Recycling Steering Committee

Modernizing Oregon's recycling system with support from Oregon Consensus

Recycling Steering Committee Meeting

AGENDA

December 3, 2019, 8:30 a.m. to 2:30 p.m.
City of Portland-Bureau of Planning and Sustainability, 1900 SW 4th Ave., Portland, OR 97201, 7th Floor Conference Room

Join Zoom Meeting: https://zoom.us/j/2348602747
Dial: 669-900-6833
Meeting ID: 234 860 2747

Meeting Purpose: Familiarize the Recycling Steering Committee (RSC) with the contracted research from RRS: Recycling System Frameworks evaluated against the desired functions for Oregon's future recycling system; tee up for scenario-building and next round of in-depth evaluation.

8:30 am **Welcome, Introductions, Housekeeping, Frame for the Day**

- Brief welcome and frame for today; participant introductions.
- Brief introduction of the RRS research team and high-level research objective(s).
- Brief reminder of RSC and LRF subcommittee process to get to current step.

8:45 am **Oregon as Baseline Framework: David Allaway and Kristan Mitchell, LRF subcommittee Co-Chairs**

- The LRF subcommittee chairs will describe the Oregon framework as a baseline for evaluating against other frameworks relative to desired functions.

9:00 am **Frameworks Overview: Resa Dimino and Bryce Hesterman, RRS**

- The RRS team will review, framework by framework, the highlights of each recycling system framework evaluated: How did this framework perform compared against the Oregon baseline and with respect to the desired functions of Oregon's future recycling system? Where did the framework do better, neutral or worse in comparison to Oregon?

11:30 am **Quick Break to Grab Lunch**

11:50 am – 1:00 pm **(Working Lunch) Resume Frameworks Review and Discussion/Q&A**

1:00 pm **Putting it All Together: Choice for Scenario Building**

- The RRS team will summarize across the functions where and in what ways there are opportunities to improve Oregon's system, areas where a change was not found, and areas where Oregon performs better than any framework studied. From this composite, RSC members will weigh in on elements and/or combinations they would like to see built into a scenario for in-depth evaluation.

1:45 pm **Public Comment**

2:00 pm **Wrap Up / Next Steps**

- The group will recap the day and determine next steps and expectations with the RRS team; discuss the frame and format for December 17th scenario development meeting; and note any process questions or concerns.

2:30 pm **Adjourn**

Recycling System Steering Committee Meeting Summary

ACTION ITEMS:

ACTION	BY WHOM?	BY WHEN?
● Draft meeting summary to SC members	OC	12/16/19
● Review the Oregon profile summary and flag any concerns with regards to its description.*	ALL	TBD
● Provide feedback on elements RSC members would like to see in one or more scenarios for evaluation.	ALL	Completed: 12/4/19
● Additional questions for RRS related to the frameworks research. ● DEQ and RRS to follow up with additional data points as possible/appropriate	ALL DEQ	Completed: 12/6/19
● RRS to send scenarios memo RSC members	RRS	Completed: 12/11/19

*The Oregon profile summary is currently in the process of being revised to incorporate comments from DEQ and ORRA members. A revised version will be sent to the full RSC for review later in December or January.

Meeting Attendees:

Steering Committee Members: Dylan de Thomas, Sarah Grimm, Nicole Janssen, Scott Keller, Laura Leebrick, Kristan Mitchell, Jeff Murray, Pam Peck, David Allaway, Amy Roth, Timm Schimke, Jay Simmons, Jason Hudson, Vinod Singh, Matt Stern (on the phone), and Bruce Walker.

Frameworks Subcommittee Members: Dave Larmouth, Shannon Martin, Michael Wisth (on the phone) and Rosalynn Greene

DEQ Staff: Lydia Emer, Sanne Stienstra, Justin Gast, Peter Spendelow, Steve Siegel, Brian Stafki

Resource Recycling Systems Team: Resa Dimino and Bryce Hesterman

Facilitation Team: Robin Harkless and Amy Delahanty

MEETING SUMMARY:

Welcome and Agenda Review

Recycling Steering Committee member Bruce Walker welcomed the group to the City of Portland's Bureau of Planning and Sustainability offices and shared a few housekeeping items with the group. Facilitator Robin Harkless then invited Recycling Steering Committee (RSC) members to provide brief introductions.

Following this, Robin stated the group has hit a critical moment in the collaborative process, whereby RSC members and Framework Subcommittee members will begin to familiarize themselves with the first round of frameworks research conducted by independent contractors, Resource Recycling Systems (RRS). She reminded the group that the meeting is a technical information session and is intended to assist the RSC in taking its next step in developing scenarios to create viable options to modernize Oregon to meet, or move towards, the 2050 Vision. Robin then welcomed Resa Dimino and Bryce Hesterman (RRS) and invited them to introduce themselves. Resa then provided a brief background about RRS and the research team members on the phone.

Oregon as Baseline Framework

David Allaway (DEQ) and Kristan Mitchell (ORRA) (co-chairs of the Legal and Relational Frameworks Subcommittee) provided an overview of their work together to inform RRS on describing Oregon's recycling system. Kristan noted the Frameworks Subcommittee first underwent a gap analysis exercise to understand how well Oregon's current system meets the desired functions as described and agreed to by the RSC. ORRA and DEQ went through a focused process to describe--from their perspectives--how well the Oregon system performs relative to the desired functions. This was shared with RRS to help inform the Oregon baseline. They reminded the group that the Oregon system will serve as the 'baseline' framework for evaluating against other frameworks. David then acknowledged there were a number of aspects the Oregon framework does well, and when compared to the list of desired functions, there were some things it doesn't do as well. He pointed to the matrix (provided as a pre-read to the RSC) which identified how each framework performs, including Oregon, with respect to the desired functions of a future recycling system.

There was then a question regarding when Steering Committee members will get a chance to look at the Oregon baseline. **It was suggested and agreed** there be time to discuss the Oregon baseline at the January 17th meeting. Additionally, RSC members were invited to review the Oregon profile summary to flag any concerns with regards to its description.

ACTION ITEM: RSC members to review the Oregon profile summary and flag any concerns with regards to its description. (***Facilitator's Note***: *Further refinements between DEQ and ORRA on the Oregon baseline were developed after this meeting, and an update will be shared at the 12-17 Frameworks/RSC meeting. If needed, more time will be granted on this aspect of the research at the January 17 SC meeting*.)

Frameworks Overview

The RRS team reviewed framework by framework, the highlights of each recycling system framework they evaluated. (*Please see PPT, which was shared out following today's meeting, for additional details.)* They stated how each framework performed with respect to the desired

functions of Oregon's future recycling system. They also shared where the framework did 'much better', 'better', 'current/same', or 'worse' in comparison to Oregon in meeting desired functions. Questions were asked throughout the presentation and can be found in **Appendix A**.

ACTION ITEM: It was suggested and agreed that the RSC will provide any additional questions for RRS related to the frameworks research by COB December 6th. DEQ and RRS committed to follow up with additional data points as possible and/or appropriate to support the RSC's understanding of the research analysis and/or provide more detail.

Putting it All Together: Choice for Scenario Building

RRS briefly reviewed how the elements that contributed to higher-ranked frameworks will help inform the next research task. They noted the next step in the frameworks research will be to combine high-performing elements from each of the frameworks identified during the evaluation process, into more comprehensive framework scenarios for consideration. It is anticipated the straw person scenarios will incorporate elements that currently exist within the Oregon framework along with new elements from the 10 frameworks described today, and include specifically any of those recommended by the RSC for further study. RRS will continue to rely on the desired functions and subsequent associating criteria to support their evaluation. Steering Committee members will likely use a more simplified organizing method (*see Frameworks Document)* that more simply describes the elements as aspects of governance, finance and operations. The group will likely pivot to this refined and more simplified framework in future discussions and this may be a more user-friendly information/communication approach for broader stakeholders.

The group engaged in a brief discussion regarding the level of detail and number of scenarios RRS will propose at both the December 17th and January 31st meeting. One RSC member felt that while the level of information shared by RRS was comprehensive, it was also overwhelming. To that end, they suggested RRS propose one or two straw scenarios rather than five. They shared the amount of time and detail that would be involved in presenting five scenarios to stakeholders could be a lot for people to digest. **It was suggested and agreed** that the RSC wait until they receive the memo with the straw scenarios from RRS before making a determination on the preferred number of scenarios. It was also suggested that an alternative means of simplifying the presentation on January 31st would be to simplify the evaluation – for example, discuss higher-level advantages and disadvantages as opposed to repeating the matrix-level evaluation where each scenario is evaluated against more than forty different criteria. Robin shared the aforementioned simplified communication approach (governance, financing, and operational elements) may also be used to organize and display the information shared by RRS at the January 31st Stakeholder meeting.

Public Comment

The group paused for public comment. Dave Claugus (Pioneer Recycling) shared the following questions and comments:

- *Question:* Will the public and other stakeholders will have a chance to share written feedback on the frameworks research?

    - *DEQ Response:* DEQ shared that Dave Claugus (or any other member of the public) could provide written comment to DEQ at any time. It was also noted that input could be filtered through any of the RSC members.
- *Comment:* I am concerned that there is implicit bias to consider options that are very different from the current system. Obviously, as an existing MRF, it's of keen importance.
- *Question:* Are you intending to propose one of the five scenarios, is that going to be a scenario that will tweak the current system?
    - *RRS Response:* At least one scenario will use the Oregon system as a base and we will add elements that work with and improve on the current framework.
    - *DEQ Response:* The Steering Committee hasn't started its deliberation on preferred options yet. That said, we have heard a strong desire to see some scenarios that look similar to the Oregon system. We haven't heard any suggestions to maintain Oregon's current system with no changes, however that WILL continue to be a scenario for comparison.
- *Comment:* The current system rather artfully negotiated a single largest ever drop in demand during the first quarter of 2018. Because it was done so well, maybe we took it for granted.

Sal Peralta thanked the Steering Committee for the opportunity to weigh in on this issue. He shared that he submitted written testimony to DEQ which included direct concerns about the status of recycling. Mr. Peralta then thanked the RSC for its work.

Putting it All Together: Choice for Scenario Building -- Continued Discussion

RSC members shared elements and/or combinations they would like to see built into one or more scenarios for in-depth evaluation. ***Facilitator note:*** The group provided an initial brainstorm list during the meeting, and others submitted written feedback by the proposed December 4th deadline. The full list can be found in Appendix B.

Next Steps

Robin shared the following next steps and action items from the meeting:

- **ACTION ITEM:** RSC members will provide feedback on the elements they would like to see in one or more scenarios for evaluation by **COB December 4th.**
- **ACTION ITEM:** RSC members will share questions related to the frameworks research by Friday, **December 6th.**
- The January 31 Stakeholder Information Session invite will be sent out by Friday, **December 6th.**
- Brian Stafki (DEQ) will email the draft research plans for Infrastructure Research (Task 3 - consumer facing interventions and Task 4 – base case cost evaluation of Oregon infrastructure). RSC members are encouraged to provide feedback and comments. (*Note:*

Task 3 research plan was transmitted on December 5; Task 4 research plan has not been transmitted yet.)

- The RRS team will develop an initial set of draft scenarios and have those distributed a week in advance of the next meeting, by **COB on December 10**. (*Note: This task was completed on December 11*.)

The meeting adjourned at 2:30 p.m.

Appendix A: Frameworks Questions and Comments

Please note these questions and comments are from the December 3 as well as additional questions that were transmitted by December 6.

- **Framework 1:**
    - *Question:* To what extent has Tompkins County utilized their ability to rejected contaminated loads?
    - *Question*: Is it commercial only and/or multifamily?
- **Framework 2:**
    - *Question:* The contract requires <3% outbound contamination. Do they actually achieve that?
- **Framework 3:**
    - *Question:* Is there an enforcement mechanism under mandatory recycling? If so, at what levels?
        - *RRS response***:** They use a ban more as an educational tool. It's to help those involved to understand the seriousness of the State's intent.
    - What is the local tip fee surcharge in Vermont districts / local governments?
- **Framework 6:**
    - *Question:* In relation to generator enforcement, are there examples that local governments are working to reduce contamination?
        - *RRS response***:** we didn't cover that in the research
- **Framework 7:**
    - *Question:* What kind of system did BC, Quebec, etc., have prior to switching to EPR programs?
        - *RRS response***:** the province's collection programs prior to EPR largely mimicked the average municipal collection program we have here in the U.S.
    - *Question:* Recycle BC – how has MRF as pre-conditioning facility worked for them? How have the MRFs and "cast of characters" changed?
    - *Question:* In BC, where local governments control garbage collection but, at least in some communities, the PRO controls recycling collection, do residential single-family garbage and recycling collection still occur on the same day?
- **Framework 8:**
    - *Comment:* Would like more information on the makeup of France's PRO board and subcommittee structures.

        - *Response:* DEQ and RRS to consider looking into additional examples of how the France system works regarding eco-modulated fees. (RRS offered some statistics on how eco-modulated fees have driven design changes.)
- **Framework 10:**
    - *Question:* who controls the packaging?
        - *RRS Response:* If your packaging and product is legal in one member state, it's legal throughout the European Union, a country cannot ban a product. They can price it out of the market. None of these frameworks, regulate what's sold in. It's how they are collected and processing.

Non framework-specific questions and suggestions from members:

- Can you provide Inbound and outbound contamination rates for all frameworks?
- What is the evidence that producer responsibility systems are actually beneficial?
- Have EPR systems achieved the goals they set out to achieve when their system changed over?
    - Do they perform better? If so, can RRS provide examples?
- Where does the PRO get the money to pay a local government?
    - RRS Response: The PRO collects fees from producers (brands and retailers) to finance recycling programs. Producers typically pay a per-ton (or per kg) fee based on the material type and the costs to manage that material type.
- What is an example of calculation of where producers get the money to pay a PRO?
- Is there any way to further clarify "cost" (per capita) to try and get an apples to apples comparison?
- Show standards and accountability of contamination at each stage of the system (generator, inbound at MRF, and outbound at MRF)
- Use consistent language re: recovery vs. recycling.
- Distinguish when the recovery rate includes waste to energy practices.
- Define what materials are included in each framework, if it means just collection or indicates what has actually been delivered to end market for repurpose. Try to get apples to apples if possible.
- Revise "service subscription" language
- Need better criteria/evaluation of performance in the next round of research
- Revise language of "no cost" – brought up in Tompkins but applies to others
- Scenarios should provide clarity regarding which sectors are covered (residential single-family, residential multi-family, nonresidential.

List of Elements Proposed for Inclusion in Framework Scenarios for Further Study

City of Gresham Recommended Elements

- Currently, MRFs charge different rates at the gate. There are certain communities that pay a higher fee due to their location to our MRFs. This tends to build inequities within the open competition system. I would imagine in general open competition keeps all rates lower. If we are going to look at a framework that keeps our current MRFs, I would be interested in looking at ways to level out the playing field given some MRFs seem to have higher costs (which are not transparent and tend to be in underserved communities). Maybe a layer of EPR would help buy down those costs.

City of Portland Recommended Elements

- Eco Modulated Fees
    - I believe such a tool would 1) send a clear message to producers and 2) generate revenue for the state to assist with modernizing Oregon's recycling system. My primary concern is the glut of plastic packaging that is the root of the marine plastics disaster and that causes problems for our recycling programs.
    - I would want to see a fee structure reward packaging that scores better on sustainability measures including reduced overall GHG impacts, contains post-consumer recycled content and is a recyclable package. Higher fees would be charged to packages with greater GHG impacts, no inclusion of post-consumer recycled content, products with recycling disruptors (such as a plastic wrap on a plastic bottle that renders the bottle to be unreadable by optical / robotic sorters) and non-recyclable packages.
    - I am not advocating for such a system to turn control of Oregon recycling programs to manufacturers that would determine which products would be included in recycling collection programs. Rather I'm looking at this fee mechanism as a state run system that would be more independent, progressive and looking out for the state's overall interests.

Metro Recommended Elements

- A strong equity element that goes beyond universal service access and geographic equity and advances racial equity, worker safety, workforce development, and seeks to mitigate the burdens placed on communities that host recycling system infrastructure. Education related to the system would be delivered in a culturally competent manner that meets the needs of system users who speak languages other than English. Good neighbor and/or community benefit agreements could be required to mitigate the impacts of recycling facilities on host communities.
- 100% producer financing for collection through marketing, also funding for upstream prevention, reuse and repair activities.
- Covered products for EPR should include all packaging defined functionally. (New element)

- Covered entities for EPR should include single, multifamily, public spaces and commercial sector. (New element)
- Provide the opportunity for local governments to shift recycling collection to producers if they choose to do so. (BC opt in system)
- Leverage and utilize existing public and private infrastructure where possible.
- Element to track the transport and disposition of materials collected for recycling in Oregon's system from the generator to the final end market. This tracking and reporting would include the flows from generator to the Hauler, hauler to the MRF and the MRF to market.
- Performance standards for MRFs, including sorting outcomes, end market certifications for environmental and social sustainability, regular audits and public/local government access to information about the quality of incoming materials, and requirements related to rejecting or charge additional fees for incoming loads that don't meet contamination standards.
- Performance metrics and continuous improvement should be incorporated into any EPR framework.
- Local governments continue their important role in education and outreach, and are best positioned to understand and meet specific educational needs for their local community. An equity element could be incorporated to support provision of culturally competent education in appropriate languages that goes deeper than what may be required of a PRO or statewide education program.
- Eco-modulated fees (France) and/or other mechanisms that incorporate life cycle analysis and advance sustainable materials management and other aspects of managing products, such as litter collection, prevention programs and maybe even having producers pay for the disposal of their items as well. Fees should also incentivize recycled content. Eco modulation could be expanded to initially include the disclosure of upstream impacts for products and this might grow into them actually making changes to reduce the front end impact.
- Any EPR framework should include support for public space recycling. This element would advance equity in the system by expanding and improving access to public recycling collection containers for people experiencing homelessness and would also reduce litter and illegal dumping.
- Element that supports clear and locally relevant product/packaging recyclability labelling.
- Remove economic test for Oregon Prohibition on disposal of source separated recyclables and move to a more nuanced approach that considers markets, environmental impacts, and public trust.
- Statewide materials management system plan to support implementation of 2050 vision with implementation/task level detail clear roles and responsibilities for system players.

