developing a roadmap that recommends activities that could be undertaken to fill those gaps.

## 2 CURRENT STATE DATA & INFORMATION CAPTURE

For CPP and governments to be able to understand how plastic packaging is flowing through Canada's economy, including where it exits the plastics value chain through disposal (e.g., in landfill, incineration) or as waste or pollution (e.g., litter), and how they may intervene to instigate change, improved systems level data and information capture are required. Interviewees relayed that if the goal is to effectively track plastic flows related to plastic packaging, then this will require acquiring data and information as it changes hands throughout the value chain—from the point of first acquisition of raw materials through to its final disposition as waste or pollution—in a way that is credible (i.e., verifiable and immutable), accessible (i.e., decentralized ownership, transported by interoperable systems), and useful (i.e., in a common data language that can be compiled to tell a story). It is against these idealized goals that Canada's current data landscape should be considered.

**Section 2** discusses Canada's current plastic packaging data landscape. This section provides an overview of the concerns raised by producers and other actors along the plastics value chain during the course of researching this report, and represents the current views about the state of data and information flow. However, globally there is considerable work underway to enable improved data traceability, immutability, and flow, including by organizations in our country such as GSI Canada. New systems exist, but their adoption has not yet reached a critical mass. Digital product passports, which are a key enabler being used to address the concerns raised, are discussed in **Section 3**.

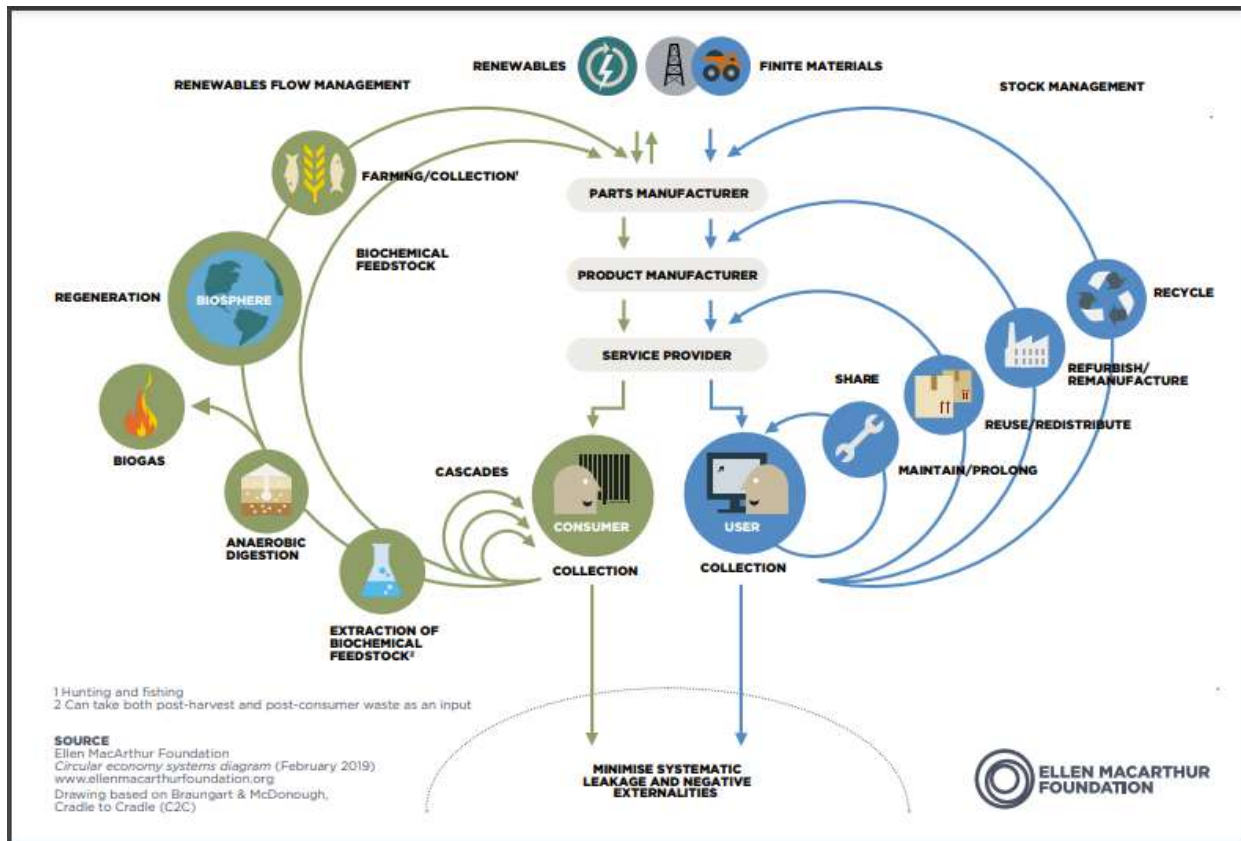
**Section 2** is divided into four parts:

1. A discussion about the complexity of existing plastic packaging data and information flows.
2. An overview of the current plastic packaging data collection agents in Canada and the outcomes they are working to achieve by collecting that data.
3. An outline of the current plastic packaging data being collected Canada-wide.
4. An overview of the Canada-wide standards and guidelines that exist or are being developed to support plastics circularity data capture.

### 2.1 Understanding the Complexity of Data and Information Flows

The Ellen McArthur Foundation (EMF) instigated a world-wide movement to encourage a shift from a linear economy to a circular economy for all materials, including for plastic packaging. EMF's depiction of a circular economy shows material flows that are simple, closed loop, concentric circles (**Figure 1**). From a conceptual standpoint, this diagram is

meant to portray the goal of minimizing leakage of materials outside of transparent and readily traceable lines of management as the economy neatly guides each material from one user to the next. However, this image can also lead the viewer to the false conclusion that tracking data on material flows through these pathways is simple. Real-world material flows (and associated material related data) are far more complex.



**Figure 1: EMF depiction of the circular economy.**

### 2.1.1 Upstream plastics flows

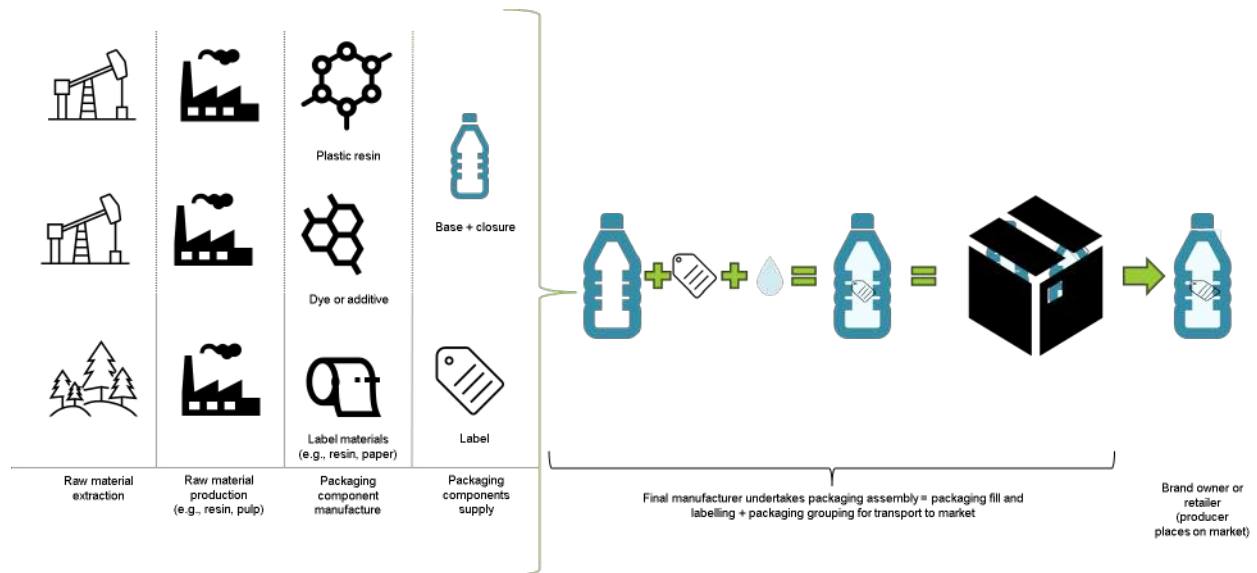
For upstream materials flow, the shape of material flow more closely resembles a lattice than EMF's depiction of single-lined loops. **Figure 2** and **Figure 3** provide different conceptual views of plastics flow. Each shows material from the point of gathering of raw material, through various stages of manufacturing, and finally to supply to market. **Figure 2** shows a simplified view of a type of plastic packaging for which the container base is made from a single material. **Figure 3** shows a more complex upstream view of a multi-material package, as well as the downstream view of end-of-life packaging management in a DRS or EPR system. In **Figure 3**, the green bubbles show the potential entities obligated as a producer (i.e., obligated reporter of supply data) in regulated DRS and EPR systems. The blue lines show the flow of data that would need to be recorded and reported by those obligated producers in Canada to be able to report on both supply of plastic resin into a DRS or EPR system, as well as reporting on the amount of PCR used in packaging manufacturing for the Federal Plastics Registry. In each of these figures, notice that for upstream plastics data flow:

- Each product or package that is ultimately placed on the market (i.e., supplied to market) by a brand owner, retailer, or importer is made by a final manufacturer that assembles and packages the item that is finally sold. That final item could be made

from and packaged using materials or prefabricated components (ingredients) from dozens of upstream suppliers (i.e., packaging component manufacturers).

- As material ingredients move from extraction to their final manufacturing into a products or packaging, they get combined with and conjoined to other new materials.
- As materials flow, they often change hands. Each time a material, product, or package changes hands, their ownership also changes. Unless other legal or contractual requirements exist, subsequent owners of the material only have access to data and information about that material that is provided by their direct supplier (i.e., they have one tier of visibility upstream).

What isn't shown on these figures, but is equally important to consider, is that as material flows from their original source to the final consumer, they can do so within and across national and sub-jurisdictional borders. Every time a border is crossed, the contracts enabling their movement are bound by different local laws. As a result, without regulations requiring traceability (e.g., for health and safety standards) or a clear understanding of upstream data needs, data and information may not flow in a useable form.



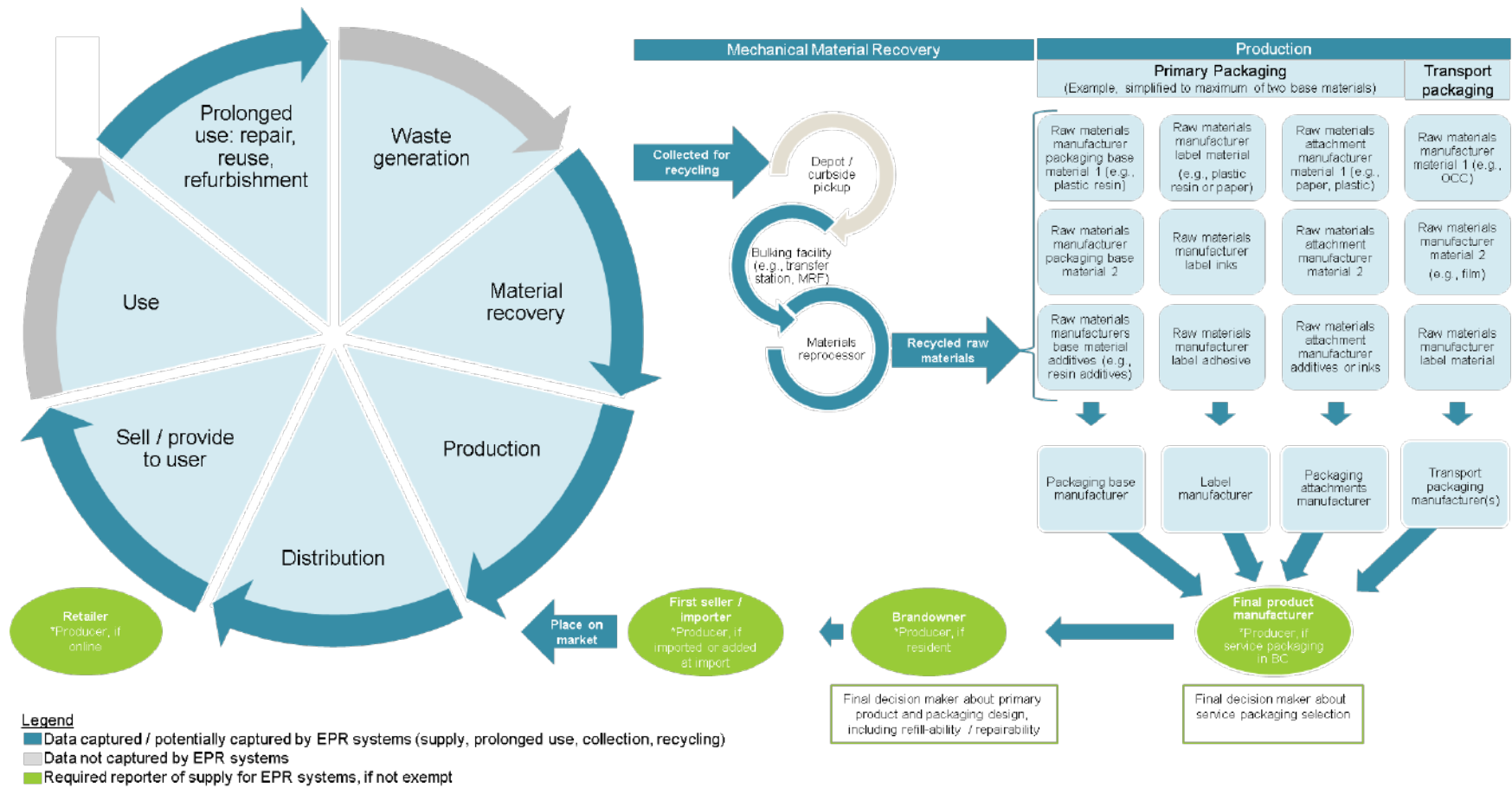
**Figure 2: Simplified view of the upstream chain of custody for the manufacture of a single material beverage container.**

## 2.1.2 Downstream plastics flows

Likewise, downstream plastics flows (i.e., post-consumer flows) can be equally complex.

**Figure 3** provides a view of an idealized state of downstream material flows from consumer, through extended use of the plastic (e.g., reuse or refill), through management of plastics waste in recovery systems. However, the reality is that while this figure may represent how a downstream plastics management system could be set up to enable plastics flow, it does not accurately depict how choices made by downstream stakeholders at each point of custody affects the plastic flows.

Stakeholders have options for how to manage their end-of-life materials and they make choices based on internal drivers: e.g., time, perceived value, space available to make alternative choices. Consumers may choose to litter, dispose, set material out for recycling, or return an item for reuse regardless of how a municipality or business designs their collection systems. Consumers may also self-manage or store end-of-life items in their homes for unlimited periods of time or reuse them onsite (e.g., newspapers may be shredded for home composting, glass jars or plastic tubs may be reused in-home for extended periods of time). Likewise, a hauler may choose to transport plastics materials to material recovery facilities (MRFs), plastics reprocessors, or disposal sites, regardless of the generator's intent when they set materials out for recycling. Both MRFs and reprocessors further sort the inbound plastics they receive into commodity streams and disposal streams based on value and ease of recycling.



### 2.1.3 One tier of visibility

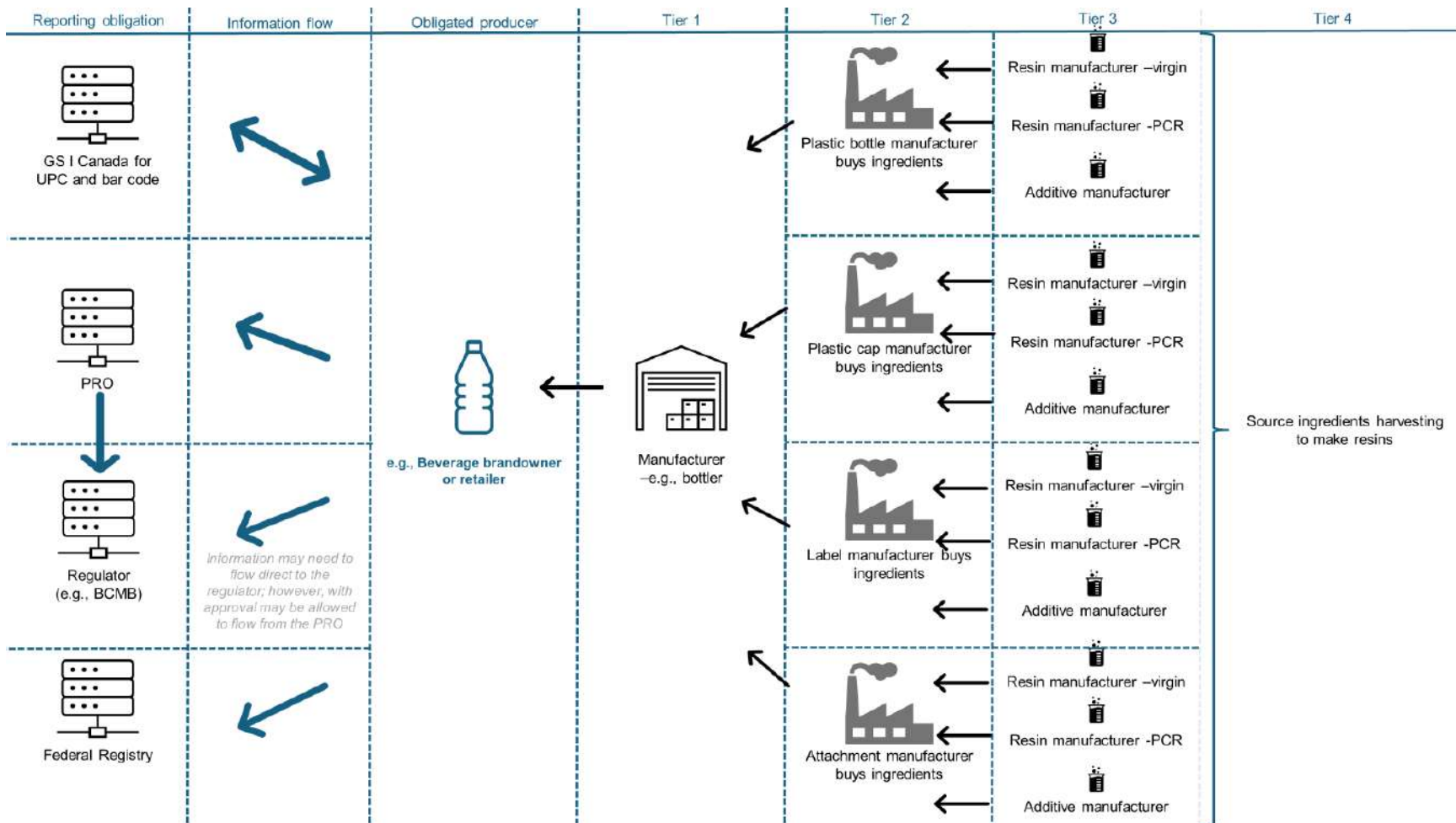
Plastics value chain stakeholders have what can be conceptually thought of as one natural 'tier' of data visibility both upstream and downstream from their place in that chain – this is also called one step forward one step back traceability or one-up-one-down traceability.<sup>17</sup> The single tier of visibility begins at the point in which a plastic item changes custody under a contractual agreement -e.g., a sale to a customer or purchase from a supplier. It is at the point of sale that either the purchasing or selling party can request or require information to accompany the sale, if the other party agrees (or is required) to provide it, and in turn has access to the information needed. It is difficult for stakeholders to demand data beyond that single tier from market players further up or downstream, especially if data systems further up or downstream do not exist to collect and report the needed data. If stakeholders want information held by market players outside of the single tier of visibility, systems and contracts would have to be in place to collect and transfer that data along the value chain. For example, Canada's Safe Food for Canadians Regulations systems are in place along the food value chain to track food "forward to the immediate customer and back to the immediate supplier" to reduce costs and better enable food recalls, protect consumers from food hazards, and increase consumer trust in the food they consume.<sup>18</sup> Where regulatory requirements do not exist, stakeholders with enough market power may be able to entice their suppliers to seek to provide additional information from suppliers further upstream.

**Figure 4** attempts to depict the 'one tier of visibility' obligated producers currently have regarding the plastics content of the products and packaging they supply, as well as a simplified overview of the cascade of contracts that would have to exist for an obligated producer to have a complete and verifiable ingredient lists for the products and packaging. The black lines show the upstream data that would need to be collected for Canada's plastic packaging producers to have a list of all of the ingredients used to make a final plastic package. The black lines show that even for a simple type of plastic packaging where the main body, cap, label, and any attachments were one plastic resin each, data may need to be captured from up to nine upstream suppliers pre final manufacturing. Likewise, the blue lines show the flow of data from the producer (i.e., supplier) to some of the entities they are obligated to report to – i.e., DRS and EPR systems, the Federal Plastics Registry, and GS1 Canada (to obtain a Universal Product Code, which is commonly known as a "UPC"). The blue lines show that the producer of a single type of plastic packaging may have to report on that plastic packaging to at least three if not four entities, each which have their own data collection systems. The issue is not necessarily with the number of entities data needs to be provided to, but whether the data needs to be provided to those entities in different formats. Note: some of the provincial EPR oversight agencies are allowing for data to be reported by a producer responsibility organization (PRO) with proper approvals.

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<sup>17</sup> Australian Government, Department of Climate Change, Energy, and the Environment and Water. 2023. A national framework for recycled content traceability. Available at: <https://www.dcceew.gov.au/sites/default/files/documents/national-framework-recycled-content-traceability.pdf>

<sup>18</sup> Government of Canada. n.d. Regulatory requirements: traceability. Available at: <https://inspection.canada.ca/en/food-safety-industry/traceability/traceability>



**Figure 4: Information flow before and after the obligated producer.**

## 2.2 Data Collection Agents and Information Sources and Tools

In Canada, there are a range of entities who are required to report data across the plastics value chain, including waste generators (e.g., ICI businesses over a certain size under Ontario's 3Rs Regulations),<sup>19</sup> obligated producers (under DRS, EPR, and other regulated product stewardship systems), and waste service providers (i.e., haulers, disposal sites, MRF operators, reprocessors).<sup>20</sup> Each of these entities is often required to report similar data, in different forms, to different entities, to accomplish different end goals set by federal or provincial/territorial regulators.<sup>21</sup>

The information presented in this section is ordered from broad (i.e., Canada-wide) to narrow (i.e., individual generators) and mandatory (i.e., regulated) to voluntary. These are summarized in **Appendix B**.

### 2.2.1 Federal Government & Agencies

The federal government and federal agencies collect and assess a range of plastic packaging related data and information. These include:

1. **Statistics Canada –Waste Management Survey:** Statistics Canada collects information from waste management service providers, retailers, and other organizations about waste disposed, and diverted from landfills in Canada, by their sources and material type. In 2023, the survey moved to an annual survey from a biennial survey.
2. **Statistics Canada – Physical flow account for plastic material (PFAPM):** In 2021, Statistics Canada released its first iteration of its PFAPM, which it deemed an experimental project to estimate the life cycle of plastic waste in Canada. In 2024, its fourth iteration was released, and Statistics Canada announced the project would be continue on a permanent basis. The PFAPM estimates Canada's plastic flows based on existing data sources from all levels of government and industry. For plastic packaging, it provides estimates of total packaging, bottles, film, non-bottle rigid, and other packaging products produced for Canadian consumption, net trade (imports less exports), domestic production, amount discarded, amount of plastic scrap sorted and baled, amount disposed with and without energy recovery, residual scrap disposed from reprocessors, and recycled plastic resin. Statistics Canada states:

*"The PFAPM accounts for the plastic content of internationally imported and exported products as well as international imports and exports of sorted and baled plastic waste and disposed plastic waste and scrap.*

*The PFAPM does not account for international trade of recycled plastic resin, nor does it account for interprovincial trade in sorted and baled plastic or recycled plastic resin. Because of this, the geographic dimension of estimates for recycled plastic resin*

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<sup>19</sup> Ontario government. O. Reg. 102/94: Waste Audits and Waste Reduction Work Plans, 1994. Available at: <https://www.ontario.ca/laws/regulation/940102>

<sup>20</sup> Permitting requirements could be provincial or territorial (e.g., environmental compliance approvals) or local (e.g., see Regional District of Nanaimo, Mandatory Waste Source Separation and Waste Hauler Licensing Bylaws at <https://www.getinvolved.rdn.ca/solid-waste-bylaws>)

<sup>21</sup> Intafesu Consulting. 2023. Improving data collection, reporting & transparency within the plastics packaging value chain | <https://plasticspact.ca/wp-content/uploads/2023/10/Improving-Data-Collection-Reporting-Transparency-within-Canadian-Plastics-Packaging-Value-Chain.pdf>

*represents the province or territory where the plastic was discarded, not the location of the final processor producing the recycled pellets and flakes."*<sup>22</sup>

- 3. Federal Plastics Registry:** In April 2024, Canada announced new requirements for producers, generators, and service providers to register and report annually into the Federal Plastics Registry on up to 35 plastic resins that are required to be reported across nine reporting categories and ~90 reporting sub-categories (**Appendix C**) which will be implemented over the next few years.<sup>23,24</sup> These include:
- Producers of plastic packaging and specific plastic products are required to report on the amount and type of plastic they supplied to market; they may delegate this reporting to a willing PRO.
  - Generators of plastic packaging and other plastic waste in the ICI sector are required to report on the amount and type they set out for disposal or recycling.
  - Waste service providers (i.e., haulers, plastics reprocessors, compost facility operators, incineration facilities, disposal sites, as well as businesses involved in extending the life of products of packaging<sup>25</sup>) are required to report on the amount and type of plastic they have managed.

Together, this reporting aims to collect the data needed to better understand how plastic moves through the economy, including how it is managed at end-of-life, whether policies or programs are working to manage plastics within a circular economy, and measure progress against Canada's international plastic reduction commitments.

- 4. Federal labelling requirements (proposed):** In 2023, the federal government proposed to establish regulations to require companies to use recycled content in specific types of products and packaging, as well as abide by recyclability and compostability labelling rules. As proposed, upon regulation, companies would be required to verify compliance with recycled content requirements by:
- Collecting data on and reporting annually to the federal government on the total amount of plastic and recycled plastic content used in manufacturing of each type of designated plastic packaging (rigid and flexible) and product category supplied to market;
  - Collecting data and keeping records on the use of reusable packaging;
  - Collecting data and information and keeping records that can verify;
    - the recycled content reported was PCR (i.e., proof of source);
    - that if PCR was derived from chemical recycling, that only the portion used in manufacture of new plastic products is reported; and
    - that the PCR was not derived through a credit trading system.<sup>26</sup>

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<sup>22</sup> Statistics Canada. 2024. Physical flow account for plastic material, 2020. Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/240318/dq240318c-eng.htm>

<sup>23</sup> Government of Canada, last updated April 4, 2024. Federal plastics registry. Available at: <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/reduce-plastic-waste/initiative-regulation/federal-plastics-registry.html>

<sup>24</sup> Government of Canada, April 20, 2024, Notice with respect to reporting of plastic resins and certain plastic products for the Federal Plastics Registry for 2024, 2025 and 2026. *Canada Gazette*, Part I, 158:16 Government Notices. Available at: <https://www.gazette.gc.ca/rp-pr/p1/2024/2024-04-20/html/notice-avis-eng.html>

<sup>25</sup> For example, those who arrange for reuse, refurbishing, remanufacturing, reprocessing.

