

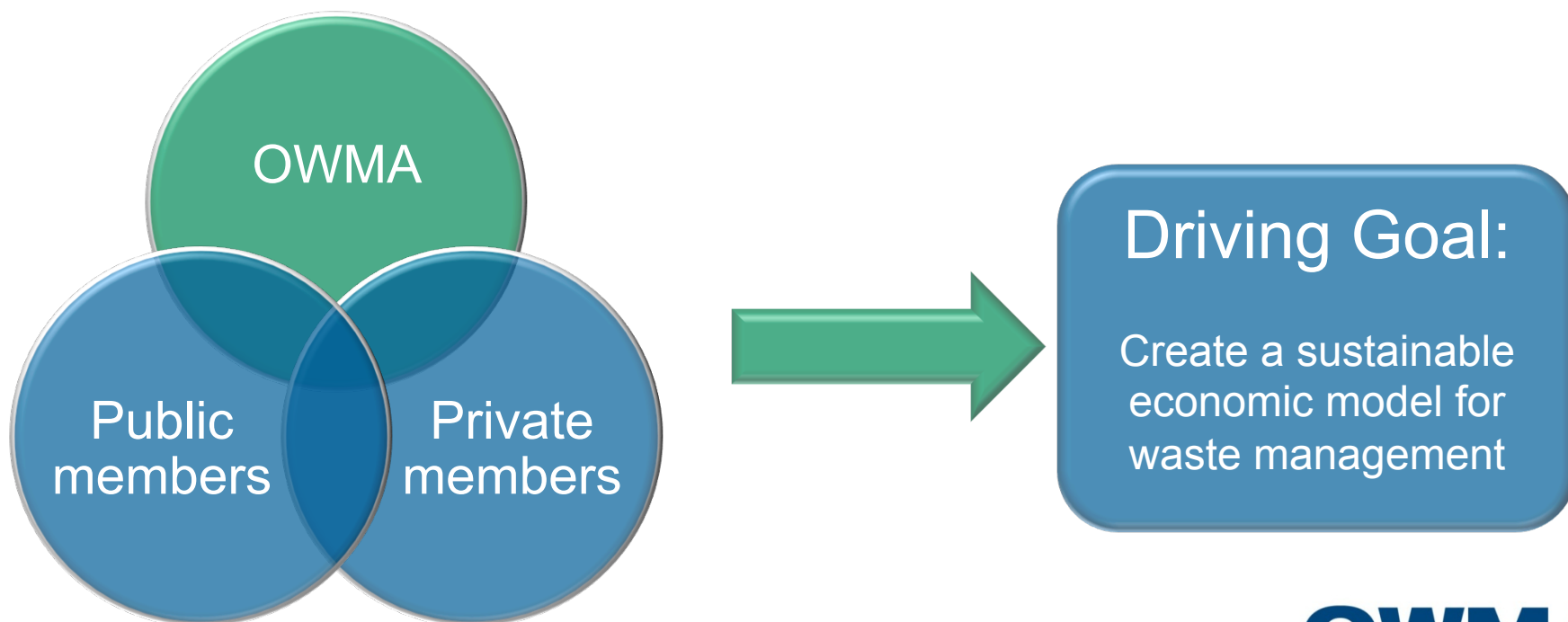
What Gets Measured Gets Managed

2015 Conference on Canadian Stewardship
RCA Waste Reduction Conference

September 30, 2015

Who We Are

- OWMA is non-profit industry trade association
- Represent over 275 private & public sector members
- Members manage roughly 85% of the province's waste



OWMA's Focus

- Transition to a more a more circular economy.
- Developed several reports on this and position papers dealing with issues like disposal bans, levies and EPR.
- This means a major focus on addressing the following:
 - Information / Oversight / Enforcement;
 - Environmental Standards;
 - Economics including competition related issues.
- Every jurisdiction has unique situations which may impact how each is addressed.
- Generally most Canadian jurisdictions not handling any of the above well including Ontario.