- Element that supports more use of post-consumer resin (PCR) in packaging this could include stronger statewide recycled content standards, incentives or penalties, eventual bans for packages that don't meet requirement, and government procurement requirements.
- Expand bottle bill to cover products not containers, specifically add wine and distilled spirits to capture wine and spirits that are packaged in glass bottles and metal cans.
- Ongoing EPR program oversight includes consultation with local governments and other system stakeholders, including equity stakeholders. Convening an advisory group could be the responsibility of the regulator/DEQ with DEQ consolidating feedback for the PRO. An advisory group may not be needed after the system is fully implemented.

ORRA Recommended Elements

- Add the type of statewide oversight demonstrated by Sustainable Materials Management Authority (SMMA) Concept from Framework 4.
- The SMMA would establish criteria for determining a statewide recycling materials list that:
    - is considered through the filter of the Oregon 2050 Vision for MM;
    - incorporates LCA and DEQ's assessment tool to "recycle right";
    - establishes market criteria to determine how to add/delete material from the list and frequency of consideration for revision, including geography, costs, regional differences;
    - other duties as appropriate based on other options chosen
- Truth in Labeling Law for Packaging
    - Amend Oregon law to delete chasing arrows requirement on packaging
    - Remove all arrows/triangles from packaging and replace with number only
    - Add Environmental Score Label to packaging
    - Based on SSMA list, label packaging with smart label that indicates where it is recycled in Oregon OR label as NOT RECYCLABLE IN OREGON if packaging is not on SSMA list
    - Labeling law/database of recycling/etc. funded by packaging users/producers and governed by SSMA;
    - Similar "smart" labels for recycling carts?
- Education – use technology and account for equity/access/diversity of Oregon
    - Once SSMA adopts a list, do statewide education effort as consistent list will allow for consistent message and outreach. A list is the most customer-facing tool, the basis for training about marketable materials. First step in decreasing widespread confusion and corresponding contamination.

    - Educate about prevention and reuse
    - Landfills are public health and safety benefit, not a negative story but part of the necessary disposal loop that keeps our rivers/ocean clean
- Enforcement and Feedback for Contamination Reduction
    - Statewide effort - revise CREP to add incentives/penalties/mandatory aspects? Add "collection surveys" like "waste comp surveys" to review collection programs statewide
    - Local – add to state law feedback requirements as a part of franchised collection programs, done by city or county or if by franchised collector, included in allowable costs for collection rates. Allow for contamination fee process, throughout the system, starting at collection and continuing to market
    - Report results of contamination reduction efforts
- EPR Concepts
    - Expansion to the statewide list, outside of SSMA process
        - Consider France's "recycling network" model – if a packaging entity wants its material to labeled as recyclable in Oregon, it must pay the costs to add the material to the recycling system. That includes covering the cost of disposal at any point in the process.
        - SSMA to govern
    - Add a packaging fee
        - Disruptive? Pay more
        - Positive environmental benefit? Pay less
    - EPR Funds do not go to collection as the collection system is fully funded. Instead, funds can go to processing, market, reuse, LCA work, grants…
    - Update existing Oregon Law on recycled content requirements as appropriate from LCA review
- Public Trust – continue prohibition of throwing away recycling, maintained with current economic test.
- Transparency in Processing and Marketing
    - MRF in-bound and out-bound contamination
    - MRFs to deliver to domestic markets or to approved export markets, which will be approved by SSMA based on meeting OECD requirements or Basel Convention requirements or equivalent.

Amy Roth, AOR, Recommended Elements

- There should be a statewide, consistent list of what is, or is not recyclable. Education should be consistent, uniform and done with coordinate effort across jurisdictions. A multi-year statewide strategic plan for education and outreach should be developed that includes sharing of resources and coordinated roll-out. All of the programs that performed "better" than OR had consistent uniform outreach.
- At the very least, efforts should be coordinated within wastesheds, such as they do in Vermont with their solid waste districts.
- System should include an advisory group, such as a Sustainable Materials Management Authority, or SWAC, that is comprised of representatives from all parts of the system, who would be charged with evaluating the system performance on regularly scheduled intervals to help inform/determine future system changes/updates, such as setting the list of materials that are collected (or not collected) for recycling. Group would be guided by charter and decisions be consensus based. France has an advisory board, CITEO, that involves local government, but one idea put forth was a SMM authority which does not currently exist.
- A clear process and standards for how materials are added/removed from the list should be developed to allow for transparency, and consistency for planning an managing the system long term.
- System participation from producers and generators is needed, beyond designing for recyclability and being told "how to recycle right". There needs to be enforcement mechanisms, through fees, fines (sticks) or credits/incentives (carrots) for active participation. Examples of sticks include types of "ecomodulation fees", and carrots are something similar to Massachusetts' Recycling Dividends Program
- If we were to move forward with a form of EPR, the incentives need to extend beyond recycling, and rather look upstream at fees/programs based on reducing GHG, or other upstream impacts that align with 2050 vision. This is something that CA, Austria and France are considering.
- There should be some sort of auditing mechanism for contamination on both inbound/outbound loads of recyclables with ability to reject incoming loads that are contaminated with non-program materials, as well as ensuring outbound loads also have a threshold of contamination, as is accomplished through contracting, such as in Onandaga County, NY.
- Establish bans for all materials that are found in recycling that are not recyclable and tie that to the audits/waste ban inspections noted above.
- Consider contractual arrangements for where mrfs/processors send materials, and level playing field for all to participate, and ensure downstream due diligence for proper

material handling, and boost local/regional economy by keeping materials local (if/when possible).

City of Eugene Recommended Elements

- Sufficiently finances system operations, capital needs, and covers the costs to continuously educate users,. FW5 EPR processing/endmarkets FW7 BC system with FW8's eco-modulation.
- Creates transparency for system costs FW#1 diverse streams: (free drop at MRF incentivizes w/ rejection of contaminated loads) FW3
- Revenue/Risk Sharing:
    - FW#2-contracting with MRFs with revenue and risk sharing
    - Shares investment in infrastructure throughout the system and life-cycle, FW8
- Level of capital investment: (investment requires guaranteed flow or ROI)
    - Supports market development end markets and recycled content, FW5, FW7 BC
    - Ensures sufficient volume of materials for economic viability FW 1, FW7 & 8
- Governance –
- Roll of State Agency
    - Public policies support sustainable materials management at product end of life FW2 FW3
    - Provides a consistent list of materials to focus on for on-route collection and depots - locally and statewide FW3 FW4
    - Uses consistent process to determine how materials are added and removed from acceptable lists FW7, FW8
- Transparency / Reporting requirements
    - Sets goals, measures success and learns from experience FW4, FW10
    - Coordinates roles and expectations among system players FW4 FW6 FW8
- Level of oversight/ enforcement authority, provision
- Uses feedback loops to constantly monitor, share and discuss opportunities (whether framework has oversight of advisory boards, stakeholder groups, or other feedback methods) FW4, FW6, FW10
    - Shares responsibility among program participants in a way that is justifiable, reduces risk, and leverages roles to provide program stability FW9, FW3
    - Provides effective enforcement mechanisms for those not performing responsibly FW8, FW10
- IF EPR

    - Drives upstream waste prevention and design changes using regulatory requirements or economic levers such as variable rates and modulated fees, where appropriate. Incentivizes use of recycled content where practical and appropriate FW8 FW9 FW4

- Operational
- Role of Local Government
    - Designs for equity – examining the burdens and benefits across the state FW1 and FW3
    - Supports low contamination rates FW7, FW8
- Extent of Contractual regulatory oversight post collection
    - Accesses economically viable domestic end markets and/or responsible international end markets FW5, FW7
- Responsible Party of Ed/outreach
    - Oregon's system is pretty right on—only lacking in consistency and integration of "the list"
- Extent of system integrations
    - Coordinates roles and expectations among system players FW4, FW7 FW8
    - Ensures all players in the system perform responsibly FW5, FW6, FW8
- Strategy and coordination for market development and improvements
    - Supports market development activities that include end market creation and strengthening market demand FW5, FW7, FW8
    - Provides incentive encouraging material flow to responsible markets with domestic end markets as the highest priority FW7 FW10

DEQ Recommended Elements

- Uniform statewide list that would be determined by the selected framework:
    - Under a statewide EPR system, one uniform statewide list for all programs.
    - Under a non-EPR system, list would separate out the commingled stream from materials outside of the commingled systems such as glass, with certain parameters in place to determine what is and is not collected/processed.
    - Accountability standards (i.e., auditing, reporting, etc.) and performance feedback related to contamination reduction:
        - For generators
        - For collectors

        - For processors (contamination here takes two forms: a) non-program materials that are not removed but instead are sent to end markets, and b) program materials that are mis-sorted and sent to the wrong end markets).
- Materials recovery facility (MRF) certification (see 4. For more details) and reporting requirements, including downstream destinations and certifications. Requirements would include reporting requirements through final disposition that ensure transparency in costs and materials flow.
- Require all service providers to comply with established downstream requirements (for transparency and accountability) that take into account health, safety and material disposition. Standards would have to be created and/or would acknowledge already-established standards such as the Basel Convention's plastics protocol.
- Mandated use of recycled content.
- To ensure true recyclability of materials collected, a provision of guaranteed end markets for materials labeled as "recyclable" and/or deemed to be on the statewide list.
- "True recyclability" (vs. technical recyclability or national average recyclability) labeling.
- EPR that is not limited to recycling but rather at end-of-life also addresses litter control and prevention, and also allows for disposal where appropriate.
- Design prohibitions on certain designs that interfere with recyclability (so long as the recycle-friendly designs are shown to also result in lower environmental impact when impacts across the full life cycle are considered).
- Mandatory or incented (through eco-modulated fees) disclosure of full life cycle impacts (by producers), and reduction of impacts across the life cycle (recycling could contribute to reduced impacts, but isn't the only means of reducing impacts).
- Prohibition on disposal of source separated recyclable materials (with clarification to current vagueness in statute). If recyclables are being collected for recycling, then they must be recycled.
- Policy direction to consider full life cycle and externalized (non-monetized) costs in economic decisions – for government and private industry.
- An EPR system where producer responsibility begins at the front gate of the MRF: collectors of designated materials are guaranteed a place to drop off those materials, with compensation for transportation and possibly additional compensation (floor price).
- Mechanism and responsibility for investment in and optimization of infrastructure and market development.
- Dedicated funding for waste prevention and reuse (see Austria).
- Requirements to incorporate specified social, equity, environmental justice and workforce development criteria into program funding decisions.

- Use of an existing statewide government authority (e.g., Environmental Quality Commission) or newly-created stakeholder advisory committee that would be a venue for discussion of system needs and issues and would be tasked with advising the state authority on certain program-related decision, such as determining how material is added or removed from municipal acceptance lists. Advisory body must not be dominated by a specific interest, and must include representatives of environmental justice communities and other underrepresented communities.
- System that provides opportunities and funding for robust public education.
- Convenience and access standards for collection of recyclable material.
- Enforcement, compliance, auditing authority and budget

Framework Profile: Local Government Programs Utilizing Comprehensive Policy and Contractual Tools – Tompkins County, NY

Summary

Tompkins County, New York manages the solid waste within its borders through public/private partnerships wherein the county provides oversight and regulation and while the private sector manages all operational aspects. Tompkins County Code Chapter 140 from 1992 requires:

- Mandatory recycling
- A trash tag system for generators to pay for solid waste management
- Collection service provider licensing and reporting
- Solid waste disposal in authorized facilities to deter illegal dumping.

There is no landfill or waste to energy facility the county. The county owns a materials recovery facility (MRF) and a transfer station that accepts municipal solid waste (MSW), recycling, and food scraps generated within the county only. The county contracts the operation of the MRF and its Recycling and Solid Waste Center (RSWC) to Casella Waste Systems, contracts with Cayuga Compost for compost processing, and works with other stakeholders on collection of recyclables (including Casella) and transportation and disposal of landfill material.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated
C. Provides sustainable and equitable financing for stable operations and capital investments	E. Includes mechanisms to reduce upstream impacts of materials
F. Designs for equity	I. Educates and encourages residents and businesses to use the system properly
L. Collects clean, acceptable materials for processing	O. Ensures materials are managed responsibly from collection through end markets
M. Ensures processing facilities have clean materials and in sufficient volumes	

The program has a reliable funding source and provides equitable access to everyone in the county, including multi-family and businesses. Mandatory recycling and weight-based solid waste fees incentivize recycling behavior and ensure sufficient volume of material. The county has a consistent list of recyclable materials. The public-private partnership for MRF operations integrates processing with the collection system, reduces risk and provides stability. There is currently no control or guidance on end markets, but theoretically the county could leverage contractual approval authority within the framework. It shares responsibilities for all system players except producers. There is no concerted effort to focus upstream beyond 4R (reduce, reuse, recycle and rebuy) outreach campaigns.

History & Development

Solid waste in New York State is regulated by the Department of Environmental Conservation (DEC). The New York State Solid Waste Management Act (1988) requires municipalities to enact mandatory recycling ordinances, and to create Local Solid Waste Management Plans (LSWMP). The act encourages municipalities to work jointly, through "planning units," to create and implement LSWMPs. In response to the state law, Tompkins County established the Solid Waste Management Division, sited and permitted a local recycling and transfer facility, and set out to meet the statewide goal of 50% reduction by 1997 through a user-friendly, cost-effective diversion system. The county uses a public-private partnership approach, with the key policy elements being mandatory recycling, collection service provider licensing, and pay as you throw (PAYT) consumer paid fees. The county has the authority to enact control over the flow of materials but has not exercised this authority to date. Tompkins County Code specifies, "The County Legislature is hereby authorized to designate, by resolution, from time to time, one or more specified facilities, to which certain acceptable solid waste or regulated recyclable materials, generated or originated, or brought within the county, must be delivered."

Framework Profile: Local Government Programs Utilizing Comprehensive Policy and Contractual Tools – Tompkins County, NY

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **New York State Department of Environmental Conservation (DEC)**: The state permits facilities, issues regulations, approves LSWMPs, and collects reports from local governments, collection service providers and regulated facilities.
- **Local Governments**: Tompkins County is primarily responsibility for management and execution of the program. It must prepare a LSWMP, have a source separation ordinance, develop programs and report results. It owns the MRF and other key infrastructure, and contracts operations.
- **Private Collection Service Providers & Processors:** Collection service providers must be licensed by the county and processors must either be permitted or registered with the DEC. Collectors must sell PAYT tags to customers and then only collect waste that is tagged. Recycling collectors operate pursuant to a contract with the county, and the MRF is operated by a private business (Casella) under contract to the County.
- **Producers:** With the exception of the statewide beverage container deposit program, producers have no role in the Tompkins County framework.

How is the system financed? The system is financed through PAYT rates set by the county and paid by residents and disposal fees collected at the RSWC. In addition, an annual solid waste fee is charged on the county property tax bill (for 2019, $58 per household). To supplement these core funding streams, the county keeps any revenue from the sale of recyclables, permits and licensing fees, and applies for grants when available.

How are the services delivered? Two communities in the county provide residential waste collection directly, while the remainder of the county solid waste collection is served through subscription service with private service providers in open competition. Residential curbside recycling is collected bi-weekly through a county-contracted collection service provider, and materials can be dropped off at the RSWC free of charge. The county does not provide curbside organics collection, but some communities within the county do. Food and yard waste can be brought to county facilities free of charge up to a daily limit.

Provide total cost and per capita cost: The cost for Tompkins County waste reduction and recycling collection and processing efforts in 2018 (net of recyclables revenue) was $2,777,067 or $26.48 per capita. The total system costs, including waste disposal, HHW and other programs was $6,169,158, or $58 per capita. County Population is 104,802.

Framework Profile: Local Government Programs Utilizing Comprehensive Policy and Contractual Tools – Tompkins County, NY

Scope of Materials & Generators

Tompkins County facilities accept materials generated in the county, including single-family and multi-family residential, commercial, and institutional generators. Residential and public space recycling is provided by the county, while commercial recycling is through private, licensed collection service providers. The recycling program accepts cardboard, mixed paper, metal cans and foil, glass containers, aseptic and gable top containers, and PET, HDPE and PP plastic containers. The list is the same for all communities across the county.

Access & Equity

The county provides curbside recycling to all residents, including mobile homes and multi-family, and to small businesses on the residential route. The county has a Rural Waste Reduction and Recycling Program to help recycling coordinators in rural towns improve participation in curbside programs, especially mobile home parks and multi-family.

Sustainable Materials Management & Life-Cycle Impacts

The framework does a good job focusing on end of life management of materials with an emphasis on recycling. However, the county program does not directly impact the life-cycle of products or packaging in a significant way. The county recycling rate is 60%. There are no mechanisms related to downstream material flow to end markets, so MRFs may export recovered materials to end markets overseas without any restrictions or guidance. The county has procurement policies to purchase recycled content paper.

Transparency & Accountability

The costs of recycling and solid waste management are transparent through a separate item on the county tax bill, and the cost of PAYT. The county publishes a Recycling and Materials Management Report every year reporting all budget items. Collection service providers are also required to provide a breakdown of costs to their customers.

The collection service provider licensing requirements include annual reporting of types and amounts of materials collected and their disposition. The county also owns the RSWC facility and scales and receives regular performance reports. Recycling facilities must report to the state on the quantity and type of material by stream, including paper, glass, metal, plastics, textiles and organics.

Stakeholder Perspectives

Tompkins County is widely acknowledged, by regulators and advocates alike, as a leading program in New York and nationally. Initially, residents were concerned about the solid waste fee, but have accepted that they get a very good program for a low annual fee. The program committee has regular stakeholder meetings with key institutional generators, and collection service providers to address any issues that arise. Collection service providers may reject bins at the curb due to contamination and leave information on acceptable items. The contamination rate is approximately 10% at the County Facility.