<sup>26</sup> Government of Canada, 2023. Recycled content and labelling rules for plastics: regulatory framework paper Section 4.5.1 reporting and record keeping. Available at: <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/recycled-content-labelling-rules-plastics.html>

## 2.2.2 GSI Canada Global Trade Item Numbers, Bar Codes, including its ECCnet Registry

GSI Canada is part of a global network of 116 GSI member organizations working to establish a common data language to support retail systems and processes.<sup>27</sup> In Canada, GSI supports five key industry sectors: foodservice, general merchandise and hardlines, grocery, healthcare, and pharmacy, including cannabis. GSI Canada is Canada's sole provider of globally unique Global Trade Item Numbers (GTINs) — such as UPCs — as well as bar codes.

GSI Canada offers “Industry Managed Solutions” that have been developed in response to industry requests to address sector-wide, non-competitive business process issues, and better enable Canadian businesses in meeting their trading and regulatory requirements.<sup>28</sup> Examples of industry managed solutions include enabling improved e-commerce, web-based communications about recalls, nutritional content, planograms content, marketing content, foodservice content, pharmaceutical content, and incident reporting.<sup>29</sup>

GSI Canada is expanding attribution within its ECCnet Registry (see below) to support multiple environmental, social, and governance (ESG) and sustainability use cases and enable foundational reporting capabilities, including:

- Supporting the implementation of identifications standards that facilitate accurate reporting of information for product labels, communications, and into EPR / DRS systems (e.g., reporting on supply to market as well as on reuse, recycling, and other end-of-life management).
- Enhancing attribution to support all plastics, packaging, and environmental reporting.
- Enhancing attribution and functionality to load, store, and share with trading partners verification and validation documentation supporting ESG claims (i.e., product and company).
- Using GSI images to support the operation of DRSs, including bottle recognition in collection systems.
- Using the GTIN Standard as a tool to assist regulators in identifying free-riders in EPR systems.
- Using the Global Location Numbers (GLNs) Standard to solve gaps identified within the chain of custody
- Exploring the use of the GTINs to allow for direct-to-consumer reporting.<sup>30,31,32</sup>

GSI Canada collects data through its ECCnet Registry, which is Canada's largest national product registry, allowing data providers (i.e., manufacturers, brand owners, distributors, and suppliers) to share the up-to-date product data with trading partners and other data recipients (e.g., retailers, healthcare providers, foodservice operators, and other end users). More work is being undertaken to allow the Registry to be used as a source of information for reporting into DRS and EPR systems.<sup>33</sup>

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<sup>27</sup> GSI Canada, n.d. About GSI Canada. Available at: <https://gs1ca.org/about-us/>

<sup>28</sup> GSI Canada, n.d. ECCnet Registry. Available at: <https://gs1ca.org/new-item-setup/eccnet-registry/>

<sup>29</sup> GSI Canada, n.d. ECCnet Industry Managed Solutions. Available at: <https://gs1ca.org/all-solutions/>

<sup>30</sup> GSI Canada, n.d. Global Trade Item Number (GTIN). Available at: <https://gs1ca.org/standards/gtin/>

<sup>31</sup> GSI Canada, 2022. Proposed Architecture and Principles for Digital Product Passports. Available at: [https://gs1.eu/wp-content/uploads/2022/08/Digital\\_Product\\_Passport\\_Architecture\\_GS1inEurope\\_March\\_2022.pdf](https://gs1.eu/wp-content/uploads/2022/08/Digital_Product_Passport_Architecture_GS1inEurope_March_2022.pdf)

<sup>32</sup> GSI Europe, 2023. Digital Product Passport Powered by GSI Standards. Available at: <https://gs1.eu/activities/digital-product-passport/>

<sup>33</sup> GSI Canada, n.d. New Quebec regulations for manufacturers with aluminium beverage packaging. Available at: <https://gs1ca.org/gs1ca-components/documents/emails/2023/DRSLetter-en.pdf>

Examples of GS1 systems being implemented to improve data capture, flow, and reporting include:

- GS1 Germany implemented data standards for reusable loads. This enables tracking of the returnable lifecycles of reusable totes and 'Smart Boxes,' as well as optimizing the efficiency of their use.<sup>34</sup>
- GS1 US implemented data standards to enable tracking of food from farm to table. The Union Farms case study shows that groups of pigs can be tracked using a GTIN (i.e., as an identifier) and GLN (i.e., to track location), which enables reporting on carbon neutrality, increases in profit and productivity, and future-proofing.<sup>35</sup>
- GS1 Australia partnered with its government to implement 2D barcodes (e.g. QR Codes) to enable citrus fruit traceability from farm to multiple export markets, improving public safety (e.g., the ability to respond to food born illness) and improving the quality of fruit trees. Both business-to-business (B2B) and business-to-consumer (B2C) customers can scan a QR code to learn about the product.<sup>36,37</sup>
- GS1 Germany and GS1 Association Greece implemented data standards to enable farm to fork traceability for crop plants. This project involved a unique combination of Internet of Things (IoT) data — such as sensor data, user registries, and traceability data — to provide improved visibility for agri-food stakeholders. GS1 reports the following results: "The IoT traceability solution provides farmers with aggregated data that helps them determine which farm practices can increase a field's capacity to produce quality crops and food. It can provide the needed justification of a farmer's environmental decision since IoT data proves the necessity of certain farm practices (e.g., irrigation performed when soil is dry, spraying performed with low wind-speed, insecticides applied well before a crop's harvest and more)."<sup>38</sup>

For more information about GS1 Canada and its standards **Table 2**.

**Table 2: About GS1 Canada<sup>39</sup>**

<b>GS1 Canada</b>
<p><b>About GS1 Canada</b> — As a neutral and not-for-profit association, GS1 Canada works with all sectors to support a frictionless supply chain that provides visibility and transparency of products and services throughout their lifecycles.</p> <p>We are often best known for our global barcode standard. Through a federated model that works with GS1 member organizations in 116 countries, we help millions of trading partners, of all scales and sizes, from across the supply chain and around the world use common identifiers on their products, locations, and services, to enable traceability and recalls,</p>

<sup>34</sup> GS1 Belgium & Luxembourg, 2021. Innovation Café GS1 Belgium & Luxembourg. Available at: <https://www.gs1belu.org/sites/gs1belu/files/2021-04/GS1%20Innovation%20Café%20GS1%20SMART-Box.pdf>

<sup>35</sup> GS1 US, 2023. Union Farms How a Leading Pork Producer Achieves Carbon Neutrality in the Name of Sustainability. Available at: <https://documents.gs1us.org/adobe/assets/deliver/urn:aaid:aem:1399c881-7476-4417-a447-e1b5e7e279c0/GS1-US-Union-Farms-Case-Study.pdf>

<sup>36</sup> GS1 Australia, 2023. 2D Barcodes take Traceability into the next generation. Available at: [GS1au-media-release-citrus-traceability-agriculture-victoria.pdf](https://gs1au.com/media-release-citrus-traceability-agriculture-victoria.pdf)

<sup>37</sup> Citrus Australia. Citrus Traceability Project. Final Report. Available at: <https://citrusaustralia.com.au/wp-content/uploads/2023/03/Citrus-Traceability-Report-2023-FINAL-Hi-res.pdf>

<sup>38</sup> GS1 Germany and Greece. QUHOMAt rac. Unique combination of IoT and traceability data provides unparalleled upstream visibility for agri-food stakeholders. Available at: [traceabilityreferencebook21-case-study-quhomatrace.pdf](https://gs1.com/traceabilityreferencebook21-case-study-quhomatrace.pdf)

<sup>39</sup> Content in this table was provided was provided by GS1 Canada.

inventory management, visibility within the supply chain, and to support sustainability initiatives.

GS1 Canada provides companies that trade within Canada the ability to share standardized data and images to many actors in the supply chain, under a “one-to-many” principle. This enables producers to enter all the standardized attributes and imaging they need to relay into GS1 Canada’s ECCnet Registry once, and then share this information with as many trading partners as they have. This tool was built by industry, with the support of the federal government, to ensure quality data that can be inputted once and used for multiple needs.

**The Power of Global Standards for Plastics** — Products with plastics come from all around the world. Having the ability to identify these products in a standardized way, at all stages of its lifecycle, is a critical foundation in supporting environmental goals. In a plastics circular economy, the lifecycle of a product passes through many supply chain players, as well as consumers, and then back into the system for disposal, recycling, or other forms of recovery. Being able to identify and track these items using GS1 standards that have been used in the supply chain for more than 50 years (i.e., the barcode) will be paramount in ensuring goals are met and are measurable.

- GS1 standards have been developed to enable visibility of a product from a manufacturer right down to the end of its lifecycle, no matter where in the world the product moves. The standards enable quality and standardized data, critical for supporting sustainable objectives, benchmarking, and measurement. The data can also help future decision making. We believe this will only be achieved through a solid foundation based on GS1 global supply chain standards.
- Global identifiers provide ‘keys’ to valuable data. Any member of a supply chain can scan a global barcode and attach a global identifier to the database. This can be used to allow barcodes to carry more data on a product, location, or service.

**Global Supply Chain Standards** — GS1 Canada has developed global supply chain standards to standardize how products, locations, and services are identified in a plastic’s full lifecycle. GS1 global supply chain standards are leveraged by use case and by needs. In Canada, two of the most common standards used are the Global Trade Item Number (GTIN) and the Global Location Number (GLN).

- The GTIN is the unique global identifier that is embedded in barcodes across the world. GS1 supports over 25 sectors and therefore, many products with plastics already use a GTIN to identify their products. GS1 recommends Canada leverage this existing and globally adopted tool.
- The GLN standardizes the “who and where” of supply chain players – again, a critical tool for managing a product with plastics as it moves throughout its full lifecycle.

While GS1 Canada is not creating new standards to support ESG reporting today, we are seeing a high levels of interest in entering standardized data into a central repository that can be accessed for many use cases, as well as leveraging existing standards nationally and globally for:

- Standardizing tracking and reporting of environmental and plastics packaging attributes using the GTINs and Global Document Type Identifiers (GDTIs).
- Enabling chain of custody using GLNs, which can be assigned to plots of land, fisheries, agriculture, food processing, manufacturing, packaging, etc. All actors in the supply chain can be tracked and tracked using GLN. This is a key standard for

circularity in the European Union (EU) to support their Ecodesign for Sustainable Products Regulation, including digital product passports.

- Enabling reuse and refill using Global Returnable Asset Identifiers (GRAIs) and Global Individual Asset Identifiers (GIAs). PR3 and CSA Group are leading work to develop Canadian reuse/refill standards; GSI Canada's role will be to support implementation and usage vis a vis ECCnet and existing processes.

**GSI 2D Barcodes<sup>40</sup>** — GSI Canada's 2D barcodes can carry more information than a 1D barcode. The 2D barcodes can be leveraged to enable the flow and interoperability of important environmental data as it moves throughout the supply chain. While the 2D barcode is simply the 'carrier' of important information like the GTIN, it can also carry and direct users to critical information (e.g., supply chain, end-of-life management). This prevents confusion and disruption in the supply chain and supports multiple uses, including allowing for interoperability of existing data systems from the manufacturer right to the recycling facility.

**Looking to the Future** — Canada's Standards Development Organizations (SDOs) —e.g., CSA Group— will continue to develop standards, which we hope will be referenced by the government to ensure definitions and calculations to support reporting on recycling, repair, reuse, refill, upcycling, etc. are harmonized and streamlined Canada-wide. Once these standards are developed, GSI Canada has the technology and data management standards available to enable accurate plastics, packaging, and environmental data collection.

GSI Canada's Roadmap for 2025–2027 includes:

1. Creating a sustainability product bundle within ECCnet, which will house all ESG data and imaging to support various use cases at the product and item level.
2. Adding significant packaging and plastics environmental attribution to support many reporting use cases. This will ensure this data is entered in a standardized way and enabling it to be extracted for many use cases (e.g., informing internal company insights; reporting into CPP, Federal Plastics Registry, EPR systems, DRS systems, EcoVadis or other ESG reporting, supply shift surveys; measuring reuse and refill; paying eco fees).
3. Using GSI standards and identifiers to enable sharing of ESG and nutritional claims and certifications, which will enable improved chain of custody. This effort will be supported by global standards such as GLN, GTIN, and GDTIs.
4. Migration to 2D Barcodes using GTIN and Digital Link, which will enable and support recyclability labeling with efficiency and cost savings for industry.

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<sup>40</sup> According to TechTarget, a 2D (two-dimensional) barcode is “a graphical image that stores information horizontally as one-dimensional barcodes do, as well as vertically. As a result, the storage capacity for 2D barcodes is much higher than 1D codes. A single 2D barcode can store up to 7,089 characters instead of the 20-character capacity of a 1D barcode. Quick response (QR) codes, which enable fast data access, are a type of 2D barcode.” See TechTarget, n.d. Definition 2D barcode (two-dimensional barcode). Available at: <https://www.techtarget.com/searchmobilecomputing/definition/2D-barcode>

### 2.2.3 Canada Plastics Pact

CPP collects a range of plastic packaging related data and information to inform its progress against its 2025 Roadmap. These include:

- 1. Annual Datacall:** CPP collects and compiles data from its members to measure progress towards its goal of ending plastics packaging waste in Canada. By becoming CPP members, Partner organizations commit to sharing their relevant data to inform an annual progress report on CPP's four key targets (**Table 1**).<sup>41</sup>
- 2. Canada-Wide Plastic Packaging Flows studies:** CPP recently completed its **Canada-Wide Plastic Packaging Flows 2024**, which updates Canada-wide modelling of plastic packaging generation, disposal, collection for recycling, sorting, and final recycling by sector (i.e., residential, ICI, and DRS) and by province and territory. This report used a 'bottom-up' approach to model plastic packaging flow across the residential, DRS, and ICI sectors for the 2022 data year, and involved collecting waste audits, waste composition studies, and other reports and using that information to model out and project estimates of plastic packaging flow from generation through final disposal / reprocessing. The benefit of this approach is that it can estimate plastic packaging disposal at a provincial and territorial level, which is influenced by local conditions (e.g., local regulations, industry make-up, social norms), as well as sector contributions in each jurisdiction. This enables the reader to compare circumstances across jurisdictions, and make educated assumptions about which policy tools are driving better results.

### 2.2.4 Provincial and Territorial Governments and Program Operators

- 1. Provincial, Territorial, and Local Government – Waste facility reporting:** Waste facilities (e.g., landfills, incinerators, material recovery facilities, transfer stations, compost facilities) are required to report to apply for and maintain provincial or territorial permits or approvals and may be required to report as part of local governmental permitting processes. The facility-based data reported generally includes a mass balance of the materials received, how they were processed and what were the outputs (e.g., commodities or waste residuals).
- 2. Stewardship System Operators and Oversight Bodies:** In regulated EPR and product stewardship systems, both the regulator and PROs may collect data. Program operators (e.g., PROs, government-operators) collect data from obligated parties and their service providers on material supplied and material collected or recycled to report either a collection rate or a recycling rate.

Increasingly, especially in Québec, the United States, and Europe, PROs are required to report on specific environmental criteria related to their producers' products and packaging, and to take action (i.e., through eco-modulation) to encourage improved designs that are easier to recycle (i.e., do not contain recycling disruptors), are reusable/refillable, or that source reduce the use of plastic. For example, in Québec, its PRO, Éco Entreprises Québec (ÉEQ), has developed a 2021–2025 eco-modulation

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<sup>41</sup> Canada Plastics Pact, 2023. 2022 Annual Report: Tomorrow starts today. Available at: [https://plasticspact.ca/wp-content/uploads/2023/12/CPP\\_2022\\_Annual-Report-EN.pdf](https://plasticspact.ca/wp-content/uploads/2023/12/CPP_2022_Annual-Report-EN.pdf)

roadmap that outlines the bonuses and maluses it applies / will apply to discourage or encourage specific types of packaging design.<sup>42</sup>

In Ontario, Alberta, and Nova Scotia, the obligated producers, their PROs, and their service providers must report to government delegated EPR system oversight agencies – i.e., Resource Recovery Productivity Authority, Alberta Recycling Management Authority, and Divert NS. Typically, DRS and EPR systems require data to be reported on the amount of materials supplied and the amount of material collected and recycled.

All of Canada's provinces and territories, except Nunavut, have at least one regulated EPR or product stewardship system that manages at least one type of plastic packaging. There are 57 provincial or territorial EPR or product stewardship systems regulated and operating Canada-wide that manage plastic packaging, including:

- 12 that manage beverage containers under a DRS;
- 11 that manage automotive fluid containers;
- 11 that manage paint containers;
- nine that manage PPP;
- seven that manage other hazardous and special products containers;
- four that manage agricultural flexible plastics; and
- three that manage agricultural pesticide containers.

**Appendix A** provides an overview of the plastic packaging collection and recovery systems operating in each province and territory.

There may be multiple programs operating to capture a material stream in jurisdictions that allow PROs to compete to collect and recover materials –e.g., Ontario has four PPP PROs, each operating their own program while using a common collection system.<sup>43</sup> There are also voluntary EPR systems operating Canada-wide – e.g., Cleanfarms voluntarily manages agricultural pesticide and fertilizer containers across all 10 provinces.

- 3. Government permitting bodies:** Provincial and territorial governments collect data from facility operators to assess their plans for adherence to laws before they are sited (i.e., to assess plans for compliance) and once the facility is operational (i.e., to assess whether it continues to operate within the parameters of their approval or permit). Every province and territory, as well as many local governments, have pre-siting as well as annual reporting requirements associated with waste management facilities (e.g., landfills, incinerators, material recovery facilities, transfer stations, compost facilities).

## 2.2.5 Local governments

Regional or municipal governments may be required to report to the public or to other orders of government on their management of certain types of waste (e.g., residential) within their jurisdiction. For example, British Columbia requires all regional governments to submit

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<sup>42</sup> Éco Entreprises Québec, 2021. Update of the 2021-2025 eco-modulation roadmap. Available at: [chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://www.eeq.ca/wp-content/uploads/MaJ2023\\_eco-modulation-roadmap\\_EN.pdf](chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://www.eeq.ca/wp-content/uploads/MaJ2023_eco-modulation-roadmap_EN.pdf)

<sup>43</sup> RPRA. n.d. Questions about the blue box program? Available at: <https://rprr.ca/programs/blue-box/regulation/pros/>

information about their waste flow on an annual basis into their municipal solid waste disposal calculator.<sup>44</sup> Likewise, in Nova Scotia, facility operators — including municipal operators — are required to submit data into Divert NS' annual datacall.<sup>45</sup> Prior to transition to a full EPR system, Ontario municipalities were required to submit data annually to the Resource Productivity and Recovery Authority (RPPRA) for determining the net Blue Box system cost for Ontario and for allocating funding to municipalities under the Blue Box Plan.<sup>46,47</sup>

In addition, many regional and municipal governments develop solid waste management plans to help them plan for future needs, assess the efficacy of programs and policies, and measure against corporate goals. Across most of Canada, establishing these plans is, in general, a voluntary initiative undertaken by local governments as part of their good governance practices. However, in British Columbia and Nova Scotia it is mandatory for local governments to establish and submit these plans to their provincial government.<sup>48,49</sup>

## 2.2.6 ICI Generators

ICI sector organizations Canada-wide often conduct waste audits to inform the development waste reduction plans, which help them self-identify operational inefficiencies, better understand their environmental impact, and enable ESG reporting. While this activity is voluntary across most of Canada, there are jurisdictions where ICI waste stream reporting is mandatory.

In Ontario, businesses over a certain size are required to undertake these assessments as follows:

- retail shopping establishments/complexes with a total floor area of at least 10,000 square metres;
- large construction and demolition projects that consist of the construction or demolition of one or more buildings with a total floor area of at least 2,000 square metres;
- office buildings with a total floor area of at least 10,000 square metres;
- multi-unit residential buildings where the building contains six or more dwelling units and is located within a local municipality that has a population of at least 5,000;
- restaurants where in the first calendar year following the two preceding calendar years in which gross annual sales for all restaurants operated by the same owner were \$3 million or more;
- large manufacturing establishments where the persons employed at the site work in excess of 16,000 hours in any one calendar month during the preceding two calendar years;

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<sup>44</sup> Government of British Columbia. 2023. Municipal waste management plans. Available at: <https://www2.gov.bc.ca/gov/content/environment/waste-management/garbage/municipal-waste-management-plans>

<sup>45</sup> Government of Nova Scotia. 2023. Solid waste management facility guidelines. Available at: <https://novascotia.ca/nse/pubs/docs/solid-waste-management-facility-guidelines-municipal-waste-transfer.pdf>

<sup>46</sup> This datacall will cease to exist once EPR is fully implemented in 2025.

<sup>47</sup> RPPRA. n.d. Datacall. <https://rpra.ca/programs/about-the-datacall/>

<sup>48</sup> Government of British Columbia. 2023. Municipal waste management plans. Available at: <https://www2.gov.bc.ca/gov/content/environment/waste-management/garbage/municipal-waste-management-plans>

<sup>49</sup> Government of Nova Scotia. Solid Waste-Resource Management Regulations. Available at: <https://novascotia.ca/just/regulations/regs/envsolid.htm>

- educational institutions, if the location or campus has more than 350 full- or part-time persons enrolled during the calendar year and are located within a local municipality that has a population of at least 5,000;
- public hospitals that are classified as a Group A, B or F hospital under Regulation 964 of the Revised Regulations of Ontario, 1990, made under the Public Hospitals Act, and are located within a local municipality that has a population of at least 5,000; and
- hotels or motels that have more than 75 units, and are located within a local municipality that has a population of at least 5,000.<sup>50</sup>
- In Québec, Recyc-Québec, which is a crown agency, undertakes assessments of its ICI generators. Likewise, municipal governments across Canada may also undertake audits of ICI entities in their jurisdictions or require their ICI entities to report to their government on the contents of their waste streams (e.g., Lethbridge, Alberta requires mandatory ICI waste stream reporting).<sup>51</sup>

## 2.2.7 Environmental, Social, and Governance (ESG) Reporters

There are currently no legal requirements for companies to make ESG or climate-related disclosures in Canada, so reporting is voluntary.<sup>52</sup> Many companies voluntarily provide ESG reporting based on investor pressures, improving corporate transparency and to detect and control potential corporate risks. ESG reporting often includes information about how organizations manage their resources including reuse, recycling, and disposal of materials in their operations, and how resources are used in the manufacturing of their products and packaging.

On March 13, 2024, the Canadian Sustainability Standards Board (CSSB) published two exposure drafts for comment. Canadian Sustainability Disclosure Standard (CSDS) 1 contains general requirements regarding sustainability-related financial information and CSDS 2 contains climate-related disclosure requirements. Once finalized, CSDS 1 and CSDS 2 will be *voluntary* standards in Canada.<sup>53</sup> The Canadian Securities Administrators is drafting the first mandatory climate-related disclosure rule in Canada.<sup>54</sup> The CSDS are proposed to be effective for annual reporting periods beginning on or after January 1, 2025. (For more information on ESG reporting see **Appendix D**).

Currently the data reported in ESG reports, is dependent on the commitments made by each company and as a result each measures outcomes in a different manner. For example:

- Loblaw Companies Limited has a stated goal related to plastic waste:
  - Reduce plastic waste by making all control brand and in-store plastic packaging recyclable or reusable by 2025.<sup>55</sup>

<sup>50</sup> Government of Ontario. O. Reg. 102/94: Waste Audits And Waste Reduction Work Plans. Available at: <https://www.ontario.ca/laws/regulation/940102>

<sup>51</sup> The City of Lethbridge. Businesses & Organizations: Mandatory Recycling & Organics. The city uses Re-TRAC to collect data on business, organization and multifamily mandatory recycling. Available at: <https://getinvolvedlethbridge.ca/mandatory-recycling-organics> and <https://app.re-trac.com/login?identifier=city-of-lethbridge>

<sup>52</sup> ESG disclosure: Climate defense meets three lines of defense, 2022. Available at: <https://kpmg.com/ca/en/home/insights/2022/11/preparing-the-finance-function-for-esg-disclosures.html>

<sup>53</sup> Fasken, 2024. ESG and sustainability bulletin. Available at: <https://www.fasken.com/en/knowledge/2024/03/cssb-releases-its-draft-standards-one-step-closer-to-mandatory-sustainability-reporting-in-canada>

<sup>54</sup> Ibid.