Overview: Addressing the Data Gap

- The Need
- Data Collection
- Data Integrity – CSA Guideline
 - Process & Purpose
 - Sustainable Material Management
 - Standard Definitions
 - Standard Performance Rates
 - Tracking & Reporting
 - Mass Balance
 - Data Verification Audits

Data Collection Gap

- Establishing the big picture - Mechanisms in place in Ontario
 - Environmental Compliance Approvals - not centralized or standardized
 - Hazardous Waste Manifest system (HWIN) - good data but 99% paper based
 - WDO datacall – good data
 - Stewardship reporting – oversight issues
 - Statistics Canada - challenged by less resources, dataset is incomplete & always criticized and always out-date
- Issues include - no coherence, different definitions and metrics, incomplete data sets, aging government IT infrastructure, little oversight of data, difficulty to collate data & admin burden associated with multiple reporting.
- Government - impacts oversight, enforcement and policy development.
- Waste management sector - impacts business decisions, unlevel playing field, and poor decision making.

Filling the Gap

- Long standing advocacy position for better waste management data.
- Majority of stakeholders concerned with integrity of data being used to make decisions.
- OWMA has often done market assessments on a piecemeal basis.
- To address data deficiencies, the OWMA invested in the Re-TRAC Connect an on-line portal based data collection and analysis platform to gather annual facility based data to allow for the sector to report on broad trends.
- Platform as used in many other jurisdictions in Canada and the United States.
- The project objective is to create a constantly evolving tool for managing and monitoring the performance of solid waste collection, processing and disposal systems across Ontario.
- Confidentiality of company specific data is key and guaranteed within the system.

Better Data Capture

- Facility surveys for landfills and organic processing have been launched.
- Survey broken into six areas:
 - Facility Info (Address, GPS, owner, operator, ECA # ...)
 - Vital Statistics (Capacity, Type ...)
 - Facility Access & Use (Hours of Operation, Public Access, Approved Waste Types, Geographic Restrictions ...)
 - Environmental Features (Renewable Energy, LFG, Leachate ...)
 - Annual Measurements (Inbound, Outbound, Inventory ...)
 - Financial (Financial Assurance, Property Taxation ...)
 - Ability to analyze the data through the system are produce annual reports.
- Next year the hope is to launch surveys for transfer stations / processors and fleets
- Opportunities to remove admin burden and aggregate data for annual reports and allow for tools to allow organizations to do their own data analysis

Data Integrity

- Other area of focus has been on “data integrity”
- Strong focus in many environmental areas for the need for better data collection, standardized metrics and definitions.
- Electricity useage, water & air quality, toxic discharges, and GHG releases, certain resource management activities like forestry
- Lots of great examples of guidelines and standards.
- Same has not necessarily been true for the management of end-of-life materials
- This is starting to change – need is being driven both by government & business

What Gets Measured Gets Managed

- Growing importance of improving statistics on end-of-life material flows – clarifying & harmonizing definitions & calculation methodologies.
- A recent report completed for CCME (State of Waste Management in Canada) also discussed need for better waste management performance monitoring overall.
- Major conversation piece in other jurisdictions especially Europe Union as they move forward a Circular Economy Package.

Business - Out of Sight – Out of Mind?

- Historically, waste data whether it be quantities, composition or where it was going was not a priority for business.
- Little expectation for reporting.
- This is changing – led by municipal needs, EPR, CSR and programs like LEEDs and 3Rs Certified.
- For purchasers of waste management services without common definitions or metrics how do you verify what is actually happening & how do they evaluate / verify claims.
- Some work been done to build standards but efforts are largely piecemeal and uncoordinated.

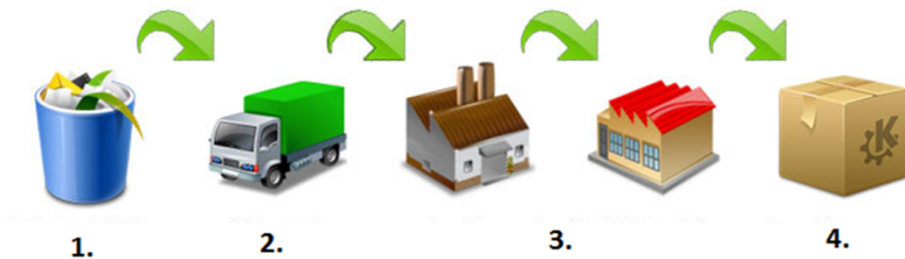


The Business Case

“Without a common set of environmental standards for processors those who have invested in operating to high **environmental standards** whether operating as service providers to EPR programs or generally operating in the waste diversion service market are put at a competitive disadvantage to those that have not made such **investment** but are still allowed to receive waste (and in some cases simply dispose of that waste while claiming it as diverted).”