Framework Profile: Local Government Programs Utilizing Comprehensive Policy and Contractual Tools – Tompkins County, NY

Education & Outreach

The county is responsible for all education and outreach. The county offers a service to businesses and communities called ReBusiness Partners. Participants receive a waste assessment and program guidance. They receive free bins and signage and reduced fees for food scraps service, as well as recognition on the county website. County staff attend public events each year to promote their services and offer the use of free bins for large events through their "Borrow-A-Bin" program. The county also conducts facility tours, publishes a newsletter, and works to harmonize educational and outreach materials. The programs are funded through the annual solid waste fee, disposal fees, grants, and licensing.

Processing Infrastructure & End Markets

The MRF is owned by the county, with operations currently being contracted out to Casella Waste Systems. Casella also operates the county's RSWC facility and is responsible for marketing recyclables from the facility. The County's contract with Casella requires utilization of a grading sheet for commercial recycling deliveries. Loads are rejected that contain more than 15%- 20% contamination and the rejected material is charged the MSW disposal fee. The 2021 contracts will have a lower acceptable contamination rate. The county does not conduct marketing of materials or have a role in end market development, but does have approval authority on material marketing decisions

Framework Profile: State Contracting / Certifying MRFs – Onondaga County Resource Recovery Agency (NY)

Summary

New York's Onondaga County Resource Recovery Agency (OCRRA) oversees waste and recycling for 33 participating municipalities within the county. Besides owning a waste-to-energy (WTE) facility operated by a contractor (Covanta), the agency takes an active role in many additional facets of the county's recovery system. All MSW (not including recyclable) generated in the 33 participating municipalities must remain within the OCRRA system (flow control). OCRRA contracts and pays recycling processing costs at material recovery facilities (MRFs), allowing residents and collection service providers to deliver material to contracted MRFs at no cost. OCRRA does not perform collection services; these are provided by municipalities directly, through municipal contract with service providers, , or by individual resident subscription for service. Recyclable materials are defined under local law and the agency's contracts. This framework currently operates on the local level but could be applied on a state-wide basis.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	A: Optimizes the benefits of recycling considering life cycle impacts and costs
K: Identifies beneficial materials acceptable for collection programs	C: Provides sustainable and equitable financing for stable operations and capital investments
N: Produces quality materials that reach end markets	E: Includes mechanisms to reduce upstream impacts of materials
P. Ensures all players in the system perform responsibly	

The OCRRA system has achieved a high level of standardization and consistency across its service area yet allows for market competition in hauling and processing, as processors may compete for the OCRRA contract, and haulers may compete for local contracts or individual subscriptions. The funding mechanism – WTE tip fee - ensures that incentives exist for MRFs to operate and for communities to supply MRFs with recyclables, but this means that revenue will decrease as the program is more successful. The robust public education program is a hallmark of the system. Gaps in the OCRRA system include a lack of producer involvement, upstream impacts of materials are not formally taken into account, and no explicit feedback loop to producers. The system also does not incorporate ongoing investment into processing and collection technology.

History & Development

OCRRA was established in 1981 under New York State law as a public benefit corporation. Its role in the '80s was primarily as a planning agency; following the adoption of the county's comprehensive solid waste management plan in 1991, OCRRA issued bonds for construction of the WTE facility. The WTE facility started operations in 1995, and its permit for the facility requires the county to meet diversion goals. OCRRA has taken an active role in recycling since that point. The agency is responsible for implementing the county's comprehensive solid waste management plan, last updated in 2016. Historically, there were two privately-owned and operated MRFs in the county; but, since 2014, Waste Management-Recycle America has been the only one in operation.

Framework Profile: State Contracting / Certifying MRFs – Onondaga County Resource Recovery Agency (NY)

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **OCRRA** is responsible for implementing the solid waste management plan, owns the WTE facility, and contracts for county recycling services.
- **Municipalities** can collect recyclables directly (six do so) or contract with private collection service providers (20 do so)
- **Waste Management Inc.** operates the MRF, where collected recyclables are delivered, under the OCRRA contract. The contract requires the MRF to accept recyclables at no charge to the collection service provider delivering the material from any community in the county. OCRRA provides financial support to the MRF when material revenues are not high enough to support its operations.
- **Residents** who are not provided collection by their municipality (either directly or via contracted services) contract with collection service providers for recycling services.
- **Collection Service Providers** provide recycling services either through contracts with municipalities or with individual generators.

How is the system financed? More than 80% of system revenues are fees paid to deliver solid waste to the WTE facility. The remaining revenues into the system come from sale of electrical power generated by the WTE facility, recovered material revenue, compost revenue, and miscellaneous other sources (2.2%). The solid waste WTE fee is set by OCRRA to ensure that all its programs can be sufficiently funded by these revenues.

How are the services delivered? Collection services are delivered, depending on the municipality, either by city staff, municipal contractors, or private contractors. Waste processing is currently provided under contract by Covanta. Recyclables processing is currently provided under contract by Waste Management. Resident education, compost, transfer, and drop-off sites are provided by OCRRA staff.

Provide total costs and per capita cost: The system's operating budget is approximately $33 million annually or $70 per capita. System costs include waste disposal and recycling processing, recycling collection bins, special events/collection programs, public education, composting operations, solid waste and recycling drop-off site operations, and WTE Facility oversight. OCRRA costs do not include collection services, as they are provided by municipalities, or by direct individual subscription. County Population is 465,398 (2017).

Scope of Materials & Generators

Under Onondaga County ordinance, all generators (households, businesses, apartments, industries, and institutions) are required to separate recyclables from solid waste. The flow control regulations require all the MSW (not including recyclables and C&D) in all but two municipalities, to be delivered to the WTE facility.. OCRRA's solid waste management framework manages municipal solid waste (MSW), yard waste, household hazardous waste, construction and demolition waste, and light industrial waste. Waste streams such as heavy industrial waste, regulated medical waste, and agricultural waste are outside of the framework boundaries. OCRRA enters into contracts with the collection service providers that require that they deliver waste to the WTE facility, pursuant to the flow control requirement, and set recycling requirements and standards they must meet. There are stipulated penalties for non-compliance with any provision of the contract.

Framework Profile: State Contracting / Certifying MRFs – Onondaga County Resource Recovery Agency (NY)

The County source separation ordinance includes a list of mandatory recyclables that is regularly evaluated and updated, most recently in 2012. The list of recyclables is consistent across the county regardless of who performs collection services or (in years where more than one facility is operational) which MRF sorts the recyclable material. A number of factors determine when materials are added to the list, chief among them being long-term market stability. The list of mandatory recyclables currently includes:

- Office paper and discarded mail
- Newspapers and magazines
- Corrugated cardboard, brown paper bags, paperboard, pizza boxes
- Milk and juice cartons, gable-top cartons, aseptic cartons
- Glass food and beverage containers
- Metal food and beverage containers
- Aluminum foil
- Aerosol cans
- #1 and #2 plastic bottles, jars, jugs and tubs
- #5 plastic bottles, jars and tubs
- Soft cover books

While this framework applies to a local area covering just 33 municipalities, it could be implemented on a statewide scale by designating a statewide recyclables list, setting up a MRF certification process, and contracting with certified MRFs to accept in-state uncontaminated loads of recyclables at no cost. The current framework does not include MRF certification, though the contract terms allow OCRRA to regularly audit the facility and observe operations on a monthly basis. Flow control for solid waste is an important aspect of this framework, as it requires all waste generated in Onondaga County to be disposed of at the WTE facility, and thereby serves as the mechanism for generating OCRRA funds (through the solid waste disposal fee) that ultimately pay for MRF materials to be processed. At the state level, this could be accomplished through an increase in the solid waste disposal fee, or by creating another funding mechanism.

Access & Equity

OCRRA does not provide collection services, which are either provided by municipalities directly, or under contract, or handled by the private sector. The legal requirements to separate recyclable materials apply equally to all generators regardless of geography, sector, etc. In practice, the way different generators interact with the OCRRA system varies based on how they receive collection services. For example, the more rural areas of the county are less likely to have organized municipal collection and therefore either use drop off sites or subscribe for private collection service.

Recognizing that some sectors have unique challenges in recycling, OCRRA provides specialized outreach assistance to businesses, apartments, and public space/community events. For example, OCRRA recycling specialists meet with property managers and landlords at multi-family residences and distribute special recycling bins, brochures, magnets, and decals to residents.

Sustainable Materials Management & Life-Cycle Impacts

The framework does not specifically address life cycle impacts. The system is designed to follow New York's solid waste management hierarchy (reduction, reuse, recycling, resource recovery through WTE facilities and

landfilling of discarded materials) and does not have an explicit consideration of carbon or other environmental impacts from WTE versus alternatives. The use of flow control does ensure that transportation-related emissions are kept at a minimum compared to sending material out of county.

While producers are not part of the framework, the agency does explicitly advocate for extended producer responsibility and stewardship policies at a statewide level.

Transparency & Accountability

Authorities such as OCRRA in New York State operate under a Public Authorities Accountability Act to promote financial oversight, documentation, and transparency. The agency is required to provide financial and tonnage reports annually. The flow control laws and enforcement ensure that MSW volumes are tracked with a reasonably high degree of certainty.

The method of collection of waste and recyclables is determined by local governments, and thus occurs outside of the framework. As such, there is no mechanism to report or document those costs, which is a gap in terms of defining total system costs. In addition, not all recycling volumes are reported, as some commercial recycling occurs outside of the framework.

The framework does ensure transparency and accountability in MRF processing, through the terms of the contract which require reporting and allow OCRRA to collaborate on market development and have visibility into end markets. It also provides for accountability of collection service providers, but contractually obligating them to provide recycling services.

Stakeholder Perspectives

The OCRRA recycling program is widely acknowledged as one of the best and most comprehensive in the state. The WTE facility has been controversial since its inception; WTE emissions and the costs of operating the facility are the subject of the most public comments on the county's comprehensive solid waste plan. OCRRA's long-term financial stability remains a great concern due to its funding structure. Since its programs are funded by disposal fees on solid waste, its success in waste diversion leads to lower revenue for the agency.

Education & Outreach

OCRRA has an extensive and well-regarded waste reduction and recycling public education program. The agency invests roughly $500,000 annually in public education (approximately $2.70 per household per year). OCRRA's education and outreach efforts include traditional media, paid advertising, social media, newsletters, email newsletters, a website (OCRRA.org), and printed materials. OCRRA uses professional surveys to track the effectiveness of the outreach efforts and create targeted messaging in future campaigns.

Processing Infrastructure & End Markets

The framework supports processing infrastructure by guaranteeing revenue to the MRF(s) under contract when material sales are below a certain threshold and drives volumes from private collection service providers by requiring no charge to recycle materials at the MRF. The agency has considered the option of MRF ownership periodically but has never found it favorable to the current contract structure. Were this framework to be implemented at a state level, consideration would need to be given to adequate investment in MRF and end-market infrastructure.

Framework Profile: State Contracting / Certifying MRFs – Onondaga County Resource Recovery Agency (NY)

While the framework does not include a certification mechanism, per se, there are elements of the contractual structure that provide similar benefits. For example, the framework supports strong processing system performance by establishing a contamination rate of 3 percent in the contract. The contract also gives OCRRA the authority to audit the facility, and to observe operations on a monthly basis, and requires the MRF operator to report on end markets materials are sold to.

The framework does not have a formal mechanism to promote recycling end market development, although OCRRA collaborates with the MRF operator on local market development. Its main interaction with end markets relates to the designation of materials as mandatory recyclables. The long-term stability of the market for sale of the material is the primary factor in making this determination.

Profile Framework: Comprehensive Statewide System – Vermont

Summary

Vermont's recycling framework is governed by legislation (Act 148) that creates a strong policy structure to support recycling, including requirements for statewide pay as you throw (PAYT) incentive programs, universal recycling access (wherever waste collection is provided), public space recycling, and disposal bans on recyclables. Programs are implemented primarily by regional solid waste districts. The state's system is funded by statewide and local tip-fee surcharges, as well as PAYT. Beverage distributors are responsible for financing and operating the recycling programs for beer, carbonated soft drinks, and liquor under the state's bottle bill. The state achieves an impressive 72% recovery rate for recyclable paper and containers, including both deposit and curbside collected containers.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
C. Provides sustainable and equitable financing for stable operations and capital investments	E. Includes mechanisms to reduce upstream impacts of materials
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	N. Produces quality materials that reach end markets
F. Designs for equity – examining the burdens and benefits across the state	O. Ensures materials are managed responsibly from collection through end markets
K. Identifies beneficial materials acceptable for collection programs	
M. Ensures processing facilities receive clean materials and in sufficient volumes	

Recycling policies in the state are strong. Mandatory source separation, universal recycling access, landfill bans, mandatory regional planning, and mandatory PAYT policies drive recycling in the state. The statute establishes a consistent list of materials to be collected and includes a process for adapting and updating the list. Together, these policies ensure high recovery and supply of targeted materials. The framework does a good job engaging and motivating all players but producers. The framework has little effect on processing and end markets. The framework does not focus on upstream impacts beyond promoting reduction activities and reuse planning.

Profile Framework: Comprehensive Statewide System – Vermont

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **Agency of Natural Resources** is responsible for statewide solid waste management planning, and oversight and permitting, where appropriate, of local governments, waste management districts and private collectors and processors.
- **Local governments**, either on their own or through solid waste districts, must develop and implement SWIPs to conform with state law.
- **Private collection service providers and processors** provide most of the collection and recycling service in the state. They are responsible for providing service according to their contract with local governments, solid waste districts, or individual residents (through subscription service). Collection service providers must provide recycling collection, at no additional charge ("bundled"), to any customer for whom they provide waste collection. A 2018 amendment to the law enacted by the Vermont Legislature allows transfers stations to charge separately for recycling.
- **Producers** finance the beverage container deposit program, which covers beer, carbonated soft drinks and liquor. Producers do not otherwise have responsibilities in the Vermont framework.

How is the system financed? PAYT and property tax charges paid by residents and landfill disposal surcharges are primary financing sources. There is a $6 per-ton statewide surcharge on all municipal solid waste, disposed, incinerated, or exported, 17% of which is directed to the municipality or district of origin, and many districts apply additional landfill disposal surcharges and per capita assessments to fund operations. Districts can also receive grants from the state generated by the surcharge fee.

For example, Chittenden Solid Waste District (CSWD) charges residents and businesses an annual solid waste management fee on their tax bill ($21 per-capita average), and also collects disposal fees at the CSWD-owned/contractually-operated MRF. Chittenden historically used material revenues to fund operations as well.

How are the services delivered? The Districts can choose how to deliver services and they are typically a mix of public and private service providers. While some municipalities provide recycling and/ or waste collection, either directly or through contracts with private companies, much of the state relies on subscription services in an open competitive market for recycling and waste.

Provide total costs and per capita cost: Statewide cost data is not available. A 2013 report estimated that recycling, solid waste and related services cost $28.33 per household per month. It can't be directly compared with cost figures from other frameworks. Vermont Population is 626,299 (2018).

Scope of Materials & Generators

The Universal Recycling Law and the Materials Management Plan covers single-family and multi-family residential, commercial and institutional generators of recyclables, organics, construction and demolition debris, household hazardous waste, and biosolids. The law provides a list of materials that are required to be source separated and materials that are banned from landfill such as electronics and mandatory

recyclables. Mandatory recyclables include paper and cardboard, as well as bottles, cans, and jars made of aluminum, steel, glass, and PET and HDPE plastic. Food scraps will be added to the list as of July 2020 and districts can add additional materials beyond the mandatory list. Directing the flow of materials to certain end markets is not common, but it is an option for planning districts.

Access & Equity

Act 148's requirement that recycling be provided everywhere solid waste collection is provided, at no additional charge, applies to all entities in all geographies. Multi-family residential must be treated the same as single-family, where recycling must be provided at no additional charge. One extremely rural district received an exemption from the parallel access recycling requirement in its first year. Districts are able to apply for exemptions annually.

Sustainable Materials Management & Life-Cycle Impacts

The framework focuses on end of life management of materials with an emphasis on recycling. However, the framework is not designed to explicitly address life-cycle impacts, though the state strives for continual improvement. Vermont has a very high recycling rate for recyclable paper and containers (70%), but materials recovery facilities (MRFs) are free to export recovered materials to overseas end markets without any restrictions or guidance. The state conducts a waste audit every five years to help in planning for new target materials and evaluating trends in the waste stream. Any potential target materials are evaluated primarily based on volume, toxicity, and if there is an effective means of collection, plus if there are end markets, and/or if they are being targeted by programs in other states. A committee is evaluating packaging policy, including ways to reduce upstream impacts.

Transparency & Accountability

Act 78 requires the state to submit a biennial report on the management of solid waste. All facilities are required to report incoming and outgoing tons and types of materials; they must use weight scale receipts for reporting. The state funds a financial audit (using the $6/ton franchise fee revenue) to verify the accuracy of collected fees and to examine receipts for waste material including that sent out of state. Transparency is provided through the publicly-managed and reported streams and publicly available franchise fee reports. Certain types of business recycling is not well reported (e.g., cardboard baled on-site and directly marketed). Some districts conduct surveys to account for this.

By state law, ANR must evaluate and adopt a new materials management plan every five years. The latest state goal was to reduce disposal by 25% by 2019 and to increase diversion of municipal solid waste by 50%. ANR's waste composition study, conducted every five years, helps monitor progress toward diversion goals, which are set within each district.

Stakeholder Perspectives

Act 148 was proposed after an effort to enact extended producer responsibility (EPR) for packaging and printed paper failed. It was supported by brands and trade groups, as well as some local governments and recycling advocates. Some local governments consider Act 148 to be an "unfunded mandate" as it

increased their responsibilities without allocating additional resources. Increased costs must be passed on to ratepayers through PAYT and local disposal fee surcharges. The framework does allow facilities or districts to retain 5% of the $6 statewide disposal fee surcharge for administration costs, but that fee has not increased since 1987. Small collection service providers, considered the most impacted by the requirement to offer parallel recycling service, have significant concerns about the upcoming food scraps requirement. There is a Universal Recycling Stakeholder Group that is currently looking at the impact of the requirements on small collection service providers.