<sup>55</sup> Loblaw Companies Limited, 2022. Environmental, Social and Governance Report 2022 Available at: [https://dis-prod.assetful.loblaw.ca/content/dam/loblaw-companies-limited/creative-assets/loblaw-ca/responsibility-/LCL\\_2022%20ESG%20Report\\_EN.pdf](https://dis-prod.assetful.loblaw.ca/content/dam/loblaw-companies-limited/creative-assets/loblaw-ca/responsibility-/LCL_2022%20ESG%20Report_EN.pdf)

- Canadian Tire has stated goals related to waste to:
  - Reduce operational waste including:
    - Achieve a 90% waste diversion rate at their distribution centres;
    - Achieve a 90% waste diversion rate at their SportChek, Atmosphere, Mark's, PartSource and Pro Hockey Life retail stores; and
    - Achieve a 60% waste diversion rate at their Canadian Tire Gas+ gas bars.
  - Increase the sustainability of their packaging, including:
    - Defining a list of Canadian Tire brand plastic packaging that is designated as problematic/unnecessary and taking measures to eliminate those materials by 2025;
    - Designing 100% of Canadian Tire brand plastic packaging to be reusable, recyclable, or compostable by 2025; and
    - Ensuring an average of 30% recycled content in Canadian Tire owned brand plastic packaging by 2025.<sup>56</sup>

### 2.3 Current State of Plastic Packaging Flow Measurement

CPP and the federal government have made efforts to compile the existing data sources outlined in **Section 2.2** to measure plastic packaging flow Canada-wide – from point of supply through final disposition –with an aim to better inform actions that could prevent or minimize plastic packaging is leaking into the environment. In general, three methods have been used: a top-down approach, a bottom-up approach, and a hybrid of both. These methods involve collecting and normalizing existing data sources and then using that normalized data to model plastic packaging flow for areas where data does not exist (i.e., geographically and by waste sector — DRS, residential, and ICI, and by ICI sub-sector). Where the datapoints are of sufficient number and quality, there is higher confidence in the model generated. Likewise, where data are scarce and highly variable, there is less confidence in the model generated. The top-down and bottom-up methods are described below:

- **Top-down approach:** This approach can be used where supply data are available. With this approach, existing data are collected for plastic packaging supply and end-of-life disposition, normalized, and then modelled to establish a Canada-wide estimate. The amount of plastic packaging loss (e.g., to disposal or litter) is calculated by subtracting what is modelled to be managed through reuse, recycling, and other forms of recovery from the supply data. The difference between what is supplied and what is managed is what is presumed lost from the circular economy (e.g., plastic disposed in landfill, discarded as litter, or lost through other avenues such as in effluent). This top-down approach is the method currently used by EPR and DRS systems in Canada. Producer data are reported to PROs, then PROs or the oversight bodies amalgamate this information into a supplied value for the jurisdiction. The issue with this approach is if there are supply data gaps, then the model can underestimate the amount of material supplied and therefore overestimate the systems' collection and recycling rates, as well as underestimate plastics loss from the system (e.g., disposal or litter). This is discussed further below in Section 3, **Gap 2: Unavailable Data**.
- **Bottom-up approach:** This approach can be used when supply data are unavailable. With this approach, waste audit data (e.g., ICI generator waste audits, MRF audits, landfill waste composition studies, reprocessor yields) for all waste streams are collected, then the amount of plastic packaging compared to other materials are

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<sup>56</sup> Canadian Tire Corporation, 2023. Environmental, Social and Governance Report 2023 ESG Report. Available at: <https://corp.canadiantire.ca/English/Environmental-Social-Governance/default.aspx>

normalized, types and quantities of plastic packaging are amalgamated to establish consistent categorization across the waste audits, and the data are then modelled to estimate plastic packaging generation, collected for recycling, sorting, and recycled on a sector or ICI-subsector basis either per person or per employee. However, the challenge with the model developed from this approach is that it is often based on data provided by generators who are most interested in conducting waste audits, which tends to be entities that are achieving higher recycling rates. As a result, the estimates can overestimate the amount collected for recycling and underestimate disposal.

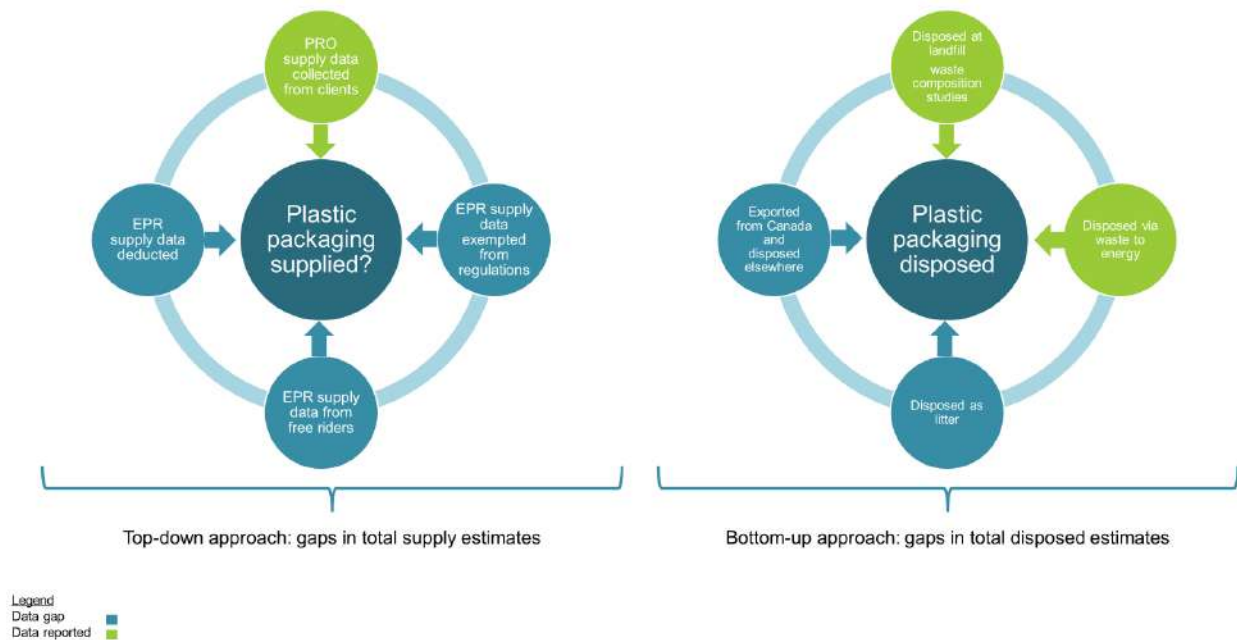
**Figure 5** provides a comparison of the two approaches.

Both approaches have been used separately and together (as a hybrid approach) to model Canada-wide plastic packaging flow with varying degrees of success. For example:

- CPP has undertaken two Canada-wide plastic packaging flow assessments, using a combination of the bottom-up approach and the top-down approach. The results of its most recent Canada-Wide Plastic Packaging Flow (last published in 2024 using 2022 data) provides the most detailed overview of plastic packaging flow through the ICI sector yet published in Canada and provides more insight into potential areas for focused improvements in the ICI sector.
- Statistics Canada's Physical Flow Account for Plastic Material uses a hybrid approach to modelling plastics flows. This model provides a view of plastic packaging flows Canada-wide at a macro level, but not at a sector (i.e., residential, ICI, or DRS) level, nor an ICI sub-sector level, nor does it provide any detail on sector-based distribution of plastics leakage from the circular economy.

(See Section 2.2 **Data Collection Agents and Information Sources and Tools** for a discussion of both CPP's Canada-Wide Plastic Packaging Flow and Statistics Canada's Physical Flow Account for Plastic Material.)

The new Federal Plastics Registry is seeking to close data gaps on plastic packaging flows by collecting data necessary to inform both the top-down and bottom-up approaches. Generators, producers, and service providers will be required to report into the Registry. In theory, this approach would work if the data existed to transcribe into the Registry and if the waste audit data collected was standardized. However, as discussed in **Section 2.2**, many of the regulated parties do not yet have the data systems needed to collect and report this information into the Registry. The next chapter (**Gap 2: Unavailable Data**) provides an overview of the challenges and barriers with filling data gaps where data are not yet available.



**Figure 5: Data gaps that prevent Canada from fully understanding its plastic footprint.**

## 2.4 Current State Solid Waste and Circular Economy Data Standards and Guidance

In addition to the data standards developed by GSI Canada (see Section 2.2), Canada has a number of accredited standard setting organizations that develop Canada-wide standards and guidance. The Standards Council of Canada oversees and accredits Canada’s standard development organizations (SDOs), which develop National Standards of Canada, guidance, and certifications related to plastics waste management or plastics circularity (i.e., measurement, prevention, reuse, refill, recycling, composting, hauling, or disposal). Canada’s accredited SDOs include:

- Bureau de normalisation du Québec (BNQ);
- Canadian Standards Association (CSA Group);
- Underwriters Laboratories Inc. (UL); and
- ASTM International.

The standards developed by these organizations are ‘voluntary’ unless they are directly referred to in provincial, territorial, or federal regulations. To help better explain the role of an SDO in improving plastics waste data collection and management, an overview of CSA Group and their current plastics waste related work underway is provided in **Table 3**.

The Canada-wide standards and guidance that is either under development or published by Canada’s SDOs relating to plastics circularity reporting include:

- CSA Group (under development)
  - Adoption of ISO 59004: 2024 Circular economy — Vocabulary, principles and guidance for implementation.

- Adoption of ISO 59010: 2024 Circular economy — Guidance on the transition of business models and value networks.
- Adoption of ISO 59020:2024 Circular economy — Measuring and assessing circularity performance.
- RES-003/CSA R302 Reusable Packaging System Design Standard: Labelling & Education.
- RES-002/CSA R303 Reusable Packaging System Design Standard: Third-party Washing, Sanitization & Handling of Foodware.
- RES-001/CSA R304 Reusable Packaging System Design Standard: Container Design Standard.
- RES-004/CSA R305 Reusable Packaging System Design Standard: Digital.
- CSA Group (published)
  - CSA R117 Plastics Recycling: Definitions, Measuring, and Reporting.
  - CSA R111:21 Solid waste sites in northern communities: From planning to post-closure.
  - CSA Z317:10:21 Handling of health care waste materials.
  - CSA SPE-890-15 A Guideline for accountable management of end-of-life materials.
- BNQ (published)
  - Certification program for compostable products (excluding compostable plastics and compostable products made entirely from plastics) against ISO 18606:2013 Packaging and the environment — Organic recycling.
  - Certification program for compostable plastics against ISO 17088:2021 Plastics — Organic recycling — Specifications for compostable plastics.
  - CAN/BNQ 3840-100/2023 Recycled Plastic Content Products.
  - The BNQ is phasing out CAN/BNQ 0017-088, which were specifications and certification of compostable plastics against the withdrawn international standard ISO 17088:2008.
  - Certification protocol BNQ 3840-900 for verifying the conformity of recycled plastic content products within end-products in accordance with the requirements of standard CAN/BNQ 3840-100

UL is also an accredited SDO in Canada. It has also developed plastics circularity data related certifications, but while these have been adopted in the United States, they have not yet been adopted in Canada, such as:

- UL (published)
  - UL 2789 Standard for Environmental Claim Validation Procedure for Zero Waste to Landfill.
  - UL 3600 Standard for Sustainability for Measuring and Reporting Circular Economy Aspects of Products, Sites and Organizations (October 23, 2024).
  - UL 2809-1, 2809-2, 2809-3, 2809-4, 9798, 1497, 2485, 2789 A series of standards related to recycled content validation.
  - UL 2990 Standard for Environmental Claim Validation Procedure for By-Product Synergy.
  - UL 746D Standard for Polymeric Materials – Fabricated Parts.

ASTM International is also an accredited SDO in Canada. Like UL, it has developed a number of standards related to plastics waste management or circularity that have been adopted in the United States, but not yet been adopted in Canada, such as:

- ASTM (published)
  - ASTM D6400 Standard Specification for Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities.
  - ASTM D6868 – Standard Specification for Labeling of End Items that Incorporate Plastics and Polymers as Coatings or Additives with Paper and Other Substrates Designed to be Aerobically Composted in Municipal or Industrial Facilities.

ASTM is also developing a “New Guide for Circular Plastics” for the United States.<sup>57</sup>

**Table 3: CSA Group Overview<sup>58</sup>**

CSA Group
<p><b>About CSA Group</b> — Canadian Standards Association, operating as CSA Group, is a not-for-profit organization. Our mission is to enhance the lives of Canadians through the advancement of standards in the public and private sectors. We are a leader in standards research, development, education, and advocacy. The technical and management standards developed with our more than 11,000 members improve safety, health, the environment, and economic efficiency in Canada and beyond. CSA Group is dedicated to building a better, safer, more sustainable world where standards work for people and business. Accredited by Standards Council of Canada (SCC) in Canada, and American National Standards Institute (ANSI) in the U.S., CSA Group is a leader in leveraging dual accreditation and collaborating with other Standards Development Organizations (SDOs) in Canada and the U.S. to develop binational standards. CSA Group also actively participates in international standards development and harmonization efforts through other global organizations, including the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).</p> <p>CSA has an extensive environmental standards portfolio supporting a broad range of sectors implementing circular economy goals, strategies, and emissions mitigation, including end of life management. These include solid waste and wastewater treatment in northern communities, accountable management of end-of-life materials, design for disassembly and adaptability in buildings, and bi-national standards for quantifying material carbon intensities.</p> <p><b>Plastics Initiatives at CSA Group</b> — CSA Group is engaged in multiple initiatives supporting the development of standards related to plastics recycling, as well as complex systems data collection and sharing. In addition, CSA Group is facilitating the development of standards related to emerging systems and technologies that address entire value chains, such as reuse, waste reduction, and diversion.</p> <p>CSA Group has completed two research projects within the sphere of plastics recycling, providing both a broad view of the sector and a focused exploration of one of the most pressing challenges in supporting increased plastics recycling in Canada:</p>

<sup>57</sup> ASTM International, 2023. New Guide for Circular Plastics. Available at: <https://www.astm.org/products-services/standards-and-publications/standards/workitem-wk87117>

<sup>58</sup> Content provided in this table is a quote provided by CSA Group. Personal communication, October 2024.

- A Roadmap to Support the Circularity and Recycling of Plastics in Canada, 2020
- Defining Recycling in the Context of Plastics, 2021

The research reports indicated a lack of national consistency in foundational concepts, such as how to define ‘recycling’ and how to measure recycling rates, which led to CSA Group pursuing the National Standard of Canada, CSA R117 *Plastics recycling: Definitions, reporting, and measuring*, published in 2024. This standards development work brought together a wide cross-section of interested parties seeking to support collaboration, unity, and clarity in this sector.

The purpose of CSA R117 is to establish a national foundational framework standard to help set a common definition of recycling in the context of plastics, to support consistent use, understanding, and measurement of when the waste stream will be deemed ‘recycled.’ The national quantification standard will include the following:

- a. How recycled plastic should be defined;
  - b. Where and how in the recycling process should recycled plastic should be measured;
  - c. How a plastic recycling rate should be calculated; and
  - d. What metadata should be reported alongside any published data on plastic recycling or plastic recycling rates.
- CSA Group is also supporting work in reuse by pursuing a series of bi-national reuse systems standards with Resolve/PR3. The standards currently in development are:
    - RES-003/CSA R302 Reusable Packaging System Design Standard: Labelling & Education.
    - RES-002/CSA R303 Reusable Packaging System Design Standard: Third-party Washing, Sanitization & Handling of Foodware.
    - RES-001/CSA R304 Reusable Packaging System Design Standard: Container Design Standard.
    - RES-004/CSA R305 Reusable Packaging System Design Standard: Digital.

**CSA Group Data and Circularity Standards** — CSA Group continues to update its key environmental standards to reflect technological advances and data requirements across many fields, while also developing new standards for emerging applications. A relevant recent example of CSA Group’s expertise in data management is the publication of a [suite of four standards<sup>1</sup>](#) on collecting and sharing metadata from hydrometeorological stations. Collectively, these standards can help interested and affected parties consistently report data from a weather station or networks adhering to those standards, supporting data interoperability and accessibility. The value and experience in standardizing hydrometeorological weather data, across a diverse set of national data inputs, could provide a roadmap for the proposed plastic data tracking expectations and possible standardization.

CSA Group’s Harmonized Mirror Committee on Circular Economy is adopting ISO 59004:2024 *Circular economy — Vocabulary, principles and guidance for implementation*, ISO 59010:2024 *Circular economy — Guidance on the transition of business models and value networks*, and ISO 59020:2024 *Circular economy — Measuring and assessing circularity performance* as National Standards of Canada, to serve as resources to those seeking to more concretely acquire data and measure efforts towards circularity. More information and updates can be found on CSA Group’s website:

<https://www.csagroup.org/addressing-societal-challenges/circular-economy/>

**CSA Group Registries** — Complementing its standards development expertise, CSA Group has over 15 years of experience in providing registry services across Canada and around the world. CSA maintains and operates independent, transparent registry listings across multiple sectors. Furthermore, CSA Group develops customized registry solutions that can meet government and/or private sector needs. As part of the Registry program, CSA Group's highly trained team provides additional services in registry support and administration.

For example, CSA operates the [Alberta Emissions Offset Registry \(AEOR\)](#) and the [Emissions Performance Credit \(EPC\)](#) registry, in coordination with the Government of Alberta. These Registries, built and administered by CSA Group, provide the infrastructure to support the ability for regulated facilities to be compliant with the Technology Innovation and Emissions Reduction Regulation (TIER) through the transparent display of Alberta-based emission offsets and/or Emission Performance Credits. Likewise, [the CSA Group CleanProjects® Registry](#), based on ISO 14064 standards for greenhouse gas accounting and reporting, provides a platform for organizations to showcase their independently verified projects that reduce or remove GHG emissions. The GHG CleanProjects® Registry is capable of serializing, listing, and delisting verified GHG emission reductions and removals achieved by GHG projects by tagging each tonne with a unique and trackable serialization number posted publicly. The Registry tracks the issued offset credits and retires them when they are claimed, hence avoiding double counting of the same credits.

CSA Group's EPD program is operated in accordance with CAN/CSA-ISO 14025 and applies to the entire range of products and services in all sectors of the global economy. As a Program Operator, CSA can facilitate the development of Product Category Rules (PCRs) and register and publish Environmental Product Declarations (EPDs). EPDs registered with CSA Group are posted on the EPD registry and receive a CSA Registered EPD label.

CSA Group registry platforms have multiple functions and applications and can be customized for various purposes, including alignment to standards and operating procedures. CSA registries could, for example, also be customized to track and report on the amount of plastics and resin type in the Canadian economy (i.e. collection, diversion, reuse, repair, refurbish, recycle, landfill, etc.). CSA registries are reflective of standards and other means of compliance requirements.

### 3 ASSESSMENT OF CURRENT STATE DATA GAPS

This chapter provides an assessment of existing gaps in measuring Canada-wide plastic packaging flow. However, when reviewing these gaps, it is important to consider the context for that assessment.

#### 3.1.1 Context for Gaps Assessment

The question "What problem are we trying to solve?" was foundational and grounding in the following gap analysis. CPP's aim is to be able to collect the data needed to quantify and qualify plastics loss from a circular economy so that it (and its Partners) may take informed action to intervene and reduce that loss. From that perspective, when assessing data gaps, the goal is not to identify and propose options to fill all data gaps; instead, the goal is to identify and fill strategic gaps that help to inform core questions, including:

- Which data and information are needed to accurately estimate the quantity of plastic packaging lost from Canada's circular economy (e.g., disposed or littered)?
- Which data and information are needed to understand where and why plastic packaging is being disposed of or otherwise leaking into environment in Canada?
- What evidence is needed to provide confidence in the data and information collected?

### 3.1.2 Gap Assessment

CPP began to explore the data gaps and reporting issues in its paper: *Improving data collection, reporting & transparency within the plastics packaging value chain*.<sup>59</sup> That paper identified three root causes for data gaps: 1) the drivers for plastics data collection vary considerably and are highly localized; 2) there exists an overall absence of a systems-based approach to plastics data collection and reporting; and 3) plastics data collection is not structured with a focus on serving strategic outcomes.<sup>60</sup>

For this report, additional work was completed to expand the gap assessment including:

- literature review;
- work completed to inform CPP's Plastic Packaging Flow Baseline (2024);
- interviews with key stakeholders; and
- a Data & Reporting Workshop, held by CPP, in April 2024.

From that work, there appears to be three systemic categories of data gaps, including:

1. Gaps caused by a lack of data accessibility.
2. Gaps caused by a lack of data availability.
3. Gaps caused by data being collected that is of inadequate quality.

These categories of gaps are discussed below and are summarized from different perspectives in **Appendix E** and **Appendix F**.

### 3.1.3 Gap 1: Inaccessible Data

The first gap is data that are available but inaccessible because they are held privately. There is a substantial amount of data available across the plastics packaging value chain held by individual stakeholders. However, the existence of data does not necessarily mean that the data can be readily obtained.

In Canada, plastic packaging value chain data accessibility is hindered by a lack of:

- data systems to collect existing data; and
- incentive or requirements to openly share data coupled with current market drivers that encourage protecting or secreting data due to a belief the data has market value or is a commercial confidential asset.

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<sup>59</sup> Canada Plastics Pact and Circular Economy Leadership Canada, 2023. *Improving data collection, reporting & transparency within the plastics packaging value chain*. Available at <https://plasticspact.ca/wp-content/uploads/2023/10/Improving-Data-Collection-Reporting-Transparency-within-Canadian-Plastics-Packaging-Value-Chain.pdf>

<sup>60</sup> Ibid.

### 3.1.3.1 Lack of widely adopted interoperable data platforms

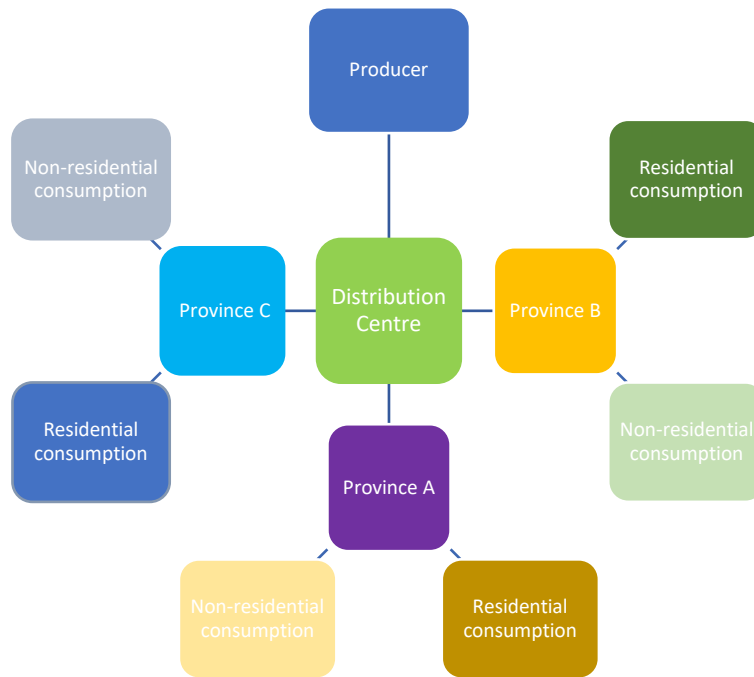
There could be hundreds of points of custody along the plastics value chain in the manufacture, supply, use, and end-of-life management of plastic packaging. The ability to track individual packaging through all of the points of custody along the chain requires data systems that are immutable and interoperable. However, at present, the needed data systems do not exist at a functional level.

In Canada, at present, there are few requirements to track plastic packaging other than requirements in regulated DRS, EPR, and product stewardship systems. These systems require data to be provided on packaging supply and some downstream management (varying by provincial / territorial jurisdiction). As a result, Canada lacks verifiable data systems to accurately track:

- plastic packaging manufacture (i.e., use of PCR in packaging, ingredient lists for each type of packaging supplied);
- plastic packaging supplied (i.e., including supply to the ICI sector, supply from a distribution centre to each province/territory); and
- plastic packaging end-of-life management (i.e., including which types of obligated plastic packaging remains unmanaged due to inability to collect, process, or reprocess; how much of the original plastic packaging is made into PCR pre-additives; how much PCR is lost before being reintroduced into a circular economy –e.g., lost in transport).

For example, producers must estimate how much material is supplied into each province and territory. This can become challenging when the distribution of the materials is collected by another entity (e.g., retailer, distributor). Unless point of sale information is available to the producer (i.e., the retailer is willing and has the data systems to provide the information), brand owners must estimate how much material is delivered to each province and territory once it leaves the distribution centre. Similarly, because only residential PPP is obligated in most PPP systems Canada-wide, these brand owners must also estimate how much of the material shipped is ultimately consumed and disposed of in residential settings (i.e., which are obligated) versus non-residential settings (i.e., which are not obligated) – e.g., at a workplace, school, streetscape bins). **Figure 6** provides an example of the complexity involved in brand owner estimates of its supply into each province and territory. There is a general lack of guidance for brand owners on how they should make these estimates and there is a lack of responsibility on non-obligated retailers to track and provide distribution data to brand owners.

Neither the interoperability of data systems nor sharing of data to track this data are required by Canadian law, and obligated producers are too removed from other actors along the production chain to require they be developed and implemented. Further, these systems are unlikely to be adopted voluntarily. Many organizations also have strict policies in place related to the sharing of any data regardless of whether the data poses any strategic risk to the organization.



**Figure 6: Producer reporting on packaging supplied**

### 3.1.3.2 Lack data sharing

Generally, all organizations along the plastics value chain view data as a valuable asset that is perceived to provide a competitive advantage or provide information that could put them at competitive disadvantage. As a result, data does not often flow along the value chain unless there is some sort of direct commercial relationship and there is a regulated requirement for its provision.

**Section 2.2** provided a list of the existing stakeholders in Canada that face legal requirements to report on their involvement in the plastics value chain and the specific data they are required to report, including ICI generators in Ontario and select other local jurisdictions, producers, and service providers. Outside of regulated requirements to report, plastics value chain stakeholders may collect or not collect data as they see fit for their commercial purposes and do so in whatever form they choose.

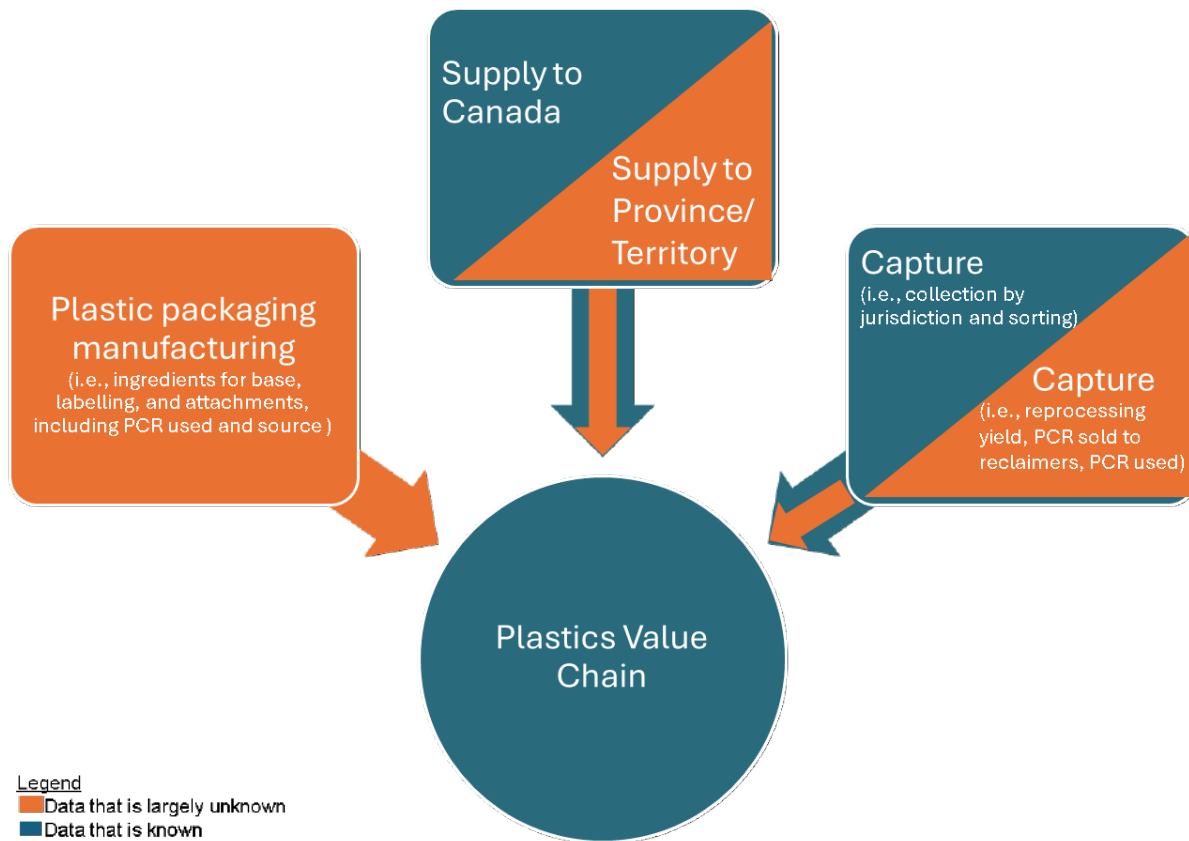
As discussed, EPR systems that manage PPP in Canada focus almost exclusively on residential packaging, with the exception of Québec. In these systems, it is producers or their delegate (i.e., their PRO) who are legally required to report on system success. In Alberta, Ontario, and Nova Scotia service providers too may be audited under their EPR regime.<sup>61</sup> There are no legal requirements for others along the plastic packaging value chain to report into these systems. As a result, it is left to the producer to develop the contractual relationships needed to satisfy the requirements for reporting in each province and territory.