Process – Seed Document

- Project began in early 2013.
- CM Consulting drafted a seed document through a series of interviews focusing on weaknesses in the recycling chain



- General agreement on what should be focused on:
 - Clear and consistent definitions;
 - Consistent and meaningful reporting;
 - Material tracking throughout the chain of custody (when necessary);
 - Accountability which includes independent verification;
 - Clarify sustainable materials management hierarchy;
 - Consistency with provincial operating standards.

Canadian Standards Association

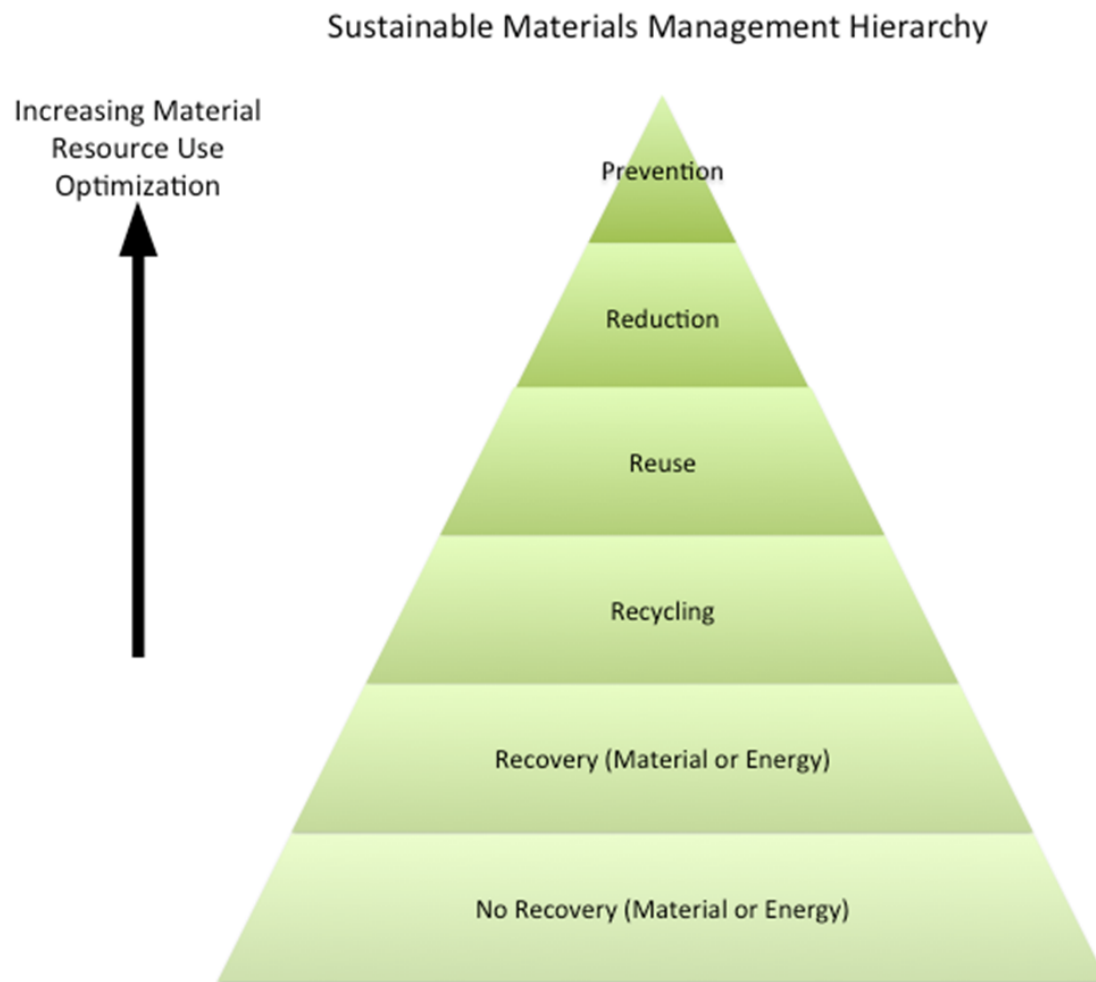
Process

- Balanced matrix of stakeholders and subject matter experts (30) review and revise the draft seed document.
- ~1.5 years of work including 45 day public consultation.
- ~40 individuals/organizations provided feedback either through CSA website or directly to the OWMA.
- ~ 200 comments
- Commenters included academic, environmental, private and public sector service provider (with a range of facility types and materials managed), business associations, oversight organizations, stewardship organizations.