Education & Outreach

Both the state and districts are responsible for education and outreach. Districts are required to provide education and promotion to residents either directly or by the private collector. This local education and outreach may be funded through revenue generated by several system related fees or through general funds. ANR's role includes conducting statewide outreach and providing guidance to state buildings, solid waste facilities and collection service providers. ANR also assists districts in their outreach to businesses and schools. There is no dedicated funding source for outreach, though many districts use tip-fee surcharge funds for that purpose.

Processing Infrastructure & End Markets

The framework does not regulate the processing and marketing of materials, so any activity is governed by the open market. The framework provides technical assistance and grants to develop processing infrastructure and end markets, but it is a low priority. The state serves as an intermediary to connect private processors and manufacturers with districts to help develop new end markets. Districts can receive grants for developing infrastructure.

Framework Profile: Sustainable Materials Management Authority Conceptual Model

Summary

The Sustainable Materials Management Authority (SMMA) is a conceptual model that does not exist in practice today. However, it would draw on existing cooperative models of governance for solid waste management and recycling.

As envisioned, authority would be designed to advance the 2050 Vision for Materials Management in Oregon through a consolidated, focused, decision-making structure composed of a multi-stakeholder board that represents each facet of Oregon's recycling system.

The SMMA and its activities could be financed by a variety of means. The authority structure would provide flexibility in financing and executing research projects and investments.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
D. Integrates system components to achieve overall system goals	G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry
H. Uses goals and metrics to measure progress and support ongoing improvement	
J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles	M. Ensures processing facilities receive clean materials and in sufficient volumes
K. Identifies beneficial materials acceptable for collection programs	N. Produces quality materials that reach end markets

The framework would do well at system integration, coordination and improvement. It would enable prioritization of products and packaging to be emphasized within the context of sustainable materials management (SMM). The service delivery and financing system would not be fundamentally affected.

History & Development

Two examples serve as a starting point for the conceptualization and responsibilities of the SMMA. First is the Solid Waste Management Coordinating Board (SWMCB), a joint powers board created in 1990 in the in the Twin Cities (Minnesota) Metropolitan Area composed of six counties. The Board is composed of county commissioners from the participating counties and was created to promote collaboration between the member counties on solid and hazardous waste management. The SWMCB sets priorities through a solid waste policy plan, coordinates a legislative agenda and government relations effort, and develops regional programs such as regional waste hauler licensing and reciprocal use of HHW facilities.

The second example is the Resource Productivity and Recovery Authority (RPRA), created by the Government of Ontario, Canada in November 2016 to support the transition to a circular economy. RPRA's responsibilities are specified in the Resource Recovery and Circular Economy Act of 2016 and the Waste Diversion Transition Act of 2016. To date, RPRA's primary role has been the oversight of changes to the province's EPR programs and serving as an administrative entity for the transitioned EPR programs such as operating the registry that is required for program participants.

Framework Profile: Sustainable Materials Management Authority Conceptual Model

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:
The SMMA would serve as the governance entity to advance SMM in the state. It would not own or operate recycling facilities. The responsibilities of the authority are recommended to include, but not be limited to:

- System evaluation and planning
- Life cycle analysis and data evaluation to support authority activities
- Determinations regarding SMM priorities (e.g., waste streams, products and packaging, system participants)
- Regulatory decisions for permission/restriction of products/packaging that inhibit functioning of system
- Regulatory authority to promote system consistency and cohesion (e.g., decisions about what materials are collected for recovery)
- Oversight and financing of demonstration projects that further SMM objectives

- **Oregon DEQ** would continue to serve in its role as state regulatory authority with compliance and enforcement responsibilities and maintain the policy development responsibilities.
- **Local governments** would maintain their role in ensuring opportunities for recycling for Oregon residents and would continue to provide recycling services, either directly or through contracts with service providers. However, decisions regarding what materials to collect would be made by the SMMA.
- **Private collection service providers and processors** would continue to provide services as they do under the current Oregon framework, although the scope of products/packaging to be collected and processed may shift according to authority-directed activities. Processors may also have to contend with reduced material flows if source reduction and reuse activities achieve the intended result.
- **Producers** would be impacted by new requirements that align with SMM objectives that may include restrictions on single-use product/packaging, source reduction, recycled content and recyclability standards, reuse and repairability expectation, expanded use of deposits, etc.

How is the system financed? It is anticipated that the local government and ratepayer financing responsibility for recycling activities will remain intact. The SMMA and its activities could be financed by a variety of means. If a specific mechanism is required, the state could consider an increase in the statewide landfill disposal fee, a Circular Economy Administration Fee (being considered in California), or other sources.

How are the services delivered? As proposed, the SMMA is not intended to act as a service provider but to serve as a governance entity to advance SMM in Oregon. The SMMA would serve as a decision-making entity that engages in research, long term planning, market development and demonstration projects to achieve the objectives of sustainable materials management. The SMMA would have a role in defining what services are delivered (e.g., a list of recyclables) but would not impact how services are delivered.
capita cost: There is no cost data, as the authority is a conceptual model. (Can anything be estimated? Approx. FTE? – SS)

Framework Profile: Sustainable Materials Management Authority Conceptual Model

Scope of Materials & Generators

For the authority to most effectively implement its mission, all generators and material streams (e.g. residential; commercial industrial, and institutional; and construction and demolition) should be included within the authority's purview. This will allow for greater targeting of priority materials and generators. Prioritizing the selection and subsequent policy and program focus on particular products, packages and materials is a central activity within framework of SMM, and therefore a core function of the authority.

Access and Equity

The authority's mission could include a specific charge to ensure adequate access to recycling and reuse/repair opportunities for Oregon residents. This activity could be supported by the authority's role in prioritizing products/packaging to be emphasized within the context of SMM. If particular products/packaging are identified as presenting a greater opportunity for a reduction in life cycle impacts, the authority could be instrumental in ensuring that activities (e.g. collection for recycling, reuse opportunities, reduction strategies) are available statewide.

Sustainable Materials Management & Life-Cycle Impacts

The SMMA's central mission would be to implement elements of the 2050 Vision and methodology of sustainable materials management. For this vision to be fully realized, the authority would need decision-making authority for a broad range of factors necessary to advance SMM. These include determinations on market access for products/packaging that may pose challenges for materials management including reuse, repair and recycling.

Transparency & Accountability

The authority, a public decision-making entity, could play an important role in promoting transparency and accountability in the materials management system. The authority would engage in decision-making intended to implement a more coordinated system with greater environmental outcomes. The Authority's role as a public entity with a multi-stakeholder board and statewide responsibilities would allow greater access to decision-making and information on how those decisions will impact existing system dynamics. The authority would also oversee expanded reporting requirements for system participants, particularly as they relate to new and expanded activities, as well as those that are essential for supporting the authority's decision-making responsibilities.

Stakeholder Perspectives

The authority would be governed by a board of directors that is broadly representative of interests engaged in materials management and solid waste activities in the state. The governor or the Oregon DEQ would be charged with making appointments to the authority per the direction stipulated in the authorizing statute.

As the authority is conceptual without defined antecedents in the U.S., it is expected that several stakeholders will be concerned about the creation of a new entity with regulatory authority that will potentially disrupt the current materials management landscape in the state. On the other hand, it is generally acknowledged that the decentralized decision-making that predominates the governance of materials management decisions in the U.S. inhibits the transition to a system that promotes more effective and comprehensive recycling and product and packaging management decisions.

Framework Profile: Sustainable Materials Management Authority Conceptual Model

Education & Outreach

The authority would be positioned to serve as an important vehicle for the promotion and adoption of select elements of SMM. While the authority is not expected to engage in education and outreach activities directed at waste generators, it could serve as convener and advocate for the principles of SMM and would greatly enhance the understanding of the policy and practice of SMM among key stakeholders.

Processing Infrastructure & End Markets

The authority could have an important role in supporting demonstration projects and innovative technologies that advance SMM objectives by providing financial support to entities that are engaged in the development of new markets, infrastructure, and technology. However, the most important contribution from the authority is likely to be the coordination and policy direction for end of life SMM.

Framework Profile: Hybrid EPR Model

Summary

This framework is a hybrid extended producer responsibility (EPR) model with the producers bearing financial and operational responsibility for the marketing and post-MRF end market processing of packaging collected for recycling, while the municipalities finance the collection of materials and the sorting of collected material. Examples of this approach include Slovenia (SLOPAK) in the European Union but other program examples, such as that in British Columbia (Recycle BC) or programs in other provinces in Canada, could be modified to reflect this hybrid model. For example, the BC program could be restructured with a greater operational role for local government to provide collection and sorting services for collected materials with a PRO akin to Recycle BC financing the transportation and end market processing. In the EPR system in Slovenia, the municipalities are required to provide recycling collection to households for waste packaging. The country is expected to achieve its recycling target of 50% by 2020. In 2014, the plastic recycling rate was reported to be 68%.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	I. Educates and encourages residents and businesses to use the system properly
	K. Ensures processing facilities receive clean materials and in sufficient volumes
N. Produces quality materials that reach end markets	M. Ensures processing facilities receive clean materials and in sufficient volumes
O. Ensures materials are managed responsibly from collection through end markets	P. Ensures all players in the system perform responsibly

The framework would share responsibility along the system, including producers. It does not implement significant changes of function for many of the entities that are currently participating in the system, which could be a strength, particularly for jurisdictions with a robust municipal role (e.g., facility ownership and operations), in recycling collection and sorting. It essentially ensures an end market, creating stability and resiliency. It would not finance other parts of the system, which may be vulnerable depending on local conditions. It also would not create the system integration benefits that normally come with EPR.

History & Development

For Slovenia, amendments were made in 2006 and 2007 to the solid waste provisions in the 2004 Environmental Protection Act that required EPR for waste packaging, along with several other waste streams. Packaging waste is regulated by the Decree on Packaging and Packaging Waste Handling, which transposes the requirements of the EU Directive 94/62/EC on Packaging and Packaging Waste.

As Slovenia was in the process of joining the European Union, they had until December 31, 2012 to meet the requirements of the Directive 94/62/EC. In accordance with the solid waste ordinance in Slovenia that implemented separate collection of waste in urban areas, every municipality and settlement with more than 8,000 residents must have at least one collection center. For those areas with fewer than 3,000 residents, municipalities are to ensure that they can deliver their waste to the collection center of a nearby municipality. For population centers with more than 25,000 residents, a minimum of two collection centers are to be established. For cities of 100,000 or more residents, the number must be at least one for every 80,000 residents.

Framework Profile: Hybrid EPR Model

History & Development continued

Slovenia has adopted pay-as-you-throw pricing that has been implemented in some jurisdictions for disposed waste, as well as organics collection. There are six producer responsibility organization (PROs) operating in Slovenia although SLOPAK, formed as the first PRO in 2002, is the only one that is not directly operating its own collection and/or processing services. In addition to household recyclables, SLOPAK is also engaged in the commercial and institutional recyclables and the management of tires, batteries, pharmaceuticals, etc.

There is no organization performing a clearinghouse function in Slovenia to formally allocate responsibility among the PROs.

Framework Profile: Hybrid EPR Model

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system.

- **Municipalities (public utilities)** provide collection services for waste packaging and some perform sorting activities. The collected and sorted material is then provided to the PROs at no cost with the exception of storage costs for those materials that are stored for seven days or longer.
- **Collection service providers**, either private or public entities, are responsible for taking the material to MRFs to be separated into the various material types.
- **MRFs** accept materials from collectors and provide sorted material to the PROs.
- **Producers** are then financially and operationally responsible for the packaging waste after it has been collected by the municipalities and sorted at MRFs. The PROs arrange for the material to be transported and processed at end markets. They must register with the National Environmental Agency. The financing for each producer is determined by their market share.

How is the system financed? The full costs for the system are apportioned to the various actors according to their responsibilities. The municipal collection service and sorting is financed by municipalities. Municipalities that offer curbside service may charge a variable fee based on the size of the recycling bin. For the packaging material that is collected and sorted by the municipalities, the producers are responsible for the marketing and delivery of sorted materials to end markets.

How are the services delivered? Municipalities provide recycling services to their residents, either directly through municipally operated fleets or through private contracts.

Provide total costs and per capita cost: No information regarding the total system costs is available. Producer fees, per household serviced, are as follows:

Material Category	Fees – Household (USD/kg)
Plastic (unspecified)	$0.15
PET/HDPE	$0.085
Beverage cartons	$0.011
Other composites	$0.15

(November 2018)

Scope of Materials & Generators

This framework is appropriate for residential curbside and drop-off collection programs, as those are generally financed and, in some cases, operated by local governments. It could also be extended to include commercial recyclables, to the extent they are managed through a MRF network that is within the framework. It could be designed to capture a typical range of packaging and printed paper, or other materials for which producers have identified market.

Framework Profile: Hybrid EPR Model

Access & Equity

This approach can be implemented for all geographies within a jurisdiction but, as stated previously, is likely to be more appropriate for jurisdictions with existing collection infrastructure, given the allocation of financial responsibilities. For access and equity to be more fully achieved under this framework, requirements would need to be imposed on municipalities to ensure that access to collection is adequate and equity is highly prioritized as an objective of the system.

Sustainable Materials Management & Life-Cycle Impacts

Under this framework that places boundaries around the producers' financial and operational responsibility, the incentives for producers to implement a financing framework that seeks to promote product/packaging design changes are limited. The PRO's responsibility for moving materials to end market should provide incentives to design for recyclability, but there is no data to support that it actually occurs. As with all of the EPR programs in the EU, the program in Slovenia will be required to implement modulated fees that take into account the environmental impacts of packaging types.

Transparency & Accountability

This framework is not optimal for transparency and accountability given the lack of integration of collection and sorting with processing and end markets, and the number of entities that are currently participating in the system. To achieve transparency and accountability, it would require a coordinating entity that is engaged with all system participants. However, greater transparency and accountability could be achieved through a compliance model that provides incentives for a single-PRO and more robust reporting on material flows and costs throughout the system.

Another noted challenge for the program in Slovenia, is the impact of the informal sector (e.g. waste pickers) that function outside if the regulated EPR program on the diversion of materials with value. Those entities remove valuable materials from the system, and those materials are not reported or accounted for. While this is identified as a dynamic within the system, the impact on collection weight and program finances is not quantified.

Stakeholder Perspectives

This shared responsibility framework maintains the existing system with only minimal changes to how certain activities are financed. This framework may be satisfactory for those jurisdictions with significant municipal infrastructure (e.g. collection vehicles and/or MRFs) or those concerned about substantial changes in program governance and financing. Similarly, this approach to system governance may be appealing to producers who may be disinclined to engage in often complicated system design and negotiations with a wide range of system participants.

Education & Outreach

The responsibility for public education and outreach activities related to collection of recyclables resides with the municipal authorities.

Framework Profile: Hybrid EPR Model

Processing Infrastructure & End Markets

The framework could incorporate mechanisms for integrating processing infrastructure and end markets through PRO planning and contractual arrangements. The framework could create or incentivize enhanced processing capacity, with appropriate agreements for quality material supply. It could also incorporate incentives for infrastructure and end market development particularly if post-collection targets promote quality and/or specific end market destinations (e.g., bottle to bottle).

Framework Profile: Shared Responsibility framework – Manitoba

Summary

The Manitoba framework is a shared producer responsibility system for managing residential printed paper and packaging (PPP), where producers cover 80% of the costs of recycling, and municipalities pay the remaining 20%. Producers meet their obligation through two stewardship organizations, one focused on beverage containers – Canadian Beverage Container Recycling Association (CBCRA) – and one focused on all other PPP materials – Multi-Material Stewardship Manitoba (MMSM). MMSM is responsible for financing 80% of the net program cost of the entire residential recycling programs. A municipal program must meet certain requirements, including types of material collected, in order to be eligible for financing. Nearly all communities participate. CBCRA works in conjunction with MMSM to finance beverage containers in the residential stream and provides bins and promotion to support beverage container recycling at events and public spaces.

Key Strengths & Weaknesses

Highest Rated Functions	**Lowest Rated Functions**
B. Resiliently adapts to changes in material supply and end-market demand	J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles
C. Provides sustainable and equitable financing for stable operations and capital investments	
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	N. Produces quality materials that reach end markets
K. Identifies beneficial materials acceptable for collection programs	O. Ensures materials are managed responsibly from collection through end markets
H. Uses goals and metrics to measure progress and support ongoing improvement	

The system shares responsibility with all parties, including producers, and harmonizes with a consistent acceptable recycling material list. Local governments have more responsibility than in many extended producer responsibility (EPR) systems, and there are more feedback loops between local governments and MMSM. Fees create some eco-design incentives but eco-design outcomes are not a core strength of the system. Contamination is a concern. There are no economic mechanisms that engage the public to understand the costs of recycling, waste prevention or other life cycle impacts of decisions. There are no requirements or guidance related to processing or end markets.

History & Development

The Packaging and Printed Paper Stewardship Regulation 195/2008, enacted in December 2008 under the Waste Reduction and Prevention (WRAP) Act (1990), is the enabling legislation that establishes the framework. There are two non-profit producer responsibility organizations (PROs): 1) Multi Material Stewardship Manitoba was incorporated in 2006 and launched its program April 1, 2010. It focuses on residential recycling for all packaging except for sealed beverage container packaging and is funded through producer fees. MMSM is currently operating under a stewardship program plan that was authorized in 2017 and will be in effect through 2021; 2) Canadian Beverage Container Recycling Association, funded through a $0.02 CAD ($0.015 USD) container recycling fee (CRF), is responsible for the sealed beverages sold in the province except beer, which is covered under a deposit system.