<sup>61</sup> See Appendix A for the list of regulations underpinning each province and territory.

In these systems, obligated producers can report 'what is supplied to Canada's marketplace' because they know their sales data. However, they may have to estimate what is supplied to each provincial/territorial marketplace because once sold their customers (i.e., retailers) and delivered to their customers' distribution centres, those customers may redistribute the products by province/territory, and they may sell to the ICI or residential sector. Producers or their designated PRO may also establish contracts with downstream service providers to report the data those service providers collect and are willing to provide.

At present, reprocessors may not have the systems in place to measure and accurately report the amount of PCR they manufacture before the addition of resin additives. They may also not be willing to report to on the amount and types of PCR sold to their customers (i.e., manufacturers, which are also sometimes called reclaimers).

**Figure 7** provides a visual of data that are directly accessible to the producer (or its PRO) in a regulated EPR system (i.e., blue) compared to the data that are inaccessible (i.e., difficult to obtain) for producer reporting on plastic packaging across the value chain (i.e., orange) because the needed feedback loops or platforms are not established to supply this information. Upstream supply data (i.e., pre-final manufacturing) is often outside the scope of contracting and may be difficult for producers to directly affect.



**Figure 7: Data that is challenging for all producers to acquire and report to stewardship systems.**

### 3.1.4 Gap 2: Unavailable Data

The second gap is data that are unavailable, even if accessibility issues could be overcome. Where there is a dearth of data, this impacts the ability to accurately measure plastic flows. Data availability gaps include:

- legislative exemptions, deductions, and non-compliant producers;
- a lack of data chain of custody systems and data management systems;
- a lack of dedicated resources to collect and model data;
- a lack of packaging specific data (e.g., amount and type of plastic used for the product or package by stock-keeping unit (SKU) number);
- a lack of information on PCR and its certification; and  
 a lack of reuse/refill data;

Producers interviewed reported concerns that they simply do not have information required to be reported at the “Bill of Materials” (BoM) level nor packaging component level, which is the level of information needed to report into EPR systems for PPP that require eco-modulation. Lorax EPI explains the information needed for BoM level reporting on eco-modulation extends beyond basic product information (i.e., product family and whether the product is obligated by the EPR system) and sales (units and weights). Instead, it can include part number, SKU numbers, material type and quantities, version numbers and their phase in-out dates, separability information (e.g., attachments, adhesives, labels), lifecycle assessment information, and how the packaging and plastics use is linked to each individual

product.<sup>62</sup> For example, in California, the PPP PRO will be required to eco-modulate producer fees to encourage PPP recyclability, compostability, reuse and refill, and to source reduce plastics across their producers' PPP inventory. For PROs to be able to report this information they must be able to collect it from producers, and yet the data systems to report do not yet exist.<sup>63</sup>

### 3.1.4.1 Missing data due to exemptions, deductions, and non-compliant producers

For Canada to understand its progress to reduce plastic waste, it must understand how much plastic is supplied and how much of that plastic is 'lost' to the environment either through litter or disposal. Specific to EPR policies, one central issue is that each province and territory has producers whose supply data are not captured by the regulated systems accounting processes – i.e., supply that is exempted or deducted from reporting in a regulated system, or is supplied by non-compliant producers free-riding on the regulated system. Collectively these obscure the data reported as supplied and, consequently, obscures reporting on the collection and recycling rates for plastic –i.e., the material is not reported as supplied but is still present in waste management system's collection, sorting, and recycling streams. Therefore, when programs or governments report collection, recycling, or recovery rates, those percentages are not based on the amount of total plastic packaging supplied.

**Exemptions** – All regulated PPP systems across Canada explicitly exclude some producers or materials from needing to report their PPP as supplied.

These exemptions include:

- **ICI packaging:** This packaging is largely untracked in Canada. The vast majority of regulated PPP systems Canada-wide exclude some or all ICI packaging from their systems. Exceptions to this include Québec (which is phasing in inclusion of ICI materials in its PPP system by 2030); Ontario (which includes schools, and non-profit long-term care facilities, and nursing homes); the Yukon (which has passed a new regulation that includes elementary and secondary schools and small businesses); and Manitoba, New Brunswick, and Nova Scotia (which all include elementary and secondary schools). Because ICI data are excluded from regulated systems, producers may not have the back-of-house data systems developed to understand how much packaging should be attributable to their units supplied to their ICI customers. This is because unlike B2C packaging, B2B packaging is not necessarily attributable to a discrete product. For example, producers may purchase cardboard, pallets, and film to wrap a set of items for transport to an ICI customer on an as-needed basis. The amount of film used to wrap a pallet could be hand-applied, and the amount used could depend on the eye-ball measurement of what an individual employee deems to be enough to secure the load. For many ICI entities, B2B packaging materials are considered to be more akin to the purchase of stationary or cleaning supplies than 'packaging'.
- **Material specific exemptions from PPP systems:** Material specific exemptions may exist because the regulator 'presumes' they are managed by another regulated collection and recycling system. For example, the following are items that are

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<sup>62</sup> Lorax EPI, 2024. Compliance with EPR legislation. Looking at the data challenges and how to keep confident. Interactive workshop. Available by request from [info@loraxcompliance.com](mailto:info@loraxcompliance.com)

<sup>63</sup> Government of California. SB 54: Plastic Pollution Prevention and Packaging Producer Responsibility Act. Available at: [https://leginfo.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y](https://leginfo.ca.gov/faces/codes_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y)

commonly exempted from regulated PPP systems in Canada though they may still be collected as part of the disposal and other recycling streams:

- Any materials designated under another regulation, such as a DRS;
- Biomedical or hazardous and special products (e.g., pesticide containers);
- Garbage bags, recycling bags, compostable waste bags;
- Durable packaging intended for storage of the product; and  
Packaging intended to be reused or refilled.

There are also differing exemptions on a provincial/territorial basis making it difficult to compare collection and recycling systems Canada-wide. Producers often refer to this as a lack of harmonization in materials designation. For example, Ontario includes an exemption for packaging-like products that are made from flexible plastic ordinarily used for the containment, protection, or handling of food, such as cling wrap, sandwich bags, or freezer bags.<sup>64</sup> In comparison, Alberta and British Columbia specifically include these items in their regulated systems.

- **De minimis exemptions:** Materials generated by producers that fall below de minimis levels (e.g., based on revenue or tonnage levels) are also exempted from reporting in regulated PPP systems in Canada (**Table 4**). The de minimis level varies by province and territory and the variance is not associated with the size of its population nor its economy (e.g., Québec’s population is over 8 times the size of Nova Scotia and they have the same de minimis level). The provinces and territories can not quantify the amount of materials that are exempted through de minimis exemptions.

**Table 4: Packaging EPR Producer Exemptions**

PT	Revenue threshold	Tonnage threshold	Single point of retail exempt	Charities exempt
BC	\$1 million	1 tonne	yes	yes
AB	\$1.5 million	9 tonnes paper, 2 tonnes rigid plastic, 2 tonnes flexible plastic, 1 tonne glass, or 1 tonne metal	no	yes
SK	\$1 million	1 tonne	no	yes
ON	\$2 million	9 tonnes paper, 2 tonnes rigid plastic, 2 tonnes flexible plastic, 1 tonne glass, or 1 tonne metal	no	no
QU	\$1 million	1 tonne	yes, if less than 929 m <sup>2</sup>	no
NB	\$2 million	1 tonne	no	yes
NS	\$1 million	1 tonne	no	no

<sup>64</sup> Definition of “packaging-like product” under Ontario Regulation 391/21: Blue Box, 2021. Available at: <https://www.ontario.ca/laws/regulation/r21391>

PT	Revenue threshold	Tonnage threshold	Single point of retail exempt	Charities exempt
YK	\$1 million	1 tonne	no	yes

**Deductions** – Most PPP systems currently operating in Canada are targeted at residential materials. As discussed, in these systems producers are required to report only on the primary packaging they supply to the residential sector. However, producers are not always aware of how much of their primary packaging is likely to be consumed and disposed of in the residential sector. For example, restaurant or vending machine sells takeaway packaging that could be brought home for consumption, or it could be disposed away-from-home. As a result, producers are permitted to estimate and deduct the amount of material they believe is likely to be consumed and disposed in the ICI sector from their residential reporting.

**Free-riders** – All regulated systems have some producers that seek to skirt their regulatory requirements. The number of free-riders can be significant. For example, in 2022, Ontario's Resource Recovery Productivity Authority reported that it was investigating 397 potential free-riders, and there were 39 confirmed open non-compliant cases.<sup>65</sup>

**Untracked obligated packaging** – When working to estimate plastic packaging flows, one final complexity is plastic packaging data that are unavailable because the packaging is regulated to be managed under a separate system that does not require its equivalent tracking. For example, containers for hazardous or special products (e.g., paint, solvents, pesticides, pressurized cylinders) are usually not managed by regulated PPP systems. Instead, separate EPR / product stewardship regulations exist to manage these materials, and these regulations tend to focus on the safe management of the container's residual contents. In these systems, the regulation may not require reporting on the amount of packaging supplied and recovered.

### 3.1.4.2 Lack of requirements chain of custody

A chain of custody is "a process that tracks the movement of evidence through its collection, safeguarding, and analysis lifecycle by documenting each person who handled the evidence, the date/time it was collected or transferred, and the purpose for the transfer."<sup>66</sup> The lack of a requirement for a chain of custody for plastics value chain data and information means that actors along the chain (i.e., especially upstream actors) are not compelled to collect and record the all of the data that would be needed to understand plastic packaging content and its ultimate recyclability. **Section 2.1** provided a discussion about the complexity of contractual relationships in the plastics value chain – both upstream and downstream. Unobligated parties may choose not to collect data that are not pertinent to their ability to serve their direct customers. Data that are not collected cannot be transferred down the chain to obligated reporters. This issue is of particular concern for producers who might be responsible for reporting on the recycled content or the recyclability of various parts of their packaging (**Figure 4**).

### 3.1.4.3 Lack of dedicated resources

There are many parts of the value chain where supply data are scarce or nonexistent, but where data could be collected (i.e., data collection techniques are known) if resources were

<sup>65</sup> Resource Recovery Productivity Authority, 2022. 2022 Metrics. Available at: <https://rpra.ca/public-reports/compliance-activities/>

<sup>66</sup> National Institute of Standards and Technology. n.d. Glossary. Chain of custody. Available at: [https://csrc.nist.gov/glossary/term/chain\\_of\\_custody](https://csrc.nist.gov/glossary/term/chain_of_custody)

available to collect it. For example, there is a scarcity of supply data in the ICI sector, which is needed to be able to estimate the amount of ICI packaging lost from the circular economy. In general, where supply data are not reported, waste composition audits could be used to generate a bottom-up estimate of plastic packaging waste generation, collected for recycling, and disposal. However, this approach requires significant effort and at present there is a lack of resources (i.e., focused research, expertise) dedicated to gathering, interpreting, and modelling ICI data to fill this gap. As a result, estimating ICI plastics flow is more challenging.

#### **3.1.4.4 Lack of reusables/refillables data tracking**

There remains a lack of data available for plastic reusable and refillable packaging. Reuse/refill data are generally not tracked nor publicly reported by entities in Canada. Given that its public disclosure could expose market share, it is unlikely that this data will become more available in the near future.

### **3.1.5 Gap 3: Inadequate Data**

The final gap is data that cannot readily be verified for accuracy or cannot be readily interpreted with a high degree of confidence. As mentioned above, there is a substantial amount of data available across the plastics packaging value chain that is both publicly available and held by individual stakeholders. However, the existence of data does not necessarily mean that the data are accurate, comparable, or interpretable. In fact, much of the provincial and territorial level regulated systems have data that are challenging to compare with confidence due to differences in data collection and management and a lack of common conversion factors. These gaps are discussed further below and include a lack of:

- consensus on which data format should be collected (i.e., lack of a common data language);
- standardized supply chain conversion ratios;
- waste audit / waste composition study standards; and
- service provider reporting guidance and standards.

#### **3.1.5.1 Lack of a common data language**

The manner in which data are captured presents a major challenge. When there is a void of common standards, formats, and systems, then producers, PROs, and service providers may collect data in whichever form they wish for their commercial purposes. As a result, consolidating data across producers, PRO-operated systems, and service providers often requires significant expenditures of resources to transform it (e.g., through normalization and the use of assumptions) into a standard usable format.

For example, for regulated DRS, EPR, and stewardship reporting, data for the same types of containers are collected in different reporting categories across programs and jurisdictions (**Table 5, Table 6, Table 7**). For program level data, a PET container might be recorded differently across PPP, DRS, used oil container, and hazardous and special product container collection and recovery systems. For provincial and territorial differences, except for Québec, reporting categories are set by the program operator for the purpose of fee setting. Québec's new regulation will require reporting on specific resin categories. Governments outside of Québec require reporting for regulatory compliance either by packaging format (i.e., rigid versus flexible plastic packaging) or by material type (e.g., plastic, fibre, metal, and glass). Further, how recycling is measured in the provinces and territories varies. **Figure 8** illustrates the differences in the point of where 'recycling' is required to be measured across the PPP systems operating in Canada.

**Table 5: Plastic supplied data collected from producers and by program operators for DRS containers in 2022.<sup>67</sup>**

<b>Province / Territory<sup>68</sup></b>	<b>Plastic data collected on supply from producers (units)</b>	<b>Plastic data collected on amount collected for recycling (tonnes)</b>
<b>British Columbia</b>	PET HDPE Other rigid plastics Polycups Key Kegs Flexible plastics (drink pouches, bag-in-box)	PET HDPE Other rigid plastics Polycups Key Kegs Drink pouches Bag-in-box bladders
<b>Alberta</b>	Rigid plastics Bag-in-box Drink pouches Polycups Confirmation of recyclability	PET HDPE Other rigid plastics Polycups Key Kegs Drink pouches Bag-in-box bladders
<b>Saskatchewan</b>	Plastic	PET HDPE Other rigid plastics
<b>Ontario</b>	PET Bag-in-box	PET Mixed Plastic
<b>Québec</b>	PET	PET
<b>New Brunswick</b>	PET HDPE	PET HDPE
<b>Nova Scotia</b>	PET HDPE Other plastics (rigid and flexible)	PET HDPE Other plastics (rigid and flexible)

<sup>67</sup> This table include reporting categories as they existed for regulated DRSs in 2022.

<sup>68</sup> See Appendix A for an overview of the container types managed by each system.

**Table 6: Simplified view of plastic supplied data collected from producers and by program operators for PPP systems in 2022.** <sup>69,70,71,72,73,74</sup>

Jurisdiction	Mixed plastic (other)	PET containers by size (#1)	PET all /other than beverage (#1)	PET containers beverage (#1)	PET thermoform (#1)	HDPE all by size (#2)	HDPE containers all (#2)	PVC all (#3)	Film HDPE & LDPE	Film shopping bags	PP all (#5)	PS all (#6)	EPS all	EPS food packaging	EPS goods packaging /other	Laminates any size	Bioplastics	Natural and synthetic textiles
Categories reported in programs that are regulated and operating																		
<b>BC</b>	Yes	Yes	–	–	Yes	Yes	–	–	Yes	Yes	–	Yes	–	Yes	Yes	Yes	Yes	–
<b>SK</b>	Yes	Yes	–	–	Yes	Yes	–	–	Yes	Yes	–	–	–	Yes	Yes	–	Yes	–
<b>MB</b>	–	–	Yes	Yes	–	–	Yes	–	Yes	Yes	–	Yes	–	–	–	Yes	Yes	–
<b>ON</b>	Yes	Yes	–	Yes	–	–	Yes	–	Yes	Yes	–	Yes	Yes	–	–	Yes	Yes	Yes
<b>QC</b>	Yes	–	Yes	–	–	–	Yes	Yes	Yes	–	Yes	Yes	Yes	–	–	Yes	–	–

<sup>69</sup> This table includes reporting categories as they existed in 2022 for regulated EPR and product stewardship systems for PPP. This was pre-implementation of full EPR for PPP in the Yukon, Alberta, Saskatchewan, Ontario, Québec, Nova Scotia, and New Brunswick, which are or have implemented regulated EPR systems since. These reporting categories have evolved since 2022 and will continue to evolve and the EPR systems in each jurisdiction mature.

<sup>70</sup> For a list of the applicable regulations in each system, see Appendix A.

<sup>71</sup> A comparison of the reporting categories for British Columbia, Saskatchewan, and Manitoba can be found in: Circular Materials. 2023. 2023-Circular-Materials-National-Provincial-Material-Fee-Rates. Available at: <https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.circularmaterials.ca%2Fwp-content%2Fuploads%2F2023%2F05%2F2023-Circular-Materials-National-Provincial-Material-Fee-Rates.xlsx&wdOrigin=BROWSELINK>

<sup>72</sup> For Québec reporting categories see: Government of Québec. Gazette Officielle du Québec, June 21, 2023, Vol. 155, No. 25. 2023 Schedule of Contributions for « Containers and Packaging. Available at: [https://www.eeq.ca/wp-content/uploads/Order\\_of\\_the\\_Minister\\_2023-1003.pdf](https://www.eeq.ca/wp-content/uploads/Order_of_the_Minister_2023-1003.pdf)

<sup>73</sup> Circular Materials. 2024. Stewardship Ontario Material List - January 2024. Available at: <https://www.circularmaterials.ca/wp-content/uploads/2024/02/Stewardship-Ontario-Material-List-January-2024.pdf>

<sup>74</sup> Circular Materials. 2024. Circular Materials New Brunswick Fee Schedule. Available at: <https://www.circularmaterials.ca/wp-content/uploads/2023/12/CM-NB-2024FeeSchedule.pdf>

<b>NB</b>	Yes	Yes	–	–	Yes	Yes	–	–	Yes	Yes	–	Yes	–	Yes	Yes	Yes	Yes	–
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**Regulatory requirements for operating programs**

<b>BC</b>	EPR system. Regulation enables Director to set reporting requirements.
<b>SK</b>	Product stewardship system. Regulation enables reporting to be proposed by PRO.
<b>MB</b>	Product stewardship system. Regulation enables reporting to be proposed by PRO.
<b>ON</b>	EPR system. Regulation requires flexible and rigid only.
<b>QC</b>	EPR system. Regulation requires reporting on rigid HDPE, rigid PET, other rigids, and flexible.
<b>NB</b>	EPR System. Regulation enables Recycle NB to set reporting requirements.

**Programs that are regulated and pending implementation**

<b>AB</b>	EPR system pending. Reporting requirements to be determined by PRO. Regulation requires flexible and rigid only.
<b>SK</b>	EPR system pending. Reporting requirements to be determined by PRO. Regulation requires reporting on flexible, rigid plastic; and bio-based plastics that are certified compostable not certified compostable.
<b>NS</b>	EPR system pending. Reporting requirements to be determined by PRO. Regulation requires flexible and rigid plastics only.
<b>YK</b>	EPR system pending. Reporting requirements to be determined by PRO. Regulation requires flexible and rigid plastics only.

**Table 7: Plastic supplied data collected from producers and by program operators for used automotive fluid containers.**

Province / Territory	Plastic data collected on supply from producers (container litres of HDPE and non-HDPE containers)	Plastic data collected on amount collected or recycled (tonnes)
<b>British Columbia</b> <sup>75</sup>	oil and antifreeze containers	collected
<b>Alberta</b> <sup>76</sup>	oil containers	recycled (reprocessed)
<b>Saskatchewan</b> <sup>77</sup>	oil, antifreeze, and diesel exhaust fluid containers	collected
<b>Manitoba</b> <sup>78</sup>	oil, antifreeze, and diesel exhaust fluid containers	collected
<b>Ontario</b> <sup>79</sup>	oil containers, antifreeze containers	does not report publicly
<b>Québec</b> <sup>80</sup>	oil containers, antifreeze containers	collected
<b>New Brunswick</b> <sup>81</sup>	oil and antifreeze containers	collected
<b>Nova Scotia</b> <sup>82</sup>	oil, antifreeze, and diesel exhaust fluid containers	collected
<b>Prince Edward Island</b> <sup>83</sup>	oil, antifreeze, and diesel exhaust fluid containers	collected
<b>Newfoundland and Labrador</b> <sup>84</sup>	oil and antifreeze containers	collected

<sup>75</sup> BC used Oil Management Association (now Interchange) 2023. 2022 annual report. Available at: <https://interchangerecycling.com/annual-report-2022/>

<sup>76</sup> Alberta Recycling Management Authority. 2023. 2022-2023 annual report. Available at: [https://www.albertarecycling.ca/wp-content/uploads/2023/09/ARMA-2022-23-Annual-Report\\_Web.pdf](https://www.albertarecycling.ca/wp-content/uploads/2023/09/ARMA-2022-23-Annual-Report_Web.pdf)

<sup>77</sup> SARRC. 2023. 2022 annual report. Available at: <https://sarccheals.org/wp-content/uploads/2021/12/Annual-Report-2020-21.pdf>

<sup>78</sup> MARCC. 2024. 2023 annual report. Available at: <https://usedoilrecyclingmb.com/2024/04/08/2023-annual-report-now-available/>

<sup>79</sup> RPRA. 2024. Resource recovery reports. Available at: <https://rprra.ca/public-reports/resource-recovery-reports/>

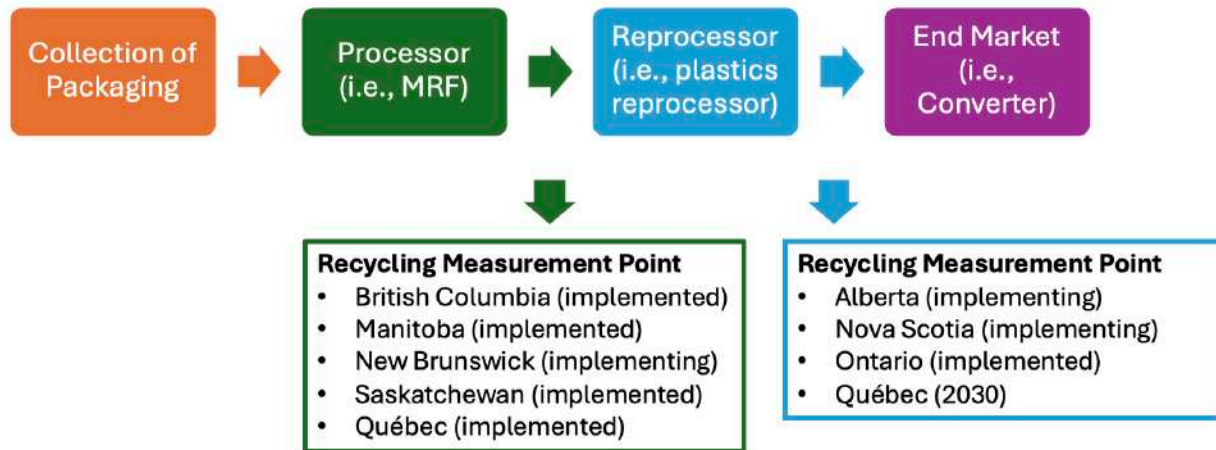
<sup>80</sup> SOGHU. 2023. Annual report 2022. Available at: <https://soghu.com/en/annual-report-2022>

<sup>81</sup> UOMA Atlantic. n.d. See 2022 annual reports for UOMA PE, UOMA NB, UOMA NL, and UOMA NS at: <https://uoma-atlantic.com/>

<sup>82</sup> Ibid.

<sup>83</sup> Ibid.

<sup>84</sup> Ibid.



**Figure 8: Measurement of recycling in EPR policies in Canada**

### 3.1.5.2 Lack of a standardized unit to weight conversion factors

In regulated DRS, EPR, and product stewardship systems, while items supplied may be reported on a unit basis (e.g., beverage containers supplied, oil containers supplied), only DRS systems track collection on a unit basis. In all other systems, materials are collected in bulk, sorted, and then sent to reproducers on a weight basis. Even for DRS systems, post collection, materials are tracked to downstream reproducers on a weight basis. As a result, either the producer or the PRO must convert the amount supplied as units into a weight-based measure so that a collection rate and final disposition rates (i.e., disposal, energy recovery, recycling) can be calculated. At present, there are no standard conversion factors between provinces and territories or between material management systems within a jurisdiction about how these conversions should be made. This is especially important for containers that may contain some amount of liquid residual products that would add to the weight of collected materials (e.g., beverage containers, used oil containers, paints, solvents, pressurized cylinders). The lack of common conversion factors may create issues with how data are being reported and creates additional complexity when comparing results across jurisdictions.

### 3.1.5.3 Lack of waste audit / waste composition study standards

There isn't a Canada-wide standard for waste composition audits that is widely accepted. This includes common waste audit categories, how waste audits are undertaken (e.g., sample sizes), whether normalization factors are included (e.g., when audit was undertaken, number of employees), how and if data are modelled (e.g., annual) and how factors like moisture are addressed. Plastic waste in waste composition audits is often recorded in different ways including by resin (making it unclear if the amount audited is packaging), by packaging format (which may include multiple types of resin), or by packaging category that lumps packaging together by its use (e.g., beverage containers of all materials). This makes it difficult to assess and consolidate data.

For example, as part of the work undertaken to research CPP's Canada-Wide Plastic Packaging Flows (2024) report (see Section 2.2, **Data Collection Agents and Information Sources and Tools**), 14 local government waste composition audits of in-bound material at landfills were reviewed. Combined, these audits included over 750 distinct waste categories. For example, PET beverage containers were categorized under one of the following categories:

- deposit beverage containers;
- beverage containers;
- plastics;
- plastic – refundable;
- rigid plastic containers;
- non-alcoholic beverage containers; and
- PET bottles and jars.