General Parameters

- Establish a common reporting criteria for primary and secondary processors with audit and verification provisions.
- Focus is on Ontario but could be applicable elsewhere.
- Not about choosing one technology over another but allows a purchaser/ government to make informed decisions.
- Applicable to anyone purchasing or overseeing waste management services.
- Understanding that material specific requirements may be necessary to add.

Sustainable Materials Management Hierarchy

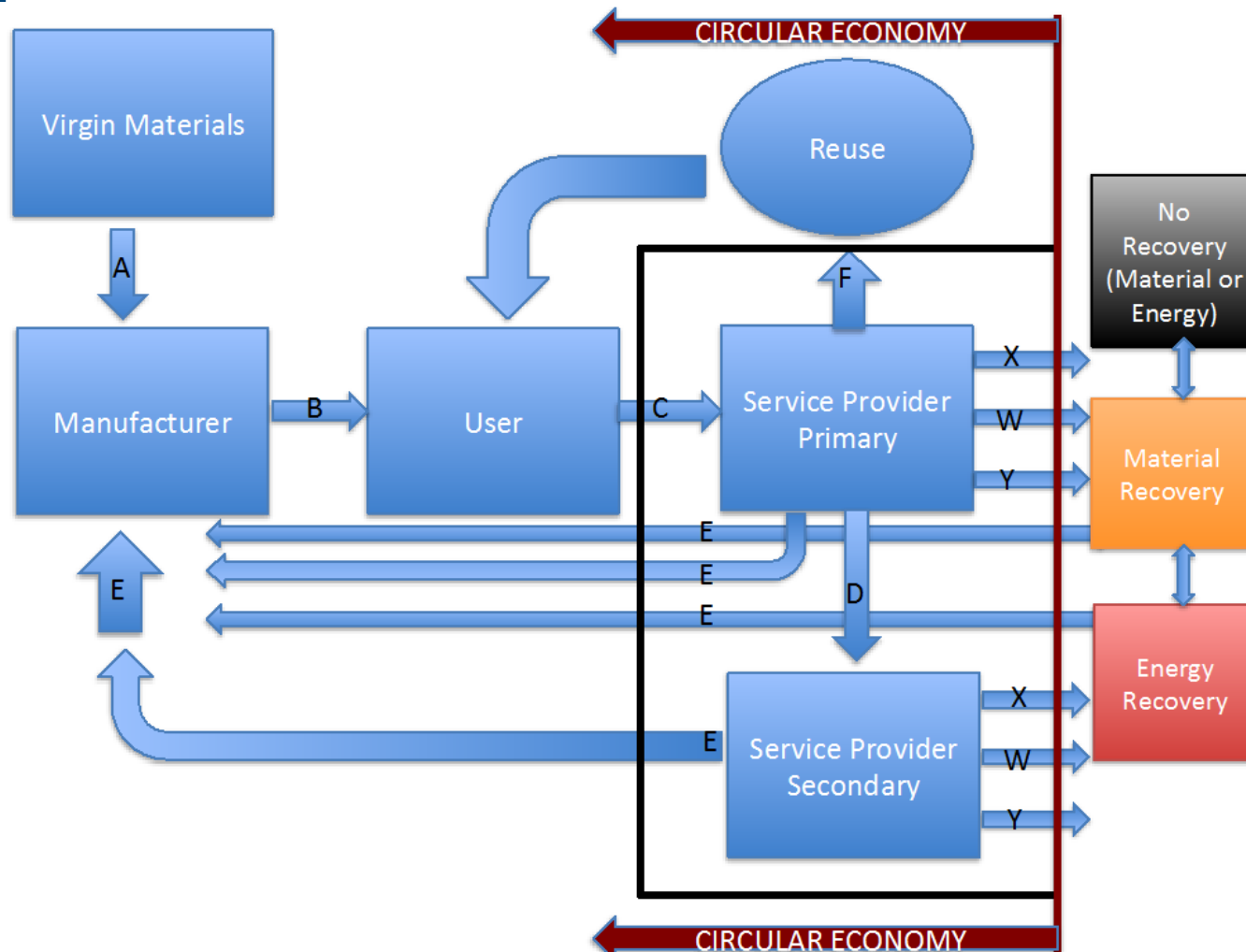


In some circumstances deviations can be justified.