Framework Profile: Shared Responsibility framework – Manitoba

History & Development continued

CBCRA supports recovery through residential recycling, by paying a fee to MMSM for beverage containers in the residential stream, as well as materials from industrial, commercial and institution generators and events through its “Recycle Everywhere” initiative, which provides bins and promotion for beverage container recovery at events and in public spaces. CBCRA’s current program plan runs 2018-2022. The Manitoba EPR for PPP program replaced a system typical of those in the United States, where municipal governments provided recycling services, either directly or through contractual agreements, funded with tax dollars or user fees.

Framework Profile: Shared Responsibility framework – Manitoba

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **Ministry of Sustainable Development** negotiates and approves stewardship plans and undertakes compliance and enforcement actions where necessary.
- **Printed paper and packaging producers, excluding sealed beverage producers -** via **MMSM** - pay annual fees that fund 80% of the municipal costs to operate recycling programs.
- **Sealed beverage producers excluding beer - via CBCRA –** charge a $0.02 CAD ($0.015 USD) container recycling fee (CRF), a consumer point of sale fee, to fund their share of residential collection (via MMSM) and provide bins and promotion to support recycling in public spaces and events.
- **Private collectors and processors** contract with municipalities for collection and processing services as appropriate. Processors and brokers need to be registered with MMSM.
- **Municipalities** design and implement their recycling program including the type/frequency of collection. Municipalities have the option of providing direct service or contracting with private companies.

How is the system financed? Funding from MMSM is a set compensation rate designed to reflect 80% of total program cost. The cost factors include the following:

- **Administrative costs** constitute 5% of eligible operating cost, where the municipality is providing direct service, and 3% where the municipality contracts for service.
- **Operating costs** include expenditures for the collection, processing, and marketing of residential PPP, whether the service is delivered by the municipality or contracted to the private sector.
- **Promotion and education costs** include the costs to promote the use of the municipal recycling program and educate residents on local recycling procedures. MMSM provides promotional resources.
- **Capital costs** include the portion of the amortized capital cost of municipally-owned collection vehicles, facilities, fixed and mobile equipment, and collection containers used for residential PPP services, where the capital costs do not form part of the contracted services provided by private sector contractors.
- **Gross revenue** includes revenue from the sale of PPP and from the sale of collection containers, as well as revenue from grants, waste management service fees, or other funding sources that offset the delivery of recycling services.

According to the program plan, municipalities are required to consult with MMSM prior to any change in recycling programs to demonstrate that the changes improve efficiency and effectiveness while controlling cost.

How are the services delivered? Municipalities are responsible for implementing their recycling programs, either directly or through private waste management companies. Collected materials must be delivered to a registered processor for sorting and marketing to end markets.

Provide total costs and per capita cost: Total annual cost 2018 was $20.4 million CAD ($15.4 million USD) (MMSM 2018 Annual Report), or $17 CAD ($12.84 USD) per capita. Population of Manitoba is 1.369 Million.

Framework Profile: Shared Responsibility framework – Manitoba

Scope of Materials & Generators

MMSM is required to manage all residentially generated printed paper and packaging that is comprised of glass, metal, paper, plastic, or any combination. MMSM establishes a set list of acceptable materials province-wide that all participating municipalities must collect. It can be updated by MMSM at any point. The list includes materials that have robust markets and there must be a market for any new materials to be added. Those that do not, such as polystyrene foam and plastic bags, are deemed unacceptable and are handled in the solid waste stream or through private recycling collection, such as retailers for bags. CBCRA finances the recovery of beverage containers. It provides bins and promotional efforts to support beverage container recycling away from home, or at events, but does not finance collection costs. CBCRA contributes to processing costs through its payments to MMSM.

Access & Equity

It is estimated that 94% of Manitoba's population has access to a residential recycling program. This includes curbside service through the MMSM program for all single family and most multi-family with 8 or fewer units. There is also coverage through some drop off depots. The gaps are primarily in First Nations and northern remote communities, which is a focus of MMSM efforts within the current program plan. Industrial, commercial and institutional and public space are not included in the regulatory obligation. CBCRA provides some additional support through funding of collection containers and promotions for beverage container recycling in public spaces and at events.

Sustainable Materials Management & Life-Cycle Impacts

The framework is focused primarily on end-of-life recovery and not life cycle impacts. It has a requirement that any stewardship plan must include provisions related to pollution prevention and waste reduction but is not prescriptive. The MMSM fee structure can affect design in two ways:

- It is weight based, which creates an incentive to reduce materials use; or
- The fee setting formula and cost basis both consider end-market revenue, which creates an incentive for using materials that are highly recyclable with strong markets.

However, the impact of the fees on design is unclear. Manitoba is a very small market, and the fee differences may not be significant enough to drive design decisions in national or multinational companies.

Transparency & Accountability

Local program costs and fee calculations are not public but are shared between MMSM, municipalities, and the Ministry. MMSM financial statements are included in a publicly available annual report. Comments on the program plan consultation process are posted on the MMSM website. The current program plan was approved on the condition that MMSM maintain at least a 70% recovery rate on obligated material. There is also a 75% target for all sealed beverage containers.

MMSM established the Municipal Industry Programs Committee (MIPC) as a forum to discuss operational issues with representatives from the Association of Manitoba Municipalities (AMM). This provides the forum for MMSM to consult with municipal representatives on various aspects of program delivery, including changes to the services agreement and a review of eligible costs. MIPC is co-chaired by representatives from MMSM and AMM and meets, at minimum, twice a year. MMSM consults with other stakeholders on a regular basis, and more frequently leading up to the five-year Program Plan renewal. The Ministry of Sustainable Development has oversight over the plan and must approve it. It may be conditionally approved based on additional requirements.

Framework Profile: Shared Responsibility framework – Manitoba

There is no downstream material reporting.

Stakeholder Perspectives

Stakeholder perspectives are documented through the consultation process related to Program Plan updates. During the most recent update, the principle concerns were voiced by stewards and pertained to the fee setting methodology and representation on the MMSM board.

The Ministry notes that the shared responsibility model creates significant challenges in verifying program costs and what constitutes the 80% to be paid by MMSM. It has indicated an interest in moving to 100% producer responsibility. MMSM was instructed in the latest Program Plan approval to develop a plan for a 100% responsibility model by 2020.

Education & Outreach

Each community is responsible for education and promotion. MMSM also offers educational materials to community members to support these efforts. For example, MMSM created a customizable recycling guide and a public-facing website that provides education on items that are and are not accepted in municipalities' recycling programs, along with tips and tricks on how to recycle effectively and efficiently. MMSM also invests in various communications initiatives to encourage recycling. In 2018, MMSM spent $377,219 CAD ($284,655 USD) on promotion and education, which is about $0.30 CAD ($0.23 USD) per capita (1.8% of the program budget).

Processing Infrastructure & End Markets

A recent MRF upgrade in Winnipeg included public investment by the city, with 80% of the city's investment provided by MMSM. In addition, a $10 CAD ($7.55 USD) landfill disposal surcharge funds a $9 million CAD, $6.57 CAD per person ($6.76 million and $4.96 per person USD) Waste Reduction and Recycling Support fund (WRARS), 80% of which is provided as grants to communities, while 20% is to cover administrative fees and new program development, such as composting.

The framework doesn't inherently ensure sufficient material to secure processors economic viability; however, agreements can be made between local governments and processors within the framework. Such an agreement is in place to support the new MRF development in Winnipeg. There are limited end markets in Manitoba and no apparent strategy focusing on developing them. Much of the material is sold to other provinces, the U.S., and in some cases overseas.

Framework Profile: Full Producer Responsibility Framework – British Columbia

Summary

The British Columbia (BC) framework is a full producer responsibility system for managing printed paper and packaging (PPP) from residential generators but excludes beverage containers that are managed through another program. It requires producers to be operationally and financially responsible for the management of residential PPP materials that they put into the market. This responsibility includes planning, educating, collecting, processing, and selling to end markets. Producers are allowed to meet obligations individually, but in practice this obligation is fulfilled through Recycle BC, a non-profit producer responsibility organization (PRO), which is governed and funded by producers. The operational elements are harmonized across the province, which allows for economies of scale and greater coordination along the supply chain. Local governments can maintain a role as a collection service provider or can delegate all operations to Recycle BC. The program provides robust curbside recycling collection and depot access and includes a broader list of materials than most other frameworks and has a low contamination rate (6%). The program does have some eco design-based incentives.

Key Strengths & Weaknesses

Highest Rated Functions	**Lowest Rated Functions / Criteria**
A. Optimizes the benefits of recycling considering life cycle-impacts and costs	E. Includes mechanisms to reduce upstream impacts
B. Resiliently adapts to changes	D.6 / K.5 material selection based on consistent, robust markets
C. Provides Sustainable and Equitable Financing	
D. Integrates system Components	J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their life-cycles
G. Shares Responsibility	
K. Identifies beneficial materials acceptable for collection programs	
L. Collects clean, acceptable materials	
M. Ensures Processing Facilities receive clean materials in sufficient volume	
N. Produces Quality Materials that reach end markets	
O. Ensures materials are managed responsibly from collection through end markets	

Sharing responsibility, program financing and system integration are core strengths of the BC framework. Upstream design influence is not as much of a strength as other frameworks but is still good relative to Oregon. The framework does not incorporate economic incentives for waste reduction or mechanisms that support public understanding of the costs of recycling, waste prevention or other life cycle impacts of decisions. Includes materials that don't have robust markets –

History & Development

The British Columbia Recycling Regulation (B.C. Reg. 449/2004), under the Environmental Management Act, is the enabling legislation that establishes an extended producer responsibility (EPR) framework for managing residential recycling within the province. The regulation was first adopted in 2004 and was amended in 2011 to include PPP.

Framework Profile: Full Producer Responsibility Framework – British Columbia

History & Development continued

Following a planning phase, the PPP EPR system launched in 2014. The system is implemented through a PRO, originally called Multi-Material British Columbia (MMBC) and later renamed Recycle BC. The operational details of the framework are laid out under a five-year Stewardship Plan, which is developed by the PRO, pursuant to stakeholder engagement and approved by the Ministry of Environment. Recycle BC adopted a new five-year plan as of June 2019. Beverage containers are managed through a separate EPR program established in 1971, in which Encorp Pacific serves as the PRO. The EPR for PPP program replaced a system typical of those in the United States, whereby municipal governments provide recycling services, either directly or through contractual agreements and fund those services fund through tax dollars or user fees.

Framework Profile: Full Producer Responsibility Framework – British Columbia

Critical Program Details

Roles, responsibilities, and relationships of players within the recycling system:

- **Ministry of Environment & Climate Change Strategy** negotiates and approves producer developed stewardship plans and undertakes compliance and enforcement actions, where necessary.
- **Producers** have full financial and operational responsibility for the residential recycling program, including planning, some collecting, handling, processing, marketing and education. They discharge their obligations via Recycle BC. There are some exemptions for smaller producers that don't meet certain minimum market value or volume thresholds.
- **Producer responsibility organization, Recycle BC:** Recycle BC assumes financial and operational responsibility of the total system cost of household generated PPP. A key feature is that Recycle BC manages the material through entire end of life to sale to end markets with operations implemented through contracts with collectors and post-collection processors.
- **Local governments** have the option to act as a "collection agent" and provide collection service to their residents (either directly or through a public contract), or they allow Recycle BC to provide "direct service", in which case they have no functional role in the system.
- **Private collectors and processors** provide contractual service in the program. Private collectors can act as "subcontractors" to local governments that continue to handle their own service without any change in role or contract with Recycle BC to provide the "direct service" to local governments that elect that option.
- **Local governments, regulators, producers, First Nation communities, waste management industry and consumers** are involved in a stakeholder processes to review and refine the stewardship plan, which must be renewed every five years (most recently in 2019).

How is the system financed? Recycle BC sets a fee schedule for producers that covers the net cost of the system, including consideration of material revenue (or cost), and sets contribution requirements annually for each producer based on the quantity and type of materials entering the province. Compensation for collection is based on a flat per-household rate across the province and is determined through detailed cost studies. Producers over a certain threshold pay into the system regardless of whether their packaging is recyclable, paying a higher per kg fee if it is not.

How are the services delivered? There are two options for collection and education services:

1. Local governments maintain control of their collection and provide service either directly or through contracts with private collectors. In this case, they function as a "contractor" to Recycle BC and are compensated at a flat rate per household that is established through an in-depth cost study, which is periodically updated.
2. Producers, via Recycle BC, contract with private collectors to provide "direct service" residents in municipalities that do not wish to continue overseeing or providing their own service.

Currently, most municipalities act as their own collection agent. However, Vancouver and other large surrounding communities are serviced directly through Recycle BC. Recycle BC designs their services primarily around multi-stream collection, with separate bins for paper and containers. Some collection agents choose to collect glass, which is always collected in a separate container. Overall, more than half of the province has multi-stream collection.

Following collection in any scenario, Recycle BC manages the handling, processing and marketing to end-markets, through post-collection contracts.

Framework Profile: Full Producer Responsibility Framework – British Columbia

Critical Program Details continued

Provide total costs and per capita cost: The reported total net program cost in 2018 is $482 CAD per ton ($366 USD), $48 CAD per household ($36.48 USD). It is not possible to compare to pre-EPR cost as pre-program data is not available. Population is 5.07 Million (2019).

Scope of Materials & Generators

Recycle BC is required to manage all PPP materials that are sold into the province. There is one harmonized list of materials that are accepted in all curbside and/or depot recycling programs in the province. The list of acceptable materials includes all materials for which there is a recovery pathway, regardless of market value, and then sets fees based on the cost to handle each material in the system. The list includes a broad range of packaging materials collected at curbside, and items such as EPS, PE film, flexible pouches, and PE tubes at depots.

The framework covers single-family and multi-family residential generators only.

Access & Equity

Recycle BC provides recycling services to approximately 98% of British Columbia residents through curbside and depot collection. Curbside service is required for incorporated municipalities with 5,000 or more residents that also have garbage service. About 55% of multi-family households (439,000 households out of about 800,000) are currently covered; however, new aggressive material specific recovery targets for plastics in the 2019 plan will require producers to expand collection to get more material. The Ministry has pushed Recycle BC on access and higher recovery targets through the 2019 plan approval process. The fees paid to collectors is a flat rate based on density and type of service – single or multi-stream - across the province regardless of whether it is urban or rural. Fee ranges from $33.40 - $42.80 CAD ($25.38 - $32.53 USD), with higher rates for multi-stream.

Sustainable Materials Management & Life-Cycle Impacts

Section 5(1)(c)(vii) of the Recycling Regulation requires that the EPR plan adequately provide for the elimination or reduction of the environmental impacts of a product throughout the product's life cycle, however it is not prescriptive and to date, has focused almost exclusively on end-of-life management through recycling. Recycle BC works to reduce the environmental impact of PPP primarily by managing the collection and handling of materials, with aggressive recycling targets justification as to why a material is not being recycled. There are also some fee-based incentives aimed at reducing material use and related impacts. The BC program supports a high packaging recovery rate of 78.1% [1]. It is assumed that recovery minimizes environmental risk compared to management options lower on the hierarchy. The in-bound contamination rate is very low (6% on average) and end markets must meet set standards.

[1] "Recovery" includes engineered fuel and waste to energy. However, 85% of recovery must be through recycling – the 2018 "recycling" rate (i.e amount reprocessed) is 87.3% of the collected materials.

Framework Profile: Full Producer Responsibility Framework – British Columbia

The fee structure[2] can affect design in several ways:

- It is weight-based, which creates an incentive in reducing material inputs of products. This has positive impact on the production factor of a product or package; or
- The per-unit cost varies based on "recyclability". The less recyclable a material is, the higher the fee is. Producers that supply PPP that is not recyclable at all will pay additional fees, which are intended to cover R&D aimed at resolving technical and market barriers to recycling.

However, the impact of the fees on design is unclear. BC is a relatively small market, and there is no evidence that fee differences are significant enough to drive design decisions in national or multinational companies.

The 2019 plan will require end of life greenhouse gas reporting as a metric. There are no incentives for recycled content or other positive environmental attributes built into the fees.

Transparency & Accountability

Under the Recycling Regulation, the program is expected to achieve at least a 75% recovery (collection) rate[3]. Materials collected must be recovered according to the pollution prevention hierarchy[4]. The 2019 plan sets a target for recycling at 85% of what is collected, measured by what is reported as sold to end markets, and sets recovery goals by material type. Every load of material collected in the PPP program is recorded, reviewed, verified and approved by Recycle BC. Annually, an independent auditor performs an assurance audit on collected quantities reported by Recycle BC to verify the data used to calculate the reported recovery rate. Recycle BC also reviews the reported quantities of PPP that producers supply to residents of British Columbia. Quantities are also subjected to periodic third-party assurance audits.

When identifying end-markets, Recycle BC prioritizes those markets located in Organization for Economic Co-operation and Development (OECD) countries and only allows marketing to non-OECD countries if those markets meet or exceed the environmental, health and safety standards equivalent to OECD standards. The claims are independently verified by third party auditors.

There are enforcement mechanisms such as fines for non-compliance; however, to date the Ministry and Recycle BC have worked in good faith, and fines haven't been imposed.

Stakeholder Perspectives

Recycle BC consulted with stakeholders in the development of the Program Plan, both prior to the launch of Recycle BC in 2014, as well as during a recent five-year update to the Program Plan that was adopted in 2019. Local governments were supportive leading up to the launch but had some concerns when rolling out. The concerns were related to the new experience for many cities of functioning as a contractor,

[2] Fee is based on cost per ton by material type multiplied by the amount of material

[3] The recovery rate is defined as "the amount of product collected divided by the amount of product produced, expressed as a percentage" Section 1 of the Recycling Regulation

[4] The hierarchy includes engineered fuels as an option preferred to landfill if it cannot be recycled – flexible pouches collected at depots are processed this way.

wanting to ensure fairness in those collection contracts, and in some locations noting that the flat compensation rate provided within those contracts did not cover their costs. These concerns were addressed by standardizing contracts for all municipal "collection agents" and the further understanding that in those locations where compensation is not enough, they have the option of shifting to direct service provided through Recycle BC. According to the Ministry, local governments generally view the program as stable. There were significant concerns raised by the waste management industry driven by the change to their business model that the shift in framework represented. Under the framework, a single PRO issued most of the contracts for collection and processing with service providers competing for those contracts. Larger companies had an advantage, given the size of the contracts. Thus, some in the waste industry lost contracts and were required to shift their business models to focus on industrial, commercial or institutional generated materials, while others in the waste industry gained business.