It is understood that individual local governments may have particular interests in what they want to assess as part of a waste composition audit and some local governments may be able to afford to assess more categories, however the lack of common waste audit categories limits the ability to consolidate and assess data. Similar issues were also identified by Ontario’s Auditor General in its review of ICI entities undertaking facility waste audits (**Table 8**).

**Table 8: Office of the Auditor General of Ontario findings related to ICI waste audits.**

**Office of the Auditor General of Ontario – Value for Money Audit: Non-Hazardous Waste Reduction and Diversion in the Industrial, Commercial, and Institutional Sector**<sup>85</sup>

A 2021 value-for-money audit undertaken by the Office of the Auditor General of Ontario found that while the waste audits required of ICI entities provided valuable information, several limitations prevented them from being better utilized, including:

- lack of standardization and/or clear direction, resulting in inconsistent reporting;
- paper-based, rather than electronic, reporting, making it more difficult to both input and extract data; and
- requirements that only some reports be submitted to the Ministry, limiting the Ministry’s ability to utilize the data.

As a result, the Auditor General made a series of recommendations to improve data capture and analysis related to these data including:

- electronic reporting of standardized data;
- public reporting on data collected;
- development of resources to assist generators in their agreements with service providers to ensure better accountability associated with the diversion of materials and reporting; and
- expanding the application of reporting to more industrial, commercial, and institutional entities.

While the Auditor General’s concerns and recommendations were specific to Ontario, the issues identified appear consistent to waste data collection across the country.

<sup>85</sup> Office of the Auditor General of Ontario. 2021. Value-for-Money Audit: Non-Hazardous Waste Reduction and Diversion in the Industrial, Commercial and Institutional (IC&I) Sector. Available at: [https://www.auditor.on.ca/en/content/annualreports/arreports/en21/ENV\\_ICI\\_en21.pdf](https://www.auditor.on.ca/en/content/annualreports/arreports/en21/ENV_ICI_en21.pdf)

#### 3.1.5.4 Lack of service provider reporting guidance and standards

Service providers operating in non-EPR environments contract directly with their clients, providing data requested or required by those contracts. However, a review of waste audit and other data sets (e.g., records of waste collected) provided by ICI generators to support this work shows that in many cases the data and information provided by recycling service providers lacks consistency in the parameters reported and are difficult to interpret. For example, ICI generators were:

- often provided data on the number of waste container “lifts” as opposed to weight collected;
- provided with recycling stream data presented as a single number rather than a breakdown of the general composition of the stream;
- the data provided are often not in a form that enables analysis (i.e., there is too much, or too little data provided); and
- no data on the final disposition of materials collected, including whether recyclables were sent to a disposal site, an energy from waste facility, or one or more reprocessors.

The lack of this information makes it more difficult for generators to know how much material is in its waste stream or the end-fate of materials it has collected for recycling. Without this data providing a feedback loop to the ICI generator, it has limited information from which to improve its performance.

Service providers are challenged to provide better data. Many collection vehicles do not have the ability to weigh each pickup or weigh each pickup accurately. At the same time, it is a reality that service providers often do not have incentive to help their customers increase recycling or decrease waste generated as:

- disposal services often have less risk associated with them (e.g., commodity market swings, contamination issues);
- vertically integrated companies that provide both disposal and recycling services are often more profitable on their disposal services;
- materials collected can often be too contaminated to economically sort;
- transfer stations are not always equipped to manage multiple waste streams (i.e., they only have one bay in which materials are consolidated and shipped from); and
- if recycling and disposal services are provided by different companies, the waste disposal company does not have a financial incentive to reduce the amount of waste they are managing.

In EPR systems, data collection and management are beginning to improve. Some of the new provincial oversight agencies in Canada (Alberta Recycling Management Authority, Divert Nova Scotia, Resource Productivity and Recovery Authority) are starting to require information from service providers to track materials to end disposition. However, in the non-regulated residential and ICI sector, it is up to the generators to know what they want the service providers to report before contracts are signed. In general, there is little guidance available to generators about what they could or should request as evidence about how their waste streams are managed by waste service providers.

### 3.1.5.5 Lack of critical mass adoption of existing standards

There are Canada-wide standards that exist today that have not been widely adopted or have not been as widely adopted as they could be (e.g., GSI standards, BNQ standard on compostable packaging). In Canada, the implementation of standards is voluntary unless they are referred to in regulation. Widespread adoption of standard data reporting and management practices will be required to enable data that can flow and be compared across value chain actors, product management systems, and jurisdictions. For data systems to be interoperable, they must be comparable and credible.

## 4 TRENDS FOR IMPROVING DATA CAPTURE AND REPORTING

Global interest in reducing the leakage of plastic packaging directly into the environment and from a circular economy (i.e., through disposal, litter, and other avenues) has spurred a rapid evolution in efforts to improve plastic packaging flow data and information.<sup>86</sup> There are new reporting requirements emerging in Australia, the United States and Europe designed to fill data and information gaps. These new requirements will expand what producers are required to report as part of EPR systems, regardless of whether those systems are already in place or likely to be regulated in the near future. As these new requirements take hold, they are likely to expand to other countries, such as Canada.

### 4.1 Trends from Australia

Australia has taken a shared responsibility approach to product stewardship —i.e., industry and government share responsibility for improving packaging management within a circular economy. The Australian Packaging Covenant Organisation (APCO) is leading Australia's efforts under the Australian Packaging Covenant (Covenant), which is the shared responsibility agreement between the Australian, state and territory governments and the packaging supply chain. The Covenant sets targets, including the following to be achieved by 2025:

- 100% of packaging must be reusable, recyclable, or compostable;
- 70% of plastic packaging must be recycled or composted;
- a 50% average amount of recycled content must be used across all packaging; and
- problematic and unnecessary single-use plastic packaging must be phased out.<sup>87</sup>

APCO acts as a PRO, representing producers and other supply chain participants, and helps them deliver against the targets. Their approach focuses on improving packaging design, systems, and strategic capacity to manage packaging materials and consumer education, as well as building commercially viable end-markets for packaging materials in Australia.<sup>88</sup> APCO has several initiatives underway to support this work, including improving data and information availability and reducing data gaps to improve measurement and reporting, which are outlined in **Table 9**.

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<sup>86</sup> United Nations Environment Programme, 2023. Plastic pollution science (updated for the fourth session of the intergovernmental negotiating committee). Available at:

<https://wedocs.unep.org/bitstream/handle/20.500.11822/45368/PlasticPollutionScience.pdf>

<sup>87</sup> APCO, n.d. About APCO. Available at: <https://apco.org.au/about-apco>

<sup>88</sup> Ibid.

**Table 9: Emerging Trends and Requirements for Improved Data and Reporting in Australia**

New trend	Details	Expected outcome
<p><b>Recycled Content Traceability Guidance</b></p>	<p>In 2023, Australia endorsed a National Framework for Recycled Content Traceability.<sup>89</sup> It is a voluntary framework that:</p> <ul style="list-style-type: none"> <li>• applies to all recycled materials and recycled content products in Australia; and</li> <li>• allows businesses to choose the best way to trace recycled materials for their needs.</li> </ul> <p>Aligns with the GSI Global Traceability Standard.<sup>90</sup></p>	<ul style="list-style-type: none"> <li>• Improve consumer and manufacturer confidence in and demand for recycled content.</li> <li>• Enable tracing of recycled material history (including material source, location of origin, and how materials were processed), the destination of the products made with recycled content, and claim verification.</li> <li>• Ensure industry has freedom to implement new or emerging technologies and platforms.</li> <li>• End-to-end, transparent, interoperable systems to enable data sharing across the packaging supply chain.</li> </ul>
<p><b>Environmental labelling standard</b></p>	<p>An on-pack labelling system that provides directions for how to recycle products correctly.<sup>91,92</sup></p> <p>The labelling system is informed by Packaging Recyclability Evaluation Portal (PREP), which is an online tool to assess packaging recyclability in the Australian and New Zealand markets based on information about local collection systems, local processing systems, and end markets.</p>	<ul style="list-style-type: none"> <li>• Provide consumers with information on how to manage packaging at end-of-life.</li> <li>• Assist brand owners by providing information to design packaging that is recyclable at end-of-life.</li> <li>• Provide a platform that enable an ongoing assessment of collection availability, sorting infrastructure, and end markets.</li> </ul>

<sup>89</sup> Australian Government. 2023. A national framework for recycled content traceability guidelines. Available at: <https://www.dcceew.gov.au/sites/default/files/documents/national-framework-recycled-content-traceability.pdf>

<sup>90</sup> GSI. 2017. GSI Global Traceability Standard. Release 2.0. Ratified August 2017. Available at: <https://www.gsi.org/standards/gsi-global-traceability-standard/current-standard>

<sup>91</sup> Australian Recycling Label. n.d. About the Australian Recycling Label (ARL) program. Available at: <https://arl.org.au/about>

<sup>92</sup> APCO, 2020. ACOR report on packaging labelling. Available at: <https://apco.org.au/news/20Y4a0000000HbEAI>

New trend	Details	Expected outcome
<p><b>Pre-market assessment and validation of recyclability</b></p>	<p>ARL uses PREP Design technology to inform its labelling requirements.<sup>93</sup></p> <p>PREP is a national standard assessment methodology underpinning on-pack recyclability labelling systems in Australia, New Zealand, United Kingdom, and Singapore.</p> <p>Simulates the journey of packaging from curbside to final sorting at a MRF in each country to provide a local recyclability assessment.</p> <p>Based on actual MRF data.</p>	<ul style="list-style-type: none"> <li>• Support consumer and manufacturer confidence in the labelling system.</li> <li>• Provide manufacturers with information to improve design.</li> </ul>
<p><b>Country-wide reporting on targets</b></p>	<p>Australian Packaging Consumption &amp; Recovery Data 2021–22<sup>94</sup></p>	<ul style="list-style-type: none"> <li>• Summarize reporting at a country level despite the operation of local collection systems.</li> </ul>
<p><b>Industry specific roadmaps to support supply chains</b></p>	<p>APCO has begun to launch roadmaps to assist specific industries in meeting national targets. The first roadmap was developed in partnership with the dairy industry.<sup>95</sup></p>	<ul style="list-style-type: none"> <li>• Support design and implementation of alternatives to existing non-recyclable packaging.</li> <li>• Facilitate manufacturers meeting recycled content targets without compromising product quality and safety using food-grade recycled resins.</li> <li>• Facilitate increased consumer reuse and recycling of spent dairy packaging.</li> <li>• Provide, at all levels of government (i.e., national, state, territory, and local governments), "fit-for-</li> </ul>

<sup>93</sup> PREP Design. n.d. The circular economy relies firstly on design of recyclable packaging. Available at: <https://prep.design/>

<sup>94</sup> APCO, 2024. Australian Packaging Consumption & Recovery Data 2021–22. Available at: <https://documents.packagingcovenant.org.au/public-documents/APCO%20Australian%20Packaging%20Consumption%20And%20Recovery%20Data%202021-22>

<sup>95</sup> APCO. 2021. Australian dairy sustainable packaging roadmap to 2025. Available at: <https://documents.packagingcovenant.org.au/public-documents/Australian%20Dairy%20Sustainable%20Packaging%20Roadmap%20to%202025>

New trend	Details	Expected outcome
		purpose regulatory frameworks" that ensure safety standards and end-to-end verification of resource recovery and recycling systems.

#### 4.2 Trends from Europe

Europe is often seen as a hallmark that Canada should look to for progress. However, Europe faces many of the same general challenges that Canada does regarding tracking plastic packaging flow, including:

- Lack of standardized reporting:** Member states measure recycling in different ways making it difficult to compare data across countries. Similar issues also exist for measuring recycled content under existing legislation (e.g., to enable reporting against Spanish and UK plastic taxes). For example, there are different levels of de minimis obligations that exempt certain producers from certain obligations like reporting. As a result, Member States make estimates on supply for companies falling below the de minimis levels when reporting to the European Commission.
- Lack of data granularity:** Supplied and recycling data for packaging is only required at the level of plastic. Member States are not required to report more granular data such as residential and non-residential packaging, resin types, or packaging formats. However, some PROs hold more granular data. For example, where fee modulation exists, supplied data needs to be provided at a more granular level to the enable fee setting; the more complex the fee modulation, the more granular the data required normally is. For recycling data, PROs that own the collected and sorted plastic packaging typically have the best data on the level of recycling by resin and / or packaging format. However, in many countries the PROs do not own the sorted plastic. In general, commercial sensitivity related to competitive PROs can create issues with the ability to obtain more granular data in Europe without some form of central reporting.
- Lack of measurement of reuse:** As no European-wide reuse targets for packaging existed, limited data are available. However, many countries count reusable packaging the first time it is placed on the market.
- Measurement difficulties:** Free-riding, where obligated companies knowingly or unknowingly do not register when they should, is also an issue in Europe and the impact not well-understood.
- Service provider data:** Data gaps exist particularly related to export and import data (waste and recycled plastic) that hinder the ability to understand and affect its plastic pollution footprint from a systems perspective.
- Track and trace:** In Europe, packaging can travel easily between countries. Some consumers cross borders to access cheaper products where taxes are lower. For example, some Scandinavian consumers shop for alcohol in Germany where the taxes are lower, and many people commute to Luxembourg each day for work and take advantage of low taxes and shop there before travelling home. This can lead to discrepancies in terms of where packaging is placed on the market and arises as waste, which can distort country data.

However, there are a number of efforts currently underway to address these data issues, including new regulated reporting requirements (**Table 10**), new standards (**Table 11**), and requirements to fill specific gaps (**Table 13**).

**Table 10: Emerging Trends and Requirements for Improved Data and Reporting in Europe**

New trend	Details	Expected outcome
<p><b>Measurement of recycling under new Packaging Waste Regulation or (PPWR)</b></p>	<p>Recycling is measured ‘into the recycling operation,’ which for plastic has been further clarified in secondary legislation as being either:</p> <p>Plastic separated by polymer that does not undergo further processing before entering palletization, extrusion, or moulding operations; or</p> <p>Plastic flakes that do not undergo further processing before their use in a final product.</p> <p>PROs must report on this basis.</p>	<p>Standardized reporting.</p> <p>Previously, different European countries measured recycling in different ways making it difficult to compare country data for recycling. While many commentators believe that there are still inconsistencies, i.e. the methodology is not yet applied correctly in all countries, Eurostat (the EU statistics agency) are working with Member States to ensure the methodology is followed.</p>
<p><b>Reporting of supplied and recycled materials (under the new PPWR)</b></p>	<p>Member States will have to report supplied and recycling data at a more granular level to Eurostat under the new Regulations. Reporting is by groupings of plastic packaging categories. Residential and non-residential plastic data are not separated. Plastic categories are:</p> <ul style="list-style-type: none"> <li>• PET rigid</li> <li>• PE rigid, PP rigid, HDPE and PP rigid</li> <li>• Films / flexibles.</li> <li>• PS, XPS, EPS</li> <li>• Other rigid plastics</li> <li>• Biodegradable (rigid and flexible)</li> </ul> <p>Reporting for treatment is split by disposal, recovery, and recycling</p>	<p>Current reporting is at a material level only, so plastic packaging data will have to be more granular and enable tracking of progress by categories.</p> <p>The European Commission will use the data to ensure different plastic formats are all <i>recycled at scale</i>. By 2035 each category needs to reach a 55% recycling rate to demonstrate that they comply with the recycling at scale requirements. Currently the only target is 55% for all plastic packaging combined by 2030. This target will remain in the new PPWR.</p> <p>The reporting will also allow an assessment of national infrastructure as reporting is split within and outside of the national territory.</p>

New trend	Details	Expected outcome
<p><b>Registration of producers (under the new PPWR)</b></p>	<p>Obligated producers supplying packaging into the market will have to register in the <i>Register of Producers</i>.</p> <p>Reporting of supplied will be by each packaging material and category (shown in Table 1 of Annex II). These are more granular than the categories used for reporting to Eurostat by Member States.</p> <p>For plastic, the categories are:</p> <ul style="list-style-type: none"> <li>• PET rigid (bottles and flasks);</li> <li>• PET rigid (other than bottles and flasks);</li> <li>• PET flexible;</li> <li>• PE rigid;</li> <li>• PE flexible;</li> <li>• PP rigid;</li> <li>• PP flexible;</li> <li>• HDPE and PP rigid;</li> <li>• PS and XPS rigid;</li> <li>• EPS rigid;</li> <li>• Other rigid plastics;</li> <li>• Other flexible plastics; and</li> <li>• Biodegradable plastics.</li> </ul>	<p>Packaging categories will be used as a basis for design for recycling criteria.</p> <p>Data will be available to Members States to inform strategic decisions.</p> <p>These categories are also used to assess design for recycling. Secondary legislation will be established to define the criteria that must be met.</p>
<p><b>Recyclable packaging design criteria (under the new PPWR)</b></p>	<p>Only packaging designed to meet recycling criteria will be allowed on the market by 2030. In addition, fees will be modulated for packaging allowed on the market based on its design. This will be based on three levels of design A, B, and C: with A being the highest level of design for recycling. In 2038 this will reduce to two allowed levels of design, A and B. The aim being to drive continued improvements over time.</p>	<p>Packaging supplied will have to meet a premarket recyclability criteria.</p> <p>Where fee modulation is used in Europe, the level of data captured by EPR schemes is typically much more granular. This allows for tracking of improvements over time and helps inform the optimal recycling routes for packaging placed on the market.</p> <p>The requirements in the PPWR and the likely detail in the design guidelines will see more data captured across Europe.</p>

New trend	Details	Expected outcome
<p><b>Measurement and targets for reusable packaging</b></p>	<p>Ambitious reuse targets are being put in place, primarily for transportation or sales packaging and within the food service and hotel sectors. Economic operators will need to calculate the level of reuse for certain items and in certain circumstances. There are 100% reuse targets on many B2B packaging types for movements inside of the same country and between related economic operators in the Union.</p> <p>Member States also have to report the tonnage and percentage of packaging that is reusable placed on the market each year. Reusable sales packaging must also be reported separately from other types of reusable packaging.</p>	<p>Greater ability to track reuse performance within the economy and better information associated with the amount of reuse cycles in many situations.</p>
<p><b>Minimum requirements for data reporting from EPR programs (Waste Framework Directive in 2018)</b></p>	<p>Required reporting systems to gather data on materials supplied by producers into Member States and data on the collection and treatment of waste resulting from those products specifying, where appropriate, the waste material flows.</p>	<p>Historically, some large countries in Europe such as Spain and France have not had EPR for ICI packaging leaving collection and recycling to the private sector without any type of intervention. Actual data capture was limited and reporting often based off consultancy work. As a result of the minimum requirements, new EPR systems are being established in a number of countries that previously did not have them, most notably in France and Spain. One of the benefits is the capture of more accurate data.</p>

New trend	Details	Expected outcome
<p><b>Collection targets (Single Use Plastics Directive)</b></p>	<p>Differ from recycling targets as they relate to, in this case, beverage bottles entering a sorting facility (or a deposit return system counting center), rather than the weight entering an extruder / end of waste flake for recycling targets. Targets for beverage bottles under the SUPD are 77% by 2025 and 90% by 2029.</p>	<p>Better data on the collection rate for beverage bottles. This will add an additional data point in the supply chain.</p>
<p><b>Recycled Content Use (Single Use Plastics Directive)</b></p>	<p>Member State level targets for recycling content in PET beverage bottles in 2025 (25%) and this expands to all beverage bottles by 2030 (30%). Secondary legislation was issued in Q4 2023 to set out a methodology for calculation of recycled content where it has come from mechanical recycling (Implementing Decision 2023/2683). An amendment is being drafted to add a methodology in scenarios where mass balance accounting is required, for example where recycled content has come from pyrolysis based chemical recycling processes.</p> <p>Similar secondary legislation will be prepared under the PPWR which has extensive recycled content targets at the level of the economic operator. The European Commission have stated that they wish to see consistency in approach across the different pieces of primary legislation.</p>	<p>More robust and consistent calculation of recycled content in packaging and other products.</p> <p>When combined with supplied, better estimates of recycled content in packaging and products at a country and Union level.</p>

**Table 11: Emerging Standards, Definitions and Guidance**

Standard	Purpose	Status	Application
EN 15342 Plastics – Recycled Plastics – Characterization of polystyrene (PS) recyclates	For rPS, outlines most important characteristics and associated test methods for assessing a single batch of PS recyclates intended for use in the production of semi-finished/finished products.	Approved (2007)	Standard
EN 15343 Plastics – Recycled Plastics – Recycling traceability and assessment of conformity and recycled content	Provides procedures for the traceability of recycled plastics and basis for the calculation procedure for the recycled content of a product.	Decision to Confirm: Review Enquiry (Complete January 1, 2024)	Procedures for traceability
EN 15344 Plastics – Recycled Plastics – Characterization of polyethylene (PE) recyclates	For rPE, outlines main characteristics and associated test methods for assessing of PE recyclates intended for use in the production of semi-finished/finished products.	Approved (2021)  Draft (May 2025)	Standard
EN 15345 Plastics – Recycled Plastics – Characterization of polypropylene (PP) recyclates	For rPP, outlines most important characteristics and associated test methods for assessing a single batch of PP recyclates intended for use in the production of semi-finished/finished products.	Approved (2007)	Standard
EN 15346 Plastics – Recycled Plastics – Characterization of polyvinyl chloride (PVC) recyclates	For rPVC, outlines most important characteristics and associated test methods for assessing of PVC recyclates intended for use in the production of semi-finished/finished products.	Approved (2014)	Standard
EN 15347 – Recycled Plastics – Characterization of plastic wastes	Provides properties for which the supplier of the waste shall make information available to the purchaser, and identifying test methods where applicable.  The scheme provides for a division of information between "required data", where a statement is required, even if it is "unclassified", and additional "optional data" which the supplier may choose to provide if it adds value to the waste.	Approved (2007)	Standard

Standard	Purpose	Status	Application
Pr-EN 15347-5 – Plastics – Sorted plastic wastes –Part 5: Quality grades of sorted polyvinyl chloride (PVC) wastes and specific test methods	<p>Describes the quality grades for sorted PVC waste streams as well as specific test methods laying out those properties for which the supplying party of the waste makes information available to the receiving party.</p> <p>The scheme provides for a division of information between "required data", where a statement is required, and additional "optional data" as agreed between the supplying and receiving party.</p>	Draft (May 2025)	Unclear
EN 15348 Plastics – Recycled Plastics – Characterization of polyethylene terephthalate (PET) recycle.	For rPET, outlines main characteristics and associated test methods for assessing of PET recyclates intended for use in the production of semi-finished/finished products.	Approved (2024)	Standard
CEN/TS 16861 – Recycled Plastics – Determination of selected marker compounds in food grade recycled polyethylene terephthalate (PET)	Provides an analytical method for testing food grade, recycled PET.	Approved (2015)	Technical specifications
prEN 18064-5 – Plastics – Quality recommendations and basis for specifications for applications of plastic recyclates in products (Part 5)	Provides the relevant characteristics and typical values for PVC recyclates intended for groups of defined applications (the product families).	Draft (May 2025)	Recommendations
<a href="#">prCEN/TR 13504 rev (WI=00261463)</a> Packaging - Material recovery - Criteria for a minimum content of recycled material	Provides criteria for minimum recycled content.	Preliminary	Unclear

Standard	Purpose	Status	Application
<a href="#">prEN</a> (WI=00261469) Packaging - Quality grades for plastic packaging for recycling and measuring recycling	Provides quality grades.	Preliminary	Unclear
<a href="#">prEN 13432 rev</a> (WI=00261479) Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging	Provides requirements for compostable and biodegradable packaging.	Preliminary (Forecasted voting date 2025)	Standard
<a href="#">prEN 18120-1</a> (WI=00261514) Packaging - Design for recycling for plastic packaging products - Part 1: Definitions and principles for design-for-recycling of plastic packaging	Provides definitions and design principles for design for recycling.	Under Approval (Forecasted voting date February 2025)	Definitions
<a href="#">prEN 18120-10</a> (WI=00261517) Packaging - Design for recycling for plastic packaging products - Part 10: Recyclability evaluation process for plastic packaging - protocols for PET bottles	Provides recyclability evaluation process for design for recycling of PET bottles.	Under Approval (Forecasted voting date March 2025)	Standard

Standard	Purpose	Status	Application
<a href="#">prEN 18120-11</a> (WI=00261515) Packaging – Design for recycling for plastic packaging products – Part 11 – Recyclability evaluation process for plastic packaging – protocols for PET rigid packaging (except bottles)	Provides recyclability evaluation process for design for recycling - PET plastic packaging products.	Under Approval (Forecasted voting date March 2025)	Standard
<a href="#">prEN 18120-12</a> (WI=00261516) Packaging – Design for recycling for plastic packaging products – Part 12 – Recyclability evaluation process for plastic packaging – protocols for PE and PP rigid packaging	Provides recyclability evaluation process for design for recycling PE and PP rigid plastic packaging products.	Under Approval (Forecasted voting date March 2025)	Standard
<a href="#">prEN 18120-13</a> (WI=00261520) Packaging – Design for recycling for plastic packaging products – Part 13 – Recyclability evaluation process for plastic packaging – protocols for PE and PP flexible packaging	Provides recyclability evaluation process for design for recycling PE and PP flexible plastic packaging products.	Under Approval (Forecasted voting date March 2025)	Standard

<b>Standard</b>	<b>Purpose</b>	<b>Status</b>	<b>Application</b>
<a href="#">prEN 18120-14</a> (WI=00261518) Packaging – Design for recycling for plastic packaging products – Part 14 – Recyclability evaluation process for plastic packaging – protocols for PS and XPS packaging	Provides recyclability evaluation process for design for recycling PS and XPS packaging.	Under Approval (Forecasted voting date March 2025)	Standard
<a href="#">prEN 18120-15</a> (WI=00261519) Packaging - Design for recycling for plastic packaging products - Part 15: Recyclability evaluation process for plastic packaging - protocols for EPS packaging	Provides recyclability evaluation process for design for recycling EPS packaging.	Under Approval (Forecasted voting date March 2025)	Standard
<a href="#">prEN 18120-3</a> (WI=00261510) Packaging - Design for recycling for plastic packaging products - Part 3: Sortability evaluation process for plastic packaging	Provides sortability evaluation process for design for recycling sortability plastic packaging.	Under Approval (Forecasted voting date March 2025)	Standard
<a href="#">prEN 18120-4</a> (WI=00261513) Packaging - Design for recycling of plastic packaging products - Part 4: Guideline for PET Bottles	Provides guideline on design for recycling PET bottles.	Under Approval (Forecasted voting date March 2025)	Guideline