Waste Diversion

- Used widely w/ many different definitions
- Was widely discussed as part of the guideline
- Conscious decision not to define diversion activities nor diversion performance rates (i.e., what constitutes diversion).
- Definitions and performance methodologies often vary between organizations and jurisdictions and by material types.
- Nevertheless, the reporting requirements in this Guideline provide the metrics to allow governments or organizations to report clearly and transparently on the specific management approach used for all materials.

Scope



Standard Definitions

- **Recycling:**

Any operation by which EOL products or materials are reprocessed into new products, materials, or substances (solids, liquids, or gases), whether for original or other purposes, to replace virgin equivalents of that material. This includes biological processes like anaerobic digestion and composting that produce a nutrient amendment.

- **Material recovery:**

Any operation by which EOL products or materials are reprocessed but lose their functionality as a replacement for virgin equivalents of that material.

Standard Definitions

- **Energy recovery:**

Any operation which converts end-of-life (EOL) products or materials into useable energy in the form of heat, electricity, or fuel but causes them to lose their functionality as a replacement for virgin equivalents of that material. This would include landfill gas capture systems but only for the proportion of inbound material that is biogenic.

- **No recovery (material or energy):**

The final destination of EOL products or materials to landfill, incineration, or deep well without recovery (material or energy).

Standard Performance Rates

- **Recycling efficiency rate (%):**
$$\frac{\text{Targeted Material Recycled} \times 100}{(\text{Targeted Material Inbound} - \text{Shrinkage} - \text{Reuse})}$$
- **Recovery rate (%):**
$$\frac{\text{Targeted Material Recovered (material or energy)} \times 100}{(\text{Targeted Material Inbound} - \text{Shrinkage} - \text{Reuse})}$$
- **In order to claim a certain percentage for a recycling efficiency rate and a recovery rate, service providers should provide evidence as to how materials were managed through to final disposition.**

Tracking and Reporting

At a minimum, a processor should:

- Calculate the mass balance for all inbound and outbound materials on a monthly basis (including what is inventoried)
- Maintain, for at least five years or otherwise specified by law, commercial contracts, bills of lading, or other commercially accepted documentation for all transfers of equipment, components, and materials into and out of its facility.
- Monitor the destinations of all outbound materials to final disposition.
- Provide customers, upon request, with annual third-party verified records.

Accounting for Final Disposition

- If outbound materials are sent directly to final disposition, claims of reuse, recycling, and recovery (material or energy) should be supported by either
 - a) netting out residuals based on the material specification threshold (which identifies the maximum allowable percentage of contamination); or
 - b) netting out residuals based on outbound material composition analysis by the service provider facility or the final disposition facility.

Accounting for Final Disposition

- If outbound materials are sent to a secondary service provider, claims of reuse, recycling, and recovery (material or energy) should be supported by either
 - a) netting out residuals based on the verified mass balance, recycling efficiency rate, and recovery rate of that secondary service provider; or
 - b) netting out residuals based on material composition analysis by the service provider facility (primary or secondary) together with information on final disposition.
- Where the qualifications cannot reasonably be made, the mass balance should be reported as “unverified further processing”,

Mass Balance


- Calculating a mass balance is a mathematical exercise. A facility's monthly mass balance is calculated as follows:
 - $\text{Total Inbound Weight} = \text{Total Outbound Weight} + \text{Inventory}^*$
 - $^*\text{Total Output Weight} = \text{Reuse} + \text{Recycling} + \text{Recovery (material and energy)} + \text{No Recovery (material or energy)} + \text{Shrinkage}$

Data Verification Audit

- Necessary to conduct data verification audits on a periodic basis.
- Systematic, independent, and documented process for the evaluation of data against agreed verification criteria.
- Verification activities help ensure the accuracy, completeness, validity, verifiability, and consistency of reported data, and thus ensure the integrity of the audit.
- ISO 19011 and ISO 17021.

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SPE-890-15

Overview Detailed Information



SPE-890-15 - A Guideline for accountable management of end-of-life materials

Publication Year:	2015	Publisher:	CSA
Total Pages:	31		

Guideline can be purchased at:

<http://shop.csa.ca/en/canada/life-cycle-assessment/spe-890-15/invt/27038462015>

Thank You & Questions

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