For more on stakeholder perspectives visit the Recycle BC Consultation website, and review the October 2018 Consultation Report.

Education & Outreach

The Recycling Regulation requires that, as part of the Program Plan, Recycle BC design and deliver an effective resident education program. Promotion and education is one of the expenses in the producer-funded program. In 2018, Recycle BC spent $1,931,406 CAD on education, $.39 CAD per capita, (Recycle BC 2018 Annual Report). The uniform materials list and promotional materials is seen as helpful in effective education and outreach. Recycle BC's program plan also includes a target for consumer awareness, set at 90%.

Processing Infrastructure & End Markets

The coordination of material flows and infrastructure through post-processing contract results in effective and efficient processing and is one of the key strengths of the BC framework. There are 32 receiving, consolidation and transfer facilities. There are 11 pre-conditioning facilities, where the material is sorted at a high level – separating containers from fiber coming in single stream loads. The pre-conditioning facilities were pre-existing MRFs in the old system. They continue to process privately-collected materials and deposit material, in addition to Recycle BC material, in alternating shifts. A key feature of this infrastructure system is that all containers flow to a single advanced container recovery facility (CRF) that uses 10 optical sorters to processes to 12-14 categories depending on market demand. This facility was capitalized privately as a result of award of the post-collection processing contract which guaranteed the supply of material.

According to the 2018 Annual report:

- 99% of plastics collected in BC remain in BC, with a local end-market in Metro Vancouver
- Glass collected through the Recycle BC program is shipped to Abbotsford to be processed into new bottles and to Quesnel to be made into sandblast materials
- Metal containers are sold to end-markets in BC, Ontario and the United States
- Paper is sold to end-markets in BC, the U.S. and overseas. Approximately 70% of OCC, for example, stays in Canada, which is a shift since National Sword. The remaining 30% is exported to facilities vetted by Recycle BC as meeting the standards referenced above.

Framework Profile: Full Producer Responsibility System With Elements to Incentivize Reduction of Upstream Impacts – France

Summary

France's recycling framework is a full producer responsibility system for managing residential packaging and printed paper (PPP). In this model, producers are obligated to cover the costs and coordination of recycling programs and management of that material. The program is implemented by a single producer responsibility organization (PRO), CITEO, which is governed by representatives of the packaging supply chain. System operations are funded through fees paid by producers. Programs are coordinated and funded by CITEO. Recycling services are generally provided by municipalities, with costs covered by the PRO. Sorting, processing and end-use are managed by the PRO. The fee structure incorporates eco-modulated fees to incentivize good packaging design and penalize producers of packaging that challenges the recycling system.

Key Strengths & Weaknesses

Highest Rated Functions	**Lowest Rated Functions**
B. Resiliently adapts to changes in material supply and end market demand	J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their life-cycles
C. Provides sustainable and equitable financing for stable operations and capital investments	
D. Integrates system components to achieve overall system goals	
E. Includes mechanisms to reduce upstream impacts of materials	
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	
K. Identifies beneficial materials acceptable for collection programs	
P. Ensures all players in the system perform responsibly	

What sets this system apart is the extent that it has incorporated eco-modulation to incentivize upstream design choices. Like the other full producer responsibility models, a strength is shared responsibility that involves all parties, including producers. It is sustainably financed and provides broad access to residents. The coordinating role of CITEO and control of materials as they move through the system allow for system integration and related efficiencies in addition to coordinated investments in processing technologies and end markets. The framework does not currently utilize incentives to drive appropriate behavior among residents.

History & Development

Extended producer responsibility (EPR) for PPP was established through legislation passed in 1992 and updated in 2016 and 2019. From the early 1990s until early 2000, there were three PROs – EcoEmballages for household packaging, EcoFolio for paper, and Adelphe for alcohol. In 2004, Eco-Emballages became a majority stakeholder and partner of Adelphe. More recently, Eco-Folio and Eco-Emballages merged to create CITEO. Currently, CITEO/Adelphe continue to function as separate entities, but work together and are presenting a common annual report. Therefore, in practice, a single PRO now manages obligations for packaging, printed products, and alcohol products. Medical packaging is managed by a different PRO (Cyclamed). The fee structure has adapted over time to incorporate eco-modulated fees.

Framework Profile: Full Producer Responsibility System With Elements to Incentivize Reduction of Upstream Impacts – France

Critical Program and Financing Details

Roles, responsibilities and relationships of players within the recycling system:

- **Producers** have legal responsibility to recover packaging supplied into the market and pay fees into CITEO to comply. Obligated producers are required to register with the Ministry of Ecology, Sustainable Development, and Energy (Ministry) and must submit reports on the amount of packaging supplied to the market. Producers have an option to join a PRO or be self-compliant; simplified "sector" declaration is available for small-quantity producers who place fewer than 500,000 consumer sales units on the market annually. There is also a flat rate available for producers who place fewer than 10,000 consumer sales units on the market annually.
- **Approved compliance scheme** (CITEO) organizes and finances the education, collection, sorting and recycling in partnership with local authorities using fees collected from producers.
- **Local governments** may implement collection and recycling programs, with funding from CITEO, or may engage “recycling networks” for each packaging material.
- **Recycling networks** are trade groups, organized by material type (e.g., aluminum, plastics, steel, paper and glass) that contract with CITEO and guarantee the recovery of their target material. They ensure that all packaging collected, sorted, and packed by communities, regardless of the quantities produced or the geographic location of the materials recovery facility (MRF), is processed and reaches an end-market.
- **Ministry** negotiates and approves stewardship plans and undertakes compliance and enforcement actions where necessary.
- **Private collectors and processors** provide services either to local governments or the recycling networks; funded by CITEO.

How is the system financed? Producers pay fees to CITEO, which are calculated based on the packaging they place on the market, and CITEO finances the recovery system.

How are the services delivered? Most recyclables are collected at curbside or at drop-offs and processed through MRFs. All glass is collected in drop off “igloos” and sent directly for processing (not through a MRF). Collection and sorting services are typically provided by local governments, either directly or by contract. Once materials are sorted, the Recycling Networks manage the handling, processing and marketing.

Provide total costs and per capita cost: The reported total annual program cost in 2017 was €665 million ($735 million USD) which covered service to 66.99 million French citizens in more than 36,000 municipalities, or ~$11 USD per capita. It is not possible to compare to pre-EPR cost as pre-program data is not available.

Framework Profile: Full Producer Responsibility System With Elements to Incentivize Reduction of Upstream Impacts – France

Scope of Materials & Generators

The EPR program covers all residentially-generated material (single- and multi-family). Commercial generators are required to recycle, but the costs are not paid by producers and therefore they are not included in the framework. The residential program is consistent throughout the country, and includes glass packaging, metal packaging, PET and HDPE plastic, paper, aseptic packaging and cartons. In an effort to capture more plastic, a substantial number of collection points have started to accept all plastic packaging, including flexible pouches.

Access & Equity

The law requires that the entire French population has access to recycling, whether they live in single- or multi-family dwellings, in rural or urban communities. In addition to curbside recycling, drop-off locations are available for consumers to recycle glass or other materials.

Sustainable Materials Management & Life-Cycle Impacts

The French framework addresses life-cycle impacts through the packaging fee structure. France is the first country in the EU to introduce and develop eco-modulated fees as a tool to impact design. CITEO offers its members free access to life-cycle analyses and tools that help design packaging for recycling, so that they can avoid penalties for disrupting the recycling streams.

Packaging fees are generally assessed based on the weight of the packaging supplied into the market, as well as per-pack fees. The eco-modulated fee system rewards certain designs through discounts and penalizes others through fee increases. Currently, the eco-modulation focuses primarily on recyclability and recycled content. In the future, the approach is expected to address the carbon footprint of packaging. Examples of eco-modulation include:

- PET packaging that uses additives to make them opaque at greater than 4% receives a 100% cost penalty
- Non-recyclable plastic bottles (i.e., PVC, LDPE, PS or other plastic) receive a 100% cost penalty
- Certain disruptive packaging, such as glass with a porcelain stopper, or PET bottles that contain PVC, aluminum or silicone, receives a 50% cost penalty.
- Discounts are provided to certain environmentally preferable packaging, including:
    - PE, PP, or paper packaging that contains at least 50% recycled content
    - Packaging that includes recyclability improvements such as switching from a multi-material package to PET
    - Packaging that displays proper recycling guidelines

Framework Profile: Full Producer Responsibility System With Elements to Incentivize Reduction of Upstream Impacts – France

Transparency & Accountability

There is a high level of transparency through extensive reporting. CITEO must publish an annual report including information on recycling targets, services offered, detailed actions taken for the appropriate recovery of each material stream, and more.

Stakeholder Perspectives

CITEO's engages a range of stakeholders including members of the packaging supply chain, as well as local governments, collectors and processors. The packaging industry and certain organizations such as the Extended Producer Responsibility Alliance (EXPRA) have expressed concerns about the complexity of the eco-modulation system. There is a concern that with the new Essential Requirements imposed at the EU level, as well as the very detailed differentiation of fees, producer reporting will be challenging.

Education & Outreach

CITEO is responsible for financing and executing education and outreach campaigns. France uses specific symbols (Le Triman symbols) and material-specific sorting instructions, to aid residents to properly sort materials.

Processing Infrastructure & End Markets

CITEO is responsible for ensuring that infrastructure and end markets are available. They do so through support of the recycling networks and through fee discounts for use of recycled content. CITEO contracts with the material-specific recycling networks, to guarantee that sufficient materials are collected, processed, and sent to end markets to meet the recovery target.

Framework Profile: Producer Responsibility System Where Municipalities Deliver Services and Producers Cover Costs – Québec

Summary

The Québec framework is an extended producer responsibility (EPR) system for managing municipally collected printed paper and packaging (PPP), except certain beverage containers. Under this model, producers are financially responsible for all program functions while the decision-making authority for many aspects of the program resides with local governments. Producers are obligated to compensate municipalities for the cost of residential recycling services. Producers can choose to meet obligations individually, but in practice they work collectively through the Producer Responsibility Organization (PRO), Éco Enterprises Québec (EEQ), which is governed and funded by producers. Local governments implement recycling programs either through direct service or by contracting with private service providers. The province has robust curbside access, an optional harmonized list, and includes some eco-design based incentives. A beverage container deposit program is in place and is managed by Boissons Gazeusses Environment. The PPP and deposit programs are overseen by Recyc-Québec, a public corporation under the direction of the Minister of the Environment.

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
C. Provides sustainable and equitable financing for stable operations and capital investments	J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles
F. Designs for equity – examining the burdens and benefits across the state	K. Identifies beneficial materials acceptable for collection programs
G. Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	N. Produces quality materials that reach end markets
	O. Ensures materials are managed responsibly from collection through end markets

The system's shared responsibility involves all parties, including producers. It is sustainably financed and provides broad access to residents. Local governments have operational control with the producers bearing financial responsibility. The fees paid to support the system create some eco-design incentives, including a credit for recycled content in some materials. Contamination is a concern. Harmonization could be improved. There is no control or guidance related to processing or end markets.

History & Development

The framework's legal foundation is the Québec's Environment Quality Act (EQA, 1999), which included "greater producer responsibility" as a fundamental principle. Among other things, it required regional municipalities to ensure that materials recovered by municipalities are handled to maximize their value and "send the smallest amount possible on to disposal sites". The passage of Bill 102 (2002), amended the Environmental Quality Act and set specific obligations for shared financing of curbside recycling between producers and municipalities. EEQ was founded in 2003 and was certified by provincial oversight agency, Recyc-Québec, when the system officially began in 2005. Initially it was structured as a 50/50 cost share between municipalities and producers. The act was updated in 2011, at which point it shifted to full producer financing. The fees collected are designed to cover the full cost of the collection, transportation, processing, and education. However, municipal programs with significantly higher than average cost may not be fully reimbursed effective as of 2013. Quebec is currently looking into updating to a full responsibility model, similar to British Columbia, in an effort to improve quality, harmonization, and integration with post-collection parts of the system.

Framework Profile: Producer Responsibility System Where Municipalities Deliver Services and Producers Cover Costs – Québec

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **Provincial agency, Recyc-Québec,** oversees the program and acts as arbiter among the producers and municipalities. It certifies the responsible producer organization(s), approves the set contribution rates (fee schedule) of producers, receives net cost reporting from municipalities, receives and distributes the funds to municipalities and provides central guidance and tools, such as the Charter of Recyclable Materials, which is a harmonized list of acceptable materials that can be adopted by municipalities (although it is not mandatory).
- **Producer responsibility organization** Eco-Enterprises Québec sets the fees and collects contributions from producers. EEQ works to optimize the system by providing best practices and direct support to municipalities and processors.
- **Producers** finance the costs of curbside recycling services, including collection, transportation and processing, through contribution of fees to EEQ.
- **Local governments** have jurisdiction over curbside recycling services, must operate under an approved Residual Materials Management Plan (RMMP), and must report on their net program costs to Recyc-Québec.
- **Private collectors and processors** are responsible for providing service according to their contract with local governments.

How is the system financed? EEQ sets fees each year through a consultative process with stakeholders. The fee schedule is based on PPP weight and material category and considers recyclability and, in some cases, recycled content. Low-volume producers can pay a flat fee. EEQ pays Recyc-Québec, which then reimburses municipalities. In order to encourage efficient and cost-effective delivery of services, reimbursement is based on the municipality's performance compared to a benchmark based on the average for comparable communities.

How are the services delivered? Municipalities may provide collection directly or contract with a private collection service provider. Some municipalities operate their own sorting facilities, and some utilize private processors to sort and market materials.

Provide total costs and per capita cost: The total cost in 2018 was $141 million CAD ($106 million USD), according to EEQ's 2018 Annual Report. With a population of 8.4 million, this equates to $16.79 CAD per capita ($12.75 USD).

Scope of Materials & Generators

EEQ is financially responsible for all PPP material sold into the province. Recyc-Québec developed a Charter of Recyclable Materials that municipalities across the province can adopt but that is not mandatory. The standard curbside list associated with the charter is robust and includes materials such as polycoated cartons, non-bottle plastic packaging (e.g., thermoforms), plastic bags and aluminum foil, but does not include polystyrene (although some communities have added polystyrene). In practice, there is a lack of harmonization and inconsistency of materials being collected, which is an issue that stakeholders are looking to address in ongoing discussions regarding policy updates.

Framework Profile: Producer Responsibility System Where Municipalities Deliver Services and Producers Cover Costs – Québec

The framework covers recyclables collected through municipality programs, which in most cases includes materials generated by single-family and multifamily residences, small commercial entities (e.g., storefront), and public spaces. Some communities, such as Montreal, also service some industrial, commercial and institutional generators, which would be covered by the framework.

Access & Equity

Ninety-nine percent of the population, including both single- and multi-family residences, has access to weekly curbside collection provided by municipalities. The program also includes some commercial entities, usually small businesses (e.g., storefronts), and in some cases larger businesses as well, where municipalities provide them with collection services.

Sustainable Materials Management & Life-Cycle Impacts

Québec's Residual Materials Management Policy[1] "aims to create a zero-waste society that maximizes added value through sound residual materials management." The framework's primary focus is on end-of-life management, according to the 4R-D principle (Reduce, Reuse, Recycle, Reclamation, Disposal), which is synonymous with the pollution prevention hierarchy. The Québec program supports a relatively high packaging and printed paper recovery rate of 63%. However, the inbound contamination rate is relatively high (13% according to the 2018 annual report) and there are no restrictions or guidance related to export of recovered materials.

The fee structure can affect design in several ways:

- It is weight-based, which creates an incentive to reduce materials use.
- Per-unit cost varies based on "recyclability" of materials, as defined by a high recovery rate and low relative net cost per ton to handle. The less recyclable a material is, the more the fee is.
- There is a credit to producers for recycled content for printed paper, PET and kraft paper containers.

However, the impact of the fees on design is unclear. Québec is a relatively small market, and the fee differences may not be significant enough to drive design decisions in national or multinational companies.

The government and EEQ intend to integrate more environmental criteria into the fee structure in future updates to the system.

Transparency & Accountability

Québec's Residual Materials Management Policy has defined recycling targets of 70%, but there is no enforcement if the target is not met. The current rate (63%) is below that target. Municipalities report to Recyc-Québec their net costs and tonnage for the collection, transportation and processing of recyclable materials. Recyc-Québec publishes a material price index showing month-over-month commodity prices

[1] Environment Quality Act (chapter Q-2, s. 53.4)

of different recyclables. EEQ submits a publicly-available annual report with financial data – including the cost of the system; information about the compensation plan, including the fee schedule and rationale; and recycling performance in Québec. EEQ also establishes technical committees and holds stakeholder consultations with contributing companies to determine the fee schedule and rules on a regular basis. A report of this process is publicly available following each update. EEQ continuously monitors for non-compliant companies and organizations. There is an Audit and Compliance Team that assists companies in reporting properly designated materials.

Recyc-Québec does a survey of the system's materials recovery facilities (MRFs) every two or three years that asks if they market material domestically and/or export, including through a broker. However, this is voluntary and only provides very high-level information and there is no associated guidance or accountability.

Stakeholder Perspectives

The Québec program enjoys strong support among municipalities and service providers, as they are able to continue to manage programs while having costs covered. Some producers express concern over having full financial responsibility, while having no authority over programmatic decision-making and resulting costs. EEQ mitigates this concern by working with municipalities and processors to improve efficiency. EEQ and Recyc-Québec have also developed an approach to municipal reimbursement that ensures that cost to producers remain reasonable. This Performance and Efficiency Factor includes a methodology for benchmarking municipal program cost for six groups of communities (defined by size and distance from major metro areas) and taking into account renegotiated and renewed contracts. Municipalities are reimbursed based on the average performance within their group, creating a financial incentive for them to control costs.