<b>Standard</b>	<b>Purpose</b>	<b>Status</b>	<b>Application</b>
<a href="#">prEN 18120-5</a> (WI=00261511) Packaging - Design for recycling of plastic packaging products - Part 5: Guideline for PET rigid packaging (except bottles)	Provides guideline on design for recycling PET rigid packaging (except bottles).	Under Approval (Forecasted voting date March 2025)	Guidelines
<a href="#">prEN 18120-6</a> (WI=00261512) Packaging - Design for recycling for plastic packaging products - Part 6: Guideline for PE and PP rigid packaging	Provides guideline on design for recycling PE and PP rigid packaging.	Under Approval (Forecasted voting date March 2025)	Guideline
<a href="#">prEN 18120-7</a> (WI=00261507) Packaging - Design for recycling for plastic packaging products - Part 7: Guideline for PE and PP flexible packaging	Provides guideline on design for recycling PE and PP flexible packaging.	Under Approval (Forecasted voting date March 2025)	Guideline
<a href="#">prEN 18120-8</a> (WI=00261508) Packaging – Design for recycling for plastic packaging products – Part 8 – Guideline for PS and XPS packaging	Provides guideline on design for recycling PS and XPS packaging.	Under Approval (Forecasted voting date March 2025)	Guideline
<a href="#">prEN 18120-9</a> (WI=00261509) Packaging - Design for recycling for plastic packaging products - Part 9: Guideline for EPS packaging	Provides guideline on design for recycling EPS packaging.	Under Approval (Forecasted voting date March 2025)	Guideline

Standard	Purpose	Status	Application
<a href="#">prEN ISO 16103 rev</a> (WI=00261524) Packaging — Transport packaging for dangerous goods — Recycled plastics material	Provides guideline on transport packaging using recycled plastic material.	Under Drafting (Forecasted voting date May 2026)	Unclear
<a href="#">prEN ISO 6590-1</a> (WI=00261523) Packaging - Terminology - Part 1: Paper sacks (ISO/DIS 6590- 1:2024)	Provides packaging terminology.	Under Enquiry (Forecasted voting date May 2025)	Terminology
<a href="#">prEN XXX-2</a> (WI=00261506) Packaging - Design for recycling for plastic packaging products - Part 2: Process and governance structure to evaluate the recyclability of plastic packaging	Defines governance structure to evaluate recyclability of plastic packaging.	Under Drafting (Forecasted voting date March 2025)	Governance structure
(WI=00261470) Packaging - Material recycling - Report on requirements for substances and materials to prevent a sustained impediment to recycling	Provides a report on preventing impediments to recycling.	Preliminary	Report

**Table 12: Emerging solutions to fill data gaps**

New trend	Details	Expected outcome
<p><b>Traceability requirements</b></p>	<ul style="list-style-type: none"> <li>• Europe: Traceability along the collection, sorting, and recycling supply chain is becoming increasingly important. This has been driven, in part, by the use of recycled plastic in food contact applications, where new legislation requires traceability in collection and pre-treatment (EU Regulation 2022/1616, Article 6)<sup>96</sup> as well as in recycling. It is also important to ensure recycled content is from post-consumer sources, where this is a requirement.</li> <li>• Europe: Traceability is now also being driven by requirements in the Ecodesign for Sustainable Products Regulation,<sup>97</sup> which requires Digital Product Passports (DPPs), and is set to begin implementation in 2024 and are expected to be mandatory by 2030 for textiles, furniture, chemicals, batteries, consumer electronics, electronic devices, and construction products. DPPs will contain a unique product identifier, a global trade number, compliance documentation, substances of concern, user manuals, repair, end-of-life management, etc.</li> <li>• Europe: Traceability is also now at the heart of plastic recycler audit and certification schemes, in particular EuCertPlast and RecyClass (recently merged).</li> </ul>	<ul style="list-style-type: none"> <li>• Increased data sharing, generation of interoperable data.</li> <li>• Improved data quality.</li> <li>• Better data transparency across the supply chain and improved data credibility</li> <li>• Assists in legal compliance, for example with respect to the use of recycled plastic in food contact applications.</li> <li>• Enables regulators to draft legislation that has specific requirements on waste types used to make recycled plastic for recycled content. For example, the European Commission is currently drafting legislation where new vehicles will be required to have 25% recycled content in the plastic used, and of which 25% of this must be derived from end-of-life vehicles.</li> <li>• Enables improved supply chain management by creating a digital record of the product's entire value chain, and may help companies better identify risks as a result.</li> <li>• Builds consumer trust by creating a platform for transparent and verifiable information.</li> <li>• Encourages improved product design by supporting consumers in making more informed purchasing decisions.</li> <li>• Potential to unlock new markets by wider access to data on product use.</li> </ul>

New trend	Details	Expected outcome
<b>Measuring recycled content in relation to plastic taxes</b>	<ul style="list-style-type: none"> <li>• Europe: Taxes on plastic packaging based on the percentage of virgin polymer content are in place in some European countries, notably the UK and Spain. A tax is also due to start in Italy in July 2024 - although at the time of writing looks likely to be delayed until 2026. In Italy, the tax is broader than packaging and on single use plastic items. Secondary legislation is due to define the detail.</li> <li>• Europe: Requirements around evidencing of recycled content depend on the country. In the UK manufacturers must keep specific records. In Spain, certification of recycled content is required.</li> </ul>	<ul style="list-style-type: none"> <li>• More robust and consistent calculation of recycled content in packaging and other products.</li> </ul>
<b>Certification schemes for recycled content</b>	<ul style="list-style-type: none"> <li>• Europe: There are a growing number of certification schemes that certify recycled content in packaging and products. At a European level, two of the best known are RecyClass and PolyCert Europe.</li> </ul>	<ul style="list-style-type: none"> <li>• More robust and consistent calculation of recycled content in packaging and other products.</li> <li>• More confidence in the recycled content claims.</li> </ul>
<b>Trade Association research</b>	<ul style="list-style-type: none"> <li>• Europe: Individual trade associations for different polymers have commissioned detailed work to assess plastic polymer flows for different sectors.</li> </ul>	<ul style="list-style-type: none"> <li>• Whilst much of the work still builds on known data points by using estimates and assumptions, it does provide a much better level of detail and insight than is provided by national or European statistics. This provides useful data for strategic planning.</li> </ul>

<sup>96</sup> European Union Law. Commission Regulation (EU) 2022/1616 of 15 September 2022 on recycled plastic materials and articles intended to come into contact with foods, and repealing Regulation (EC) No 282/2008. Available at: <https://eur-lex.europa.eu/eli/reg/2022/1616/oj>

<sup>97</sup> European Union Law. Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1781&qid=1719580391746>

New trend	Details	Expected outcome
<b>Circular Plastics Alliance &amp; work by the Joint Research Centre</b>	<ul style="list-style-type: none"> <li>Europe: Mass flow analysis was carried out for different polymers and sectors: packaging, automotive, construction, agricultural and electrical / electronic.</li> </ul>	<ul style="list-style-type: none"> <li>As above, provides useful data for analysis and strategic planning.</li> </ul>

### 4.3 Trends from the United States

In many ways, Canada is further ahead than the United States in collecting plastic packaging data. However, there is a great deal of activity currently underway that will improve data capture in the United States. These are outlined in **Table 13**.

**Table 13: Emerging Trends and Requirements for Improved Reporting from the United States**

New trend	Details	Expected outcome
<b>Measurement of recycling</b>	As part of new packaging EPR legislation in California <sup>98</sup> , Colorado <sup>99</sup> , Oregon <sup>100</sup> , there are increasing regulatory requirements to ensure materials are being sent to responsible end markets and measured based on yield rates at material recovery facilities and reprocessors.	Standardized methods to measure recycling and recovery.
<b>Measurement and targets for reusable packaging</b>	As part of new packaging EPR legislation in California, <sup>101</sup> Colorado, <sup>102</sup> and California, there are requirements being placed on the producers and/or producer responsibility organization to measure packaging reuse.	Greater ability to track reuse performance within the economy.

<sup>98</sup> California Senate. Bill 54 – Plastic Pollution Prevention and Packaging Producer Responsibility Act. Available at: [https://leginfo.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y](https://leginfo.ca.gov/faces/codes_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y)

<sup>99</sup> General Assembly of Colorado. House Bill 22-1355 -Producer Responsibility Program for Statewide Recycling Act. Available at: <https://leg.colorado.gov/bills/hb22-1355>

<sup>100</sup> Oregon Legislative Assembly. Senate Bill 582 – Modernizing Oregon’s Recycling System. Available at: <https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/SB582/Enrolled>.

<sup>101</sup> California Senate. Bill 54 – Plastic Pollution Prevention and Packaging Producer Responsibility Act. Available at: [https://leginfo.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y](https://leginfo.ca.gov/faces/codes_displayexpandedbranch.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.&article=4.&goUp=Y)

<sup>102</sup> General Assembly of Colorado. House Bill 22-1355 -Producer Responsibility Program for Statewide Recycling Act. Available at: <https://leg.colorado.gov/bills/hb22-1355>

New trend	Details	Expected outcome
<b>Recycled content</b>	Legislation has passed in a number of states (e.g., California <sup>103</sup> , Colorado <sup>104</sup> , Connecticut <sup>105</sup> , Maine <sup>106</sup> , New Jersey <sup>107</sup> , Washington <sup>108</sup> ) that requires certain types of packaging to meet PCR requirements.	More robust and consistent calculation of recycled content in packaging and other products.  Drive markets for recycled content.
<b>Waste Facility Data</b>	While not new, many states (e.g., California <sup>109</sup> , Michigan <sup>110</sup> , New York <sup>111</sup> , Texas <sup>112</sup> ) collect and publish facility level data (e.g., compost, recycling, disposal) on materials managed.	Provides a better understanding of the amount of materials being managed by different entities.

<sup>103</sup> California Assembly. Assembly Bill 793 - Recycling: plastic beverage containers: minimum recycled content. Available at: [https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201920200AB793](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB793)

<sup>104</sup> General Assembly of Colorado. House Bill 22-1355 -Producer Responsibility Program for Statewide Recycling Act. Available at: <https://leg.colorado.gov/bills/hb22-1355>

<sup>105</sup> Connecticut General Assembly. Senate Bill 928 – An Act Concerning Recycled Content for Products Sold in Connecticut. Available at: <https://www.cga.ct.gov/2021/act/Sa/pdf/2021SA-00009-R00SB-00928-SA.PDF>

<sup>106</sup> Maine Legislature. Public Law Chapter 742 “An Act To Promote a Circular Economy through Increased Post-consumer Recycled Plastic Content in Plastic Beverage Containers. Available at: <https://legislature.maine.gov/legis/bills/getPDF.asp?paper=HP1083&item=3&snum=130>

<sup>107</sup> New Jersey General Assembly. An Act concerning the use of postconsumer content in certain containers and packaging products. Available at: [https://pub.njleg.state.nj.us/Bills/2020/PL21/391\\_.PDF](https://pub.njleg.state.nj.us/Bills/2020/PL21/391_.PDF)

<sup>108</sup> Washington State Legislature, Chapter 70A.254 RCW. Available at: <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.245.010>

<sup>109</sup> CalRecycle, n.d. Recycling and Disposal Reporting System (RDRS). Available at: <https://calrecycle.ca.gov/swfacilities/rdreporting/>

<sup>110</sup> Michigan Department of Environment, Great Lakes, and Energy. n.d. Annual Reports of Solid Waste Landfilled in Michigan. Available at: <https://www.michigan.gov/egle/about/organization/materials-management/solid-waste/solid-waste-disposal-areas/annual-reports-of-solid-waste-landfilled-in-michigan>

<sup>111</sup> New York Department of Environmental Conservation, n.d. 2020 MSW Landfill Capacity Chart. Available at: <https://dec.ny.gov/environmental-protection/waste-management/solid-waste-management-facilities/municipal-solid-waste-landfills/2020-capacity-chart>

<sup>112</sup> Texas Commission on Environmental Quality. n.d. Annual Summary of Municipal Solid Waste Management in Texas. Available at: [https://www.tceq.texas.gov/permitting/waste\\_permits/waste\\_planning/wp\\_swasteplan.html](https://www.tceq.texas.gov/permitting/waste_permits/waste_planning/wp_swasteplan.html)

## 5 IMPROVING DATA AND REPORTING: A CANADA-WIDE ROADMAP

### 5.1 Conclusions

By reviewing the plethora of data collection agents along Canada's plastic packaging value chain, it becomes clear that 'data scarcity' is not the primary issue preventing Canada from having the information it needs to affect its strategic goal of reducing plastics packaging leakage from a circular economy. **Section 2.2** provided an overview of the breadth of plastic packaging supply and management data being collected by stakeholders along Canada's plastics value chain. It showed that stakeholders collect data on an individual basis for a range of specific and self-interested reasons ranging from:

- regulatory compliance reporting for provincial/territorial DRS, EPR, and product stewardship systems;
- regulatory reporting for federal reporting systems;
- solid waste management planning;
- user fee calculations; and
- infrastructure planning and investments.

However, this review also showed that while many plastics value chain stakeholders and oversight bodies are collecting data, none are able to generate a complete picture of plastic packaging flows Canada-wide. It would be easy, but incorrect, to assume that simply compiling and normalizing the existing data sets could create a 'master data set' that would fill all important data gaps.

In theory, the upcoming Federal Registry, also discussed in **Section 2.2**, has been designed to do just that – i.e., create the needed 'master plastics flow data set'. Given the timelines for the Registry's implementation (i.e., Notice provided in April 2024 and reporting on 2024 data beginning in 2025), the approach seems to presuppose that the data systems needed to generate the required data inputs already exist, and all that is needed is for obligated reporters to transcribe existing data into the new Registry. However, a review of the data currently being collected makes it clear that the needed data does not readily exist and will not be easy to establish.

In addition, a review of the reporting requirements for the new Registry alongside a review of the data reporting already required to other data collection agents, raises questions about the reporting burden and reporting fatigue for obligated reporters. The sheer volume of data required suggests there should be more concerted collaboration across the value chain to better rationalize the data collected by all these parties collectively, and ensure that all data collected is strategic and not simply 'informative'. Coordination between different levels of government (and even within different government departments) and producers / their PROs has the potential to greatly reduce regulatory burden. Common Canada-wide guidance on how to report data – including reporting categories, units of measure, and how to establish estimates – between regulating agencies and PROs would also be beneficial to enabling producers and their service providers to build data systems that are robust and capable of reporting into each regulated system. CPP – whose members include governments, producers, PROs, and service providers – is well-positioned to lead this conversation and promote harmonization of reporting across the plastic packaging value chain and across jurisdictions.

The rest of this report proposes a roadmap to begin to fill the strategic gaps in Canada-wide reporting on plastic packaging flow.

## 5.2 Proposed Roadmap

This section proposes a high-level roadmap, based on the emerging best practices, to fill Canada-wide data gaps, simplify data capture and reporting by stakeholders, and improve the strategic capture. This roadmap was developed by comparing the gaps identified in **Section 3: Assessment of Current Data Gaps** against opportunities and best practices for improving data capture and management in **Section 4: Trends for Improving Data Capture and Reporting**. When proposing actions, particular attention was paid to ensure all suggestions would provide data needed to enable Canada to better understand its progress against its strategic goal of 'reducing plastic packaging leakage from a circular economy', including:

- Understanding the quantity of plastic packaging loss (i.e., through disposal, litter, or other pathways).
- Understanding where losses from the value chain are occurring.
- Understanding which information (or feedback data) would be needed to affect a change that could reduce those losses.

To answer these questions Canada must have data that provides:

- An accurate assessment of the amount of plastic packaging supplied each year (i.e., supply without any exemptions, deductions, free-riders).
- The amount of plastic packaging lost each year (i.e., an accurate assessment of supply minus plastic packaging managed in a closed system).
- Data and information on the points and causes of those losses (geographically and situationally).
- Data feedback loops to those who have the authority and ability to affect change to close the points of loss (e.g., packaging designers, generators, infrastructure).

Attention was also paid to 'who is already collecting which data' and the purpose of that data collection. As discussed, many regulating agencies Canada-wide are capturing data for different reasons. This is resulting in the same obligated parties needing to report similar data, in different forms, to the different agencies, which is resulting in data fatigue and administrative burden.

The proposed roadmap is provided in **Table 14**. It is organized by component of the plastics value chain from design, to supply to market, through diversion and disposal. It is not prioritized as that is beyond the scope of this paper. Key actions from this roadmap include:

- Establishing a common data language and standardized conversion factors for plastic packaging across all stewardship systems and levels of government to enable their data to be compiled across systems and jurisdictions.
- Enabling interoperable data platforms to facilitate the transfer of data along the plastics value chain and ensure improved reporting of material supplied to PROs, stewardship system regulators, and into the Federal registry.
- Establishing requirements for actors along the plastics value chain to publicly report (i.e., end the ability for plastic disposal to be hidden).

**Table 14: Roadmap for improving Canada-wide plastic packaging value chain data.**

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
<b>Packaging design and manufacturing</b>	<ul style="list-style-type: none"> <li>• Lack of feedback to producers on <u>their</u> packaging attributes, including design for recyclability and recycled content.</li> <li>• Lack of PCR quality assurance for reincorporation.</li> <li>• Lack of data for producers to prove their use of recycled content to meet regulated requirements.</li> <li>• Lack of data for producers to access the complete 'ingredients' of their packaging (i.e., base, label, attachments) and enable their supply reporting to the PRO, due to lack of data flow from manufacturers. Producers may also not understand the combined effect of the label and</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a National Traceability Framework. Consider adopting requirements for digital product passports.</li> <li>• Support or facilitate the development of standardized data language and interoperable data platforms to enable chain of custody (e.g., guidance, stimulus).</li> <li>• Require evidence-based recyclability labelling to (in part) support</li> </ul>	<ul style="list-style-type: none"> <li>• Traceability –e.g., chain of custody.</li> <li>• Standardized definitions, categories of plastic packaging, and data reporting.</li> </ul>	<ul style="list-style-type: none"> <li>• Interoperable and immutable data platforms to capture data and transfer it along the value chain.</li> <li>• Common data language to enable data and information to be compiled and clearly communicated.</li> <li>• Ability to assess information on potential designs that impact recyclability -i.e., flag that this label + this attachment + this base = non-</li> </ul>	<ul style="list-style-type: none"> <li>• Australia's National Traceability Framework<sup>113</sup></li> <li>• Australian dairy sustainable packaging roadmap to 2025<sup>114</sup></li> <li>• European Union's PPWR reporting on supplied and recycled data<sup>115</sup></li> <li>• PREP Design providing producers pre-market feedback on packaging design<sup>116</sup></li> <li>• Valipac's myRecycledcontent.be<sup>117</sup></li> <li>• EU requirements for digital product passports.<sup>118</sup></li> </ul>

<sup>113</sup> Australian Government. 2023. A national framework for recycled content traceability guidelines. Available at: <https://www.dcceew.gov.au/sites/default/files/documents/national-framework-recycled-content-traceability.pdf>

<sup>114</sup> APCO. 2021. Australian dairy sustainable packaging roadmap to 2025. Available at: <https://documents.packagingcovenant.org.au/public-documents/Australian%20Dairy%20Sustainable%20Packaging%20Roadmap%20to%202025>

<sup>115</sup> European Parliament. April 24, 2024. European Parliament legislative resolution of 24 April 2024 on the proposal for a regulation of the European Parliament and of the Council on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC (COM(2022)0677 – C9-0400/2022 – 2022/0396(COD)). Available at: [https://www.europarl.europa.eu/doceo/document/TA-9-2024-0318\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2024-0318_EN.html)

<sup>116</sup> PREP Design. n.d. The circular economy relies firstly on design of recyclable packaging. Available at: <https://prep.design/>

<sup>117</sup> See Valipac. 2024. Boosting the use of recycled content in France. Available at: <https://activityreport.valipac.be/temps-forts-de-2023/>

<sup>118</sup> European Union. Regulation (Eu) 2024/1781 of the European Parliament And Of The Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, European Union. Amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC (Text with EEA relevance. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L\\_202401781](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401781)

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
	attachments on the recyclability of the base package.	establishment of a direct feedback loop for producers about their packaging design like PREP Design.		recyclable package in Canada. <ul style="list-style-type: none"> <li>Tools for producers (particularly smaller producers) to find supplies of packaging with PCR. E.g., guidance materials on how to meet PCR obligations.</li> </ul>	
<b>Supply to market</b>	<ul style="list-style-type: none"> <li>Lack of accurate data on material supplied into Canada or by jurisdiction.</li> <li>Lack of obligation for producers to report.</li> <li>Lack of data access for producers about where their products are distributed in Canada.</li> </ul>	<ul style="list-style-type: none"> <li>Create more consistent supply reporting exemptions (ICI, de minimis, etc.) or establish transparent and publicly reported and evidence-based estimates for all PPP supplied regardless of sector and jurisdiction (e.g., through waste composition audits).</li> <li>Publicly report on all plastic packaging supplied.</li> <li>Standardize reporting on plastic packaging across PROs and</li> </ul>	<ul style="list-style-type: none"> <li>Traceability –e.g., chain of custody (same as above).</li> <li>Standardized conversion factors for units to weight measurements (e.g., technical specification).</li> </ul>	<ul style="list-style-type: none"> <li>Interoperable and immutable data platforms (same as above).</li> <li>Common data language (same as above).</li> </ul>	<ul style="list-style-type: none"> <li>Australia's National Traceability Framework (same as above)</li> <li>Europe's reporting of supplied and recycled materials under the new PPWR (same as above)</li> </ul>

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
		governments to enable data compilation across programs and jurisdictions.			
<b>Collected for recycling</b>	<ul style="list-style-type: none"> <li>• Lack of transparent data reporting by waste management sites and service providers.</li> <li>• Lack of data for generators to more effectively choose service providers that prioritize diversion activities.</li> <li>• Lack of data for generators on plastics sent to disposal sites post collection because this information may be 'hidden' by the service providers.</li> </ul>	<ul style="list-style-type: none"> <li>• Require waste haulers to report on end-fate of materials they manage (e.g., standardized manifesting of materials from collection through final disposition).</li> <li>• Require waste facilities (e.g., MRFs, transfer stations, compost facilities, landfills, incinerators) to report publicly on mass balance of the materials they manage.</li> </ul>	<ul style="list-style-type: none"> <li>• Standardized waste audit methodology – i.e., protocol for minimum requirements for auditing plastic packaging amounts by category by sector (i.e., DRS, residential, and ICI).</li> <li>• Standardized hauler reporting to generators to empower generators to make informed decisions about their waste stream.</li> <li>• Standardized waste facility reporting to</li> </ul>	<ul style="list-style-type: none"> <li>• Technologies to support weight-based reporting by service providers.</li> <li>• Electronic manifesting systems (i.e., current scales on trucks cannot be certified).</li> </ul>	<ul style="list-style-type: none"> <li>• Ontario Hazardous Waste Program Registry<sup>120</sup></li> <li>• Circular Innovation Council Waste Audit Method (ICI facilities)<sup>121</sup></li> <li>• California collects and publishes facility level data (e.g., compost, recycling, disposal) on materials managed.<sup>122</sup></li> <li>• United Kingdom waste facilities sampling and reporting<sup>123</sup></li> <li>• Standardized reporting such as other utilities (e.g., water, electricity)</li> <li>• Nova Scotia Litter Audit<sup>124</sup></li> </ul>

<sup>120</sup> RPRA. n.d. Hazardous waste program registry. Available at: <https://rpra.ca/programs/hwp/>

<sup>121</sup> Circular Innovation Council. n.d. Standard Waste Audit Method (SWAM). Available at: <https://circularinnovation.ca/circular-innovation-council-hsr-zero-waste-announcement/>

<sup>122</sup> CalRecycle. n.d. Solid waste facilities, sites, and operations. Available at: <https://calrecycle.ca.gov/swfacilities/>

<sup>123</sup> Government of United Kingdom. Materials facilities: waste sampling and reporting from October 2024. Available at: <https://www.gov.uk/guidance/materials-facilities-waste-sampling-and-reporting-from-october-2024>

<sup>124</sup> Divert NS. 2024. Nova Scotia roadside litter audits. Available at: <https://divertns.ca/sites/default/files/researchreportsfiles/2022-03/2021%20Divert%20NS%20Litter%20Audit%20Report.pdf>

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
		<ul style="list-style-type: none"> <li>• Adopt a Canada-wide standard on reporting standardization relating to plastic packaging.</li> <li>• Undertake litter audits Canada-wide to capture data on direct plastics packaging leakage into the environment.</li> </ul>	ensure consistency. <sup>119</sup>		
<b>Sorting</b>	<ul style="list-style-type: none"> <li>• Lack of transparent data on MRF mass balance data related to plastics hides plastics leakage at the sorting stage. Improved transparency would enable PROs, local governments, and generators to make more informed decisions when hiring service providers.</li> <li>• Lack of transparent information on the availability of infrastructure to sort and <u>wash</u> different types and sizes of plastic packaging to enable recycling of harder to recycle plastics –e.g., dirty</li> </ul>	<ul style="list-style-type: none"> <li>• Require MRFs to publish mass balance plastic packaging data based on standardized method.</li> <li>• Require regulated programs to report on the recyclability of the 'whole' package, including end-fate due to labelling, attachments, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Standardized method for calculating sorting rates for plastic packaging formats at MRFs (e.g., how moisture is managed, reporting on residual contents and contamination of other streams).</li> </ul>	<ul style="list-style-type: none"> <li>• Improved methods to assess yield rates through AI.</li> <li>• Improved sorting technologies to respond to plastics leakage.</li> </ul>	<ul style="list-style-type: none"> <li>• PREP Design (same as above)</li> <li>• Reuse Seattle links washing facilities for reuse systems with reusables companies and event hosts. This essentially acts like a dating app for the various marketplace players. This concept could be transferred to assist with large format ICI plastic packaging washing facilities.<sup>125</sup></li> </ul>

<sup>119</sup> The new CSA R177 – Plastics Recycling: Definitions, Measuring, And Reporting Standard (expected December 2024) should begin to address this concern. It's uptake and feedback could help inform future improvements.

<sup>125</sup> Reuse Seattle Partnership. n.d. Service providers. Available at: <https://reuseseseattle.org/>

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
	agricultural plastics, dirty ICI plastic food grade buckets. <ul style="list-style-type: none"> <li>Lack of feedback to producers on plastics being 'lost' during sorting. Feedback loop -i.e., which packaging formats are not effectively processed at MRFs.</li> </ul>				<ul style="list-style-type: none"> <li>Scottish Environmental Protection Agency requires basic mass balance reporting by waste service providers<sup>126</sup></li> </ul>
<b>Reuse/refill data</b>	<ul style="list-style-type: none"> <li>Lack of tracking of reuse/refill data. This may affect estimates of material 'available for collection' in PRO reporting. Reuse/refill is an element of the circular economy that indicates reduced material use per product consumed.</li> </ul>	<ul style="list-style-type: none"> <li>Set requirements to report on reuse.</li> <li>Set rules on the definition of reuse/refill.</li> </ul>	<ul style="list-style-type: none"> <li>Standardized definition of reusable and refillable packaging (e.g., number of rotations).</li> <li>Standardized methodology for reporting reuse/refill.</li> </ul>	<ul style="list-style-type: none"> <li>Platforms to enable voluntary tracking of plastic packaging reusables at an industry level (e.g., dairy industry milk crates), consumer refill (e.g., cup tracking), etc.</li> </ul>	<ul style="list-style-type: none"> <li>Reuse Seattle (same as above)</li> <li>PR3 Standards<sup>127</sup></li> <li>CO.NIP consortium for reusable plastic packaging for the ICI sector -tracks reuse.<sup>128</sup></li> </ul>
<b>Recycling data</b>	<ul style="list-style-type: none"> <li>Lack of accurate and consistent measurement and reporting on the amount plastic recycled.</li> </ul>	<ul style="list-style-type: none"> <li>Require a consistent Canada-wide standard for the measurement of recycling.</li> </ul>	<ul style="list-style-type: none"> <li>Implement CSA R117 Plastics Recycling: Definitions, Measuring, and Reporting.</li> </ul>	<ul style="list-style-type: none"> <li>Interoperable and immutable data platforms to capture data and transfer it along the value chain (same as above).</li> </ul>	<ul style="list-style-type: none"> <li>CSA R117 Plastics Recycling: Definitions, Measuring, and Reporting</li> </ul>

<sup>126</sup> Scottish Environmental Protection Agency. n.d. Public register. Available at: <https://www.sepa.org.uk/regulations/authorisations-and-permits/public-register/>

<sup>127</sup> P3R standards. n.d. The PR3 Standards. Available at: <https://www.pr3standards.org/>

<sup>128</sup> CO.NIP Consortium. n.d. Environmental benefits. Available at: <https://www.conip.org/en/>

Step in value chain	Gap	Actions recommended			Examples
		Government (s)	Standardization or guidance	Commercial solutions	
Litter	<ul style="list-style-type: none"> <li>Lack of publicly available and transparent Canada-wide data on plastic packaging leaking as litter into the environment to inform improvements in systems to capture these materials.</li> </ul>	<ul style="list-style-type: none"> <li>Support local/ regional/ jurisdiction wide audits.</li> <li>Establish best practices for litter prevention (federal, provincial, local audits).</li> </ul>	<ul style="list-style-type: none"> <li>Standardized litter audits – capture data on plastic packaging lost as litter.</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>Nova Scotia Litter Audits<sup>129</sup></li> </ul>

<sup>129</sup> Divert NS. 2024. Nova Scotia roadside litter audits. Available at: <https://divertns.ca/sites/default/files/researchreportsfiles/2022-03/2021%20Divert%20NS%20Litter%20Audit%20Report.pdf>

### 5.3 Final Considerations

The purpose of this report was to provide an overview of the current and idealized future state of Canada's plastic packaging data landscape, and the gap between the two. This report did not delve into data management solutions -e.g., the evolution nor pros or cons of existing technologies to meet those gaps.

There were a number of directly related topics identified during the course of this research that were outside this scope of work, which could benefit from further investigation. These include:

- Mitigating the effects of EPR for small and medium sized enterprises. With the trend towards ever more reporting required of obligated producers and their PROs to comply with eco-modulation requirements, there is a risk that only producers of sufficient size will have the market power to negotiate with their value chain and invest in the data solutions needed to meet these reporting obligations. SKU level data may be required, which could result in the need to report on thousands of data points per company.
- The opportunity and risks of employing plastic credit systems to encourage packaging eco-design.
- With the emergence of new laws, especially in Europe, to track chain of custody, how the different data management and chain of custody systems compare.

## APPENDIX A: REGULATED SYSTEMS CANADA-WIDE MANAGING PLASTIC PACKAGING

**Table 15** to **Table 21** provides an overview provincial and territorial regulated systems to prevent the distribution or improve the end-of-life management of plastic packaging.

**Table 15: Regulated provincial & territorial single-use item distribution reduction policies affecting plastic packaging.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>British Columbia</b>	Bans distribution of shopping bags, disposable food service accessories; food service ware made from hard to recycle plastics (i.e., oxo-degradable plastics, compostable plastics, PS foam, PVC, and PVDC).	<a href="#">Single-Use and Plastic Waste Prevention Regulation</a>
<b>Nova Scotia</b>	Bans distribution of single-use plastic carrier bags.	<a href="#">An Act to Reduce the Use of Plastic Bags and Other Single-use Products</a>
<b>Prince Edward Island</b>	Bans distribution of single-use plastic carrier bags.	<a href="#">Plastic Bag Reduction Act</a>
<b>Yukon Territory</b>	Bans distribution of single-use plastic carrier bags.	<a href="#">Reduction of Single-Use Bags Regulation</a>
<b>Northwest Territories</b>	Places a surcharge on single-use plastic carrier bags.	<a href="#">Single-Use Retail Bag Regulations</a>

**Table 16: Regulated provincial & territorial disposal ban policies affecting plastic packaging.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Nova Scotia</b>	Bans disposal of beverage containers, paint containers, used automotive fluid containers for oil, antifreeze, and diesel exhaust fluid, LDPE bags and packaging, HDPE bags and packaging	<a href="#">Solid Waste Resource Management Regulations</a>
<b>Prince Edward Island</b>	<p>Bans disposal of products designated to EPR systems, including paint, automotive fluid, pharmaceutical plastic containers and agricultural plastics.</p> <p>The Island Waste Management Corporation also enforces required source separation (in effect a disposal ban) on some plastic packaging.</p>	<a href="#">Materials Stewardship and Recycling Regulations</a>

**Table 17: Regulated provincial & territorial PPP systems.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<p>Overarching details: Regulated PPP systems may be EPR (i.e., producer led and funded) or shared responsibility (i.e., municipality led, producer subsidized). Systems may also be 'outcomes-based' (i.e., have outcomes set in regulation) or stewardship plan-based (i.e., outcomes are negotiated in a plan). The system details below assume full implementation of EPR regulations (where applicable), while understanding that the EPR systems in every jurisdiction except British Columbia are in the process of being implemented over the next several years.</p>		
<p><b>British Columbia</b></p>	<p>System type: single PRO, stewardship plan-based EPR system.</p> <p>Targets: residential PPP, including packaging, paper products, and <u>including</u> packaging-like products and other single-use plastics (e.g., food service ware).</p>	<p><a href="#">Recycling Regulation</a></p>
<p><b>Alberta</b></p>	<p>System type: competitive PRO, outcomes-based EPR system.</p> <p>Targets: residential PPP, including packaging, paper products, and <u>including</u> packaging-like products and other single-use plastics (e.g., food service ware).</p>	<p><a href="#">Extended Producer Responsibility Regulation</a></p>
<p><b>Saskatchewan</b></p>	<p>System type: single PRO, stewardship plan-based EPR system.</p> <p>Targets: residential PPP, including packaging, paper products, but <u>excludes</u> single-use plastics that are not packaging-like products.</p>	<p><a href="#">The Household Packaging and Paper Stewardship Program Regulations, 2023</a></p> <p><a href="#">The Product Stewardship Program Guidelines</a></p>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Manitoba</b>	<p>System type: single PRO, stewardship plan-based <u>shared responsibility</u> system.</p> <p>Targets: residential, school, religious organizations, and not-for-profit packaging and printed paper, but <u>excluding</u> single-use plastics that are not packaging-like products.</p>	<p><a href="#">Packaging and Printed Paper Stewardship Regulation</a></p> <p><a href="#">Guideline for Packaging and Printed Paper Stewardship</a></p> <p><a href="#">EPR System under development</a></p>
<b>Ontario</b>	<p>System type: competitive PRO, outcomes-based EPR system.</p> <p>Targets: residential, retirement home, long-term care home, and school packaging, paper products, and packaging like products, and <u>including</u> packaging-like products and other single-use plastics (e.g., food service ware), but <u>excludes</u> flexible plastics such as sandwich bags, Ziploc bags, and cling wrap.</p>	<p><a href="#">Blue Box Regulation</a></p>
<b>Québec</b>	<p>System type: single PRO, outcomes-based EPR system.</p> <p>Target: residential and ICI packaging, paper products, <u>including</u> packaging-like products and other single-use plastics (e.g., food service ware).</p>	<p><a href="#">Regulation respecting a system of selective collection of certain residual materials</a></p>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>New Brunswick</b>	<p>System type: single PRO, stewardship plan-based EPR system.</p> <p>Targets: residential and school packaging, paper products, and packaging like products, but <i>excludes</i> single-use plastics that are not packaging-like products.</p>	<a href="#">Designated Materials Regulation</a>
<b>Nova Scotia</b>	<p>System type: competitive PRO, outcomes-based EPR system.</p> <p>Targets: residential and school packaging, paper products, and packaging like products, <i>including</i> packaging-like products and other single-use plastics (e.g., food service ware).</p>	<a href="#">Extended Producer Responsibility for Packaging, Paper Products, and Packaging-Like Products Regulations</a>  <a href="#">Packaging, Paper Products and Packaging Like Products Material Management Standard</a>
<b>Prince Edward Island</b>	n/a	Under development
<b>Newfoundland and Labrador</b>	n/a	Under development
<b>Yukon Territory</b>	<p>System type: single PRO, stewardship plan-based EPR system.</p> <p>Target: residential, long-term care, school, post-secondary school packaging, paper products, <i>including</i> packaging-like products and other single-use plastics (e.g., food service ware).</p>	<a href="#">Extended Producer Responsibility Regulation</a>
<b>Northwest Territories</b>	n/a	Under development

**Table 18: Regulated provincial & territorial deposit return systems for beverage containers.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<p>Overarching details: Deposit return systems across Canada all manage only 'ready-to-serve' beverage containers. This means that all systems exclude concentrates, containers that are sold empty such as for home bottling, powdered products (e.g., powdered milk), and other non-beverage containers. In addition to those exclusions, individual provinces and territories have also excluded specific types of other beverage containers based on the original content of the container, its format, or its size.</p>		
<p><b>British Columbia</b><sup>130</sup></p>	<p>System type: EPR</p> <p>Targets all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Milk-derived products and liquids deemed to be foodstuff—i.e., whipping cream, coffee cream, half-and-half, buttermilk kefir, drinkable yoghurt</li> </ul>	<p><a href="#">Recycling Regulation</a></p>
<p><b>Alberta</b><sup>131</sup></p>	<p>System type: product stewardship</p> <p>Targets all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Cream contains &lt;30 ml</li> <li>• Industrial milk bladders 9 L or more</li> </ul> <p>Containers that are not recyclable, except flexible plastics (which are permitted)</p>	<p><a href="#">Beverage Container Recycling Regulation</a></p>

<sup>130</sup> Government of British Columbia. Recycling Regulation. Schedule 1. Available at: [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/449\\_2004#Schedule1](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/449_2004#Schedule1)

<sup>131</sup> Beverage Container Management Board, 2009. Interpretation of beverage container policy. Available at: [https://www.bcmb.ab.ca/uploads/source/Policies/Interpretation\\_of\\_Beverage\\_Container\\_Policy/2015.06.10.Interpretation.Policy.of.beverage.definition.Board.Approved.pdf](https://www.bcmb.ab.ca/uploads/source/Policies/Interpretation_of_Beverage_Container_Policy/2015.06.10.Interpretation.Policy.of.beverage.definition.Board.Approved.pdf)

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Saskatchewan</b> <sup>132</sup>	System type: product stewardship  Targets all ready-to-serve beverage containers except: <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Flexible plastics</li> <li>• Beer sold in refillable containers</li> <li>• Containers &gt;5 L</li> </ul>	<a href="#">The Environmental Management and Protection Regulations</a>
<b>Manitoba</b> <sup>133</sup>	System type: product stewardship  Targets only beer and malt beverage containers	<a href="#">Manitoba Liquor and Lotteries Board Regulation</a>
<b>Ontario</b> <sup>134</sup>	System type: product stewardship  Targets only alcohol containers	Ontario's system was deregulated in 2021 with the revocation of Regulation 12/107: Ontario Deposit Return System.  It is operated by LCBO under an agreement between the Ministry of Finance and Brewers Retail Inc. <a href="#">Exhibit B: Ontario Deposit Return Program Agreement</a>

<sup>132</sup>Government of Saskatchewan. n.d. Saskatchewan's Beverage Container Recycling Program. Available at: <https://publications.saskatchewan.ca/api/v1/products/85121/formats/98600/download>

<sup>133</sup>Government of Manitoba. Manitoba Liquor and Lotteries Board Regulation. Program is operated by a crown agency: Manitoba Liquor & Lotteries. Available at: [https://web2.gov.mb.ca/laws/regs/current/\\_pdf-regs.php?reg=68/2014](https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=68/2014)

<sup>134</sup>The Beer Store. n.d. Ontario Deposit Return Program (ODRP). Available at: <https://www.thebeerstore.ca/about-us/environmental-leadership/bag-it-back-odrp>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<p><b>Québec</b><sup>135</sup></p>	<p>System type: EPR</p> <p>Targets: all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Currently excludes all containers except beer and soft drink</li> <li>• Containers &lt; 100 ml and &gt; 2 L</li> </ul> <p>Note: System will expand in March 2025 to include all ready-to-serve plastic, glass, metal, multi-layer, and carton format containers, with the exception of flexible plastics, which will continue to be excluded.</p>	<p><a href="#">Regulations Respecting the Development, Implementation and Financial Support of a Deposit System for Certain Means of Containment</a></p>
<p><b>New Brunswick</b><sup>136</sup></p>	<p>System type: EPR</p> <p>Targets all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Milk, flavoured milk, and milk substitutes that are a fortified source of protein</li> <li>• Unprocessed apple cider</li> <li>• Containers &gt;5 L</li> </ul>	<p><a href="#">Designated Materials Regulation</a></p>

<sup>135</sup> Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parc. Modernized deposit-refund. Available at: <https://www.environnement.gouv.qc.ca/matieres/consigne-collecte/modernisation-consigne-en.htm>

<sup>136</sup> Encorp Atlantic, n.d. Redemption centres issue refunds for containers from ALL ready-to-drink beverage products for which you paid a deposit at purchase. Available at: <https://encorpatl.ca/recycle/which-containers-are-accepted/>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<p><b>Nova Scotia</b><sup>137</sup></p>	<p>System type: product stewardship</p> <p>Targets all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Milk, flavoured milk, and milk substitutes that are a fortified source of protein</li> <li>• Containers &gt;5 L</li> </ul>	<p><a href="#">Solid Waste Resource Management Regulations</a></p>
<p><b>Prince Edward Island</b><sup>138</sup></p>	<p>System type: product stewardship</p> <p>Targets all ready-to-serve beverage containers except:</p> <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Milk, flavoured milk, and milk substitutes that are a fortified source of protein</li> <li>• Containers &gt;5 L</li> </ul>	<p><a href="#">Beverage Container Act General Regulations</a></p>

<sup>137</sup> Divert NS. 2023. Deposit-refund program. Available at: <https://divertns.ca/sites/default/files/inline-files/DNS%20Depot%20Brochure%202023.pdf>

<sup>138</sup> Government of Prince Edward Island. n.d. Beverage container program. Available at: <https://www.princeedwardisland.ca/en/information/environment-energy-and-climate-action/beverage-container-program>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Newfoundland and Labrador</b> <sup>139</sup>	System type: product stewardship  Targets all ready-to-serve beverage containers except: <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Milk, flavoured milk, and milk substitutes that are a fortified source of protein</li> <li>• Containers &gt;5 L</li> </ul>	<a href="#">Waste Management Regulations</a>  <a href="#">Liquor Licensing Regulations</a> (refillable beer)
<b>Yukon Territory</b>	System type: product stewardship  Targets all ready-to-serve beverage containers except: <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Meal replacement, liquid formulated diet, and nutritional supplement</li> <li>• Containers &lt;30 ml</li> </ul>	<a href="#">Beverage Container Regulation</a>
<b>Northwest Territories</b>	System type: product stewardship  Targets all ready-to-serve beverage containers except: <ul style="list-style-type: none"> <li>• Infant formula</li> <li>• Containers &lt;30 ml</li> </ul>	<a href="#">Waste Reduction and Recovery Act</a>  <a href="#">Beverage Container Regulations</a>

<sup>139</sup> Multi-Material Stewardship Board. 2014. Beverage Distributor Guide at <https://mmsb.nl.ca/wp-content/uploads/2014/05/BeverageDistributorGuide.pdf>

**Table 19: Regulated provincial & territorial automotive fluid container systems.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>British Columbia</b>	System type: EPR  Targets: oil and antifreeze containers	<a href="#">Recycling Regulation</a>
<b>Alberta</b>	System type: product stewardship  Targets: oil containers	<a href="#">Designated Material Recycling and Management Regulation</a>  <a href="#">Lubricating Oil Material Designation Regulation</a>
<b>Saskatchewan</b>	System type: EPR  Targets: oil, antifreeze, and diesel exhaust fluid containers	<a href="#">The Used Petroleum and Antifreeze Products Stewardship Regulations</a>
<b>Manitoba</b>	System type: EPR  Targets: oil, antifreeze, and diesel exhaust fluid containers	Used oil materials: <a href="#">Used Oil, Oil Filters and Containers Stewardship Regulation</a>  Antifreeze and containers: <a href="#">Household Hazardous Material and Prescribed Material Stewardship Regulation</a>  Diesel exhaust fluid containers: <a href="#">Packaging and Printed Paper Stewardship Regulation</a>
<b>Ontario</b>	System type: EPR  Targets: oil and antifreeze containers	<a href="#">Hazardous and Special Products Regulation</a>
<b>Québec</b>	System type: EPR  Targets: oil and antifreeze containers	<a href="#">Regulation respecting the recovery and reclamation of products by enterprises</a>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>New Brunswick</b>	System type: EPR Targets: oil and antifreeze containers	<a href="#">Designated Materials Regulation (Clean Environment Act)</a>
<b>Nova Scotia</b>	System type: EPR Targets: oil, antifreeze, and diesel exhaust fluid containers	<a href="#">Solid Waste Resource Management Regulations</a>
<b>Prince Edward Island</b>	System type: EPR Targets: oil, antifreeze, and diesel exhaust fluid containers	<a href="#">Materials Stewardship and Recycling Regulations</a>
<b>Newfoundland and Labrador</b>	System type: EPR Targets: oil and antifreeze containers	<a href="#">Waste Management Regulations</a>
<b>Yukon Territory</b>	System type: EPR Targets: oil, antifreeze, and diesel exhaust fluid containers	<a href="#">Extended Producer Responsibility Regulation</a>

**Table 20: Regulated provincial & territorial hazardous and special product container systems (other than automotive fluid containers).**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>British Columbia</b>	Targets: a broad range of hazardous and special product containers, including paint containers	<a href="#">Recycling Regulation</a>
<b>Alberta</b>	Targets: <ol style="list-style-type: none"> <li>1. All hazardous and special product containers</li> <li>2. Paint containers</li> </ol>	<a href="#">Extended Producer Responsibility Regulation</a> <a href="#">Paint and Paint Container Designation Regulation</a>
<b>Saskatchewan</b>	Two systems: <ol style="list-style-type: none"> <li>1. All hazardous and special product containers</li> <li>2. Paint containers</li> </ol>	<a href="#">The Household Hazardous Waste Products Stewardship Regulations</a> <a href="#">The Waste Paint Management Regulations</a>
<b>Manitoba</b>	Two systems: <ol style="list-style-type: none"> <li>1. All hazardous and special product containers</li> <li>2. Paint containers</li> </ol>	<a href="#">Household Hazardous Material and Prescribed Material Stewardship Regulation</a>
<b>Ontario</b>	Multiple PROs collecting a range of materials for hazardous and special products, including paint.	<a href="#">Hazardous and Special Products Regulation</a>
<b>Nova Scotia</b>	Paint containers only	<a href="#">Solid Waste Resource Management Regulations</a>
<b>Prince Edward Island</b>	Paint containers only	<a href="#">Materials Stewardship and Recycling Regulations</a>

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Newfoundland and Labrador</b>	Paint containers only	<a href="#">Waste Management Regulations</a>
<b>Yukon Territory</b>	All hazardous and special product containers, including paint containers.	<a href="#">Extended Producer Responsibility Regulation</a>

**Table 21: Regulated provincial & territorial agricultural plastic systems.**

JURISDICTION	REQUIREMENTS FOR PLASTIC PACKAGING	REGULATION
<b>Saskatchewan</b>	Targets: grain bags	<a href="#">The Agricultural Packaging Product Waste Stewardship Regulations</a>
<b>Manitoba</b>	Targets: grain bags and twine	<a href="#">Packaging and Printed Paper Stewardship Regulation</a>
<b>Québec</b>	Targets: grain bags, twine, silage and bale wrap, bags, containers, film plastic, plastic tubing, animal medications	<a href="#">Regulation to amend the Regulation respecting the recovery and reclamation of products by enterprises</a>
<b>Prince Edward Island</b>	Targets: grain bags, twine (PP only), silage and bale wrap, bags, containers	<a href="#">Materials Stewardship and Recycling Regulations</a>

## APPENDIX B: SUMMARY OF DATA COLLECTION AGENCIES AND REPORTING CANADA-WIDE

**Table 22: Canada-wide data collection agencies, number and types of data collection systems, and purpose of data collection**

Data collection agent	Scope	Voluntary, Mandatory, or Experimental	Purpose	Data reporters	Plastic packaging data collected
<b>Statistics Canada – Waste Management Survey</b> <sup>140</sup>	Canada-wide	Mandatory	To better understand Canada-wide <u>waste</u> flows (i.e., diversion from disposal and disposal).	Municipalities, waste management companies, and retailers/wholesalers not specialized in the waste management industry (waste managed outside the conventional streams)	Plastic collected, disposed, reprocessed

<sup>140</sup> Statistics Canada, 2022. Biennial Waste Management Survey. Available at [https://www.statcan.gc.ca/en/statistical-programs/instrument/2009\\_Q1\\_V12](https://www.statcan.gc.ca/en/statistical-programs/instrument/2009_Q1_V12)

Data collection agent	Scope	Voluntary, Mandatory, or Experimental	Purpose	Data reporters	Plastic packaging data collected
<p><b>Statistics Canada – Physical flow account for plastic material (PFAPM)</b><sup>141</sup></p> <p><i>*Note not a data collecting initiative but compiles numerous government and industry data sources</i></p>	Canada-wide	Annual	To better understand Canada-wide <u>plastics</u> flows (i.e., from production, supply, use, discarded and disposed).	Based on numerous existing government and industry data sources	<p>Plastic flows from supply to final disposition into and out of Canada</p> <p>Geographic estimates recycled plastic resin represents the province or territory where the plastic was discarded, not the location of the final processor producing the recycled pellets and flakes.</p>

<sup>141</sup> Statistics Canada. 2024. Physical flow account for plastic material, 2020. Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/240318/dq240318c-eng.htm>

<b>Data collection agent</b>	<b>Scope</b>	<b>Voluntary, Mandatory, or Experimental</b>	<b>Purpose</b>	<b>Data reporters</b>	<b>Plastic packaging data collected</b>
<b>Federal Government - Federal Plastics Registry</b> <sup>142</sup>	Canada-wide	Mandatory beginning in 2025	To measure Canada's progress against federal plastic waste reduction commitments.	Producers, ICI generators, waste service providers	Producers – supply  Generators – amount they set out for collection  Waste service providers – plastic managed
<b>Federal Government - Federal Labelling Requirements</b> <sup>143</sup>	Canada-wide	Proposed mandatory	To assess whether packaging labelling claims are accurate, and whether specific products and packaging meet federal requirements for PCR content.	Producers	Plastic used PCR used Proof of PCR source Proof to support label for compostable and recyclable

<sup>142</sup> Government of Canada. 2024. Canada Gazette, Part I, Volume 158, Number 16: Government notices: Notice with respect to reporting of plastic resins and certain plastic products for the Federal Plastics Registry for 2024, 2025 and 2026. Available at: <https://www.gazette.gc.ca/rp-pr/p1/2024/2024-04-20/html/notice-avis-eng.html>

<sup>143</sup> Government of Canada, 2023. Recycled content and labelling rules for plastics: Regulatory Framework Paper. Available at: <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/recycled-content-labelling-rules-plastics.html>

Data collection agent	Scope	Voluntary, Mandatory, or Experimental	Purpose	Data reporters	Plastic packaging data collected
<b>GSI Canada for Global Trade Item Numbers (i.e., UPC), bar codes,<sup>144</sup> and ECCnet product registry<sup>145</sup></b>	Canada-wide	Voluntary (but bar codes may be required for sale)	<p>To provide a Global Trade Item Number and bar codes, which enable products to be uniquely identified and traceable.</p> <p>To enable standardized data collection and reporting with trading partners.</p>	Producers	Proprietary
<b>Canada Plastics Pact</b>	Canada-wide by province / territory	Voluntary	To enable CPP to measure Canada's plastic flow against CPP goals.	Producers	<p>Progress to eliminate unnecessary or problematic packaging</p> <p>Percentage of plastic packaging that is reusable, recyclable, or compostable</p> <p>Percentage of plastic packaging effectively recycled or composted</p> <p>Recycled content use in packaging</p>

<sup>144</sup> GSI Canada, n.d. About us. GSI is the only official provider of GSI GTINs and UPC barcodes globally. Available at: <https://gs1ca.org/barcodes/#:~:text=If%20your%20product%20will%20be,retail%20point%2Dof%2Dsale>

<sup>145</sup> GSI Canada, n.d. ECCnet Registry. Available at: <https://gs1ca.org/new-item-setup/eccnet-registry/>

<b>Data collection agent</b>	<b>Scope</b>	<b>Voluntary, Mandatory, or Experimental</b>	<b>Purpose</b>	<b>Data reporters</b>	<b>Plastic packaging data collected</b>
<b>Provincial and Territorial Governments / Government delegated oversight bodies</b>	Individual provinces and territories <sup>146</sup>	Mandatory	To assess the regulatory to determine whether the programs operating are achieving regulatory compliance and to report to the public on the stewardship systems' success.	PROs In Ontario, Alberta, and Nova Scotia, individual producers may report to the delegated authority.	Plastic packaging supplied, collected, recovered by regulated categories
<b>Provincial or territorial EPR, DRS, and product stewardship system operators</b>	Individual provinces and territories –i.e., 57 systems related to plastic packaging Canada-wide <sup>147</sup>	Mandatory	To enable the program operator to establish producer fees and to assess and report to government on the program's regulatory compliance.	Producers	Plastic packaging supplied, collected, recovered by regulated categories
<b>Provincial, Territorial, Local Governments – permitting departments</b>	Individual provinces and territories, many local governments	Mandatory	To enable governments to assess facility operator plans for adherence to laws before they are sited (i.e., to assess plans for compliance) and to assess whether the facility continues to be operated within the parameters of its approval or permit (i.e., ongoing compliance).	Waste facility operators	Varies

<sup>146</sup> There are EPR and product stewardship programs operating in all of Canada's provinces and territories except Nunavut. In Ontario, Alberta, and Nova Scotia their governments have delegated system data collection to a delegated government agency – i.e., Resource Recovery Productivity Authority, Alberta Recycling and Management Authority, and Divert NS, respectively. In these cases, the delegated agencies report to government and the public on system success.