The Ministry recently convened a task force that includes representatives of provincial government, municipalities, waste and recycling industry, environmental groups and EEQ to consider options for improvements in the programs. Stakeholders agreed that municipalities should continue to provide recycling collection, but that management of the processing infrastructure should transition to EEQ. Recommendations from the Ministry are expected by early 2020.

Education & Outreach

Education and outreach activities are shared among the stakeholders in Québec, with municipalities having primary responsibility, and their costs reimbursed through the PPP program. Recyc-Québec provides education and outreach tools, including promotional campaigns and customizable lists of acceptable materials based on the charter of recyclable materials. Municipalities and/or their contractors provide education to residential customers. EEQ provides best practices, workshops and direct support for municipalities and processors in an effort to optimize the system, as they are incentivized to facilitate more effective and efficient programs.

Framework Profile: Producer Responsibility System Where Municipalities Deliver Services and Producers Cover Costs – Québec

Processing Infrastructure & End Markets

There are 23 MRFs in the province ranging in throughput size of 3,300 to 110,000 tons per year. They reflect a variety of ownership models, including municipally owned, private for profit, and non-profit. The level of technology varies significantly among the facilities. The framework does not have control or guidance of materials post-collection, which is seen by stakeholders to be a problem. The efforts to update the framework are centrally focused on increasing control and integration downstream.

EEQ makes infrastructure investments when needed, including a recent $13 million CAD ($9.8 million USD) investment in glass processing infrastructure, using funds generated through producer fees.

Framework Profile: Producer Responsibility System With Competitive Producer Responsibility Organizations – Austria

Summary

The Austrian framework is a full producer responsibility system for residential and commercially-generated printed paper and packaging material (PPP) that has multiple producer responsibility organizations (PROs). It requires producers to be operationally and financially responsible for the management of PPP materials they put into the market. The responsibility includes planning, education, collection, handling, processing and marketing of materials. Producers can meet their obligations individually, but in practice they comply through participation in one of seven PROs, which are governed and funded by their member companies. Each PRO is assigned distinct region(s) to manage commensurate with their members' market share. The Packaging Coordination Office – VKS -GmbH – coordinates the PROs, assigning the regions and ensuring competition and fairness. VKS is funded by the PROs. Local governments can maintain a role as service provider or can delegate operations to the PRO assigned to their region, who would provide service through contracts with private collection service providers and processors. The recycling infrastructure is state of the art and is well-coordinated. The fee structure incentivizes source reduction and recyclability.

Key Strengths & Weaknesses

Highest Rated Functions	**Lowest Rated Functions**
B. Resiliently adapts to changes in material supply and end-market demand	J. Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles
C. Provides sustainable and equitable financing for stable operations and capital investments	
F. Designs for equity – examining the burdens and benefits across the state	
H. Uses goals and metrics to measure progress and support ongoing improvement	
L. Collects clean, acceptable materials for processing	
M. Ensures processing facilities receive clean materials and in sufficient volumes	
P. Ensures all players in the system perform responsibly	

The system's shared responsibility involves all parties, including producers. It is sustainably financed and provides broad access to residents. The responsibility through marketing allows for system coordination and efficiencies. The key innovation is the competition among PROS, where market forces can work to support the objectives of the system However, competition can lead to lack of transparency and reduces benefits of scale and greater coordination. The principle weakness is a lack of economic incentives to drive proper behavior.

Framework Profile: Producer Responsibility System With Competitive Producer Responsibility Organizations – Austria

History & Development

Extended producer responsibility (EPR) in Austria goes back more than two decades. In the 1990's, the first Waste Management Act and Packaging Ordinance established EPR for household PPP. During this initial version of the program, producer obligations were managed through a single PRO – Altstoff Recycling Austria (ARA), which was created by the Austrian Chamber of Commerce. ARA is a non-profit organization that is contracted with, and was funded by, obligated producers. ARA had to meet collection and recycling targets and improve the system of separate collection of materials. Under the first iteration of EPR for packaging in Austria, there were a large number of collection points (a combination of publicly accessible locations and at the home) with clearly colored bins. At the municipal level, infrastructure could be owned by communities (financed by PRO) or be owned directly by the PRO.

In 2013/2014 the new Waste Management Act (2013) and Packaging Ordinance (184/2014 (Verpackungsverordnung, VVO) passed and introduced two primary differences. 1) It allowed for multiple PROs, which established a competitive PRO landscape; and 2) it expanded scope to include commercial generators. There are currently seven PROs, including some that are for-profit entities. ARA remains a part of the system as a non-profit. The PROs compete for producer members, and related market share within the system.

Framework Profile: Producer Responsibility System With Competitive Producer Responsibility Organizations – Austria

Critical Program and Financing Details

Roles, responsibilities and relationships of players within the recycling system:

- **Federal Ministry of Sustainability and Tourism** (BNT) oversees the Packaging Coordination Office (VKS) and the PROs, sets requirements and approves local recycling and PRO plans. The Umweltbundesamt (Federal Environment Agency) compiles data on packaging generation and recovery.
- **Producers,** operating through multiple PROs, have full financial and operational responsibility for the residential recycling program, including planning, collection, handling, processing, marketing and education. They are also required to provide collection options for commercial entities, through reverse distribution or otherwise. There are some exemptions for smaller producers that don't meet certain minimum market value or volume thresholds.
- **Producer responsibility organizations** compete for producer members, and report to the VKS on their members, and the amount of packing they supply on the market (this is used to define the market share they are assigned by the VKS). The PROs manage the material in the regions assigned by the VKS, through the recycling process, to sale to end markets. They implement the programs through contracts with local governments, collectors and post-collection processors.
- **Local governments** have the option to provide recycling services to their residents or allow the designated PRO for their region to provide direct service, in which case they have no functional role in the system.
- **Private collectors and processors** provide contractual service in the program. Collectors can act as subcontractors to local governments that continue to handle their own service, or contract with one of the PROs to provide the direct service to regions that elect that option.
- **VKS** coordinates the implementation by multiple PROs by assigning each PRO region to service, based on market share and selected by lottery. The VKS compiles reports from PROs to determine each PRO's market share, and then assigns regions to each PRO to service commensurate with their share of the packaging supplied on the market. The VKS also ensures consistent collection programs are provided, coordinates contractual agreements between PROs and service providers or governments, and serves as a mediator in any conflicts. VKS is a gGmBH is a subsidiary of the Environment Agency Austria (UBA), and therefore a government agency.

How is the system financed? Producers finance the total system costs through fees paid on household and commercial packaging to PROs. The fees are updated annually. They are weight based and incentivize reduction of material inputs and recyclability. The PROs are required to pay a fee to the VKS to support its coordination efforts.

How are the services delivered? There are two options for collection and education services

1. Local governments maintain control of their collection and provide service either directly or through contracts with private collectors. They receive reimbursement for costs from the PRO.
2. PROs contract with private collectors to provide direct service to residents in municipalities that do not wish to provide service.

All programs have similar collection systems involving multiple streams – paper, containers and glass. Following collection in any scenario, the PRO manages the handling, processing and marketing to end-markets.

Framework Profile: Producer Responsibility System With Competitive Producer Responsibility Organizations – Austria

Critical Program and Financing Details continued

Provide total costs and per capita cost: Cost data is not available for the Austrian program. Prior to the ordinance that introduced competition, it was ranked as one of the most expensive programs in the EU on a per-ton basis. Austria's population was 8.822 million of 2018.

Scope of Materials & Generators

The framework includes materials generated by residential and commercial entities, collected at curbside and drop offs (known as bring banks). Producers are required to pay into the system based on the amount of packaging materials – including paper, paperboard, cardboard, glass, metals, plastics, wood, and other materials – they supply into the market. The system collects the following residential materials for recycling: glass packaging, paper, metal packaging and plastic packaging. The paper stream includes packaging (cardboard and boxboard), as well as printed paper and writing papers.

For commercial packaging, producers must take back all packaging at no cost, through reverse distribution, and ensure that it is reused or recycled.

Access & Equity

The PROs are required to provide recycling to all commercial and household generators of packaging (i.e. 100% residential access). Commercial generators must be provided with a take-back option, a drop-off site, or a contracted service. Service to households is provided by PROs. The requirement is for collection "near households"– how this is actually executed varies by community and type of housing (e.g., door to door/bin, door to door /bag, drop off, etc). Each PRO is assigned regions to service, established through a lottery system and based on the market share of each PRO's membership, by material type.

Sustainable Materials Management & Life Cycle Impacts

The Austrian framework reduces the environmental impact of PPP primarily by managing end of life of materials, where they have aggressive recycling targets and landfill bans. The program supports a high packaging recovery rate of 66%[1] . It is assumed that recovery minimizes environmental risk compared to management options lower on the hierarchy or mismanagement as litter.

The fee structure can affect design in several ways:

- It is weight based, which creates an incentive in reducing material inputs of products. This has positive impact on the production factor of a product or package.
- The per-unit cost varies based on "recyclability". The less recyclable a material is the more the fee is. Producers that supply PPP that is not recyclable at all will pay additional fees, which are intended to cover R&D aimed at resolving technical and market barriers.

[1] 2017 Eurostat

However, the impact of the fees on design is unclear. Austria is a relatively small market, and the fee differences may not be significant enough to drive design decisions in national or multinational companies.

In addition, the system does invest in waste prevention and includes plastics waste reduction targets. PROs must pay 0.5% of their licensing revenues to VKS, which uses those funds to provide waste prevention grants. Recently funded projects include university level course development in packaging waste reduction and tourism waste prevention, programs to promote waste prevention in schools (including promotion of reusable lunch boxes, and food waste reduction), reusable coffee cup initiatives, food waste prevention projects, and many more.

Transparency & Accountability

The PROs establish accountability with their service providers (including processors and collectors) through internal reporting and contractual requirements. However, this information is not transparent, as it is considered proprietary in the competitive system.

The primary accountability and coordination in the system is provided through VKS. The entity acts as an organizer or a common control system, maintains online information for obligated parties and makes sure competition is fair and packaging collection and processing goals are tracked and met.

Recycling targets are established by the Packaging Ordinance for each material, as follows:

Paper, Cardboard, Paperboard:	60%
Glass:	60%
Metals:	50%
Plastics:	22.5% (counting material that is recycled back into plastic)
Wood:	15%
Composite beverage cartons:	25%
Other Composites:	15%

Collection targets are also set out in the law and are considerably higher, as they include waste to energy recovery.

Stakeholder Perspectives

Austria's system recently transitioned from a single PRO to a competitive PRO system spurred by a 2014 legislative update, and then supported by a 2016 anti-trust commission decision. The move was driven by producers who sought choices in system implementation, and the government that wanted to foster competition. After the legislation passed, the original PRO (ARA) continued to dominate the market because they had significant assets and infrastructure that made it difficult for others to enter. The 2016 commission decision forced them to divest some infrastructure to facilitate competition.

During the transition, stakeholders were concerned that competition might lead to inconsistent services, or changes in collection that might undermine the success of Austria's program. The government created

the VKS to coordinate and oversee the efforts of the multiple PROs and ensure that consistent collection systems were retained, so the consumer's experience doesn't change, even if the PRO serving them does. Ultimately, the producers are pleased to have choices, and the consumers, producers, and government stakeholders are pleased to have consistent and high-performing systems.

Education & Outreach

PROs are responsible for education and outreach. The Ministry provides some limited outreach, and VKS educates obligated parties on the system requirements.

Processing Infrastructure & End Markets

The PROs coordinate and collaborate with other stakeholders to develop infrastructure and end markets to meet aggressive recycling targets. Specific attention has been paid to end markets for plastics, including development of both mechanical and chemical recycling technologies.

Framework Profile – Oregon

Summary

The Oregon framework relies primarily on city and county governments to implement recycling programs. Most cities and counties use the franchise system, working with private companies to implement those programs. The use of franchise agreements allows cities and counties to determine program elements and set the rates for collection services. Private collectors determine which processing facilities to use, and processors determine end market outlets. Regulatory guidance from the state is based on laws established in chapters ORS 459 and 459A, which incorporate two primary documents – *The Opportunity to Recycle Act* and *Materials Management in Oregon: 2050 Vision and Framework for Action*. Administrative rules promulgated by the Department of Environmental Quality (DEQ) define how this framework is implemented. Beverage containers are recovered through a producer-managed system governed by the Oregon Beverage Container Act (the bottle bill). The state also has producer-responsibility-based programs in place for electronic waste, paint and pharmaceuticals (pharma-ceutical program in development).

Key Strengths & Weaknesses

Highest Rated Functions	Lowest Rated Functions
C. Provides sustainable and equitable financing for stable operations and capital investments	D. Integrates system components to achieve overall system goals
I. Clearly defines who is responsible for education and outreach	G. Shares responsibility among program participants in a way that is justifiable, reduces risk, and leverages roles to provide program stability
	O. Ensures materials are managed responsibly from collection through end markets
	K. Identifies beneficial materials acceptable for collection programs

The system in Oregon is financed primarily through ratepayers and franchise fees, which provides stability and supports capital investments in the collection of materials but does not extend directly to processing. The framework supports strong collection systems, above average recovery rates and good residential and commercial access across the state, although contamination remains an issue. There are clear policies that promote recycling, but they generally do not impact life cycle decision-making. The post-collection system is not well harmonized or integrated. The roles and responsibilities for system participants are clear but not shared across the entire system. (not sure what is not share)

History & Development

The Recycling Opportunity Act (ROA) (Senate Bill 405) was enacted in 1983 and then revised in 1991 (SB 66), 1997 (House Bill 3456), 2001 (HB 3477), and 2015 (SB 245 and SB 263). Each revision to the statute defined additional program elements and set or updated recovery goals. The framework shifted to include a sustainable materials management (SMM) lens in 2012, as defined by the *2050 Vision and Framework for Action*, which also serves as the state's integrated resource and solid waste management plan. These sustainable materials management (SMM principles were codified in legislation through SB 263 and SB 245 (2015), adding financial? resources, updating the ROA with additional program elements, and expanding regulatory scope to support implementing the 2050 Vision.

Framework Profile – Oregon

Critical Program Details

Roles, responsibilities and relationships of players within the recycling system:

- **DEQ** is responsible for guiding state policy and overseeing, enforcing and supporting local recycling programs following ROA Requirements.
- **Metro (Portland regional government)** is responsible for planning, managing and overseeing the Portland Metro area's solid waste and recycling system, though the regional government does not oversee collection, local governments do. This includes complying with state standards; developing and implementing a regional solid waste management plan; coordinating with area local governments to plan and manage solid waste and recycling systems and programs; managing the flow of materials generated in the Metro area; licensing and regulating transfer and material recovery facilities; supporting and investing in efforts consistent with the region's solid waste plan; and submitting annual compliance reports to DEQ.
- **Local governments** with a population greater than 4,000 are responsible for providing residents and commercial generators with the opportunity to recycle. (Comment from David: I hope commercial) This includes, at a minimum, providing collection containers, collection service (weekly in most communities) and public education and promotion following priorities in the waste hierarchy. Local governments must plan and manage the program in compliance with the state requirements, including determining which materials to collect, issuing franchises to collection service providers and setting the rates for the services. Also, as of Jan 1, 2018, local governments choosing the state law's expanded education element, which is most of the state, must have an established contamination reduction education plan. A range of additional flexible program elements, such as source separated commercial collection or organics collection programs, are required based on the size and location of a community. City governments are responsible within city limits while counties are responsible for areas between those limits and urban growth boundaries, including any unincorporated areas within the Portland Metro boundary. Local governments greater than 50,000 residents within 150 miles of Portland must also have education programs focused on reduction and reuse.
- **Collection service providers** (private collectors) deliver collection services as contracted or arranged through franchise agreements, licenses or other arrangements with local governments, and must take the material to a processing facility or end market.
- **Processors (MRFs)** accept materials from collection service providers and process, prepare, and sell materials to end markets.
- **The Oregon Beverage Recycling Cooperative** is the industry implementation entity for Oregon's bottle bill system.
- **Producers** of products and packaging do not participate in the state framework. Producers do participate in the state for recovery of paint, electronic and pharmaceutical waste.

How is the system financed? The system is financed mostly through franchise rates for solid waste and recycling collection services paid by residential and commercial customers (ratepayers). Rates are based on the collector's cost of service and reasonable rate of return and include a franchise fee (0.5 to 16 percent) paid to the city or county franchisor – a guaranteed profit or rate of return is typical. Nearly all programs utilize a differential pricing model for solid waste, such as pay as you throw, where the cost is linked to solid waste service and the price is reduced commensurate with smaller bins and/or less frequency of solid waste collection. Recycling collection costs are built into the overall rate but are generally not referenced specifically to ratepayers. Local staff and programs are often financed through the franchise fee although, in some communities, funding is also provided from general fund sources. SB 245 allowed for an increase in the landfill disposal fee surcharge to enable DEQ to hire additional staff and resurrect its Materials Management Grants program.

Framework Profile – Oregon

Critical Program Details Continued

How are the services delivered? In much of the state, collection services are provided by private collectors who have franchise agreements with local governments (exceptions include Eugene, which has a limited license system; Portland does not franchise commercial service). Collectors deliver materials to private MRFs for processing. There are no contracts between MRFs and local governments and no ability to direct collected material to specific markets. There is little publicly owned infrastructure for collection, and there are no publicly owned MRFs.

Provide total costs and per capita cost: Franchise rates range from $9 to $30 per household per month, or a weighted average of $22 per household per month. The rates typically reflect a bundled cost of recycling, solid waste, and yard debris collection, but can reflect significant variation of services by community. For example, some local governments provide education out of their general fund, while others have education provided by the franchisee, and therefore included in the franchise fee.