<sup>147</sup> See above in Appendix B for details on which provinces and territories have product stewardship or EPR systems for plastic packaging.

<b>Data collection agent</b>	<b>Scope</b>	<b>Voluntary, Mandatory, or Experimental</b>	<b>Purpose</b>	<b>Data reporters</b>	<b>Plastic packaging data collected</b>
<b>Local governments</b>	Local governments Canada-wide	Mandatory	To enable local governments to inform solid waste management planning, assess the efficacy of programs and policies, plan for future needs, and measure against corporate goals.	Local governments, facility operators serving local governments	Varies by waste composition study and waste audit
<b>ICI Generators</b>	Unknown number of businesses in the ICI sector	Voluntary, Mandatory in Ontario	To measure the effectiveness of their own waste management plans, and in Ontario to obtain proof of regulatory compliance with O. Reg/102/94. <sup>148</sup>	ICI generators	Varies by waste audit
<b>Environmental social government (ESG) reports<sup>149</sup></b>	Global	Voluntary but transitioning to mandatory	To provide insight on a company's environmental, social, and corporate governance activities while improving investor transparency.	ESG Reporters	Varies; may include waste related data (as of yet) more focussed on climate change data

<sup>148</sup> Ontario government, 1994. O. Reg. 102/94: Waste Audits and Waste Reduction Work Plans. Available at: <https://www.ontario.ca/laws/regulation/940102>

<sup>149</sup> See Appendix D for more information on ESG reporting.

## APPENDIX C: FEDERAL PLASTICS REGISTRY

The following table lists the reporting required for plastic packaging in Canada.

**Table 23: Federal Plastic Registry reporting categories for affecting plastic packaging.<sup>150</sup>**

NPCS CODE	NAPCS TITLE
<b>Part 1: Resins</b>	
2811211	Polyethylene terephthalate (PET) resins
2811219	Other thermoplastic polyester resins
2811221	Low-density polyethylene (LDPE) resins
2811222	Linear low-density polyethylene (LLDPE) resins
2811223	High-density polyethylene (HDPE) resins
2811229	Other polyethylene resins
2811231	Polystyrene (PS) resins
2811291	Acrylonitrile-butadiene-styrene (ABS) resins
2811292	Polyvinyl chloride (PVC) resins
2811293	Polypropylene (PP) resins
2811294	Thermoplastic polyurethane (TPU) resins
2811295	Polyamide (PA, nylon) resins
2811299	All other thermoplastic resins.
2811411	Bio-based thermoplastic resins
2811412	Petroleum-based biodegradable thermoplastic resins
2811311	Phenolic (PF) resins
2811312	Urea formaldehyde (UF) resins
2811319	All other formaldehyde-based resins
2811391	Thermosetting unsaturated polyester (UPR) resins
2811392	Thermosetting polyurethane (PU) resins
2811399	Other thermosetting resins.
2811413	Bio-based thermoset resins
2811414	Petroleum-based biodegradable thermoset resins
<b>Part 2: Resin sources</b>	
	Virgin fossil-based resin
	Virgin bio-based resin
	Post-consumer recycled resin
	Post-industrial recycled resin

<sup>150</sup> Ibid.

NPCS CODE	NAPCS TITLE
<b>Part 3: Plastic packaging, filled and unfilled, within the following subcategories:</b>	
	Rigid: <ul style="list-style-type: none"> <li>• Beverage container</li> <li>• Food contact material</li> <li>• Packaging for hazardous materials</li> <li>• Other packaging</li> </ul>
	Flexible: <ul style="list-style-type: none"> <li>• Beverage container</li> <li>• Food contact material</li> <li>• Packaging for hazardous materials</li> <li>• Other packaging</li> </ul>

**C- 1: Timelines for Federal Plastic Registry**

The Federal Plastics Registry in Canada is expected to become effective starting from the calendar year 2024. The registry will be phased in by category of plastic products between 2025 and 2027 for the 2024 to 2026 calendar years. For example, the report for the 2024 calendar year would need to be submitted by September 29, 2025.

The implementation timeline for the Federal Plastics Registry in Canada is as follows:

- registry This publication sought early feedback from interested parties on the development of an instrument under CEPA that would require producers to report on plastics in the Canadian economy. A 70-day public comment period followed the publication of the consultation document.
- October 7, 2022: The public comment period closed.
- February 2023: A What we heard report was published, which summarized the feedback received on the discussion paper from written comments, stakeholder discussion sessions, and webinars.
- April 18, 2023: The Technical paper: Federal Plastics Registry was published on the CEPA registry. The paper outlined technical details and reporting requirements being considered for the Federal Plastics Registry. A 30-day public comment period followed the publication of the Technical paper.
- May 18, 2023: The public comment period closed.
- December 30, 2023: A Notice of Intent to issue a section 46 notice for the Federal Plastics Registry was published. This notice opened a public consultation period that lasted until February 13, 2024.
- April 20, 2024: The Section 46 Notice for the Federal Plastics Registry was published.
- June 1, 2025 - June 1, 2028: The registry will be phased in by category of plastic products between 2025 and 2028 for the 2024 to 2026 calendar years.

## C- 2: Preparation for Federal Registry reporting requirements

Companies can prepare for the Federal Plastics Registry requirements in Canada by taking the following steps:

- 1. Understand the Requirements:** Familiarize themselves with the specific requirements of the Federal Plastics Registry.
- 2. Identify Relevant Plastic Products:** Identify the categories of plastic products that are subject to reporting requirements, such as packaging, construction materials, vehicles, electrical and electronic equipment, textiles, major appliances, and agricultural film.
- 3. Track Plastic Usage and Waste:** Develop systems to track the quantity and types of plastic they place on the Canadian market, how that plastic moves through the economy, and how it is managed at its end of life.
- 4. Prepare for Reporting:** Prepare to report annually on these categories of plastic products across data points related to plastics diversion, such as plastics placed on the market, collected for diversion, reused, repaired, remanufactured, or refurbished, recycled, incinerated for energy recovery, imported, or exported for recycling or final disposal.
- 5. Engage in Public Consultations:** Participate in public consultations and provide feedback on the development of the Federal Plastics Registry.
- 6. Stay Updated:** Stay updated on the latest regulations and changes to the Federal Plastics Registry.

## C- 3: Other plastic-related regulations in Canada

Yes, there are several other plastic-related regulations in Canada. Here are some key points:

- **Single-use Plastics Prohibition Regulations (SUPPR):** On June 22, 2022, the federal government published the SUPPR under the Canadian Environmental Protection Act, 1999. The SUPPR prohibits the manufacture, import, and sale of six categories of single-use plastics: checkout bags, cutlery, stir sticks, straws, ring carriers, and certain types of food service ware.
- **Labelling for Recyclability and Compostability:** The Government of Canada has proposed regulations that would require all consumer-facing plastics to be labelled for recyclability and compostability.
- **Mandatory Minimum Thresholds of Recycled Plastic:** The government has also proposed regulations that would establish mandatory minimum thresholds of recycled plastic in various categories of plastic packaging.
- **Federal Plastics Registry:** As mentioned earlier, the Federal Plastics Registry will require producers to report annually on the amount and type of plastic they place on the market, how the plastic moves through the economy, and how it is managed at its end of life. Generators of waste and service providers will also be required to report.

These regulations are part of the Government of Canada's comprehensive plan to address pollution, meet its target of zero plastic waste by 2030, and help reduce greenhouse gas emissions.

## APPENDIX D: ESG DISCLOSURE AND REPORTING STANDARDS

### D-1: Background

Environmental, social, and governance (ESG) regulatory reporting requirements are emerging globally, Canadian companies conducting business at home and abroad need to stay informed and be prepared to establish and report out sustainability-related targets and measures, and at the same time, enhance their strategic governance and data management processes.

For publicly traded companies in particular, they need to start to consider International Sustainability Standards Board (ISSB) standards,<sup>151</sup> from both a regulatory compliance and shareholder perspective to integrate financial metrics with nonfinancial ones in their reporting.

### D-2: ESG reporting and disclosure requirements for companies in Canada

ESG reporting and disclosure requirements for companies in Canada are evolving and becoming more complex:

- There are currently legal requirements for companies to make ESG or climate-related disclosures in Canada, so reporting is currently voluntary.<sup>152</sup>
- However, this may change with increasing expectations from customers, regulators, and shareholders, to understand how companies' sustainability goals intersect against financial performance.<sup>153</sup>
- Companies that operate in multiple jurisdictions are subject to numerous ESG reporting frameworks, including the evolving climate change risk disclosure.<sup>154</sup>
- Canadian companies will soon have to file ESG disclosures under multiple ESG standards, including Corporate Sustainability Reporting Directive (CSRD) in Europe, which requires businesses to publish their first report in their 2025 fiscal year, and California's climate disclosure rules, which requires businesses to begin reporting in 2026 on 2025 information.<sup>155</sup>
- On March 13, 2024, the Canadian Sustainability Standards Board (CSSB) published two exposure drafts for comment. CSDS 1 contains general requirements regarding sustainability-related financial information and CSDS 2 contains climate-related disclosure requirements. Once finalized, CSDS 1 and CSDS 2 will only be *voluntary* standards in Canada.<sup>156</sup> The Canadian Securities Administrators is drafting the first mandatory climate-related disclosure rule in Canada.<sup>157</sup> The CSDS are proposed to be effective for annual reporting periods beginning on or after January 1, 2025.

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<sup>151</sup> IFRS, n.d. About the International Sustainability Standards Board. Available at:

<https://www.ifrs.org/groups/international-sustainability-standards-board/>

<sup>152</sup> ESG disclosure: Climate defense meets three lines of defense, 2022. Available at:

<https://kpmg.com/ca/en/home/insights/2022/11/preparing-the-finance-function-for-esg-disclosures.html>

<sup>153</sup> Ibid

<sup>154</sup> PWC, 2023. 2024 Canadian ESG Reporting Insight. Available at: <https://www.pwc.com/ca/en/today-s-issues/environmental-social-and-governance/esg-reporting-insights.html>

<sup>155</sup> Ibid

<sup>156</sup> Fasken, 2024. ESG and sustainability bulletin. Available at: <https://www.fasken.com/en/knowledge/2024/03/cssb-releases-its-draft-standards-one-step-closer-to-mandatory-sustainability-reporting-in-canada>

<sup>157</sup> Ibid.

- Federally regulated financial institutions (banks and insurance companies) will have to start reporting in fiscal year 2024.<sup>158,159</sup>
- While ESG reporting standards in Canada are currently voluntary, there are differences in the ESG reporting requirements for publicly traded companies and private companies in Canada:
  - Publicly traded companies – have more stringent requirements due to the need for transparency with shareholders and the public.

### D- 3: CSSB proposed reporting requirements and standards proposed

CSSB proposed Canada's first Canadian Sustainability Disclosure Standards (CSDS) for companies to report their sustainability and climate-related information. The standards align with the global standards from the ISSB with modifications to fit the Canadian context.<sup>160</sup>

The CSSB proposals include:

- **CSDS 1:** General Requirements for Disclosure of Sustainability-related Financial Information.
- **CSDS 2:** Climate-related Disclosures.<sup>161</sup>

These standards require entities to disclose sustainability and climate-related risks and opportunities information that are useful to investors, lenders, and other creditors in decision-making and that could reasonably be expected to affect the entity's cash flows, its access to finance, or cost of capital over the short, medium, or long term.<sup>162</sup>

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<sup>158</sup> ESG Today, 2023. Canada Announces Climate Reporting Requirements for Banks, Insurers, Beginning 2024. Available at: <https://www.esgtoday.com/canada-releases-climate-reporting-requirements-for-banks-insurers-beginning-2024/>

<sup>159</sup> Money Sense, 2023. An investor's guide to ESG reporting in Canada. Available at: <https://www.moneysense.ca/save/investing/an-investors-guide-to-esg-reporting-in-canada/>

<sup>160</sup> Grant Thornton, 2024. ESG reporting: CSSB proposes first Canadian sustainability standards. <https://www.grantthornton.ca/insights/esg-reporting-cssb-proposes-first-canadian-sustainability-standards/>

<sup>161</sup> Ibid.

<sup>162</sup> Fasken, 2024. ESG and sustainability bulletin. Available at: <https://www.fasken.com/en/knowledge/2024/03/cssb-releases-its-draft-standards-one-step-closer-to-mandatory-sustainability-reporting-in-canada>

## APPENDIX E: DATA AVAILABILITY AND GAPS BY COMPONENT OF PLASTICS VALUE CHAIN

The following table provides an overview of plastic packaging data flow Canada-wide, including the available data, data gaps, and issues hindering further improvement of data capture by component of the plastics value chain. The data captured may be 'direct' – i.e., provide a direct measurement of the amount of material supplied, collected, or processed, or indirect – i.e., or be an indicator of the amount of material managed by measuring material entering waste streams post management at each phase along the chain.

**Table 24: Overview of plastic packaging data generation and management in Canada by area of the plastics value chain**

Data status	Component of Plastics Value Chain				
	Supply	Reuse / Refill	Collection	Processing (i.e., recycling and disposal)	Manufacturing (i.e., reclaimer use of PCR content)
<b>Which data are available?</b>	Direct data (i.e., directly supplied to market): <ul style="list-style-type: none"> <li>Where regulated, supply by province/territory based on regulated categories</li> </ul>	n/a	Direct data (i.e., plastic packaging collected for recycling): <ul style="list-style-type: none"> <li>Where regulated, packaging stewardship system operator (e.g., PRO) for packaging, DRS, hazardous or special products, and agricultural plastics</li> </ul>	Direct data (i.e., plastic packaging processed into PCR): <ul style="list-style-type: none"> <li>Reprocessor data at calculation point</li> </ul>	Direct data (i.e., PRC content used): <ul style="list-style-type: none"> <li>Data only available if part of contractual relationship with producer</li> </ul>
	Indirect data (i.e., what is in waste streams): <ul style="list-style-type: none"> <li>Municipal waste reporting on waste disposed / recycled/ composted</li> </ul>	n/a	Indirect data (i.e., what is in waste streams): <ul style="list-style-type: none"> <li>Municipal waste reporting on waste disposed /</li> </ul>	Indirect data (i.e., what is in waste streams): <ul style="list-style-type: none"> <li>Inbound data for disposal sites</li> <li>Outbound data from reprocessors</li> </ul>	n/a

Data status	Component of Plastics Value Chain				
	Supply	Reuse / Refill	Collection	Processing (i.e., recycling and disposal)	Manufacturing (i.e., reclaimer use of PCR content)
	<ul style="list-style-type: none"> <li>• Generator / service provider reporting</li> </ul>		recycled/composted <ul style="list-style-type: none"> <li>• Generator reporting</li> <li>• Service provider reporting (i.e., inbound data for disposal sites, MRFs, reproprocessors)</li> </ul>	(would include additives used to make PCR)	
<b>Data gaps</b>	Direct data: <ul style="list-style-type: none"> <li>• Unavailable data in regulated systems, exemptions, deductions, free-riders</li> <li>• Unavailable data in unregulated systems (e.g., ICI) due to lack of requirements to collect and report data</li> <li>• Inaccessible data due to lack common data chain of custody to enable accurate reporting on packaging content</li> <li>• Inaccessible data due to lack of</li> </ul>	<ul style="list-style-type: none"> <li>• Typically, no requirements to measure</li> </ul>	<ul style="list-style-type: none"> <li>• Unavailable data (data does not readily exist) –e.g., ICI sector</li> <li>• Inaccessible data (e.g., data exists but is held confidentially as commercial confidential)</li> <li>• Inadequate audit data (i.e., infrequency, scarce, non-fulsome) especially in the ICI sector and for litter</li> </ul>	<ul style="list-style-type: none"> <li>• Unavailable data – i.e., for non-designated materials (e.g., ICI materials), no requirements to measure</li> </ul>	<ul style="list-style-type: none"> <li>• Typically, no requirements to measure</li> </ul>

Data status	Component of Plastics Value Chain				
	Supply	Reuse / Refill	Collection	Processing (i.e., recycling and disposal)	Manufacturing (i.e., reclaimer use of PCR content)
	common data platform / systems to collect data (e.g., systems to track transport packaging, systems to track retailers' distribution across provinces/territories)				
	Indirect data: Scarce waste composition / waste audit data				
<b>What are issues affecting data quality or hindering improved data collection?</b>	Direct data: <ul style="list-style-type: none"> <li>• Lack of harmonization in supply reporting by format or material type by province/territory</li> <li>• Lack of harmonization in supply (unit to weight) conversion factors by format or material type by province/territory</li> </ul>	Direct data: <ul style="list-style-type: none"> <li>• No measurement platform</li> </ul>	Direct data: <ul style="list-style-type: none"> <li>• For direct data, lack of harmonization on measuring inbound waste (e.g., audit guidance)</li> </ul>	Direct data: <ul style="list-style-type: none"> <li>• Recycling / waste facility reporting &amp; standardization (broadly and to generators)</li> <li>• Lack of consistency in approach for calculation of recycling</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of reporting relationships or platforms to share data</li> <li>• Lack of consistency in approach for calculation of recycled content</li> </ul>
	Indirect data: <ul style="list-style-type: none"> <li>• Lack of requirements to undertake waste composition studies / waste audit</li> <li>• Lack waste composition study/waste auditing standardization</li> <li>• Lack of standardized service provider reporting (broadly and to generators)</li> </ul>				

## APPENDIX F: DATA GAPS BY DATA COLLECTION AGENT

Table 25 summarizes the gaps presented in Chapter 3 by data collection agent.

**Table 25: Gaps in current data systems**

Obligated data reporters	Data collected	Gaps
<b>Statistics Canada Waste Management Survey</b> <sup>163</sup>	<ul style="list-style-type: none"> <li>Waste disposed and diverted by waste service providers</li> </ul>	<ul style="list-style-type: none"> <li>The waste management survey is a census with a threshold (population size for municipalities and income for businesses) but can have data entry issues.</li> <li>Does not track specific plastic flows (e.g., litter, reuse, recycling onsite).</li> </ul>
<b>Statistics Canada Physical flow account for plastic material (PFAPM)</b> <sup>164</sup>	<ul style="list-style-type: none"> <li>System of using already collected data of all levels of government and industry</li> </ul>	<ul style="list-style-type: none"> <li>Does not account for international trade of recycled plastic resin.</li> <li>Does not account for interprovincial trade in sorted and baled plastic or recycled plastic resin.</li> <li>Does not estimate flow by ICI sub-sector –i.e., limits specific inferences tools to improve ICI plastics flow management.</li> </ul>
<b>Federal government – Federal Plastics Registry (2025)</b> <sup>165</sup>	<ul style="list-style-type: none"> <li>Plastics by resin and packaging format that are supplied/generated by different entities, collected, sorted, and processed into new products</li> </ul>	<ul style="list-style-type: none"> <li>Lack of tools to support entities to report plastics flow data at the resin and packaging format level across the value chain (upstream and downstream).</li> <li>E.g., 1) While the federal government is seeking information at the resin and packaging format level, the data collection tools to support reporting by producers, generators, and service providers do not yet exist.</li> <li>E.g., 2) Municipalities that operate landfills and compost facilities may do periodic waste audits or waste composition studies; however, there isn't an audit guide available to standardize data collection; moreover, these</li> </ul>

<sup>163</sup> Statistics Canada, 2022. Biennial Waste Management Survey. Available at [https://www.statcan.gc.ca/en/statistical-programs/instrument/2009\\_Q1\\_V12](https://www.statcan.gc.ca/en/statistical-programs/instrument/2009_Q1_V12)

<sup>164</sup> Statistics Canada. 2024. Physical flow account for plastic material, 2020. Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/240318/dq240318c-eng.htm>

<sup>165</sup> Government of Canada, last updated April 4, 2024. Federal plastics registry. Available at: <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/reduce-plastic-waste/initiative-regulation/federal-plastics-registry.html>

Obligated data reporters	Data collected	Gaps
		data collection events are expensive, and so increasing the number of audit events may not be feasible to support collecting annual data.
<b>Federal government – Labelling and PCR Content Requirements (proposed)</b> <sup>166</sup>	<ul style="list-style-type: none"> <li>Evidence to prove labelling for recyclability and compostability are accurate</li> <li>Data on plastic used, PCR used, and source of PCR</li> </ul>	<ul style="list-style-type: none"> <li>No verification body to assist producers in assessment of recyclability and compostability.</li> <li>No tools yet exist to prove and track source of PCR.</li> </ul>
<b>GSI Global Trade Item Numbers (e.g., UPC), Bar Codes, including its ECCnet Registry</b> <sup>167,168</sup>	<ul style="list-style-type: none"> <li>Product identifying information</li> </ul>	<ul style="list-style-type: none"> <li>Lack of downstream processing data linked to each UPC that could provide the producer with specific feedback on the recyclability of their packaging.</li> </ul>
<b>Canada Plastics Pact (voluntary)</b> <sup>169</sup>	<ul style="list-style-type: none"> <li>Measurement against four key commitments – elimination of problematic items; percentage of materials supplied that are recyclable, reusable, compostable; percentage recycled or composted; incorporation of recycled content</li> </ul>	<ul style="list-style-type: none"> <li>Dataset is limited to the members of Canada Plastic Pact.</li> </ul>

<sup>166</sup> Government of Canada, 2023. Recycled content and labelling rules for plastics: regulatory framework paper Section 4.5.1 reporting and record keeping. Available at: <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/recycled-content-labelling-rules-plastics.html>

<sup>167</sup> GSI Canada, n.d. About us. GSI is the only official provider of GSI GTINs and UPC barcodes globally. Available at: <https://gs1ca.org/barcodes/#:~:text=If%20your%20product%20will%20be,retail%20point%2Dof%2Dsale>

<sup>168</sup> GSI Canada, n.d. ECCnet Registry. Available at: <https://gs1ca.org/new-item-setup/eccnet-registry/>

<sup>169</sup> Canada Plastic Pact, 2023. 2022 Annual Report: Tomorrow starts today. Available at: [https://plasticspact.ca/wp-content/uploads/2023/12/CPP\\_2022\\_Annual-Report-EN.pdf](https://plasticspact.ca/wp-content/uploads/2023/12/CPP_2022_Annual-Report-EN.pdf)

<p><b>Provincial and territorial EPR, DRS, and product stewardship system operators and oversight bodies</b></p> <p>(57 systems manage plastic packaging Canada-wide)</p>	<ul style="list-style-type: none"> <li>• Supply by unit or weight</li> <li>• Amount collected and/or recovered (e.g., recycled, downcycled, disposed as fuel)</li> </ul> <ul style="list-style-type: none"> <li>• Lack of accurate data on amount supplied –the amount of supply reported is an estimate not an exact value. This is because: <ul style="list-style-type: none"> <li>• Brand owners deliver plastics to a retail distribution centre not to their location of final distribution to consumers; as a result, brand owners do not have 'line of sight' on where retailers distribute goods by province or territory.</li> <li>• Some producers are exempt from reporting – i.e., those below the de minimis threshold, those made of exempted materials such as compostable plastics in Ontario and the total amount of plastic material exempted in each province or territory is unclear.</li> <li>• Transport packaging may not be used or tracked on a per product unit basis.</li> </ul> </li> <li>• Lack of common data language across the plastic packaging management chain to enable Canada to compile accurate reporting (e.g., different packaging categories tracked).</li> <li>• Lack of common conversion factors across provinces and territories (i.e., to convert units supplied into weight collected or recycled); without common units of conversion, apples to apples comparisons of recycling or recovery rates cannot be made.</li> <li>• Lack of tools to track plastic flow at the packaging format and resin levels; without a feedback loop or 'pre-supply recyclability checks' producers do not have access to specific information about the recyclability of their products and little incentive to improve the recyclability of their packaging.</li> <li>• Lack of chain of custody to enable verifiable 'ingredients list' data to be passed along the value chain and support recycled content claims.</li> <li>• Lack of legal agreement on point of measurement for recycling, which makes it more difficult to compare the success of provincial and territorial programs.</li> <li>• No data on packaging or product reuse / refill.</li> </ul>
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Obligated data reporters	Data collected	Gaps
<b>Provincial and Territorial – Waste Management Approvals or Permits</b>	<ul style="list-style-type: none"> <li>Varies by province and territory</li> </ul>	<ul style="list-style-type: none"> <li>Lack of standardized reporting requirements for waste management facilities across provinces and territories and often even within jurisdictions.</li> <li>Lack of systems to compile data captured. Data are often neither reported centrally nor in format that allows for consolidation.</li> <li>Lack of publicly assessable information on the performance of waste management facilities (e.g., recycling or disposal rates).</li> </ul>
<b>Local governments – solid waste management plans</b>	<ul style="list-style-type: none"> <li>Waste managed by each waste management facility operated by the municipality</li> <li>May include estimating residential and ICI contributions</li> <li>May include ICI generator curbside auditing to estimate ICI generation at source</li> </ul>	<ul style="list-style-type: none"> <li>Lack of common waste composition audit methodology including categories (to allow for comparison and consolidation across sites).</li> <li>Lack of standardized method to calculate amount of reuse or refill.</li> <li>Lack of standardized to calculate amount lost as litter.</li> <li>Lack of ability to measure amount of material generated in the local government’s boundary as material is often sent to waste management sites that are not obligated to report (e.g., private landfills, exported out of jurisdiction or country).</li> <li>Lack of standardized frequency of data collection.</li> </ul>
<b>ICI generator reporting</b>	<ul style="list-style-type: none"> <li>Waste set out for collection by stream</li> <li>Waste audit data of varying levels of detail</li> </ul>	<ul style="list-style-type: none"> <li>Lack of standardized waste composition audit methodology adopted Canada-wide (except in Ontario, which has a widely adopted standard); this would be needed to allow for comparison and consolidation across sites.</li> <li>Lack of tracking or verification of waste to end disposition (quantities, types and destinations) and lack of standardized reporting requirements for waste service providers to report on management of waste services (e.g., invoicing related to services); because of these gaps, generators can be sure that material set out for collection is sent by a waste hauler to a MRF or reprocessor.</li> </ul>

Obligated data reporters	Data collected	Gaps
		<ul style="list-style-type: none"> <li>• Lack of guidance to enable generators to request more standardized data and data verification from their service providers on the final disposition of waste materials</li> <li>• Generator waste management audits / planning is not mandatory Canada-wide; in Ontario, only includes businesses of a certain size.</li> <li>• ICI generators are not required to disclose data, and their data are not standardized, centrally collected, or consolidated.</li> </ul>
<b>ESG reporting</b>	<ul style="list-style-type: none"> <li>• Can include resource management data</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of common reporting requirements for waste management.</li> </ul>