Scope of Materials & Generators

In practice there is no harmonized statewide list of materials that should be included in collection programs. Oregon regulations include a list of principal recyclable materials, which were developed based on whether there were consistent markets.[1] The list is limited in its application because it is not consistent statewide (it is wasteshed specific) and it is not regularly updated. As a result, it doesn't include many materials that are consistently collected, such as highly recyclable PET and HDPE plastic bottles. Communities are required to offer the opportunity to recycle materials if the net cost of collecting, processing, and marketing materials is less than that of disposal.

Local governments have autonomy over material selection, beyond ensuring the principal recyclables are included, and can add to the list as they see fit. As a result, there are different acceptable materials depending on locale. Some communities base material selection on political / community desire to recycle, regardless of markets. Others tailor the list according to market conditions, to ensure materials collected can be recycled and to control rate increases. For example, due to recent market disruptions, many Oregon communities removed shredded paper and many plastics (mainly colored HDPE and PP) from their programs, among other items.

Historically, the framework has principally covered residential generators. Service for multi-family and commercial generators is one of the optional elements that a local program can choose to include and many of them do (Note: commercial recycling is mandatory throughout the tri-county Portland metro area). However, the building owner or manager has the authority to decline service, so not all multi-family residents or businesses are provided with service. Coverage of multi-family generators will be enhanced through statutory changes beginning in 2022. This is discussed in more detail below.

[1] Rule 340-090-0070 – 10 principle recyclables: Newspapers; ferrous scrap metal; non-ferrous scrap metal; used motor oil; corrugated cardboard and kraft paper; aluminum; containers glass; hi-grade office paper; tin cans; yard debris

Framework Profile – Oregon

Access & Equity

At a minimum, drop-off for source separated recyclables must be provided any place there is a disposal site, and curbside service is required for single family residences in communities larger than 4,000 in population. This translates to curbside service available for single family residents in 94% of the communities in the state[2]. Pursuant to recent legislation, the opportunity to recycle will be expanded to include residential and commercial tenants of multi-tenant properties (effective July 1, 2022). This will give the tenant the opportunity to recycle, so the owner or manager cannot decline. The law acknowledges differences in more rural areas of the state (distance to market, less density, etc.), so many programs outside of the Willamette Valley's larger cities offer programs that are more directly tied to market conditions and less to political will.

Sustainable Materials Management & Life-Cycle Impacts

The framework is achieving success with the end-of-life management of materials primarily through recycling. However, the framework is not intended or designed to consider the full lifecycle impacts. Oregon has an above average recycling rate (42.1% in 2017) compared to the national average (34%). Recovery in general minimizes environmental risk compared to management options lower on the hierarchy or mismanagement as litter. However, this is still below the state's recycling target (50%) and recovered materials are free to export to end markets overseas without any restrictions or guidance.

Other than prioritizing waste prevention and reuse in principle through prioritizing management, according to the state's solid waste hierarchy, the focus of reducing full life cycle impacts is not currently a core element of the system. There is some responsibility placed on local governments in larger cities located closer to Portland to include waste prevention and reuse education programs, and some grants are available.

The State has some limited recycled content purchasing requirements. For example, the enactment of SB 66 in 1991 established recycled content requirements for certain products, such as 50% recycled content for glass (by 2000). The law addressed newsprint, phone directories and rigid plastics as well, but the 25% recycled content requirement for rigid plastics has never officially been implemented because the recycling rate for rigid plastics has always exceeded the 25% recycling rate threshold. There are no clear requirements currently impacting recycled content in packaging design.

Transparency & Accountability

Local governments, collectors and MRFs provide DEQ clear reporting on what materials are collected and processed for recycling, information that's shared as part of DEQ's annual Material Recovery and Waste Generation Survey. But, transparency around the final destination of processed material coming from in-state MRFs is another story.

Since January 1, 2019, Metro has required collectors and MRFs licensed within the Portland Metro area (Clackamas, Multnomah and Washington counties) to report on material flow through the solid waste information system (SWIS). The system covers five of the seven MRFs handling state generated materials. The downstream reporting includes data on a transactional level (by truckload) of material flow by region, e.g., Oregon, West Coast, Export Canada, Export China, Export Asia non-China. For processors outside of the Metro jurisdiction, there is reporting required (though reporting doesn't provide much detail) and therefore no

[2] Based on 2018 US Census Estimates

transparency regarding end markets. There is also no reporting required by producers, other than those involved in the beverage container recycling program.

While recovery goals for wastesheds were originally mandated, they are now strictly voluntary, and enforcement of targets is not a part of the framework. State law, however, prohibits the disposal of source separated recyclables that have been collected for the purpose of recycling. Enforcement of collector responsibilities would be based on terms in the franchise agreements set by local government.

Stakeholder Perspectives

Many stakeholders recognize the need to modernize the Oregon system. Local governments seek to share financial responsibility with other stakeholders but may have concerns about ceding control of the programs. Public sector stakeholders would like to see more transparency of material flows and system costs. All stakeholders, particularly collectors and MRFs, are concerned about contamination adding costs to the system. Many stakeholders have supported in principle a uniform list of acceptable materials but disagree on the details of that list.

Education & Outreach

Local governments are required to provide education and promotion either directly through the private collector or other party. The requirements include providing clear notice explaining why people should recycle, the recycling opportunities available to the resident, the materials that can be recycled, and the proper preparation of those materials for recycling. In addition, any city over 10,000 residents[3] is required to implement contamination reduction education (designed to reach 87% of population according to 2018 Census estimates). Education and outreach may be funded through revenue generate by several system related fees, or through general funds. While roles and requirements are clearly defined, the framework lacks a broad strategic approach and results in inconsistent education efforts[4].

Processing Infrastructure & End Markets

The framework does not regulate the processing and marketing of materials, so any activity is governed by the open market. Over 16,000 tons of collected material had to be landfilled between September 2017 and July 2019 because of National Sword (disposal concurrences and disposal numbers can be found here), but collected material has been moving to end markets outside of that period. The state is served by five MRFs in the Portland area, one in the Salem area and one in Vancouver, Washington. Compared to MRFs elsewhere, Oregon's MRFS have historically lacked advanced sorting technology, though some have made investments over the past two years.

The lack of investment by some results from several factors, including market uncertainty, a lack of long-term contracts with suppliers and end markets, the limited scale of the market and resultant small volume of materials, and limited targeted public investment in infrastructure.

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[3] or county within one of those city limits and urban growth boundary or any area within the metro service district. For any city between 4,000 and 10,000 population it is an optional element that can be included in a recycling program.

[4] Per Legal & Relational Framework Subcommittee gap analysis

Framework Profile – Oregon

DEQ and Metro provide grant funds to improve recycling infrastructure, including processing and end markets, and to implement waste reduction efforts (e.g., milk dispensers in schools). However, there is no overarching recycling market development strategy, designated fund, or clear articulation of the desired capital investments needed over time[5].

[5] Per Legal & Relational Framework Subcommittee gap analysis

Qualitative Scoring Approach		
	MW	Much worse than current Framework
	W	Moderately Worse than current Framework
	C	Matches current framework
	B	Moderately Better than current framework
	MB	Much Better current framework
	N/A	Function unaffected by framework

Function		Frameworks									
		1. Comprehensive Local Government (Tompkins County)	2. State Contracts / Certifying MRFs (OCRRA)	3. Comprehensive Statewide System (VT)	4. SMM Authority (conceptual)	5. EPR For Processing / Marketing Only (conceptual)	6. Shared EPR (MB)	7. Full Integrated EPR (BC)	8. EPR With Upstream Focus (FR)	9. Full Financial EPR with Municipal Services	10. Full Integrated EPR Competitive PROs
A	Optimizes the benefits of recycling considering life cycle-impacts and costs	C/B	C	B	C/B	B	B	MB	B/MB	B	B
B	Resiliently adapts to changes in material supply and end-market demand	B	C	C	B	C/B	B/MB	MB	MB	C/B	MB
C	Provides sustainable and equitable financing for stable operations and capital investments	MB	W/C	B	C	C/B	MB	B/MB	MB	B/MB	MB
D	Integrates system components to achieve overall system goals	C	C	C	MB	B	B	MB	MB	B	B/MB
E	Includes mechanisms to reduce upstream impacts of materials	C	W	C	B	B	B	B	MB	B	B
F*	Designs for equity – examining the burdens and benefits across the state	MB	C	MB	C	B	B	B	B	MB	MB
G	Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	B	B	B	C	B	MB	MB	MB	MB	B
H	Uses goals and metrics to measure progress and support ongoing improvement	C/B	C/B	C/B	MB	B	B/MB	B	B	C/B	MB
I	Educates and encourages residents and businesses to use the system properly	W	C	C	C	C	C	C	C	C	C
J	Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles	B	B	C/B	B	B	W/C	W/C	C	W/C	W
K	Identifies beneficial materials acceptable for collection programs	B	MB	MB	MB	C	B/MB	MB	MB	C	B
L	Collects clean, acceptable materials for processing	B	C	C	C	B	B	MB	B/MB	C	MB
M	Ensures processing facilities receive clean materials and in sufficient volumes	B	B	B	C	C	C/B	MB	B/MB	C/B	MB
N	Produces quality materials that reach end markets	C/B	B	C	C	B	C	MB	B	C	B
O	Ensures materials are managed responsibly from collection through end markets	C	C	C	C	B	C	MB	C/MB	C	C/B
P	Ensures all players in the system perform responsibly	B	B	B	C/B	C/B	B	B	MB	B	MB

**equity means offering individualized support to address possible or notable barriers and giving everyone what they need to be successful. Though this research does not address every aspect of equity associated with the framework of a given jurisdiction, state, or national recycling system, elements of equity have been covered by the research criteria associated with functions F, O, and P.*

Function		Criteria	Frameworks									
			1. Comprehensive Local Government (Tompkins County)	2. State Contracts / Certifying MRFs (OCRRA)	3. Comprehensive Statewide System (VT)	4. SMM Authority (conceptual)	5. EPR For Processing / Marketing Only (conceptual)	6. Shared EPR (MB)	7. Full Integrated EPR (BC)	8. EPR With Upstream Focus (FR)	9. Full Financial EPR with Municipal Services (QC)	10. Full Integrated EPR Competitive PROs (AT)
A	Optimizes the benefits of recycling considering life-cycle impacts and costs	Public policies support sustainable materials management at product end of life	C	MB	MB	MB	C	C	C	B	C	B
		Supports highest and best use of discarded materials with stable infrastructure and markets	C	C	W	C	B	C	MB	B	B	B
		Minimizes health and environmental risks from disposed wastes	B	C	B	B	B	B	MB	B	C	B
		Balances outcomes achieved with the costs to provide them (identify key cost factors)	B	C	B	C	B	B	MB	MB	B	MB
		Shares responsibility for recycling system	B	W	C	C	MB	MB	MB	MB	MB	MB
		Shares responsibility for reducing other (non-recycling) life-cycle impacts (identify any elements that affect life-cycle impacts, other than those related to the recycling system)	C	C	C	B	B	B	B	MB	B	B
B	Resiliently adapts to changes in material supply and end-market demand	Responds to markets and economic fluctuations and other system-wide changes	B	B	W	B	B	B	MB	MB	B	MB
		Fuels technological advances and economic vitality in Oregon (describe factors that would foster or inhibit such advances)	W	W	C	B	C	MB	MB	B	C	MB
		Able to adapt to changes in material composition	B	C	B	MB	C	C	MB	MB	C	MB
C	Provides sustainable and equitable financing for stable operations and capital investments	Shares investment in infrastructure throughout the system and life-cycle	C	C	B	C	B	B	B	MB	B	MB
		Sets utility rates for system users consistently	B	N/A	C	C	N/A	N/A	N/A	N/A	N/A	N/A
		Creates transparency for system costs	MB	B	B	B	W	B	B	MB	B	B
		Sufficiently finances system operations, capital needs, and covers the costs to continuously educate users	MB	C	B	C	B	MB	MB	MB	MB	MB
		Relies on a sustainable funding mechanism that sets consistent rates or fees on the party who holds financial responsibility	B	W	B	C	C	MB	MB	MB	MB	MB
		Supports market development activities that include processing technologies, end markets, recycled content, and innovative R&D	W	W	W	B	B	MB	B	B	B	MB
D	Integrates system components to achieve overall system goals	*Coordinates investment and innovation throughout the life-cycle of products to lead to better collection, sorting and processing with upstream packaging decisions (Narrative Description on potential influence of upstream design decisions)*	C	C	C	B	B	B	B	MB	B	B
		Balances efforts to improve the system on all parts	MB	C	B	B	N/A	B	MB	B	B	MB
		Coordinates roles and expectations among system players	B	C	C	MB	B	MB	MB	MB	B	MB
		Supports market development activities that include end market creation and strengthening market demand	C	W	C	B	B	C	B	B	B	B
		Uses consistent process to determine how materials are added and removed from unacceptable lists	C	B	MB	MB	C	B	MB	MB	C	B
		Framework decides on materials to be included for collection based on whether there are consistent, robust markets	C	MB	W	MB	C	B	W	MB	W	MB
E	Includes mechanisms to reduce upstream impacts of materials	*Shares responsibility for reducing other (non-recycling) life-cycle impacts (identify any elements that affect life-cycle impacts, other than those related to the recycling system)*	C	C	C	B	B	B	B	MB	B	B
		Drives upstream waste prevention and design changes using regulatory requirements or economic levers such as variable rates and modulated fees, where appropriate	C	W	C	MB	B	B	B	MB	B	B
		Incentivizes use of recycled content where practical and appropriate	W	W	MW	C	C	W	C	MB	B	W
F*	Designs for equity – examining the burdens and benefits across the state	Promotes service sufficiency and equity in recycling access for all state residents – urban and rural areas, single and multi-family housing, and commercial / industrial entities, with a focus on evaluating equivalency of service for recycling and waste disposal	MB	C	MB	C	B	B	B	B	MB	MB
G	Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	Shares responsibility among program participants in a way that is justifiable, reduces risk, and leverages roles to provide program stability	B	B	B	C	B	MB	MB	MB	MB	B
H	Uses goals and metrics to measure progress and support ongoing improvement	Sets goals, measures success and learns from experience	C	C	C	MB	B	B	B	B	C	MB
		Uses feedback loops to constantly monitor, share and discuss opportunities (whether framework has oversight of advisory boards, stakeholder groups, or other feedback methods)	B	B	B	MB	C	MB	B	B	B	MB
I	Educates and encourages residents and businesses to use the system properly	Clearly defines who is responsible for education and outreach	W	C	C	C	C	C	C	C	C	C
J	Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their life-cycles	Utilizes economic incentives, such as PAYT, contamination upcharges, and other mechanisms to drive appropriate recycling behavior among residents	B	W	B	C	B	W	W	W	W	W
		Engages the public to understand the benefits and the costs of recycling, preventing waste, and reducing impacts of materials throughout their life-cycles	B	MB	C	MB	C	C	C	B	C	C
K	Identifies beneficial materials acceptable for collection programs	*Complete and transparent information on product contents and life-cycle impacts is readily available (extent to which labeling, or end of life management is incorporated)*	C	C	C	MB	C	C	C	B	C	C
		Provides a consistent list of materials to focus on for on-route collection and depots - locally and statewide	MB	MB	MB	MB	C	MB	MB	MB	B	B
		Uses consistent process to determine how materials are added and removed from acceptable lists	C	B	MB	MB	C	B	MB	MB	C	B
		Ensures facilities have sufficient volume of materials for economic viability	MB	C	MB	B	C	B	MB	MB	C	B
		Framework decides on materials to be included for collection based on whether there are consistent, robust markets	C	MB	W	C	C	B	W	MB	W	B
L	Collects clean, acceptable materials for processing	Collects materials effectively and efficiently	B	W	W	C	C	B	MB	MB	C	B
		Reduces costs for rural access to sorting and processing (extent that there is service sufficiency and equity for all state residents - urban and rural areas, single and multi-family housing)	MB	N/A	MB	C	B	B	B	B	B	MB
		Supports low contamination rates	C	B	C	B	B	C	MB	MB	C	MB
M	Ensures processing facilities receive clean materials and in sufficient volumes	*Provides economic incentives for cleaner incoming materials (extent framework provides clear, consistent, effective, economic and other signals / incentives for cleaner incoming materials*	C	B	C	C	C	C	MB	B	B	MB
		Ensures sufficient volume of materials for economic viability	MB	C	MB	C	C	B	MB	MB	C	MB
N	Produces quality materials that reach end markets	Accesses economically viable domestic end markets and/or responsible international end markets	C	C	C	C	B	C	MB	B	C	B
		Effectively, efficiently sorts and processes materials for end markets	B	B	C	C	B	C	MB	B	C	B
O	Ensures materials are managed responsibly from collection through end markets	*Materials have useful life after discard (extent that material accesses viable domestic end markets and/or responsible international end markets.)*	C	C	C	C	B	C	MB	C	C	B
		Tracks materials to final destinations and ensures they are managed responsibly	C	B	C	MB	B	C	MB	MB	C	MB
		Provides incentive encouraging material flow to responsible markets with domestic end markets as the highest priority	C	C	C	C	C	C	B	C	C	B
P	Ensures all players in the system perform responsibly	Ensures roles and responsibilities are well defined	B	C	B	B	B	MB	MB	MB	B	MB
		Provides transparent reports on activities of each responsible party	MB	B	C	B	B	B	B	MB	B	B
		Provides effective enforcement mechanisms for those not performing responsibly	B	B	B	C	B	B	B	MB	B	MB
		Applies economic incentives consistently and reinforces responsible performance	B	B	C	B	C	B	B	B	B	MB
		Ensures compliance with Basel Convention and/or other applicable regulations	C	C	C	C	C	C	B	B	C	MB

**equity means offering individualized support to address possible or notable barriers and giving everyone what they need to be successful. Though this research does not address every aspect of equity associated with the framework of a given jurisdiction, state, or national recycling system, elements of equity have been covered by the research criteria associated with functions F, O, and P.*